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Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWP20119 Certificate II in Water Industry Operations

Modification History

Release 2 –Updated imported units to reflect current assessment requirements (BSBCUS201, BSBWHS301, BSBWOR202, CPCCDE3014, CPCCOM1015, FSKDIG03, RIICOM201D, RIISAM204D, RIIWHS201D, RIIWHS202D, RIIWHS302D, UEENEEE101A, UEERE0019 & UEERE0023).

Release 1 – This is the first release of this qualification in NWP National Water Training Package.

Qualification Description

This is a qualification for those engaged in entry level water industry operations under appropriate supervision. They would undertake mainly routine tasks covering roles in networks, irrigation, water sources and the treatment of water.

No licensing, legislative or certification requirements apply to this qualification at the time of publication.

Entry Requirements

Not applicable

Packaging Rules

A total of **11 units of competency** comprising:

2 core units listed below

plus

9 general electives must be chosen. Of these up to **3 of the general elective** units may be selected, with appropriate contextualisation, from a qualification in this or any other endorsed Training Package, provided selected units contribute to the vocational outcome of the qualification.

Where imported units are selected, care must be taken to ensure all prerequisite units specified are complied with. Prerequisites attached to any of the units must be obtained and are additional to the number of units required for the qualification.

Where a prerequisite is attached to a unit it is identified by the symbol ⊥ .

Core units

BSBWHS201 Contribute to health and safety of self and others

NWPGEN018 Follow environmental and licensing procedures

General elective units

BSBCMM201 Communicate in the workplace

BSBOPS203 Deliver a service to customers

BSBPEF202 Plan and apply time management

BSBWHS311 Assist with maintaining workplace safety

CPCCODE3014 Remove non-friable asbestos
└ CPCCWHS1001 Prepare to work safely in the construction industry

CPCCOM1015 Carry out measurements and calculations

FSKDIG003 Use digital technology for non-routine workplace tasks

MSMWHS216 Operate breathing apparatus

MSMWJ201 Use high pressure water jetting equipment

MSS404061 Facilitate the use of SCADA systems in a team or work area

NWPCAD001 Respond to blue-green algae outbreaks

NWPCAD002 Control vegetation on a site

NWPCAD004 Maintain catchment and surrounding areas

NWPCAD005 Monitor, inspect and report catchment areas

NWPCAD007 Inspect, operate and maintain low consequence dams

NWPCAD018 Monitor and operate bulkwater transfer systems

NWPCAD019 Monitor and operate groundwater extraction

NWPGEN017 Apply the risk management principles of the water industry standards, guidelines and legislation

NWPGEN020 Sample and test source or drinking water

NWPGEN021 Sample and test wastewater

NWPGEN023 Use maps, plans, drawings and details

NWPGEN024	Identify the role and functions of the water industry
NWPGEN027	Monitor and operate pump stations
NWPIWS001	Monitor and operate rural irrigation and domestic delivery systems
NWPIWS002	Operate regulating devices in rural irrigation systems
NWPIWS005	Maintain and repair irrigation channels and drains
NWPIWS011	Identify and apply water entitlements and delivery processes
NWPNET019	Prepare and restore worksite
NWPNET020	Control electrical risk on metallic pipes
NWPNET028	Monitor and operate network systems
NWPNET029	Locate, identify and protect utilities
NWPNET038	Install metering equipment
NWPNET039	Maintain and repair network assets for drinking water
NWPNET040	Maintain and repair network assets for wastewater
NWPNET046	Maintain and repair network assets for bulkwater
NWPNET049	Construct and install water distribution assets └ NWPNET020 Control electrical risk on metallic pipes
NWPNET050	Construct and install wastewater collection assets
NWPTRT005	Monitor and operate water treatment processes
NWPTRT006	Monitor and operate fluoride addition processes
NWPTRT007	Monitor and operate liquefied chlorine gas disinfection processes └ MSMWHS216 Operate breathing apparatus
NWPTRT022	Monitor and operate hypochlorite disinfection processes
NWPTRT023	Monitor and operate ultraviolet processes
NWPTRT025	Monitor and operate chlorine dioxide processes
NWPTRT026	Monitor and operate ozone processes
NWPTRT027	Monitor and operate wastewater treatment processes

NWPTRT029	Monitor and operate pre-treatment processes
NWPTRT047	Monitor, operate and control lagoon processes
NWPTRT048	Monitor and operate reclaimed water irrigation
RIICCM205E	Carry out manual excavation
RIICOM201E	Communicate in the workplace
RIISAM204E	Operate small plant and equipment
RIIWHS201E	Work safely and follow WHS policies and procedures
RIIWHS202E	Enter and work in confined spaces
RIIWHS302E	Implement traffic management plans
TLID2003	Handle dangerous goods/hazardous substances
TLIF2010	Apply fatigue management strategies
UEERE0019	Maintain safety and tidiness of remote area power supply systems └ UEECD0007 Apply work health and safety regulations, codes and practices in the workplace └ UEERE0023 Work safely with remote area power supply systems
UEERE0023	Work safely with remote area power supply systems └ UEECD0007 Apply work health and safety regulations, codes and practices in the workplace

Qualification Mapping Information

This qualification replaces and is equivalent to NWP20115 Certificate II in Water Industry Operations.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWP30219 Certificate III in Water Industry Operations

Modification History

Release 2 – Updated imported units to reflect current assessment requirements (BSBCMM301, BSBCUS301, BSBINM301, BSBWHS301, BSBWOR301, CPPHSA4003A, FSKNUM21, RIIRIS202D, RIICBS310D, RIISAM203D, RIISAM204D, RIIWHS202D, RIIWHS302D & RIIWHS204D).

Release 1 – This is the first release of this qualification in NWP National Water Training Package.

Qualification Description

This is a qualification for those engaged in generalist water industry operations or specialisations in catchment and dams, civil construction, irrigation water supply, networks, treatment: water and wastewater, wastewater treatment or water treatment.

The general qualification covers skills and knowledge to obtain a broad range of skills in the water industry. It allows staff to apply operational and procedural practices under the appropriate level of supervision.

Group A: Specialist Elective - Catchment and Dams

This specialisation covers the skills and knowledge required to monitor, operate and maintain water catchment and dam operations.

Group B: Specialist Elective - Civil Construction

This specialisation covers the skills and knowledge required to monitor, operate and maintain civil construction operations.

Group C: Specialist Elective - Irrigation Water Supply

This specialisation covers the skills and knowledge required to monitor, operate and maintain irrigation water supply operations.

Group D: Specialist Elective - Networks

This specialisation covers the skills and knowledge required to monitor, operate and maintain network operations.

Group E: Specialist Elective - Treatment: Water and Wastewater

This specialisation covers the skills and knowledge required to monitor, operate and maintain treatment operations for both water and wastewater.

Group F: Specialist Elective - Wastewater Treatment

This specialisation covers the skills and knowledge required to monitor, operate and maintain wastewater treatment operations.

Group G: Specialist Elective - Water Treatment

This specialisation covers the skills and knowledge required to monitor, operate and maintain drinking water treatment operations.

Please note: RTO to insert on the testamur, the specialist elective unit group selected from the group choice below.

No licensing, legislative or certification requirements apply to this qualification at the time of publication.

Entry Requirements

There are no entry requirements for this qualification.

Packaging Rules

A total of **11 units** of competency comprising:

General Qualification

- **2 core units** listed below, plus
- **9 elective units** selected from anywhere within this qualification, **or**

Specialisations

- **2 core units** listed below, plus
- **5 units** from one of the Groups: A, B, C, D, or F, or
- **7 units** from Group E: (select **6 units** from specialist elective Groups: F and G, with a minimum of **2 units** from each Group), the selection must include NWPGEN017, or
- **6 units** from Group G, the selection must include NWPGEN017, and
- all remaining elective **units** can be selected from anywhere within this qualification.

Up to 2 of the elective units may be selected, with appropriate contextualisation from a qualification in this or any other endorsed Training Package, provided selected units contribute to the vocational outcome of the qualification.

Where imported units are selected, care must be taken to ensure all prerequisite units specified are complied with. Prerequisites attached to any of the units must be obtained and are additional to the number of units required for the qualification.

Where a prerequisite is attached to a unit it is identified by the symbol $\perp$.

Core units

BSBWHS308	Participate in WHS hazard identification, risk assessment and risk control processes
NWPGEN019	Assess, implement and report environmental procedures

Group A: Catchment and Dams

NWPCAD001	Respond to blue-green algae outbreaks

NWPCAD003	Identify and confirm blue-green algae outbreaks
NWPCAD006	Monitor and coordinate catchment operations
NWPCAD008	Monitor and control dam operations
NWPCAD009	Monitor and implement dam maintenance
NWPCAD010	Inspect and report on concrete dam safety
NWPCAD011	Inspect and report on embankment dam safety
NWPCAD012	Route floods through storages
NWPCAD013	Conduct and report dam safety instrumentation monitoring
NWPCAD014	Inspect and report river performance
NWPCAD015	Operate and maintain locks and weirs
NWPCAD016	Operate and maintain fishways
NWPCAD017	Operate and maintain salt interception works
NWPCAD018	Monitor and operate bulkwater transfer systems
NWPCAD020	Inspect and operate groundwater regulation

Group B: Civil Construction

AHCSAW302	Implement erosion and sediment control measures
CPCCCM2004A	Handle construction materials └ CPCCOHS2001A Apply OHS requirements, policies and procedures in the construction industry
CPCCCM3005	Calculate costs of construction work
CPCCLDG3001A	Licence to perform dogging
FWPCOT2239	Trim and cut felled trees
PMBWELD301	Butt weld polyethylene plastic pipelines
PMBWELD302	Electrofusion weld polyethylene pipelines
PMBWELD305	Install polyethylene plastic pressure pipelines
PMBWELD308	Install PVC plastic pressure pipelines

RIICBS310E	Conduct patching operations
RIICCM205E	Carry out manual excavation
RIICCM207D	Spread and compact materials manually
RIICCM208D	Carry out basic levelling
RIICCM209D	Carry out concrete work
RIICCM210D	Install trench support
RIICCM211D	Erect and dismantle temporary fencing and gates
RIICCM301D	Construct and dismantle fences and gates
RIICPL302D	Install stormwater systems
RIICPL304D	Install pre-cast gully pits
RIICPL305D	Install pre-cast access chambers
RIICRC202D	Install signs
RIICRC301D	Maintain drainage systems
RIICRC303D	Lay pavers
RIICRC314D	Handle concrete materials
RIICRC315D	Use concreting materials and equipment
RIICRC323D	Insert tie bars in fresh concrete
RIICWM501D	Implement civil construction plan
RIIHAN211D	Conduct basic scaffolding operations
RIIHAN308F	Load and unload plant
RIIMPO327E	Conduct pipe layer operations
RIIRIS202E	Respond to site based spills
RIISAM203E	Use hand and power tools
RIISAM204E	Operate small plant and equipment
RIIWHS202E	Enter and work in confined spaces
RIIWHS204E	Work safely at heights

RIIWMG203D Drain and dewater civil construction site

TLILIC0013 Licence to operate a slewing mobile crane (up to 60 tonnes)

Group C: Irrigation Water Supply

NWPIWS001 Monitor and operate rural irrigation and domestic delivery systems

NWPIWS003 Inspect and operate water diversion systems

NWPIWS004 Install meters for rural water supplies

NWPIWS006 Maintain meters for rural water supplies

NWPIWS007 Detect and rectify faults with automated channel regulators

NWPIWS008 Monitor and conduct maintenance on rural irrigation assets

NWPIWS009 Monitor and control drainage operations

NWPIWS010 Monitor and control rural water distribution operations

NWPIWS012 Monitor and schedule water deliveries

Group D: Networks

MSMWJ301 Operate a high pressure water jetting system

NWPGEN027 Monitor and operate pump stations

NWPIWS003 Inspect and operate water diversion systems

NWPIWS004 Install meters for rural water supplies

NWPIWS006 Maintain meters for rural water supplies

NWPNET018 Disinfect network assets

NWPNET020 Control electrical risk on metallic pipes

NWPNET028 Monitor and operate network systems

NWPNET030 Identify and respond to water quality problems

NWPNET035 Perform odour and infiltration investigations

NWPNET036 Perform leak detection

NWPNET037 Inspect sewer or stormwater assets

NWPNET039 Maintain and repair network assets for drinking water

NWPNET040	Maintain and repair network assets for wastewater
NWPNET047	Install, maintain and repair hydrants
NWPNET048	Monitor and control vacuum sewer systems
NWPNET051	Monitor and operate water distribution systems
NWPNET052	Monitor and operate wastewater collection and transfer systems
NWPNET053	Test and commission water distribution systems
NWPNET054	Test and commission wastewater collection systems
NWPTRT030	Operate and control odour removal processes
RIICCM205E	Carry out manual excavation
RIICCM209D	Carry out concrete work
RIICCM210D	Install trench support
RIICWM501D	Implement civil construction plan
RIIMPO327E	Conduct pipe layer operations
RIISAM203D	Use hand and power tools

Group E: Treatment: Water and Wastewater

Up to 6 units from Groups F and G with a minimum of 2 units from each group.

NWPGEN017	Apply the risk management principles of the water industry standards, guidelines and legislation

Group F: Wastewater Treatment

NWPCAD001	Respond to blue-green algae outbreaks
NWPGEN021	Sample and test wastewater
NWPGEN022	Perform laboratory testing
NWPTRT010	Operate and control sedimentation and clarification processes
NWPTRT016	Operate and control dissolved air flotation processes
NWPTRT019	Operate and control granular media filters
NWPTRT020	Operate and control membrane filters

NWPTRT024	Operate and control chloramination processes
NWPTRT028	Operate and control reclaimed water irrigation
NWPTRT030	Operate and control odour removal processes
NWPTRT036	Operate and control activated sludge processes
NWPTRT037	Operate and control nutrient removal processes
NWPTRT038	Operate and control fixed film processes
NWPTRT039	Operate and control solids handling processes
NWPTRT040	Operate and control digestion processes
NWPTRT046	Operate and control incineration processes
NWPTRT047	Monitor, operate and control lagoon processes

Group G: Water Treatment

NWPCAD001	Respond to blue-green algae outbreaks
NWPGEN017	Apply the risk management principles of the water industry standards, guidelines and legislation
NWPGEN020	Sample and test source or drinking water
NWPGEN022	Perform laboratory testing
NWPTRT008	Operate and control iron and manganese removal processes
NWPTRT009	Operate and control coagulation and flocculation processes
NWPTRT010	Operate and control sedimentation and clarification processes
NWPTRT016	Operate and control dissolved air flotation processes
NWPTRT017	Operate and control activated carbon processes
NWPTRT018	Operate and control ion exchange and softening processes
NWPTRT019	Operate and control granular media filters
NWPTRT020	Operate and control membrane filters
NWPTRT021	Operate and control desalination processes
NWPTRT024	Operate and control chloramination processes

NWPTRT039 Operate and control solids handling processes

General elective units

AHCCHM101 Follow basic chemical safety rules

BSBFLM305 Support operational plan

BSBFLM312 Contribute to team effectiveness

BSBINS302 Organise workplace information

BSBOPS304 Deliver and monitor a service to customers

BSBOPS305 Process customer complaints

BSBPEF301 Organise personal work priorities

BSBWHS307 Apply knowledge of WHS laws in the workplace

BSBWHS309 Contribute effectively to WHS communication and consultation processes

BSBWHS311 Assist with maintaining workplace safety

CPCCCDE3014 Remove non-friable asbestos
└ CPCCWHS1001 Prepare to work safely in the construction industry

CPCCCDE4008 Supervise asbestos removal
└ CPCCCDE3014 Remove non-friable asbestos
└ CPCCCDE3015 Remove friable asbestos

CPCCOM1015 Carry out measurements and calculations

CPCPPS5024A Conduct a water audit and identify water-saving initiatives

CPPHES4006 Assess household water use and efficiency improvements

FSKNUM021 Apply an expanding range of arithmetical calculations for work

MSL904002 Perform standard calibrations

MSL922001 Record and present data

MSMWHS216 Operate breathing apparatus

MSS402061 Use SCADA systems in operations

MSS404061 Facilitate the use of SCADA systems in a team or work area

NWPCAD002 Control vegetation on a site

NWPCAD019	Monitor and operate groundwater extraction
NWPGEN017	Apply the risk management principles of the water industry standards, guidelines and legislation
NWPGEN023	Use maps, plans, drawings and details
NWPGEN024	Identify the role and functions of the water industry
NWPGEN025	Apply principles of chemistry to water systems and processes
NWPGEN026	Provide and promote customer service
NWPGEN028	Investigate and report on breaches of water industry legislation
NWPNET019	Prepare and restore worksite
NWPTRT005	Monitor and operate water treatment processes
NWPTRT006	Monitor and operate fluoride addition processes
NWPTRT007	Monitor and operate liquefied chlorine gas disinfection processes └ MSMWHS216 Operate breathing apparatus
NWPTRT022	Monitor and operate hypochlorite disinfection processes
NWPTRT023	Monitor and operate ultraviolet processes
NWPTRT026	Monitor and operate ozone processes
NWPTRT027	Monitor and operate wastewater treatment processes
RIIWHS302E	Implement traffic management plans
TLID2003	Handle dangerous goods/hazardous substances

Qualification Mapping Information

This qualification replaces and is equivalent to NWP30215 Certificate III in Water Industry Operations, NWP30315 Certificate III in Water Industry Treatment or NWP30415 Certificate III in Water Industry Irrigation.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWP40120 Certificate IV in Water Industry Operations

Modification History

Release 1 - This is the first release of this qualification in NWP Water Training Package.

Qualification Description

This is a qualification for those engaged in generalist water industry operations or specialisations in catchment and dams, hydrometric monitoring, irrigation water supply, networks, trade waste or treatment.

This qualification also covers the skills and knowledge for those who have supervisory responsibility and require a broad range of skills within operations.

Group A: Specialist Elective - Catchment and Dams

This specialisation covers the skills and knowledge required to monitor and operate catchments, weirs, locks, dams, rivers, reservoirs, bulk water and groundwater management and implement operational and safety plans.

Group B: Specialist Elective - Hydrometric Monitoring

This specialisation covers the skills and knowledge required to measure, collect and analyse hydrometric information and review the accumulated data to develop water management plans for inland water systems including rivers, lakes, stormwater and sewage.

Group C: Specialist Elective - Irrigation Water Supply

This specialisation covers the skills and knowledge required to coordinate and monitor the operation of irrigation systems.

Group D: Specialist Elective - Networks

This specialisation covers the skills and knowledge required to operate, construct, and maintain water and wastewater networks.

Group E: Specialist Elective - Trade Waste

This specialisation covers the skills and knowledge required to coordinate and monitor compliance, licencing and regulations of trade waste management.

Group F: Specialist Elective - Treatment

This specialisation covers the skills and knowledge required to assess and improve treatment processes for wastewater and water treatment plants.

Please note: RTO to insert on the testamur, the specialist elective unit group selected from the group choice below.

No licensing, legislative or certification requirements apply to this qualification at the time of publication.

Entry Requirements

There are no entry requirements for this qualification.

Packaging Rules

A total of **10 units** of competency comprising:

General Qualification

- **3 core** units listed below, plus
- **7 elective units** selected from anywhere within this qualification, or

Specialisations

- **3 core units** listed below, plus
- **3 units** from one of the Groups: A, C or E, **or**
- **4 units** from one of the Groups: B or D or F, **plus**
- **all remaining elective units** can be selected from anywhere within this qualification.

Up to 2 of the elective units may be selected, with appropriate contextualisation from a qualification in this or any other endorsed Training Package, provided selected units contribute to the vocational outcome of the qualification.

Where imported units are selected, care must be taken to ensure all prerequisite units specified are complied with. Prerequisites attached to any of the units must be obtained and are additional to the number of units required for the qualification.

Core units

BSBPEF402	Develop personal work priorities
BSBWHS411	Implement and monitor WHS policies, procedures and programs
NWPGEN030	Coordinate and monitor the application of environmental plans and procedures

Group A: Catchment and Dams

NWPCAD014	Inspect and report river performance
NWPCAD021	Coordinate and monitor bulkwater system operations
NWPCAD022	Coordinate and monitor groundwater system usage
NWPCAD023	Develop and implement catchment operational plans
NWPCAD024	Implement dam safety plans

Group B: Hydrometric Monitoring

AHCLPW313	Undertake sampling and testing of water
FSKNUM021	Apply an expanding range of arithmetical calculations for work
MSL924003	Process and interpret data
NWPCAD022	Coordinate and monitor groundwater system usage
NWPGEN022	Perform laboratory testing
NWPHYD007	Measure discharge using wading method
NWPHYD008	Operate, maintain and decommission monitoring sites
NWPHYD009	Undertake surveying of monitoring sites

Group C: Irrigation Water Supply

NWPCAD014	Inspect and report river performance
NWPCAD021	Coordinate and monitor bulkwater system operations
NWPGEN027	Monitor and operate pump stations
NWPIWS013	Coordinate and monitor pumped rural irrigation systems
NWPIWS014	Coordinate and monitor the operation of irrigation delivery systems

Group D: Networks

BSBOPS404	Implement customer service strategies
NWPNET055	Coordinate and manage maintenance and repair of network assets
NWPNET056	Coordinate and monitor network asset construction
NWPNET057	Establish connections of water and wastewater systems
NWPNET058	Optimise network systems
NWPNET059	Supervise and report on conduit inspections

Group E: Trade Waste

NWPCAD003	Identify and confirm blue-green algae outbreaks
NWPGEN028	Investigate and report on breaches of water industry legislation
NWPGEN033	Sample and test trade wastewater
NWPTRD006	Investigate trade waste incidents and non-compliances
NWPTRD007	Monitor trade waste approvals
NWPTRD008	Process standard trade waste approvals

Group F: Treatment

MSS404061	Facilitate the use of SCADA systems in a team or work area
NWPGEN025	Apply principles of chemistry to water systems and processes
NWPGEN029	Contribute to continuous improvement of quality systems
NWPTRT049	Assess and improve activated sludge and biological nutrient removal processes
NWPTRT050	Assess and improve anaerobic digestion processes
NWPTRT057	Assess and improve coagulation and flocculation processes
NWPTRT058	Assess and improve desalination processes
NWPTRT059	Assess and improve granular media filters
NWPTRT060	Assess and improve membrane bioreactor processes
NWPTRT063	Assess and improve membrane filters
NWPTRT064	Assess and improve sedimentation processes
NWPTRT065	Assess and improve treatment for removal of microorganisms in drinking water and recycled water
NWPTRT066	Assess and improve wastewater processes to control microbial impacts

NWPTRT067 Assess and optimise chemical dosing processes in wastewater

General elective units

BSBINS302 Organise workplace information

BSBLDR414 Lead team effectiveness

BSBOPS402 Coordinate business operational plans

BSBWHS412 Assist with workplace compliance with WHS laws

BSBWHS413 Contribute to implementation and maintenance of WHS consultation and participation processes

BSBWHS414 Contribute to WHS risk management

BSBWHS416 Contribute to workplace incident response

BSBWHS431 Develop processes and procedures for controlling hazardous chemicals in the workplace

BSBXBD403 Analyse big data

BSBXBD404 Use big data for operational decision making

BSBXCM401 Apply communication strategies in the workplace

BSBXTW401 Lead and facilitate a team

NWPCAD001 Respond to blue-green algae outbreaks

NWPGEN020 Sample and test source or drinking water

NWPGEN031 Develop an operational plan

NWPGEN032 Ensure compliance with water industry standards, guidelines and legislation

NWPHYD006 Measure discharge and process discharge data using a range of methods and equipment

RIICTT401D Apply the principles for the installation of underground services using trenchless technology

RIICTT402D	Apply principles for repair & rehabilitation of underground services using trenchless technology
TAEDEL301	Provide work skill instruction

Qualification Mapping Information

This qualification replaces and is equivalent to NWP40515 Certificate IV in Water Industry Operations and NWP40615 Certificate IV in Water Industry Treatment.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWP40515 Certificate IV in Water Industry Operations

Modification History

Release 2: This is the second release of this qualification in NWP Water Training Package with updated unit codes and details.

Release 1: This qualification was released in NWP Water Training Package release 1.0 and meets the Standards for Training Packages.

- New qualification. Streams developed to better reflect occupational outcomes.

Qualification Description

This qualification allows for the attainment of general competencies in water industry operations or specialisation in networks, source, hydrography, irrigation or trade waste.

The general qualification covers the skills for those who have supervisory responsibility and require a broad range of skills.

The networks specialisation covers the skills required to operate, construct, and maintain water and wastewater networks

The source specialisation covers the skills required to monitor and operate catchment, weirs, locks, dams, rivers, reservoirs, bulk water and groundwater management and implement operational and safety plans.

The hydrography specialisation covers the skills required to measure, collect and analyse hydrometric information and review the accumulated data to develop water management plans for inland water systems including rivers, lakes, stormwater and sewage.

The irrigation specialisation covers the skills required to coordinate and monitor the operation of irrigation systems.

The trade waste specialisation covers the competencies in compliance, licencing and regulations of trade waste management.

No licensing, legislative or certification requirements apply to this qualification at the time of publication.

Additional qualification advice

Where a defined specialisation is completed as listed below, the resultant testamur can be titled: Certificate IV in Water Industry Operations (field of study) e.g. Certificate IV in Water Industry Operations (Networks).

Entry Requirements

There are no entry requirements for this qualification.

Packaging Rules

11 units of competency are required for this qualification:

No equivalent qualification.

- **2 core units**
- **9 elective units**

Specialisation

The candidate may complete either the general qualification or specialise in networks, source, hydrography, irrigation or trade waste by selecting elective units as specified in the table below.

	General	Specialisation				
		Networks	Source	Hydrography	Irrigation	Trade waste
Core	2	2	2	2	2	2
Group A: Work health safety	Choose 1	Choose 1	Choose 1	Choose 1	Choose 1	Choose 1
Group B: Sampling and testing						Choose 1
Group C: Networks	Choose at least 4 from groups C, D, E, F and/or G, with no more than 2 from any one group	Choose at least 4	Choose no more than 1		Choose no more than 1	
Group D: Source			Choose at least 3		Choose no more than 1	
Group E: Hydrography				Choose at least 4		
Group F: Irrigation					Choose at least 2	
Group G: Trade waste						Choose at least 3
Flexible choice	Choose the remaining elective units from the list below or from elsewhere within this training package. Alternatively, up to 2 of the elective units may be selected from another endorsed training package, or from an accredited course.					
Total number of units	11	11	11	11	11	11

All elective units selected from outside this qualification must reflect the occupational and learning outcomes of this AQF qualification level. Seek further advice on selecting imported units of competency in the NWP Implementation Guide.

Elective units selected must not duplicate content already covered by other units in this qualification.

Core units

NWPGEN002	Ensure compliance with water industry standards, guidelines and legislation
NWPGEN005	Coordinate and monitor the application of environmental plans and procedures

Group A: Work health safety

BSBWHS401	Implement and monitor WHS policies, procedures and programs to meet legislative requirements
BSBWHS412	Assist with workplace compliance with WHS laws
BSBWHS413	Contribute to implementation and maintenance of WHS consultation and participation processes
BSBWHS414	Contribute to WHS risk management

Group B: Sampling and testing

AHCLPW306	Undertake sampling and testing of water
NWPCAD001	Respond to blue-green algae outbreaks
NWPGEN014	Sampling and testing trade wastewater
NWPGEN022	Perform laboratory testing

Group C: Networks

BSBCUS401	Coordinate implementation of customer service strategies
BSBWOR404	Develop work priorities
NWPGEN015	Develop an operation plan
NWPHYD014	Measure and process medium and high flows using a range of methods and equipment

NWPIRR033	Coordinate and monitor the operation of irrigation delivery systems
NWPIRR035	Coordinate and monitor the operation of drainage systems
NWPNET005	Optimise network systems
NWPNET017	Supervise and report on conduit inspections
NWPNET019	Prepare and restore worksite
NWPNET025	Coordinate and manage maintenance and repair of network assets
NWPNET033	Coordinate and monitor water asset construction

Group D: Source

BSBMGT402	Implement operational plan
BSBSMB407	Manage a small team
NWPCAD014	Inspect and report river performance
NWPSOU014	Develop and implement catchment operations plans
NWPSOU026	Implement dam safety plans
NWPSOU041	Coordinate and monitor bulkwater system operations
NWPSOU053	Coordinate and monitor groundwater system usage

Group E: Hydrography

AHCLPW306	Undertake sampling and testing of water
FSKNUM021	Apply an expanding range of arithmetical calculations for work
MSL924003	Process and interpret data
NWPGEN022	Perform laboratory testing
NWPHYD011	Measure and process low and medium flows using area velocity methods
NWPHYD013	Operate, maintain and decommission monitoring sites

NWPHYD014	Measure and process medium and high flows using a range of methods and equipment
NWPHYD015	Undertake surveying of monitoring sites
NWPSOU053	Coordinate and monitor groundwater system usage

Group F: Irrigation

NWPCAD014	Inspect and report river performance
NWPGEN027	Monitor and operate pump stations
NWPIRR033	Coordinate and monitor the operation of irrigation delivery systems
NWPIRR034	Coordinate and monitor surface water systems
NWPIRR035	Coordinate and monitor the operation of drainage systems
NWPNET033	Coordinate and monitor water asset construction
NWPSOU041	Coordinate and monitor bulkwater system operations

Group G: Trade waste

NWPCAD003	Identify and confirm blue-green algae outbreaks
NWPGEN028	Investigate and report on breaches of water industry legislation
NWPTRD001	Evaluate, implement and monitor standard low risk trade waste discharge approvals
NWPTRD012	Investigate, rectify and report on trade waste incidents
NWPTRD023	Coordinate, implement and report trade waste monitoring procedures
NWPTRD024	Establish connections of water and wastewater systems

General elective units

AHCBUS515	Prepare estimates, quotes and tenders
BSBCUS401	Coordinate implementation of customer service strategies

BSBLDR403	Lead team effectiveness
BSBMGT402	Implement operational plan
BSBSMB407	Manage a small team
BSBWOR404	Develop work priorities
BSBWRT401	Write complex documents
NWPGEN010	Contribute to continuous improvement of quality systems
NWPGEN025	Apply principles of chemistry to water systems and processes
NWPTRT051	Assess and improve treatment for pathogen removal
RIIWHS202D	Enter and work in confined spaces
TAEDEL301	Provide work skill instruction

Qualification Mapping Information

No equivalent qualification.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWP40615 Certificate IV in Water Industry Treatment

Modification History

Release 2: This is the second release of this qualification in NWP Water Training Package with updated codes and details.

Release 1: This qualification was released in NWP Water Training Package release 1.0 and meets the Standards for Training Packages.

- New qualification. Streams developed to better reflect occupational outcomes.

Qualification Description

This qualification allows for the attainment of general competencies in water industry treatment or specialisation in drinking water or wastewater.

The general qualification covers the skills for those who have supervisory responsibility and require a broad range of skills within treatment operations.

The drinking water specialisation covers skills required to assess and improve the processes within a drinking water treatment plant.

The wastewater specialisation covers skills required to assess and improve the processes within a drinking water treatment plant.

No licensing, legislative or certification requirements apply to this qualification at the time of publication.

Additional qualification advice

Where a defined specialisation is completed as listed below, the resultant testamur can be titled: Certificate IV in Water Industry Treatment (field of study) e.g. Certificate IV in Water Industry Treatment (Drinking water).

Entry Requirements

There are no entry requirements for this qualification.

Packaging Rules

10 units of competency are required for this qualification:

- **2 core** units
- **8 elective** units

The candidate may complete either the general qualification or specialise in drinking water or wastewater by selecting elective units as specified in the table below.

	General	Specialisation	
		Drinking water	Wastewater
Core	2	2	2
Group A: Work health safety	Choose 1	Choose 1	Choose 1
Group B: Drinking water	Choose at least 3 from groups B and/or C, with no more than 2 from any one group	Choose at least 3	
Group C: Wastewater			Choose at least 3
Flexible choice	Choose the remaining elective units from the list below or from elsewhere within this training package. Alternatively, up to 2 of the elective units may be selected from another endorsed training package, or from an accredited course.		
Total Number of Units	10	10	10

All elective units selected from outside this qualification must reflect the occupational and learning outcomes of this AQF qualification level. Seek further advice on selecting imported units of competency in the NWP Implementation Guide.

Elective units selected must not duplicate content already covered by other units in this qualification.

Core units

NWPGEN002	Ensure compliance with water industry standards, guidelines and legislation
NWPGEN005	Coordinate and monitor the application of environmental plans and procedures

Group A: Work health safety

BSBWHS401	Implement and monitor WHS policies, procedures and programs to meet legislative requirements
BSBWHS412	Assist with workplace compliance with WHS laws
BSBWHS413	Contribute to implementation and maintenance of WHS consultation and participation processes
BSBWHS414	Contribute to WHS risk management

Group B: Drinking water

NWPGEN010	Contribute to the continuous improvement of quality systems
NWPGEN025	Apply principles of chemistry to water systems and processes
NWPTRT011	Assess and improve chemical dosing process
NWPTRT032	Assess and improve sedimentation processes
NWPTRT042	Assess and improve granular media filters
NWPTRT045	Assess and improve desalination processes
NWPTRT051	Assess and improve treatment for pathogen removal
NWPTRT085	Assess and improve wastewater processes to control microbial impacts

Group C: Wastewater

NWPGEN010	Contribute to the continuous improvement of quality systems
NWPGEN025	Apply principles of chemistry to water systems and processes
NWPTRT011	Assess and improve chemical dosing process
NWPTRT032	Assess and improve sedimentation processes
NWPTRT042	Assess and improve granular media filters
NWPTRT045	Assess and improve desalination processes
NWPTRT051	Assess and improve treatment for pathogen removal
NWPTRT084	Assess and improve activated sludge and nutrient removal processes
NWPTRT085	Assess and improve wastewater processes to control microbial impacts
NWPTRT093	Assess and improve anaerobic digestion processes

General elective units

AHCBUS515	Prepare estimates, quotes and tenders

BSBCUS401	Coordinate implementation of customer service strategies
BSBFLM312	Contribute to team effectiveness
BSBINM301	Organise workplace information
BSBLDR403	Lead team effectiveness
BSBMGT402	Implement operational plan
BSBSMB407	Manage a small team
BSBWHS520	Manage implementation of emergency procedures
BSBWOR404	Develop work priorities
BSBWRT401	Write complex documents
MSS404061	Facilitate the use of SCADA systems in a team or work area
NWPGEN010	Contribute to the continuous improvement of quality systems
NWPNET033	Coordinate and monitor water asset construction
TAEDEL301	Provide work skill instruction

Qualification Mapping Information

No equivalent qualification.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWP50118 Diploma of Water Industry Operations

Modification History

Release 3: This is the second release of this qualification in NWP National Water Training Package with updated imported units to reflect current assessment requirements (AHCLPW306, BSBFIM501, BSBLED401, BSBMGT502, BSBMGT516, BSBMGT517, BSBPMG522, BSBWRT401, CPPSIS4022, CPPSIS5032 & CPPSIS5040).

Release 2: This is the second release of this qualification in NWP National Water Training Package with updated unit codes and details.

Release 1: This is the first release of this qualification in NWP National Water Training Package.

Qualification Description

This is a qualification for those engaged in water industry operations and includes specialisations for asset management, control centre operations, hydrographic survey, hydrometric monitoring, irrigation, networks, source, trade waste and treatment.

The general qualification covers skills and knowledge to obtain a broad range of skills in the water industry. It allows experienced staff to apply advanced practice and develop leadership roles.

Group A: Specialist Elective - Asset Management

This specialisation covers the skills and knowledge required to analyse, develop and implement asset management plans to support and optimise risk, performance and life-cycle costs of water operations assets.

Group B: Specialist Elective - Control Centre Operations

This specialisation covers the skills and knowledge required to monitor, review, diagnose, test, operate and respond to network operations using supervisory control and data acquisition (SCADA) systems to meet water quantity and quality requirements.

Group C: Specialist Elective – Hydrographic Survey

This specialisation covers the skills and knowledge required to collect hydrographic data, determine features of marine floors, prepare and revise maps and charts and analyse, present and maintain graphical information about marine environments. Completion of this specialist grouping may lead to certification as a hydrographic surveyor.

Group D: Specialist Elective - Hydrometric Monitoring

This specialisation covers the skills and knowledge required to measure, collect and analyse hydrometric information and review the accumulated data to develop water management plans for inland water systems including rivers, lakes, stormwater and sewage.

Group E: Specialist Elective - Irrigation

This specialisation covers the skills and knowledge required to coordinate and manage the development, implementation and review of irrigation plans and systems.

Group F: Specialist Elective - Networks

This specialisation covers the skills and knowledge required to monitor and manage network operations including collection and treatment of drinking water and wastewater.

Group G: Specialist Elective - Source

This specialisation covers the skills and knowledge required to monitor and manage water provisioning from water sources including seawater, dams and reservoirs, rivers and bores.

Group H: Specialist Elective - Trade Waste

This specialisation covers the skills and knowledge required to coordinate and manage the development, implementation and review of trade waste programs.

Group I: Specialist Elective - Treatment

This specialisation covers the skills and knowledge required to manage water supply assets including storage and service reservoirs, treatment plants, pumping stations, transfer mains, pressure reducing valves and hydro generation facilities.

Please note: RTO to insert on the testamur, the specialist elective unit group selected from the group choice below.

No licensing, legislative or certification requirements apply to this qualification at the time of publication.

Entry Requirements

There are no entry requirements for this qualification.

Packaging Rules

A total of **10 units of competency** comprising:

General Qualification

- **2 core units** listed below **plus**
- **4 units** selected from any of the **specialist elective group** units **plus**
- **4 units** selected from anywhere within this qualification

or

Specialisations

- **2 core units** listed below **plus**
- **4 units** from one of the **specialist elective groups** A, B, D, E, F, G, H or I listed below **or 7 units** from **specialist elective group C** listed below **plus**
- remaining elective unit(s) to be selected from anywhere within this qualification.

Up to 2 of the elective units may be selected from any relevant nationally endorsed Training Package or accredited course. The elective units must contribute to the vocational outcomes of the qualification. Where imported units are selected, care must be taken to ensure all prerequisite units specified are complied with.

Elective units can only be counted once towards the qualification packaging rules i.e. if a unit is listed in both a specialist elective group and the general elective group, it can only be counted as one of the elected units required.

Core units

NWPGEN016 Interpret and comply with regulatory requirements

TLIF4014 Develop and maintain a safe workplace

Group A: Asset Management

MSS404086 Assist in implementing a proactive maintenance strategy

MSS405081 Develop a proactive maintenance strategy

NWPAMG001 Manage asset construction and maintenance

RIISAM601D Establish and maintain plant, equipment and infrastructure maintenance system

TLIL4059 Implement asset management systems

TLIX4027 Assess maintenance spares and manage repairable items

Group B: Control Centre Operations

NWPCCO001 Analyse and implement network data

NWPCCO002 Use control centre systems to monitor and control water

PMAOPS330 Communicate and monitor pipeline activities

UEPOPS347 Operate and monitor supervisory, control and data acquisition systems

UEPOPS423 Plan a scheduled outage

Group C: Hydrographic Survey

NWPHYS001 Identify and analyse information technology for hydrographic surveys

NWPHYS002 Interpret and analyse science principles for hydrographic surveying

NWPHYS003 Manage and analyse water levels and flows

NWPHYS004 Manage hydrographic surveying projects

NWPHYS005 Use alternate positioning systems to gather data

NWPHYS006 Use remote sensing for hydrographic surveying

NWPHYS007 Use underwater acoustics to map waterways

Group D: Hydrometric Monitoring

MSS024019 Collect and evaluate meteorological data

NWPHYD002 Apply principles of open channel hydraulics

NWPHYD003 Develop and maintain ratings

NWPHYD004 Plan water resource management

NWPHYD005 Process and report hydrographic time series data

NWPHYD007 Measure discharge using wading method

NWPHYD009 Undertake surveying of monitoring sites

Group E: Irrigation

NWPIRR004 Develop and review a groundwater plan

NWPIRR005 Develop and review a surface water plan

NWPIRR006 Develop and review an irrigation system plan

NWPIRR007 Implement and coordinate a surface water plan

NWPIRR008 Implement and coordinate an irrigation delivery system plan

Group F: Networks

LGAWORK501A Prepare preliminary design for operational works

NWPAMG001 Manage asset construction and maintenance

NWPNET006 Apply construction principles to civil works in the water industry

NWPNET007 Conduct commissioning and post-commissioning activities

NWPNET008 Develop and manage a drinking water system plan

NWPNET009 Develop and manage a wastewater collection plan

NWPNET010 Develop and manage an alternate water supply plan

Group G: Source

NWPSOU004 Develop and manage a catchment plan

NWPSOU005 Develop and manage a dam safety inspection plan

NWPSOU006	Develop and manage a flood plan
NWPSOU007	Implement and coordinate a catchment plan
NWPSOU008	Implement and coordinate a groundwater plan

Group H: Trade Waste

NWPGEN033	Sample and test trade wastewater
NWPTRD003	Evaluate, implement and monitor high risk trade waste discharge approvals
NWPTRD004	Implement and manage trade waste policies and plans
NWPTRD005	Develop and modify trade waste policies and plans

Group I: Treatment

MSL976005	Evaluate and select appropriate test methods and/or procedures
NWPTRT002	Develop and manage a treatment process monitoring program
NWPTRT003	Develop and manage a wastewater treatment plan
NWPTRT004	Develop and manage a water treatment plan
NWPTRT057	Assess and improve coagulation and flocculation processes
NWPTRT066	Assess and improve wastewater processes to control microbial impacts

General elective units

AHCLPW306	Undertake sampling and testing of water
BSBFIN501	Manage budgets and financial plans
BSBHRM413	Support the learning and development of teams and individuals
BSBLDR522	Manage people performance
BSBOPS502	Manage business operational plans
BSBPMG430	Undertake project work
BSBSMB407	Manage a small team
BSBSTR502	Facilitate continuous improvement
BSBWHS504	Manage WHS risks
BSBWHS513	Lead WHS risk management

BSBWHS515	Lead initial response to and investigate WHS incidents
BSBWHS521	Ensure a safe workplace for a work area
BSBWHS522	Manage WHS consultation and participation processes
BSBWRT411	Write complex documents
CHCCOM003	Develop workplace communication strategies
CPPSIS4022	Store and retrieve spatial data
CPPSIS5032	Capture new spatial data
CPPSIS5040	Interpret and collate spatial data
FSKNUM027	Collect, organise and interpret statistical data for work
LGAWORK502A	Prepare detailed works project documentation
LGAWORK503A	Undertake project investigation
MSL936004	Conduct an internal audit of the quality system
MSS025021	Collect and evaluate groundwater data
NWPCAD022	Coordinate and monitor groundwater system usage
NWPGEN006	Implement and manage environmental management policies
NWPGEN032	Ensure compliance with water industry standards, guidelines and legislation
NWPHYD006	Measure discharge and process discharge data using a range of methods and equipment
NWPNET057	Establish connections of water and wastewater systems
PMAOMIR512	Establish incident response preparedness and response systems
PSPPCM011	Plan to manage a contract
PUAEMR007	Develop emergency management plans
TAEASS301	Contribute to assessment
TAEDEL402	Plan, organise and facilitate learning in the workplace
TAEDEL404	Mentor in the workplace

TLIR5005 Manage a contract

Qualification Mapping Information

This qualification replaces but is not equivalent to NWP50715 Diploma of Water Industry Operations

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPCAD001 Respond to blue-green algae outbreaks

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to respond to blue-green algae outbreaks.

It includes identifying problems, conducting sampling, determining and applying technical adjustments and producing technical reports.

This unit applies to those working as field staff members with specific responsibilities for responding to blue-green algae outbreaks.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Catchment and Dams

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Confirm blue-green algae outbreak

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

- 1.1** Receive and confirm reports of blue-green algae outbreak
- 1.2** Identify and verify extent and location of blue-green algae outbreak

	1.3	Select and check equipment and tools to meet task and safety requirements
	1.4	Select, fit and use personal protective equipment
2 Prepare samples for testing	2.1	Confirm workplace procedures for conducting sampling and selecting sampling locations
	2.2	Prepare sampling equipment according to workplace procedures
	2.3	Collect samples according to workplace procedures
	2.4	Prepare and send samples for testing according to workplace procedures
3 Respond to blue-green algae outbreak	3.1	Evaluate potential blue-green algae control methods and select and implement appropriate measures including emergency planning
	3.2	Advise affected people according to workplace procedures
	3.3	Monitor, inspect and isolate area according to workplace procedures
4 Report on blue-green algae outbreak	4.1	Collect and interpret data and report to relevant stakeholders
	4.2	Identify and report observations outside defined parameters to relevant personnel for further action

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPSOU001 Respond to blue-green algae outbreaks

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPCAD001 Respond to blue-green algae outbreaks

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- advising affected persons
- collecting, preparing and sending samples for testing
- implementing response plans
- maintaining integrity of samples by following workplace collection procedures
- recording and reporting required information and data
- reporting to relevant personnel when extent of outbreak is outside parameters
- responding to an outbreak using one of the following control methods:
 - barricades
 - public notices
 - signage
- selecting appropriate method of notification
- selecting control methods including isolation of effected the area

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- all blue-green algae outbreak areas
- blue-green algae outbreaks including:
 - collection hazards of sampling
 - control methods
 - impact on water and wastewater treatment processes
 - outbreak locations
 - sampling procedures and techniques
 - types and purposes of samples
- control methods including:
 - barricades

- public notices
- signage
- effects of weather and conditions on algae blooms
- emergency planning
- hazardous materials handling for algaecides
- problems caused by blue-green algal blooms
- relevant legislation, regulations and workplace procedures
- safety data sheets
- sample collections including:
 - labelling information
 - location of samples
 - sample types
 - time of collection

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPCAD002 Control vegetation on a site

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to control vegetation on a site.

It includes inspecting, identifying and treating weeds, plants and shrubs. It also includes safe handling of chemicals and equipment and the ability to plan and work safely.

This unit applies to those working as field and operational staff involved in plant control but does not reflect the requirements for undertaking plant control on properties of third parties where further training and licensing requirements may apply. Those undertaking this unit would work under appropriate supervision, while performing routine tasks, in familiar contexts.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Catchment and Dams

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Prepare for work

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Determine work requirements from job specifications and plans

1.2 Identify noxious weeds, plants and shrubs

	1.3	Inspect site to prevent damage to utilities, environment and adjoining land
	1.4	Identify potential hazards according to workplace procedures
	1.5	Select and check equipment and tools to meet task and safety requirements
	1.6	Select, fit and use personal protective equipment
2	Treat vegetation	
	2.1	Store, handle and transport chemicals according to safety procedures
	2.2	Use processes to treat vegetation according to workplace procedures
	2.3	Implement controls to minimise environmental damage and deal with emergencies
	2.4	Calculate dosing rates and mix chemicals according to workplace procedures
	2.5	Conduct monitoring programs to determine spread, growth rate and extent of problem caused by weeds
	2.6	Clean equipment after use and prepare for safe storage according to manufacturer instructions and workplace procedures
	2.7	Dispose of waste according to workplace procedures
3	Complete records and reports	
	3.1	Record use of chemicals and control mechanisms according to workplace procedures
	3.2	Complete and process work reports according to workplace procedures
	3.3	Identify and report observations outside defined parameters to relevant personnel for further action

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPSOU002 Control vegetation on a site.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPCAD002 Control vegetation on a site

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- applying workplace procedures
- controlling vegetation by treating weeds, plants and shrubs either mechanically or chemically
- dealing with chemical spillages
- following plans and job specifications
- identifying and reporting operational problems
- identifying noxious weeds and appropriate control methods
- identifying risks and implementing controls
- interpreting safety data sheets
- interpreting work requirements from given documentation
- performing work-related calculations
- planning and preparing equipment and materials required for work
- producing reports and completing relevant documentation
- restoring worksite
- using personal protective equipment, tools and machinery, chemicals and other treatments

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- control systems
- effects of weather and conditions on use of chemical treatment
- emergency response scenarios
- environmental aspects of controlling vegetation
- equipment operation, capacity and limitations
- landscape and ground structure of work area
- materials handling
- mechanical and chemical control of weeds plants and shrubs
- noxious weeds, plants and shrubs

- relevant legislation, regulations and workplace procedures
- relevant utilities and service bodies
- risk factors and potential hazards of vegetation control processes
- use, storage, handling and transport of chemicals

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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NWPCAD003 Identify and confirm blue-green algae outbreaks

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to identify and confirm blue-green algae outbreaks.

It includes confirming and conducting algae sampling, preparing samples for testing, identifying and enumerating blue-green algae. It also includes completing documentation.

This unit applies to those working as operational staff with a specific responsibility for ensuring that water and/or wastewater quality conforms to organisational standards and complies with statutory requirements. Those undertaking this unit would work under appropriate supervision, while performing routine tasks within a familiar context.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Catchment and Dams

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Confirm and conduct algae sampling

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Determine work requirements for identifying and confirming algae outbreaks in line with specifications and instructions

	1.2	Select and prepare sampling equipment according to specified samples required
	1.3	Select, fit and use personal protective equipment
	1.4	Perform algae sampling according to workplace procedures
	1.5	Maintain integrity of samples during sampling and testing
	1.6	Label samples according to workplace procedures
2	Receive and prepare samples for testing	
	2.1	Receive, handle and prepare samples for testing according to workplace procedures
	2.2	Prepare and check testing equipment for blue-green algae identification and enumeration
	2.3	Handle algae samples using correct safety procedures
3	Identify and enumerate blue-green algae	
	3.1	Conduct microscopic examination of algae sample according to workplace procedures
	3.2	Determine number of cells and calculate cell concentration
4	Complete documentation	
	4.1	Complete data report of the blue-green algae test results
	4.2	Identify and report observations outside defined parameters to relevant personnel for further action

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPSOU003 Identify and confirm blue-green algae

outbreaks.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -

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Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPCAD003 Identify and confirm blue-green algae outbreaks

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- conducting blue-green algae identification and enumeration tests
- identifying algae types
- interpreting instructions
- interpreting policies, procedures and standards
- maintaining integrity of samples
- performing algae sampling
- performing calculations including:
 - cell concentration
 - Sedgwick-Rafter Counting Chamber
- recording information and reporting data
- reporting test results
- using at least one of the following sampling techniques:
 - concentrated
 - grab
 - integrated
- using safety and personal protective equipment

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- characteristics of algae
- effects of weather on algae blooms
- environmental factors which favour the growth of algae
- hazards associated with collection and handling of blue-green algae samples
- impact of blue-green algae on water and/or wastewater treatment processes
- problems caused by algal blooms
- procedures and techniques for all algae sampling

- relevant legislation, regulations and workplace procedures
- sampling and testing of water quality parameters related to algae growth
- types and purposes of algae samples

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPCAD004 Maintain catchment and surrounding areas

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to maintain catchment and surrounding areas.

It includes maintaining surface catchment areas and associated rivers, lakes, water bodies, dams, water storages and groundwater areas whilst contributing to the maintenance of water quality, protection of the environment and public. It also includes maintaining environmental conditions, undertaking maintenance and reporting outcomes.

This unit applies to those working as field staff with specific responsibility for maintaining catchment and surrounding areas and contributing to catchment management and control. Those undertaking this unit would work under appropriate supervision either independently or in a team, while performing routine tasks in range of familiar contexts.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Catchment and Dams

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Prepare for work

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Access and review catchment records describing

- maintenance requirements for action
- 1.2 Identify and follow work requirements and timelines for performing maintenance tasks of catchments and surrounding areas
 - 1.3 Assess site, equipment and methods for risks and apply appropriate control measures
 - 1.4 Plan maintenance work to be conducted within required timeframe, using allocated resources
- 2 Maintain environmental condition of waterways and surrounding areas**
- 2.1 Remove and dispose of dead livestock or native fauna from waterways and surrounding catchments
 - 2.2 Remove flood debris from waterways and surrounding areas according to workplace procedures
 - 2.3 Carry out fuel reduction burns according to workplace procedures
 - 2.4 Apply control measures to contain or control chemical spills or contaminated water supplies
 - 2.5 Identify and report potential or emerging changes to environmental conditions to relevant personnel
 - 2.6 Identify procedures for responding to emergencies and providing security to the catchment area
- 3 Eradicate noxious weeds and feral pests**
- 3.1 Identify and report noxious weeds and feral pests contributing to degradation of catchment and surrounding areas to relevant personnel
 - 3.2 Organise for the removal of noxious weeds and feral pests
 - 3.3 Identify and report observations outside defined parameters to relevant personnel for further action
 - 3.4 Compile reports on eradication process and submit to relevant personnel
 - 3.5 Monitor and report activities within the catchment area to relevant personnel
- 4 Perform maintenance within catchment area**
- 4.1 Identify and inspect infrastructure requiring minor maintenance

- 4.2 Apply erosion control measures for waterways and surrounding areas
- 4.3 Make repairs using appropriate tools, equipment and resources according to workplace procedures
- 4.4 Record and report maintenance performed to relevant personnel

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPSOU011 Maintain catchment and surrounding areas.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPCAD004 Maintain catchment and surrounding areas

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- compiling reports
- controlling pests
- identifying and responding to maintenance problems
- inspecting catchment and surrounds
- interpreting work requirements
- monitoring and reporting environmental conditions
- performing minor maintenance tasks
- removing debris, noxious weeds

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- catchment emergency response and catchment security procedures
- effects of weather and conditions on operation of site or plant
- environmental, landscape and ground structure of work area
- flood debris
- illegal activities including:
 - camping
 - illegal crops
 - logging
 - mining
 - off-road vehicles
 - shooting
- infrastructure including:
 - bridges
 - culverts
 - drains

- fences
- flow recording stations
- gates
- recording stations
- relevant legislation, regulations and workplace procedures
- risk factors and potential hazards of surface water systems

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPCAD005 Monitor, inspect and report catchment areas

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to monitor, inspect and report catchment areas.

It includes monitoring flows, coordinating catchment areas and collecting data and samples. It also includes monitoring and adjusting regulatory systems, identifying and investigating catchment problems and producing reports.

This unit applies to field staff with a specific responsibility for inspecting, monitoring and reporting catchment areas. Those undertaking this unit would work under appropriate supervision while performing routine tasks ensuring minimum damage to the environment, in a familiar context. The level of responsibility may vary according to the size and complexity of the catchment area.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Catchment and Dams

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Inspect and monitor

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Identify and apply work requirements for undertaking

catchment areas		inspections of catchments and surrounding areas
2 Operate and report catchment conditions	1.2	Schedule routine inspections of catchment areas to identify water quality risks
	1.3	Inspect and monitor designated locations according to work schedule and workplace procedures
	1.4	Inspect flow regulating systems and adjust to meet demand
	1.5	Select, fit and use safety equipment, including personal protective equipment
	2.1	Measure and record catchment inflows and outflows or extractions
	2.2	Collect and record water samples according to sampling requirements
	2.3	Identify organisational guidelines for the condition and maintenance of catchment environment
	2.4	Identify changes to environmental conditions outside of normal parameters and report to relevant personnel for further action
	3.1	Identify and report activities within catchment posing a hazard or risk to the public, water quality or the environment
	3.2	Identify and report activities of external parties within catchment and surrounding area breaching organisational guidelines
	3.3	Check and confirm public concerns and report to relevant personnel
4 Complete documentation	4.1	Identify and collect catchment data
	4.2	Compile reports from catchment inspections according to workplace procedures

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPSOU012 Monitor, inspect and report catchment operations.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPCAD005 Monitor, inspect and report catchment areas

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- assessing and reporting on the condition of the catchment area
- collecting samples
- completing documentation
- coordinating safety
- identifying and addressing risks and hazards
- identifying and reporting on flows into the catchment area
- identifying catchment faults
- inspecting and adjusting flow regulating systems
- inspecting and monitoring catchment areas
- inspecting catchment areas and identifying water quality risks
- measuring flow and capacity
- monitoring and integrating catchments processes
- monitoring and reporting organisational guideline breaches
- monitoring catchment and collecting and reporting catchment data
- monitoring flows
- organising pest eradication
- using safety equipment and personal protective equipment

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- catchment layout and processes
- communication systems
- coordination processes
- effects of weather and conditions on operation of catchment areas
- environmental aspects of catchment areas
- inspection requirements of catchments

- pest control specifications
- relevant by-laws and legislation
- relevant regulations and workplace procedures
- relevant water industry guidelines
- risk factors and potential hazards involved with catchment area processes, equipment operation, capacity and limitations

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPCAD006 Monitor and coordinate catchment operations

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to monitor and coordinate catchment operations.

It includes inspecting and monitoring catchment areas, monitoring flows and coordinating catchment processes. It also includes collecting data and samples, monitoring and adjusting regulatory systems, identifying and investigating catchment problems and producing technical reports.

This unit applies to those working as field staff with a specific responsibility for monitoring and coordinating catchment operations. Those undertaking this unit would work under appropriate supervision while performing routine tasks ensuring minimum damage to the environment, in a familiar context. The level of responsibility may vary according to the size and complexity of the catchment area.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Catchment and Dams

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1 Inspect and monitor catchment operations	1.1 Schedule routine inspections of catchment areas to identify water quality risks
	1.2 Collect, analyse and report catchment data according to workplace procedures
	1.3 Collect and record water samples according to workplace procedures
	1.4 Monitor and report on activities within the catchment area
	1.5 Select, fit and use required safety equipment, including personal protective equipment
2 Monitor inflows and outflows	2.1 Inspect flow regulating systems and determine required adjustments to meet demand
	2.2 Identify and report flows into, and conditions of, catchment areas
3 Operate and coordinate catchment processes	3.1 Identify, address and report problems within catchment areas to relevant personnel
	3.2 Monitor and coordinate processes to maintain the parameters of operation
	3.3 Integrate catchment processes to improve source performance
4 Complete documentation	4.1 Review and action investigation results according to workplace procedures
	4.2 Compile reports from catchment inspections according to workplace procedures

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPSOU013 Monitor and coordinate catchment operations.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPCAD006 Monitor and coordinate catchment operations

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- assessing and reporting on the condition of the catchment area
- calculating flow and capacity
- collecting samples
- completing documentation
- coordinating catchment processes
- identifying and addressing risks and hazards
- identifying and reporting on flows into the catchment area
- identifying catchment problems
- implementing actions resulting from investigations
- inspecting and adjusting flow regulating systems
- inspecting and monitoring catchment areas
- inspecting catchment areas and identifying water quality risks
- monitoring and integrating catchments processes
- monitoring catchment and collecting and reporting catchment data
- monitoring flows
- using safety equipment and personal protective equipment

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- communication systems
- control systems
- coordination processes
- effect of floods on water and wastewater treatment systems
- effects of weather and conditions on operation of catchment areas
- environmental aspects of catchment areas
- hazardous substances handling

- inspection of catchments
- policies and standard operating procedures
- pumping and valving systems
- relevant legislation, regulations, guidelines and workplace procedures
- risk factors and potential hazards involved with catchment area processes, equipment operation, capacity and limitations including:
 - pest control specifications
 - system layout and processes

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPCAD007 Inspect, operate and maintain low consequence dams

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to inspect, operate and maintain low consequence dams.

It includes inspecting low consequence dams and water storages and conducting routine maintenance according to organisational maintenance plans and manufacturer specifications.

This unit applies to those working as field staff with specific responsibility for undertaking surveillance and routine maintenance on low consequence dams and storages, including urban reservoirs, retarding basins, levee banks and wastewater lagoons. Those undertaking this unit would work under appropriate supervision, while performing routine tasks in a limited range of familiar contexts.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Catchment and Dams

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1 Inspect low consequence dams	1.1	Select, fit and use safety equipment, including personal protective equipment
	1.2	Inspect dams and storages according to workplace procedures
	1.3	Read and calculate seepage flow, use rating table to translate and record information according to workplace procedures
	1.4	Identify assets and structural components requiring routine maintenance or repairs
2 Operate and maintain dam related equipment and structures	2.1	Select and check equipment and materials required for maintenance and repair tasks
	2.2	Perform routine maintenance according to maintenance schedule
	2.3	Operate flow control and ancillary devices as part of routine checks
3 Report on dam inspection and maintenance	3.1	Communicate abnormal observations and potential maintenance issues with relevant personnel
	3.2	Complete dam inspection reports and routine maintenance reports and forward to relevant personnel

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPSOU021 Inspect and maintain basic dams and water storages.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPCAD007 Inspect, operate and maintain low consequence dams

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- completing inspection and maintenance reports
- conducting routine maintenance according to organisational maintenance plans
- conducting routine inspections of dams according to organisational requirements
- exercising valves
- following policies, workplace procedures and industry standards
- identifying abnormalities
- identifying and reporting repair and maintenance requirements
- measuring and recording seepage flow
- operating controls and ancillary equipment according to standard operating procedures
- performing work-related calculations
- taking readings from specified devices
- using safety and personal protective equipment

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- dam design
- communication and reporting systems
- equipment operation, capacity and limitations
- personal safety and potential hazards while working on or near dams
- relevant legislation, regulations and workplace procedures
- risks to dams
- routine maintenance procedures
- seepage and rating tables
- site layout
- visual and electronic inspection procedures

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPCAD008 Monitor and control dam operations

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to monitor and control dam operations.

It includes preparing for and implementing dam operation plans and inspecting and testing dam emergency backup equipment.

This unit applies to those working as field and operational staff with a specific responsibility for the operation of dams. Those undertaking this unit would work under appropriate supervision while performing routine tasks in a limited range of familiar contexts.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Catchment and Dams

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Prepare for dam operation

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Identify and apply relevant workplace procedures, guidelines and regulatory requirements for dam operation

1.2 Schedule and prioritise operational activities and obtain

		relevant approval
	1.3	Notify relevant stakeholders of operational plans
2 Implement dam operations	2.1	Follow dam operation plan and procedures
	2.2	Inspect, operate and test isolating and regulating equipment
	2.3	Test and record dam standby and emergency backup equipment
3 Compile and process operation reports	3.1	Collect operational data from measurement instruments, inspections and relevant personnel
	3.2	Process, evaluate, validate, record and store operational data
	3.3	Record and report structural, material and/or equipment problems and recommend remedial action to relevant personnel

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPSOU022 Monitor and control dam operations.

Links

Companion Volume implementation guides are found in VETNet - <https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet - <https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPCAD008 Monitor and control dam operations

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- collecting and analysing operational information
- conducting inspections
- identifying safety hazards
- interpreting plans, drawings, instructions, standard operating procedures, policies and standards
- interpreting technical documentation
- operating dam's equipment
- preparing required reports
- scheduling and implementing operational activities
- using equipment, tools, machinery and personal protective equipment

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- control systems
- dam access issues
- dam operation and maintenance procedures
- dam safety emergency operations and equipment
- dam security issues
- effects of weather and conditions on assets
- environmental aspects of operation
- equipment operation
- lock out procedures for mechanical and electrical installations
- operational risks to dams
- principles of hydraulics
- relevant legislation, regulations and workplace procedures
- stakeholder communication

- system layout

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPCAD009 Monitor and implement dam maintenance

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to monitor and implement dam maintenance.

It includes maintaining dam safety mechanisms, interpreting technical documentation, investigating and resolving maintenance problems, collecting and analysing technical information.

This unit applies to those working as field and operational staff with a specific responsibility for the maintenance of dams. Those undertaking this unit would work under appropriate supervision while performing routine tasks in a limited range of familiar contexts.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Catchment and Dams

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Prepare for dam maintenance

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Prepare for dam maintenance according to workplace procedures and operational requirements

	1.2	Inspect dam and develop a maintenance plan according to workplace procedures
2 Implement dam maintenance plans	2.1	Schedule dam maintenance works and communicate with relevant personnel
	2.2	Maintain civil and mechanical dam assets according to workplace procedures
	2.3	Operate and test equipment relevant to dam maintenance
3 Compile maintenance and inspection reports	3.1	Collect required data from inspections, measurement instruments and relevant personnel
	3.2	Collate, process, evaluate, validate, record and store data according to workplace procedures
	3.3	Record and report structural, material and/or equipment problems and recommend remedial action to relevant personnel

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPSOU023 Monitor and implement dam maintenance.

Links

Companion Volume implementation guides are found in VETNet - <https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet - <https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet - <https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPCAD009 Monitor and implement dam maintenance

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- analysing and processing data
- collecting and evaluating technical information
- conducting inspections
- coordinating maintenance activities
- identifying and correcting maintenance problems
- identifying security and access maintenance issues
- inspecting and operating relevant equipment and instruments
- interpreting plans, drawings, instructions, workplace procedures, policies and standards
- interpreting technical documentation
- monitoring and implementing dam maintenance
- performing or coordinating maintenance on at least one of the following types of dams and associated equipment:
 - concrete
 - embankment
- preparing required reports
- proposing and justifying maintenance activities
- using relevant tools and machinery
- using safety, rescue and personal protective equipment

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- concrete structure, strengths and deterioration
- control systems
- dam construction procedures
- dam design principles
- dam failure and safety mechanisms

- dam maintenance principles and practices
- effects of weather and conditions on assets
- environmental aspects of maintenance
- equipment operation including:
 - flow control devices
 - lifting equipment
- hazardous materials handling
- historic dam information
- lock out procedures for mechanical and electrical installations
- maintenance procedures
- materials science
- principles of hydraulics
- principles of soil mechanics
- relevant legislation, regulations and workplace procedures
- relevant utilities and service bodies
- risk factors and potential hazards of maintenance of dam assets
- system layout

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPCAD010 Inspect and report on concrete dam safety

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to inspect and report on concrete dam safety.

It includes preparing for and implementing dam safety visual inspections, reporting on conditions, faults in concrete dams and appurtenant structures. It also includes initiating emergency plans.

This unit applies to those with responsibility for the inspection of concrete dams and reporting of faults or trends. Those undertaking this unit would work under appropriate supervision while performing routine tasks in a limited range of familiar contexts.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Catchment and Dams

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Prepare for concrete dam inspection

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Identify and apply relevant organisational requirements relating to concrete dam safety inspection

		1.2	Identify features of concrete dam types and its application to inspected dams
		1.3	Identify concrete dam behaviour under a range of conditions
		1.4	Gather and validate checklists, previous inspection reports and relevant data
		1.5	Schedule activities and gather appropriate equipment for concrete dam inspection according to workplace requirements
2	Inspect and assess the condition of concrete dams	2.1	Implement concrete dam visual inspection procedures and practices including for unusual events
		2.2	Inspect and assess condition and performance of concrete dams
		2.3	Recognise, record and assess failure indicators and changes in the condition of the concrete dam and appurtenant structures
3	Report the condition of concrete dams	3.1	Collect and record measurements and evidence to determine the extent of changes in conditions
		3.2	Prepare and submit reports to relevant personnel according to workplace procedures
4	Activate emergency plans	4.1	Determine if faults and changes trigger a dam safety incident
		4.2	Initiate and follow emergency plan according to workplace procedures

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPSOU024 Inspect and report on concrete dam safety.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPCAD010 Inspect and report on concrete dam safety

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- applying safety protocols
- assessing the importance and urgency of deficiencies
- collecting and processing data from dam observations
- communicating with engineering professionals and relevant team members on dam safety
- conducting concrete dam inspection activities
- gathering and recording data
- identifying changes and failure indicators in concrete dam and appurtenant structures
- identifying inspection features and scheduling activities according to the required frequency
- identifying the purpose and audience of dam safety reports
- interpreting and applying relevant organisational and regulatory information and requirements to the planning of inspection activities
- planning and organising work schedules and responses to contingencies
- producing inspection reports
- reporting on inspection and monitoring outcomes, with recommendations for action
- using digital photography and locational equipment

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- concrete dam behaviour under a range of conditions
- concrete dam design and construction principles including:
 - aging of concrete
 - concrete technology
 - hydraulics
 - materials science
 - post tensioning principles
 - principles of arch action

- principles of buttress action
- principles of gravity action
- principles of roller compacted concrete
- treatment of foundations, grouting and drainage systems
- concrete dam types including:
 - arch
 - buttress
 - gravity
- dam safety
- emergency plans
- historic information and lessons from previous concrete dam incidents
- principles of concrete dam inspection
- relevant legislation and regulations
- unusual events including:
 - earthquakes
 - increased seepage
 - large wave events
 - large discharge events uplift pressures and drainage systems
- workplace policies, procedures, guidelines and requirements relevant to the worksite

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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NWPCAD011 Inspect and report on embankment dam safety

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to inspect and report on embankment dam safety.

It includes preparing for and implementing dam safety visual inspections, reporting on conditions, faults in embankment dams and appurtenant structures. It also includes initiating emergency plans.

This unit applies to those with responsibility for the inspection of embankment dams and reporting of faults or trends. Those undertaking this unit would work under appropriate supervision while performing routine tasks in range of familiar contexts.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Catchment and Dams

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Prepare for embankment dam inspection

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Identify and apply organisational requirements relating to embankment dam safety inspection

	1.2	Identify features of embankment dam types and its application to inspected dams
	1.3	Identify embankment dam behaviour under a range of conditions
	1.4	Gather and validate checklists, previous inspection reports and relevant data
	1.5	Schedule activities and gather appropriate equipment for embankment dam inspection according to workplace procedures
2	Inspect and assess the condition of embankment dams	
	2.1	Implement embankment dam visual inspection procedures and practices including for unusual events
	2.2	Inspect and assess the condition and performance of embankment dams
	2.3	Recognise, record and assess failure indicators and changes in the condition of the embankment dam and appurtenant structures
3	Report the condition of embankment dams	
	3.1	Collect and record evidence to determine the extent of changes in conditions
	3.2	Prepare and submit reports to relevant personnel according to workplace procedures
4	Activate emergency plans	
	4.1	Determine if faults and changes trigger a dam safety incident
	4.2	Initiate and follow emergency plan according to workplace procedures

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPSOU025 Inspect and report on embankment dam safety.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPCAD011 Inspect and report on embankment dam safety

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- applying safety hazards protocols
- assessing the importance and urgency of deficiencies
- collecting and processing data from dam inspections
- communicating with engineering professionals and relevant team members on dam safety
- conducting embankment dam inspection activities
- following instructions, standard operating procedures, policies and standards for embankment dam safety
- gathering and recording data
- identifying changes and failure indicators in embankment dam and appurtenant structures
- identifying inspection features and scheduling activities according to the required frequency
- identifying the purpose and audience of dam safety reports
- interpreting and applying relevant organisational and regulatory information and requirements to the planning of inspection activities
- planning and organising work schedules and responses to contingencies
- reporting on inspection and monitoring outcomes, with recommendations for action
- using digital photography and locational equipment

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- embankment dam behaviour under a range of conditions
- embankment dam design and construction principles including:
 - causes of cracks and settlement
 - dam performance history
 - hydraulics and erosion by water
 - materials science including soil and rock properties
 - pore pressures

- principles of embankment dam inspection
- principles of filters, piping and embankment stability
- treatment of foundations, grouting and drainage system
- embankment dam safety
- embankment dam types including:
 - concrete faced rock fill dams
 - elements, zones
 - risks and failure modes
- emergency plans
- historic information and lessons from previous embankment dam incidents
- relevant legislation and regulations
- unusual events including:
 - earthquakes
 - increased seepage
 - large discharge events
 - large wave events
- workplace policies, procedures, guidelines and requirements relevant to the worksite

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

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NWPCAD012 Route floods through storages

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to route floods through storages.

It includes managing and conducting surveillance of catchment run-off through dams and other water storage assets, operating flow control infrastructure and ancillary equipment for dam/storage operations and flood routing.

This unit applies to those working as field and operational staff with a specific responsibility for the operation of dams and other water storage assets. Those undertaking this unit would work under appropriate supervision, while performing routine tasks in a familiar context, ensuring minimum damage to the environment.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Catchment and Dams

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Monitor flow and flood routing

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Monitor catchment behaviour during normal and flood conditions according to workplace procedures

	1.2	Determine outflows and inflows using standard flow rate calculations
	1.3	Determine flow control settings based on flow rate calculations and rating tables
2 Prepare for dam or storage operation	2.1	Conduct inspections of dams and relevant assets during floods
	2.2	Develop a hydrograph template for each new event according to workplace procedures
	2.3	Conduct risk assessment and identify hazards
3 Implement dam or water storage operation plans	3.1	Apply operation plans according to workplace procedures
	3.2	Provide flood warnings according to workplace procedures
	3.3	Inspect and test plant and equipment
	3.4	Test, assess and document safety mechanisms
4 Regulate flows	4.1	Plot flood data on hydrograph template according to workplace procedures
	4.2	Regulate flow control mechanisms to maintain safety of asset and required system supply and flood routing
	4.3	Produce data relating to flood performance and report to relevant personnel

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPSOU027 Route floods through storages.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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Assessment Requirements for NWPCAD012 Route floods through storages

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- calculating flow rates including:
 - inflow
 - outflow
 - rate of change of storage volume
- collecting and analysing data and technical information
- conducting inspections
- identifying and investigating operational problems
- identifying hazards and conducting a risk assessment
- interpreting and plotting hydrographs
- interpreting plans, drawings, instructions, standard operating procedures, policies and standards
- managing and conducting surveillance of catchment run-off through dams and other water storage assets
- operating controls and ancillary equipment
- operating flow control infrastructure and ancillary equipment
- preparing required reports
- using equipment and instruments
- using safety equipment and personal protective equipment

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- communication systems relating to data acquisition and flood warnings
- control systems
- dam and storage operation principles
- effects of water and catchment conditions on flow expectations
- effects of weather and conditions on dams and storages

- environmental and social impacts of flood operations
- equipment operation
- hazardous materials handling
- impacts of errors in site measurements on flow calculations
- impact of floods on physical properties of infrastructure
- interrogation of catchment monitoring equipment
- operation of flood gates, valves or other plant
- organisational and statutory requirements
- principles of dam surveillance
- principles of hydraulics through dams
- properties of stored water and energy, wave action and standing waves
- relevant legislation, regulations and workplace procedures
- relevant utilities and service bodies
- risk management techniques
- system hydraulics
- system layout
- water flow measurement

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

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NWPCAD013 Conduct and report dam safety instrumentation monitoring

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to conduct and report dam safety instrumentation monitoring.

It includes planning, conducting and reporting dam safety instrumentation monitoring. It also includes implementing and reporting on the monitoring of instrumentation installed in dams to provide assurance of their ongoing safety.

This unit applies to those working as field and operational staff with responsibility for monitoring the safety of a dam and reporting faults or trends. Those undertaking this unit would work under appropriate supervision, while performing routine tasks in a limited range of familiar contexts.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Catchment and Dams

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1 Prepare for dam safety monitoring	1.1 Identify workplace procedures and guidelines for dam safety monitoring
	1.2 Identify and apply operational procedures determining the techniques, methods and equipment used for dam safety monitoring
	1.3 Organise work activities according to workplace requirements and data collection equipment and methods
2 Conduct dam safety monitoring	2.1 Implement dam safety monitoring procedures and practices including unusual events
	2.2 Ensure equipment is functioning and fit for purpose
	2.3 Record dam instrumentation readings according to workplace procedures
	2.4 Recognise and report monitoring data outside the expected range to relevant personnel
3 Report on dam safety monitoring	3.1 Add newly recorded information on dam behaviour to historical monitoring information
	3.2 Prepare and submit monitoring instrumentation data
	3.3 Report deviations outside approved limits including potential causes and make recommendations for follow up action
	3.4 Report faulty monitoring equipment to relevant personnel

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPSOU029 Conduct and report dam safety instrumentation monitoring.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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Assessment Requirements for NWPCAD013 Conduct and report dam safety instrumentation monitoring

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- collecting and processing data
- following instructions, operating procedures, policies and standards for dam safety monitoring and instrumentation
- identifying faults, changes and failure indicators
- inspecting and operating monitoring equipment and instruments
- interpreting a range of workplace documents
- preparing monitoring activity
- producing dam instrumentation monitoring reports
- reading and interpreting plans, drawings and charts
- recording and reporting monitoring and safety information
- reporting deviations and faults in equipment and data
- reporting on dam safety monitoring outcomes
- setting up relevant instrumentation
- using mathematical calculations to collect and process data on dam safety

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- dam safety performance indicators
- faulty equipment or instruments
- instructions for the operation of monitoring equipment
- principles of dam design and construction
- purpose of monitoring and instrumentation used and linkage to dam safety
- relationship between the impact of unusual events on dam safety and monitoring post event
- relationship of monitoring and causes of dam failures and incidents
- relevant legislation, regulations and workplace procedures
- requirements for installation of instruments and instrument failure
- statutory requirements and workplace procedures related to monitoring and reporting dam

safety

- types of instrumentation and their application
- WHS procedures related to dam monitoring

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
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NWPCAD014 Inspect and report river performance

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to inspect and report river performance.

It includes inspecting and reporting on river flow performance of flood plains and river environments. It also includes monitoring river conditions, water quality, maintaining integrity of the bank, regulating and monitoring flows.

This unit applies to field staff with the responsibility of inspecting rivers. Those undertaking this unit would work under supervision, performing routine tasks, in familiar contexts.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Catchment and Dams

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Identify river performance requirements

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Record river performance according to relevant legislation and workplace requirements

1.2 Identify and record river conditions according to

		workplace procedures
	1.3	Conduct a risk assessment of the riverbank and identify control measures
	1.4	Identify environmental factors impacting water flows and quality
	1.5	Select and check equipment to meet safety requirements of task and worksite
	1.6	Select, fit and use personal protective equipment according to workplace procedures
2	Inspect and monitor performance	
	2.1	Schedule and conduct routine inspections of rivers or waterways according to workplace procedures
	2.2	Monitor water quality and flows of rivers
	2.3	Adjust required flows based on hydraulics and environmental factors
3	Report on river performance	
	3.1	Collect, interpret and report on process data and compile report
	3.2	Compile river data report and discuss with relevant personnel
	3.3	Report observations outside defined parameters and report to relevant personnel for further action

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPSOU030 Inspect and report river performance.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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Assessment Requirements for NWPCAD014 Inspect and report river performance

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- adjusting river flows
- assessing water levels
- collecting, interpreting, compiling and reporting data
- conducting a risk assessment
- identifying performance measures for the resource and operations
- identifying water flow, water quality and water quantity requirements
- interpreting relevant standards and legislation and organisational procedures
- locating requirements
- planning inspections of the river system
- using appropriate safety equipment when conducting inspections

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- effects of weather and conditions on operation of river systems
- environmental aspects of river systems
- equipment operation, capacity and limitations
- methods for collecting and reporting on data
- normal river conditions
- relevant legislation, regulations and workplace procedures
- risk factors and potential hazards involved with river systems
- river system layout
- river systems flow regimes
- system flows and transit times

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

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NWPCAD015 Operate and maintain locks and weirs

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to operate and maintain locks and weirs.

It includes regulating flows through the weir and operating lock gates. It also includes scheduling and undertaking maintenance, inspecting equipment and collecting data.

This unit applies to those working as field staff with the responsibility for operating locks and weirs in remote locations. Those undertaking this unit will work independently under appropriate supervision while performing routine tasks in a range of familiar contexts.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Catchment and Dams

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Prepare for work

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

- 1.1** Assess upstream flow and establish pool demand according to workplace procedures
- 1.2** Calculate inflow and outflow discharge rates according to workplace procedures

	1.3	Develop operation and maintenance plan according to work schedule
2 Operate locks and weirs	2.1	Operate the weir gates to control river flows and pool levels
	2.2	Store water in the weir pool and regulate river flow downstream
	2.3	Raise river level upstream of the weir to improve navigability of the river
	2.4	Operate the lock to allow river vessels to navigate through the weir
3 Maintain locks and weirs	3.1	Inspect the equipment of the locks, weirs and navigational aids to identify maintenance needs
	3.2	Schedule and undertake maintenance tasks according to the operational and maintenance plan
4 Finalise work	4.1	Collect data from monitoring points according to workplace procedures
	4.2	Compile reports from monitoring point data
	4.3	Identify and report current or potential operational problems to relevant personnel

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPSOU031 Operate and maintain locks and weirs.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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Assessment Requirements for NWPCAD015 Operate and maintain locks and weirs

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- calculating inflows and discharge rates
- identifying and investigating operational problems
- installing stop logs or bulk heads
- operating lock levels
- operating the lock gates
- operating winches
- performing at least one of the following types of maintenance:
 - greasing bearings
 - oiling hydraulics
 - painting metal work
 - removing debris
 - repairing concrete
- regulating flows through the weir

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- legislation relating to vessels within locks
- maintenance requirements of the following:
 - greasing bearings
 - oiling hydraulics
 - painting metal work
 - removing debris
 - repairing concrete
- materials characteristics including:
 - concrete

- hydraulic systems
- steel
- methods for collecting and reporting on data
- navigational rules
- relevant legislation, regulations and workplace procedures
- river flow considerations

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

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<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPCAD016 Operate and maintain fishways

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to operate and maintain fishways.

It includes operating and maintaining automated and manual fishways by regulating flows into fishway channels, including handling and disposing of fish.

This unit applies to field staff with the responsibility for operating fishways in remote locations. Those undertaking this unit will work independently under appropriate supervision while performing routine tasks in a range of familiar contexts.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Catchment and Dams

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Prepare work

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

- 1.1 Determine and apply the operational rules for the fishways from design reports
- 1.2 Perform worksite check to identify upstream flows entering the weir

	1.3	Plan gate opening and gate operations to ensure optimum fish attraction flows
	1.4	Develop plans for the maintenance of the fishways
2 Operate the fishways	2.1	Regulate weir and fishway gates to maintain fish attraction flows
	2.2	Identify, sort and record fish species and numbers
	2.3	Collect samples and conduct tests according to workplace procedures
	2.4	Identify operational faults in the fishway according to workplace procedures
3 Maintain the fishways	3.1	Inspect the fishway channel and identify maintenance needs
	3.2	Test equipment and schedule maintenance tasks according to maintenance plan
4 Finalise work	4.1	Monitor and record water flow and complete relevant documentation
	4.2	Collect fishway data from inspections and monitoring points
	4.3	Compile reports from the fishway data and report to relevant persons

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPSOU032 Operate and maintain fishways.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -

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Assessment Requirements for NWPCAD016 Operate and maintain fishways

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- collecting data
- collecting samples
- handling and disposing of fish
- identifying and investigating operational problems coordinating the operation of the fishway gates
- identifying fish species and their behaviour
- inspecting one or more of the following on the fishway channel to determine maintenance needs:
 - baffles
 - cages
 - gates
- interpreting design report
- performing maintenance on at least one of the following assets in the fishway channel:
 - lubricating gate slides
 - painting metal work
 - removing debris
 - repairing concrete
 - repairing lift equipment
- operating fishing handling equipment
- performing at least two of the following tests:
 - conductivity
 - dissolved oxygen
 - pH
 - temperature
- producing plans

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- blackwater problems
- fish biology including species and behavioural attributes
- fishway hydraulics
- fishway passage requirements
- maintenance requirements of fishway channel
- methods to collect and report on data
- operational rules for fishways
- relevant legislation, regulations and workplace procedures
- sample and test requirements

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

Links

Companion Volume implementation guides are found in VETNet -
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NWPCAD017 Operate and maintain salt interception works

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to operate and maintain salt interception works.

It includes operating and maintaining salt water interception works.

This unit applies to field staff with the responsibility for making decisions relating to maintenance, repairs and operations as well as providing detailed reports on performance and optimisation of the salt interception works. Those undertaking this unit will work independently under appropriate supervision while performing routine tasks in a range of familiar contexts.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Catchment and Dams

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Prepare work

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Collect data to determine ground water levels

1.2 Determine evaporation pond water balance capacity

		1.3	Develop salt interception plan according to workplace procedures
2	Operate salt interception works	2.1	Identify, set and adjust pump station components according to manufacturer instructions
		2.2	Conduct routine security inspections according to workplace procedures
		2.3	Operate pump station according to manufacturer instructions
3	Maintain salt interception works	3.1	Conduct routine maintenance of salinity pump stations including locking and tagging out of equipment
		3.2	Conduct acid dosing of salinity lines
		3.3	Maintain saline water collection and disposal pipelines
		3.4	Conduct repairs to pipelines and valves according to workplace procedures
4	Enhance salt interception performance	4.1	Optimise salt interception performance by adjusting system processes
		4.2	Undertake hydraulic performance of saline collection and disposal pipelines
5	Compile salt interception reports	5.1	Collect required data from monitoring points
		5.2	Report salt interception works performance to relevant personnel

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPSOU033 Operate and maintain salt interception works.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPCAD017 Operate and maintain salt interception works

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- collecting samples and conducting water tests
- gathering groundwater data
- locking and tagging out of equipment
- maintaining bores and piezometers
- maintaining one of the following pieces of equipment including:
 - dose acids
 - piezometers
 - pipes
 - pumps
 - valves
- optimising pipelines and pump stations
- repairing pipelines and valves
- storing, handling and using chemicals

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- chemical handling and dosing procedures and requirements
- groundwater data collection
- groundwater hydraulics
- legislation relating to salt interception works
- maintenance scheduling
- methods for collecting and reporting on data
- optimisation principles for pump stations and pipelines
- pipeline hydraulics
- pump performance
- relevant legislation, regulations and workplace procedures

- valve selection and operation

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

Links

Companion Volume implementation guides are found in VETNet -
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NWPCAD018 Monitor and operate bulkwater transfer systems

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to monitor and operate bulkwater transfer systems.

It includes preparing for work, monitoring system performance and usage and regulating flow. It also includes conducting routine maintenance, identifying the causes of fluctuating demand and collecting data.

This unit applies to those working as staff with specific responsibility for ensuring that the operation of bulk water transfer systems complies with legislative and organisational requirements. Those undertaking this unit would work under appropriate supervision, while performing routine tasks in a familiar context, ensuring minimum damage to the environment.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Catchment and Dams

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Prepare work

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Determine work requirements from job specifications and plans

	1.2	Perform site check to prevent damage to other utilities and the environment according to workplace procedures
	1.3	Select and check equipment to meet safety requirements of task and worksite
	1.4	Select, fit and use personal protective equipment according to workplace procedures
	1.5	Identify hazards with operating bulk water systems and determine control measures
2	Monitor system performance and usage	
	2.1	Conduct routine monitoring programs according to workplace maintenance schedules
	2.2	Identify faults causing fluctuations in demand and system changes causing dirty water
	2.3	Collect, analyse and record data on system performance and usage
	2.4	Collect process samples and conduct standard tests according to workplace procedures
3	Regulate flow	
	3.1	Monitor and adjust flow regulating systems to meet demand requirements
	3.2	Regulate and divert flows to facilitate repair or emergency activities

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPNET043 Monitor and operate bulkwater transfer systems.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -

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Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPCAD018 Monitor and operate bulkwater transfer systems

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- applying workplace procedures and industry standards
- collecting and recording data
- identifying and responding to operational problems
- identifying hazards and determining control measures
- identifying system faults
- monitoring and operating bulkwater transfer systems
- operating bulkwater systems
- planning and preparing for work
- producing reports
- regulating water flow
- regulating water pressure
- using safety and personal protective equipment

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- bulkwater transfer system layout
- control systems
- effects of weather and conditions on systems, site or plant
- environmental aspects of operation
- equipment operation, capacity and limitations
- forces including gravitational, valve operation, hydraulic and pumps
- illegal connections
- lock-out procedures for mechanical and electrical installations
- methods for collecting data
- relevant legislation, regulations and workplace procedures
- relevant utilities and service bodies

- risk factors and potential hazards of operating water transfer systems
- system hydraulics

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

Links

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<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPCAD019 Monitor and operate groundwater extraction

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to monitor and operate groundwater extraction.

It includes monitoring the extraction of water from waterways and water bodies and reporting risks, compliance and complaints. It also includes operating pumps and meters, monitoring availability and quality of supply, controlling water flows from the source and applying legislative and workplace requirements.

This unit applies to field staff with responsibility for ensuring water extraction complies with water use legislation. Those undertaking this unit would work under appropriate supervision, while performing routine tasks in range of familiar contexts.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Catchment and Dams

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Prepare for work

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Interpret relevant legislation, workplace procedures and requirements

	1.2	Locate bore sites from plans and job specifications
	1.3	Schedule and plan inspection of bore asset and communicate with appropriate personnel
	1.4	Select, check and prepare equipment to monitor water extraction
	1.5	Conduct a risk assessment of bore operations and determine control measures
2	Monitor and operate groundwater extraction systems	
	2.1	Monitor designated locations within groundwater source area according to agreed schedule
	2.2	Conduct inspection of bore assets, take meter readings and for water depth
	2.3	Calculate recharge and extraction rates
	2.4	Collect samples and conduct standard tests according to workplace procedures
	2.5	Adjust pump flows to meet customer orders
	2.6	Identify breaches according to legislation and workplace procedures
3	Identify and report risks, breaches and complaints	
	3.1	Identify risks to stakeholders and environment
	3.2	Identify and report breaches according to workplace procedures
	3.3	Investigate and report complaints from the stakeholders regarding water allocation and quality

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPSOU051 Monitor and operate groundwater extraction.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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Assessment Requirements for NWPCAD019 Monitor and operate groundwater extraction

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- adjusting pump flows
- calculating recharge and extraction rates
- collecting samples
- conducting risk assessment
- identifying and preventing well contamination
- inspecting bore assets
- interpreting plans, instructions and standard operating procedures
- reading levels and meters

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- characteristics of groundwater and aquifer
- characteristics of groundwater systems
- effects of weather and conditions on operation of site or plant
- methods for investigating and reporting complaints
- risk factors and potential hazards of groundwater source systems
- relevant legislation, regulations and workplace procedures
- system hydraulics and flushing
- system layout
- types of bore construction and principles
- water extraction equipment including operation, capacity and limitations
- well contaminants

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training

Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

Links

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<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPCAD020 Inspect and operate groundwater regulation

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to inspect and operate groundwater regulation.

It includes inspecting, operating, measuring and reporting on groundwater usage and system performance.

This unit applies to field and operational staff with a specific responsibility for inspecting and checking groundwater sources. Those undertaking this unit would work under appropriate supervision while performing routine tasks in a familiar context, ensuring minimum damage to the environment.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Catchment and Dams

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Inspect and report on source performance and usage

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Conduct routine inspections of groundwater bores according to workplace procedures

	1.2	Collect and record data on groundwater usage and/or bore levels
	1.3	Collect and record water samples according to workplace procedures
	1.4	Select, fit and operate required safety equipment, including personal protective equipment
2 Check pumps and meters	2.1	Test bore pumps and check flow meters to determine accuracy
	2.2	Adjust pumps and flow meters to conform to the allocation permit
3 Operate and coordinate processes	3.1	Measure and record extraction volumes and report to appropriate personnel
	3.2	Check extraction volumes for compliance with water entitlements
4 Complete documentation	4.1	Record inspection results and report to appropriate personnel
	4.2	Report source data according to workplace procedures

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPSOU052 Inspect and operate groundwater regulation.

Links

Companion Volume implementation guides are found in VETNet - <https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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Assessment Requirements for NWPCAD020 Inspect and operate groundwater regulation

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- calculating flows
- collecting and recording data
- collecting and recording samples
- completing relevant documentation
- following workplace procedures
- identifying control system faults
- identifying potential sources of contamination
- inspecting groundwater bores
- performing inspection, regulation, operation, measurement and reporting of groundwater systems
- recording extraction volumes and checking for compliance
- solving operational problems
- testing and adjusting pumps and flow meters to produce required flows
- using safety equipment and personal protective equipment

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- communication systems
- control systems
- effects of weather and conditions on pump and water assets
- equipment operation
- hazardous materials handling
- methods for collecting and recording data
- organisational and statutory requirements
- principles of hydraulics
- principles of soil mechanics

- properties of stored water
- relevant legislation, regulations and workplace procedures
- relevant utilities and service bodies
- risk management techniques
- system layout.

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

Links

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<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPCAD021 Coordinate and monitor bulkwater system operations

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to coordinate and monitor bulkwater system operations.

It includes monitoring and coordinating the operation of bulkwater systems, measuring and reporting on system performance and process quality control.

This unit applies to workers responsible for ensuring that bulkwater system operations are coordinated and monitored to ensure compliance with organisational and statutory requirements. Those undertaking this unit would work autonomously, usually with supervisory responsibilities, while performing complex tasks in a range of contexts.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Catchment and Dams

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Confirm performance

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Identify water flow, quality and quantity requirements

measures

	1.2	Identify surveillance and stakeholder requirements
	1.3	Identify operational performance measures
	1.4	Identify environmental factors impacting on water flows and quality
2 Monitor and coordinate asset performance	2.1	Identify hazards, assess risks and implement control measures according to workplace procedures
	2.2	Select, fit and use equipment, including personal protective equipment
	2.3	Apply monitoring and testing programs according to workplace procedures
	2.4	Monitor assets to ensure performance meets specifications in management plan
	2.5	Develop and schedule maintenance programs
	2.6	Monitor water flows and quality according to stakeholder needs
	2.7	Coordinate processes to meet plan requirements and targets
	2.8	Optimise system performance according to workplace procedures
3 Finalise work	3.1	Analyse, record and report coordination and monitoring data to relevant stakeholders
	3.2	Identify and report current and potential problems

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPSOU041 Coordinate and monitor bulkwater system operations.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPCAD021 Coordinate and monitor bulkwater system operations

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- collecting and recording data
- coordinating and optimising system performance
- developing and scheduling maintenance plans
- identifying and investigating operational problems
- identifying system performance measures, stakeholder requirements and environmental factors that may influence performance
- implementing monitoring and testing programs
- interpreting policies, procedures and standards
- monitoring and coordinating the operation of bulkwater systems
- producing required reports
- using safety equipment and personal protective equipment

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and include knowledge of:

- chemical use
- control systems
- coordination processes
- effects of weather and conditions on operation of supply networks
- environmental aspects of bulkwater systems
- equipment operation, capacity and limitations
- monitoring and testing requirements
- pumping and valving systems
- relevant legislation, policies and procedures
- risk factors and potential hazards involved with water pressures and flows
- system hydraulics
- system layout processes

- workplace reporting requirements

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPCAD022 Coordinate and monitor groundwater system usage

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to coordinate and monitor groundwater system usage.

It includes coordinating and monitoring the use of groundwater as a source of water supply, ensuring Ground Water Management Plan (GWMP) performance measures are met, environmental issues are addressed and a source of supply is maintained.

This unit applies to workers with a specific responsibility for ensuring groundwater systems usage complies with the GWMP and assets and processes comply with organisational and statutory requirements. Those undertaking this unit would work autonomously, usually with supervisory responsibilities, while performing complex tasks in a range of contexts.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Catchment and Dams

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Confirm GWMP performance measures

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Identify groundwater management, stakeholder and water quality and quantity requirements

		1.2	Gather and apply historical groundwater information
		1.3	Identify environmental factors and issues impacting on groundwater
2	Monitor and coordinate processes	2.1	Conduct monitoring and testing programs according to workplace procedures
		2.2	Monitor groundwater usage and quality
		2.3	Identify, investigate and report breaches of usage provisions and changes to quality parameters
3	Monitor performance of assets	3.1	Identify hazards, assess risks and implement control measures according to workplace procedures
		3.2	Inspect and monitor assets to ensure performance meets specifications in plan
		3.3	Select, fit and use personal protective equipment
		3.4	Develop and schedule maintenance programs to meet current and potential problems
4	Report on groundwater system usage	4.1	Analyse, record and report coordination and monitoring data
		4.2	Identify and investigate current and potential problems
		4.3	Report investigation results and recommendations to relevant personnel

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPSOU053 Coordinate and monitor groundwater

system usage.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPCAD022 Coordinate and monitor groundwater system usage

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- analysing and reporting asset performance data
- coordinating and monitoring groundwater system usage
- identifying groundwater management requirements, including water quality and quantity requirements
- identifying hazards, assessing risks and implementing control measures
- identifying, investigating and reporting current and potential asset problems including recommendations for action
- identifying stakeholder requirements and environmental and developmental factors impacting on groundwater
- implementing monitoring and testing programs
- investigating and reporting on breaches
- monitoring assets performance
- monitoring groundwater usage and quality
- scheduling asset maintenance programs
- undertaking inspections
- using safety equipment and personal protective equipment

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and include knowledge of:

- concrete structure, strengths and deterioration principles
- control systems
- effects of weather and conditions on bulkwater assets
- environmental factors including effects of weather and conditions on bulkwater assets
- equipment operation
- groundwater hydraulics
- hazardous materials handling
- relevant legislation, policies and procedures, organisational and statutory requirements

- risk management techniques
- stakeholder expectations and requirements
- system layout

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPCAD023 Develop and implement catchment operational plans

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to develop and implement catchment operational plans.

It includes confirming performance measures, monitoring catchment activities and reporting outcomes of testing and monitoring.

This unit applies to workers with a specific responsibility for ensuring storage catchment activities comply with organisational and statutory requirements. Those undertaking this unit would work autonomously, usually with supervisory responsibilities, while performing complex tasks in a range of contexts.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Catchment and Dams

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Confirm performance

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Identify catchment management, stakeholder and water

measures	quality and quantity requirements
	1.2 Gather historical catchment information and apply
	1.3 Identify environmental factors and issues impacting on the catchment area
2 Monitor catchment activities	
	2.1 Identify hazards, assess risks and implement control measures according to workplace procedures
	2.2 Conduct monitoring and testing programs according to workplace procedures
	2.3 Implement and coordinate catchment operational and maintenance plan according to workplace procedures
	2.4 Monitor catchment area usage and maintenance activities
3 Report outcome of testing and monitoring	
	3.1 Analyse, record and report coordination and monitoring data
	3.2 Identify and investigate current and potential problems and report results to relevant personnel and stakeholders
	3.3 Identify, investigate and report breaches of usage provisions

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPSOU014 Develop and implement catchment operational plans.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPCAD023 Develop and implement catchment operational plans

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- coordinating and monitoring water storage catchment activities
- identifying catchment management requirements
- identifying stakeholder requirements and environmental factors impacting on water storage catchment areas
- identifying water quality risks and implementing protection strategies
- implementing monitoring and testing programs
- investigating and reporting on breaches
- reporting on monitoring activities

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and include knowledge of:

- catchment management issues including:
 - conservation management
 - feral/native animals
 - fire management
 - human interaction with the catchment including litter and waste
 - perimeter inspections
 - policing role
 - remote community catchment areas
 - transfer of noxious weeds
- communication systems
- coordination processes
- environmental aspects of catchment areas
- pest control requirements
- range of appropriate monitoring and testing procedures
- relevant catchment stakeholders

- relevant historical records
- relevant legislation, and workplace policies and procedures
- risk factors and potential hazards involved with catchment area processes including:
 - effects of weather and conditions on operation of catchment areas
 - equipment operation, capacity and limitations
 - risk principles
- stakeholder expectations and requirements
- system layout processes

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPCAD024 Implement dam safety plans

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to implement dam safety plans.

It includes planning, scheduling, implementing and reporting on dam safety surveillance.

This unit applies to those working as staff with a specific responsibility for managing the safety surveillance of large dams. Those undertaking this unit would work autonomously, usually with supervisory responsibilities, while performing complex tasks in a range of contexts.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Catchment and Dams

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Prepare for dam safety surveillance

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1	Access and apply relevant legislation and documentation
1.2	Implement safety surveillance policies, plans and procedures

	1.3	Access and interpret historical, design and operational information
	1.4	Assess and document dam behaviour and potential failure modes
	1.5	Determine instrumentation requirements and data collection methods
2	Implement dam safety surveillance plans	
	2.1	Inform stakeholders of policies and plans
	2.2	Develop inspection programs and implement inspection and monitoring procedures
	2.3	Communicate workplace procedures for the collection and recording of information to field staff
	2.4	Collate, process, validate, record and store data from instruments and personnel
	2.5	Review data and determine, record and evaluate structural, material and behavioural problems and report to relevant stakeholders
	2.6	Ensure dam safety emergency plans are current and regularly exercised
	2.7	Develop, resource and implement operational and maintenance plans
3	Complete safety surveillance reports	
	3.1	Prepare and distribute reports to meet dam owner, stakeholder and regulatory requirements
	3.2	Include recommendations for remedial action
	3.3	Undertake cost estimates and work schedules according to enterprise requirements

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work

environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPSOU026 Implement dam safety plans.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPCAD024 Implement dam safety plans

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- analysing and processing data
- completing safety surveillance reports
- conducting dam safety emergency exercises
- implementing dam safety surveillance, operational and maintenance plans
- inspecting and operating instruments
- planning, scheduling, implementing and reporting on dam safety surveillance

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and include knowledge of:

- communication systems
- composition and behaviour structures
- construction procedures
- dam design principles
- maintenance and operational practices
- materials science
- methods to prepare cost estimates
- principles of dam surveillance
- principles of geomechanics
- principles of hydraulics and hydrology
- relevant legislation and workplace procedures
- relevant stakeholders
- risk management techniques

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training

Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPGEN017 Apply the risk management principles of the water industry standards, guidelines and legislation

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to apply the risk management principles of the water industry standards, guidelines and legislation.

It includes identifying relevant guidelines of the water industry, describing risk management principles for the control of contaminants in the water cycle, applying principles to work context and reviewing and evaluating water quality management principles. It also includes complying with risk management principles established in relevant guidelines for the water industry which contribute to the improved management of water supply systems and the reduction of water quality risks.

This unit supports the attainment of skills and knowledge required for those working in all roles in the water industry. Those undertaking this unit would work under appropriate supervision, while performing routine tasks in a range of contexts.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

General

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

PERFORMANCE CRITERIA

Elements describe the essential Performance criteria describe the performance needed to

outcomes.

demonstrate achievement of the element.

1 Identify relevant guidelines of the water industry	1.1 Identify and follow relevant guidelines and legislative requirements 1.2 Identify the key features and elements or relevant water guidelines
2 Identify risk management principles for control of contaminants in the water cycle	2.1 Identify the main components of workplace water systems 2.2 Identify relevant risks and hazards utilising workplace risk management principles 2.3 Identify the general function of controlling contaminants in the water system with the use of multiple barrier principles
3 Apply principles to work context	3.1 Identify requirements for the workplace water quality management plan 3.2 Identify the links between the regulatory framework and work practices 3.3 Apply the principles to work practices 3.4 Follow workplace procedures for recording water quality incidents 3.5 Participate in continuous improvement of work practices to achieve water quality outcomes

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPGEN001 Apply the risk management principles of the water industry standards, guidelines and legislation.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPGEN017 Apply the risk management principles of the water industry standards, guidelines and legislation

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- accessing and interpreting risk management principles
- completing workplace documentation of water quality incidents
- identifying risk control measures
- identifying the main functions of a water supply system
- listing the requirements of risk management plans
- maintaining records of water quality incidents
- undertaking hazard identification and risk assessment on a specific project or worksite.

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- chronic and acute health impacts from human exposure to contaminants in water
- principles of relevant guidelines
- relationship between guidelines, water quality management plans and work practices
- relationships between guidelines and state and territory regulatory requirements
- relevant legislation, regulations and workplace procedures
- water cycle
- water quality risk assessment and control procedures
- water quality risk factors and performance indicators
- workplace risk management procedures

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory

requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

Links

Companion Volume implementation guides are found in VETNet -
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<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPGEN018 Follow environmental and licensing procedures

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to follow environmental and licensing procedures.

It includes relating environmental procedures to specific projects or worksites and reporting on environmental processes and incidents. It also includes implementing established environmental and licensing procedures, contributing to improving environmental practices in identifying and minimising environmental risks and impacts of work-related activities on the local environment.

Those undertaking this unit would work under appropriate supervision while performing specific tasks in a broad range of contexts.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

General

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Follow environmental procedures at worksite

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Identify and follow organisational environmental procedures and relevant legislative, regulatory and licensing requirements

	1.2	Identify and record environmental risks and impacts at worksite
	1.3	Plan control measures to overcome identified risks and meet required environmental outcomes at worksite
	1.4	Follow organisational procedures for dealing with potential environmental incidents at worksite
2	Report environmental processes and incidents	
	2.1	Access documentation relating to environmental management reports
	2.2	Identify and report environmental risks to relevant personnel
	2.3	Record and report incidents while monitoring conformance
	2.4	Report licensing breaches to relevant personnel or agencies

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPGEN003 Apply environmental and licensing procedures of the water industry.

Links

Companion Volume implementation guides are found in VETNet - <https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet - <https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPGEN018 Follow environmental and licensing procedures

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- completing workplace records and reports
- contributing to improved environmental practices
- following control procedures to environmental risks and incidents
- following established environmental procedures
- following relevant legislative and licensing responsibilities
- identifying and minimising environmental risks and the impact of work-related activities on the local environment
- identifying environmental protection requirements of a worksite
- identifying environmental risks at worksite and reporting to relevant personnel

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- environmental impact assessment techniques
- heritage conservation awareness
- relevant community and agency roles and responsibilities
- relevant hazardous agents and preventative strategies
- relevant legislative requirements, responsibilities, policies and procedures
- relevant licensing requirements
- relevant quality performance indicators

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the

time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

Links

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<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPGEN019 Assess, implement and report environmental procedures

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to assess, implement and report environmental procedures.

It includes assessing environmental requirements of specific projects or worksites and reviewing the application of environmental procedures. It also includes identifying and minimising the environmental impact of industry work activities, identifying general environmental risks and monitoring environmental procedures.

Those undertaking this unit would work under indirect supervision, while performing mostly specific tasks in a range of contexts.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

General

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Assess environmentally

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Identify and investigate environmental issues according

sustainable requirements		to relevant legislation and standards
2 Implement environmental procedures	1.2	Assess and record environmental risks and impacts and determine control measures
	1.3	Relate relevant environmental procedures for each environmental risk
	2.1	Plan activities for the selected environmental procedures for the worksite and take relevant action
	2.2	Record and report environmental incidents and implement environmental and emergency procedures
	2.3	Implement control measures according to workplace procedures
	3.1	Monitor the effects of selected environmental controls and report to relevant personnel
	3.2	Complete environmental reporting procedures for the specific project or worksite
3 Report and review the application of environmental procedures	3.3	Report environmental risks, potential impacts and incidents according to workplace procedures
	3.4	Contribute to regular reviews of environmental procedures for continuous improvement

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPGEN004 Assess, implement and report

environmental procedures.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPGEN019 Assess, implement and report environmental procedures

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- accessing, interpreting and applying relevant workplace procedures
- assessing and reporting environmental risks
- contributing to the continuous improvement of environmental procedures
- identifying and investigating environmental issues
- implementing control measures
- monitoring and reviewing the effectiveness of environmental procedures
- reporting environmental incidents

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- community and agency roles and responsibilities
- control measure implementation
- environmental sustainability
- environmental risks and impacts
- hazards and risk control measures including preventative strategies
- heritage and cultural conservation
- relevant legislative requirements, responsibilities and procedures
- relevant primary agencies involved

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

Links

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<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPGEN020 Sample and test source or drinking water

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to sample and test source or drinking water.

It includes preparing for and conducting worksite source and treated water quality sampling and testing. It also includes reporting abnormal findings and finalising work. This unit does not include off-site laboratory testing.

This unit applies to those working in field operations in various industries. Those undertaking this unit would work under appropriate supervision, while performing routine tasks in a range of familiar contexts.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

General

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Prepare for water quality sampling and testing

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Determine work requirements from standard operation procedures

1.2 Confirm and record samples, locations and tests to

- comply with requirements
- 1.3** Select and check relevant equipment and tools to meet tasks and safety requirements
 - 1.4** Select and apply relevant sample preservation methods
 - 1.5** Select, fit and use personal protective equipment according to workplace procedures
 - 1.6** Limit hazards and contamination to protect self, work area and environment
- 2 Conduct water quality sampling and testing**
- 2.1** Apply chain of custody principles according to workplace procedures
 - 2.2** Collect samples ensuring types, locations, times and labels comply with requirements and workplace procedures
 - 2.3** Prepare samples for off-site laboratory testing according to requirements
 - 2.4** Maintain integrity of samples during sampling and onsite testing
 - 2.5** Conduct worksite water quality tests according to workplace procedures and record results
 - 2.6** Assess and report abnormal characteristics to relevant personnel
- 3 Finalise work**
- 3.1** Clear and restore work area
 - 3.2** Report observations or measurements requiring further action to relevant personnel
 - 3.3** Dispose of samples, clean and store test equipment according to workplace procedures

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work

environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPGEN007 Sample and test drinking water.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPGEN020 Sample and test source or drinking water

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- assessing risks
- calibrating worksite testing equipment
- collecting samples from at least one of the following:
 - source water
 - treated water
- disposing of waste and spent samples
- following sampling and testing procedures
- performing at least three of the following types of worksite tests on the collected samples:
 - chlorine
 - colour
 - dissolved oxygen
 - electrical conductivity
 - pH
 - temperature
 - turbidity
- planning and preparing for water sampling tasks
- preparing, checking and using equipment
- preparing, collecting, labelling and preserving water samples
- recording all required information

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- abnormal characteristics of water samples and test results
- chain of custody
- effects of weather and conditions on work
- hazards associated with collection of water samples

- maintenance and storage of reagents
- range and purpose of on worksite water quality testing and sampling
- requirements for maintaining sample integrity
- sample types for the following tests:
 - chemical
 - microbial
 - physical
 - radiological
- water sample preparation
- workplace policies and procedures

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPGEN021 Sample and test wastewater

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to sample and test wastewater.

It includes preparing for and conducting wastewater sampling and testing and finalising work. It also includes collecting and preparing wastewater samples and performing wastewater tests. This unit does not include off-site laboratory testing.

This unit applies to those working in field operations in industries. Those undertaking this unit would work under appropriate supervision, while performing routine tasks in a range of familiar contexts.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

General

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Prepare for wastewater sampling and testing

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Determine work requirements from standard operating procedures

1.2 Confirm and record samples, locations and tests to

		comply with requirements
	1.3	Select and check and relevant equipment and tools to meet tasks and safety requirements
	1.4	Select and apply relevant sample preservation methods
	1.5	Select, fit and use personal protective equipment according to workplace procedures
2	Conduct wastewater sampling and testing	
	2.1	Apply chain of custody principles according to workplace procedures
	2.2	Collect samples ensuring types, locations, times and labels comply with requirements and workplace procedures
	2.3	Prepare samples for off-site laboratory testing according to requirements
	2.4	Maintain integrity of samples during sampling and worksite testing
	2.5	Conduct worksite wastewater quality tests according to workplace procedures and record results
	2.6	Assess and report abnormal characteristics to relevant personnel
3	Finalise work	
	3.1	Clear and restore work area according to workplace procedures
	3.2	Report observations or measurements requiring further action to relevant personnel
	3.3	Dispose of samples, clean and store test equipment according to workplace procedures

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPGEN008 Sample and test wastewater.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -

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Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPGEN021 Sample and test wastewater

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- assessing risks
- calibrating worksite testing equipment
- collecting samples from at least one of the following:
 - effluents
 - raw wastewater
 - reclaimed water
 - sludges
- disposing of waste and spent samples
- following sampling and testing procedures
- performing at least three of the following types of worksite tests on the collected samples:
 - dissolved oxygen
 - electrical conductivity
 - foaming
 - microscopic observations
 - odours
 - pH
 - redox potential
 - settleability
 - sludge blanket depth
 - temperature
 - visual observations
- planning and preparing for wastewater sampling tasks
- preparing, checking and using equipment
- preparing, collecting, labelling and preserving wastewater samples
- recording all required information

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- abnormal characteristics of wastewater samples and test results
- chain of custody
- effects of weather and conditions on work
- hazards associated with collection of wastewater samples
- maintenance and storage of reagents
- range and purpose of worksite wastewater testing and sampling
- requirements for maintaining sample integrity
- sample collection methods:
 - composite
 - grab
- sample types for the following tests:
 - chemical
 - microbial
 - physical
- wastewater sample preparation
- workplace policies and procedures

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPGEN022 Perform laboratory testing

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to perform laboratory testing.

It includes performing laboratory tests using standard methods and procedures, using and calibrating equipment and preserving the integrity of samples. It also includes performing calculations and identifying and reporting discrepancies.

This unit applies to those working in industry under appropriate supervision, while performing complex tasks in a range of contexts.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

General

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Prepare samples for testing

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Register and record laboratory samples, ensuring required information is transcribed accurately and legibly

	1.2	Identify samples to be tested, appropriate test method, equipment and safety requirements
	1.3	Maintain integrity of samples during sub-sampling as per workplace procedures
	1.4	Assess and report abnormal characteristics to relevant personnel
2 Prepare for laboratory testing	2.1	Set up test equipment according to appropriate test method and workplace procedures
	2.2	Conduct pre-use and safety checks on test equipment according to workplace procedures
	2.3	Identify and report faulty or unsafe equipment to relevant personnel
	2.4	Check the calibration status of equipment and conduct calibration or report calibration requirements to relevant personnel
3 Perform tests on samples	3.1	Preserve the integrity of sub-samples and eliminate the possibility of cross-contamination
	3.2	Identify, prepare and weigh or measure sample to be tested
	3.3	Follow test methods and perform sequence of tests using safety equipment and verification standards
	3.4	Use calculations to determine results of tests
	3.5	Shut down, clean and store equipment according to manufacturer instructions and workplace procedures
	3.6	Store unused reagents and dispose of wastes as required by relevant legislation, regulations and codes of practice
4 Finalise work	4.1	Apply chain of custody principles to laboratory testing
	4.2	Record results and complete relevant documentation
	4.3	Identify and report discrepancies requiring further action to relevant personnel
	4.4	Clear and restore work area according to workplace procedures

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPGEN009 Perform laboratory testing

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
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Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPGEN022 Perform laboratory testing

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- comparing sample description with the specification, recording results and reporting discrepancies
- calculating and recording test results
- interpreting laboratory test methods
- limiting hazards and contamination to self, work area and environment
- performing at least two types of sample preparations for the following:
 - digestion
 - dilution
 - filtration
 - heating/cooling
 - mixing/agitation
 - neutralisation/ quenching
 - sub sampling
- performing sub-sample and testing products
- producing laboratory reports
- registering and preserving samples
- selecting the correct equipment and checking equipment performance
- using laboratory safety equipment and personal protective equipment
- using the following laboratory equipment including:
 - gravimetric
 - potentiometric
 - spectrophotometric
 - volumetric

Knowledge Evidence

- calibration and pre-use equipment checks
- reference, standards or buffers

- principles of the standard methods for laboratory analysis
- procedures for recognition of unexpected or unusual results and likely causes
- purpose of tests
- relevant legislation, regulations and workplace procedures
- relevant workplace procedures for sampling and testing
- safety data sheets
- source of uncertainty in measurements and methods for control

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPGEN023 Use maps, plans, drawings and details

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to use maps, plans, drawings and details.

It includes reading and interpreting maps, plans, drawings and specifications and recording and advising on changes and errors.

This unit applies to those using maps, plans and drawings in industry. Those undertaking this unit would work under appropriate supervision, while performing routine tasks in a range of contexts.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

General

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Interpret maps, plans, drawings and specifications

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Identify and locate maps, plans, drawings and specifications required to complete work tasks

1.2 Interpret commonly used symbols and abbreviations

		according to the drawing standards
	1.3	Interpret, apply and verify the latest version and functions of the legend
	1.4	Identify natural and constructed features on maps, plans and drawings
	1.5	Identify specifications to maps, plans and drawings
2	Use maps, plans and drawings	
	2.1	Implement technical data according to workplace procedures
	2.2	Use scales to calculate distances using maps and plans
	2.3	Confirm orientation, boundaries and identified features of the worksite
	2.4	Identify any errors in the maps, plans, drawings and specifications and report to relevant personnel
3	Record and advise on changes and errors	
	3.1	Amend a map or plan according to workplace procedures
	3.2	Take measurements and record features on a map or drawing
	3.3	Record and report amendments to relevant personnel

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPGEN011 Use maps, plans, drawings and specifications.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPGEN023 Use maps, plans, drawings and details

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- adjusting a map or plan representing an actual or simulated work environment including the following:
 - constructed features
 - natural features
 - symbols
- identifying errors in maps, plans, drawings and specifications locating maps, plans, drawings and specifications for work tasks
- locating worksites and boundaries
- using information provided in maps, plans and drawings to complete a task

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- features of maps, plans and drawings including:
 - contours
 - datum points
 - dimensions
 - gradients
 - constructed
 - natural
 - planes
 - sections
 - symbols
 - terminology
- formulas of volumes, area and mass
- range of maps, plans and drawings to different assignment situations
- relevant legislation, regulations and workplace procedures

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPGEN024 Identify the role and functions of the water industry

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

It includes identifying stakeholders and customers in the water industry, identifying legislative frameworks and translating and contextualising application into own role in the organisation . It also includes working effectively in the water industry by understanding the role of water organisations in the community, services they provide, water systems used, the importance of maintaining water quality and structure of organisations. The ability to understand the water cycle and the link between the services and systems of the water organisation and supply to, and usage by, the consumer is essential to performance.

This unit applies to those working in the water industry. Those undertaking this unit would work under appropriate supervision, while performing specific tasks in a range of familiar contexts.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

General

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

PERFORMANCE CRITERIA

Elements describe the essential Performance criteria describe the performance needed to

outcomes.

demonstrate achievement of the element.

1 Identify elements of the water cycle	1.1 Identify components of the natural water cycle 1.2 Identify human intervention and environmental impacts on the natural water cycle
2 Identify functions of water systems	2.1 Identify water industry operational processes 2.2 Identify how each operational process relates to the water cycle
3 Recognise stakeholders and customers	3.1 Identify services provided to customers 3.2 Identify stakeholders and respective roles 3.3 Describe the structure of the water industry at state or territory level
4 Identify legislative framework	4.1 Identify bodies responsible for establishing and managing standards for water quality relevant to organisation 4.2 Identify relevant guidelines 4.3 Determine legislative, regulatory and licensing requirements governing the industry and understand their impact
5 Identify role functions in organisational structure	5.1 Describe organisational structure and role functions 5.2 Describe how own role contributes to organisational outcomes

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPGEN012 Support the role and functions of the water industry.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
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Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPGEN024 Identify the role and functions of the water industry

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- describing natural impacts on water cycles and how they impact on customers
- identifying agencies involved in water management
- identifying systems and customer services offered by a water industry organisation
- identifying the factors which influence customer expectations and satisfaction
- identifying water industry stakeholders
- identifying water systems and infrastructure

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- community and agency roles and responsibilities in monitoring water quality
- environmental impact assessments
- legal, social, community and environmental requirements
- relevant legislation and industry guidelines
- relevant occupational functions within the water industry including:
 - catchment and dams
 - hydrometric monitoring
 - irrigation water supply
 - networks
 - reclaimed water
 - trade waste
 - wastewater treatment
 - water treatment
- relevant workplace policies and procedures
- water authorities and agencies
- water industry terminology
- water supply system

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPGEN025 Apply principles of chemistry to water systems and processes

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to apply principles of chemistry to water systems and processes.

It includes identifying the principles and processes of chemistry to water systems and selecting the relevant and effective chemicals required for specific processes.

This unit applies to a range of operational roles within the water industry and is fundamental to all quality monitoring and treatment processes. Those undertaking this unit would work under appropriate supervision while performing complex tasks within a range of contexts.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

General

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Apply chemistry to water processes

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Apply relevant chemistry principles to improve performance of specific water processes

	1.2	Identify and describe chemical reactions specific to water processes
2 Identify the use of chemicals in water industry processes	2.1	Assess the functions of the range of industry chemicals in relation to their use in water processes
	2.2	Identify and describe factors influencing the effectiveness of chemical use
	2.3	Store, handle and prepare chemicals according to workplace procedures
3 Select chemicals for specific water industry processes	3.1	Identify the range of chemicals available for specific water industry processes
	3.2	Evaluate the factors affecting the selection of chemicals for particular water industry applications
	3.3	Select suitable chemicals and calculate correct usage for a range of specific water industry processes

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPGEN013 Apply principles of chemistry to water systems and processes.

Links

Companion Volume implementation guides are found in VETNet - <https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPGEN025 Apply principles of chemistry to water systems and processes

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

- identifying risks and hazards interpreting a range of complex and technical documents including relevant:
 - codes and standards
 - organisational policies
 - regulatory, legislative, licensing and organisational requirements
 - specifications of chemicals
- performing various calculations to provide data for the analysis and development of options and solutions
- selecting appropriate chemicals for water industry processes

Knowledge Evidence

- chemical concepts relevant to water industry processes
- chemical reactions
- factors affecting the selection of chemicals
- factors influencing the effectiveness of chemicals
- functions of various chemicals in water industry processes
- range and characteristics of chemicals used in various water industry processes
- relevant legislation, regulations and workplace procedures
- standards and workplace policies and procedures determining the use and management of chemical processes including work health and safety (WHS)

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the

time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
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NWPGEN026 Provide and promote customer service

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to provide and promote customer service.

It includes responding effectively to the needs of internal and external customers by the application of the organisation's standards and processes. The ability to solve problems, communicate effectively and seek opportunities to improve service to customers is essential to performance.

This unit applies to those working as field staff with specific responsibility for the provision of customer service to customers and suppliers of the organisation. Those undertaking this unit work under supervision, while performing routine tasks in a familiar context.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

General

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Apply customer service standards

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Identify and apply customer service policies and procedures

	1.2	Use effective communication to inform customers of available choices
	1.3	Apply relevant workplace processes for handling customer queries, complaints and disputes
	1.4	Apply effective communication techniques with customers and stakeholders
	1.5	Participate in team and work activities to address customer expectations and minimise inconvenience according to workplace procedures
	1.6	Use available resources to address customer requirements and services
2	Respond to customer needs and concerns	
	2.1	Determine customer needs and expectations
	2.2	Address customer needs or complaints clearly, politely and effectively
	2.3	Refer customer concerns related to organisational liability to appropriate personnel
3	Contribute to customer service standards	
	3.1	Review work performance to improve services to customers
	3.2	Record evidence of customer issues, document and report to appropriate personnel

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPIRR051 Provide and promote customer service.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPGEN026 Provide and promote customer service

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- addressing the concerns of customers
- applying dispute resolution skills
- applying interpersonal skills
- applying problem solving skills
- communicating effectively in a diverse work force
- communicating effectively with internal and external customers according to organisational procedures and standards
- contributing to improvements in customer service standards
- identifying both internal and external customers
- managing and reporting customer complaints according to workplace organisational procedures
- preparing resources and planning work to meet customer requirements
- reporting on customer issues
- reviewing customer service and customer satisfaction

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- communication techniques
- customer service standards and techniques
- problem solving strategies
- relevant legislation and regulations
- workplace policies and procedures, industry standards and quality systems

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training

Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

Links

Companion Volume implementation guides are found in VETNet -
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<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPGEN027 Monitor and operate pump stations

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to monitor and operate pump stations.

It includes pump stations in water and wastewater systems, undertaking minor maintenance or organising more complex maintenance. It also includes gland adjusting, packing replacement and replacing fittings.

This unit applies to staff with specific responsibility for ensuring pump stations operate according to workplace procedures. Those undertaking this unit would work under appropriate supervision, while performing routine tasks in a familiar context, ensuring minimal damage to the environment.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

General

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Prepare work

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Determine pump station work requirements from standard operating and maintenance procedures

	1.2	Perform worksite inspection to prevent damage to other utilities and the environment
	1.3	Select and check equipment and tools to meet task and safety requirements
	1.4	Select, fit and use personal protective equipment according to workplace procedures
	1.5	Handle, use and store chemicals according to safety data sheet and workplace procedures
2	Operate pump stations	
	2.1	Identify and set or adjust pump station components
	2.2	Perform routine security inspections and cleaning duties according to workplace procedures
	2.3	Operate pump station according to manufacturer instructions
3	Maintain pump stations	
	3.1	Inspect pump station components, identify maintenance needs and report to relevant personnel
	3.2	Schedule maintenance tasks, order appropriate materials and conduct maintenance tasks according to maintenance schedule
	3.3	Identify and report pump station faults and perform minor repairs
4	Monitor and adjust pump station performance	
	4.1	Apply pump station performance targets
	4.2	Identify and apply monitoring points and timing
	4.3	Monitor pump station and adjust to maintain operational parameters
	4.4	Identify and report observations outside defined parameters to relevant personnel for further action
5	Check outsourced maintenance work	
	5.1	Check completed maintenance and repairs meet specifications
	5.2	Return pumping station to service
6	Finalise work	
	6.1	Check, maintain and store equipment, tools and materials and report defects to relevant personnel

- 6.2 Restore worksite according to environmental and workplace procedures
- 6.3 Maintain workplace records according to workplace procedures

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPSOU054 Monitor and operate pump stations.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPGEN027 Monitor and operate pump stations

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- checking quality of outsourced maintenance work
- collecting data
- conducting a security inspection
- finalising work, including completing documentation
- following plans and instructions
- identifying system faults, operational problems and hazards
- maintaining workplace records
- monitoring and adjusting pump station performance
- operating and maintaining pumps and pumping stations
- operating service
- planning and preparing for work, including selecting equipment and chemicals
- producing reports and logs
- responding to operational problems
- using safety and personal protective equipment
- using tools, equipment and machinery.

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- control systems
- effects of weather and conditions on system including lightning strikes
- environmental aspects of operation
- equipment operation, capacity and limitations
- hazardous materials handling
- high and low voltage requirements
- lock-out procedures for mechanical and electrical installations
- principles affecting selection of pump station monitoring points and timing of monitoring

activities

- principles and purpose of pump operation
- pump and pump station operation and maintenance procedures and standards
- pump station components
- relevant legislation, regulations and workplace procedures
- relevant utilities and service bodies
- risk factors and potential hazards of operating wastewater transfer systems
- system hydraulics including suction and lift
- system layout
- types of pump and their operational function
- work, health and safety (WHS) requirements.

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

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NWPGEN028 Investigate and report on breaches of water industry legislation

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to investigate and report on breaches of water industry legislation.

It includes investigating breaches of legislation, conducting interviews and preparing reports for use in court proceedings.

This unit applies to those working in the water industry with a specific responsibility for enforcing water industry legislation including local by-laws. Those undertaking this unit would work independently, while performing complex tasks, in a broad range of contexts.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

General

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Investigate breaches of legislation

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Identify and investigate breaches of water industry legislation

	1.2	Collect and collate information about breaches of legislation
2	2.1	Issue notification of breaches to subjects according to workplace procedures
	2.2	Interview subjects and recommend remedial action or further action
	2.3	Record and collate interview notes and information relevant to the breaches
3	3.1	Prepare clear and concise reports for use in court proceedings according to stakeholder and workplace procedures
	3.2	Recommend action according to design specifications and workplace procedures

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPTRD011 Investigate and report on breaches of water industry legislation.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPGEN028 Investigate and report on breaches of water industry legislation

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- conducting interviews with offenders and taking notes
- identifying and investigating the source of infiltration and inflows
- identifying and reporting faults
- identifying control system faults
- investigating breaches of specific legislation
- investigating illegal inflows and discharges
- issuing correct notification of the breach to the offender
- monitoring inflows
- reporting evidence to appropriate personnel with recommendations for action
- using photographic or video cameras to gather evidence

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- court protocols
- environmental aspects of systems and infrastructure
- illegal diversions
- illegal inflows and discharges
- infiltration and inflow sources
- investigation processes
- relevant legislation including local by-laws and related workplace procedures
- risk management principles

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

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NWPGEN029 Contribute to continuous improvement of quality systems

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to contribute to continuous improvement of quality systems.

It includes understanding and implementing quality systems in the water industry and identifying opportunities for improvement in quality outcomes for the organisation.

This unit applies to those working as water industry technicians or supervisors with a responsibility for the implementation of quality systems. Those undertaking this unit would work autonomously, usually with supervisory responsibilities, while performing complex tasks in a range of contexts.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

General

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Interpret and communicate quality

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Interpret accreditation requirements for relevant water

system requirements	quality systems
	1.2 Identify implications of non-conformance with quality accreditation according to organisational requirements
	1.3 Communicate requirements and implications to relevant personnel
	1.4 Review workplace procedures to ensure compliance with current quality accreditation and legislative requirements
2 Implement quality systems	2.1 Define individual roles and responsibilities in quality system implementation
	2.2 Implement workplace procedures to ensure compliance with quality systems
	2.3 Record and maintain relevant data for quality system monitoring according to workplace procedures
	2.4 Record and report observations of non-conformance with quality accreditation requirements to relevant personnel
3 Identify and correct quality system implementation issues	3.1 Analyse system monitoring data to identify abnormal performance, sub-optimal performance or process failures
	3.2 Review non-conformance reports to identify contributing factors and apply control measures
4 Contribute to improvement of quality system implementation	4.1 Develop recommendations for continuous improvement of work practices, methods, assets and workplace procedures
	4.2 Consult relevant personnel to refine recommendations
	4.3 Document recommendations for quality system implementation improvements and record the required modifications in workplace procedures

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPGEN010 Contribute to continuous improvement of quality systems.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPGEN029 Contribute to continuous improvement of quality systems

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- analysing and evaluating data and reports and improvement recommendations
- analysing problems and applying control measures
- communicating effectively with relevant personnel
- identifying opportunities for improved water systems management
- implementing operational plans collaboratively and effectively with relevant personnel
- interpreting a range of documents including relevant:
 - codes of practice and industry standards
 - organisational policies and procedures
 - regulatory, legislative, licensing and organisational requirements
 - specifications
- interpreting and communicating accreditation requirements and implications of non-conformance
- interpreting, maintaining and checking records and documents
- monitoring assets to ensure performance meets specifications in management plans
- monitoring quality systems and reporting non-conformance

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and include knowledge of:

- accreditation requirements for water quality systems
- communication channels and consultative arrangements
- control points and control limits
- procedures for identifying and addressing non-compliance
- quality improvement tools and techniques including statistical process control
- relevant legislation, industry standards and workplace policies and procedures
- relevant organisational quality standards and systems
- risk assessments

- workplace data, records and documentation for improvement of quality systems

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPGEN030 Coordinate and monitor the application of environmental plans and procedures

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to coordinate and monitor the application of environmental plans and procedures.

It includes applying environmental plans and procedures to specific projects and developing environmental procedures for the local work area.

This unit applies to those working in the water industry with a specific responsibility for ensuring all relevant environmental plans and policies are applied to each project and worksite within the scope of their job role, and for ensuring environmental plans and policies are implemented, monitored, reviewed and reported according to organisational and statutory requirements. Those undertaking this unit would work autonomously, usually with supervisory responsibilities, while performing complex tasks in a range of contexts.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

General

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1 Determine relevant environmental plans and procedures	1.1	Identify statutory requirements, environmental plans and procedures and determine relevance to specific projects or worksites
	1.2	Interpret relevant environmental plans and procedures in relation to specific project or worksite activities
2 Implement environmental plans and procedures	2.1	Identify environmental risks and impacts
	2.2	Manage and minimise environmental risks
	2.3	Apply emergency procedures
	2.4	Perform activities according to environmental plans and procedures
3 Manage project or worksite specific environmental procedures	3.1	Assess the need for project or worksite specific environmental procedures
	3.2	Consult stakeholders and address environmental issues and concerns
	3.3	Contribute to the development of specific project or worksite environmental procedures
	3.4	Review specific project or worksite environmental procedures
4 Respond to environmental incidents	4.1	Identify environmental incidents at worksite and apply appropriate control measures
	4.2	Contribute to the analysis of environmental incidents to prevent recurrence
	4.3	Record and report environmental incidents according to workplace procedures
5 Monitor and report on environmental plans and procedures	5.1	Monitor and report on the effectiveness of environmental plans and procedures
	5.2	Report environmental risks to relevant personnel according to workplace procedures
	5.3	Participate in reviews of environmental procedures and

report

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPGEN005 Coordinate and monitor the application of environmental plans and procedures.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPGEN030 Coordinate and monitor the application of environmental plans and procedures

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- coordinating and monitoring the application of environmental plans and procedures
- coordinating participation by relevant sectors of the workforce
- contributing to the development of organisational workplace environmental procedures
- contributing to the implementation of worksite or project specific environmental plans and procedures, including consultation with stakeholders
- monitoring, reporting and reviewing the application of environmental plans and procedures
- reporting and recording environmental incidents

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and include knowledge of:

- concepts of due diligence
- disposal methods of dangerous and contaminated materials
- environmental auditing
- environmental impact assessment
- identification of potential environmental risks, controls and impacts
- principles of environmental protection
- relevant statutory requirements, policies and procedures including incident management
- waste management methods
- workplace reporting and recording requirements

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the

time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

Links

Companion Volume implementation guides are found in VETNet -

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NWPGEN031 Develop an operational plan

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to develop an operational plan.

It includes developing, implementing and monitoring an operational plan to provide efficient and effective workplace practices within the organisation.

This unit applies to those working with specific responsibility for managing the work of others and operating within the parameters of a broader business plan. Those undertaking this unit would work autonomously, usually with supervisory responsibilities, while performing complex tasks in a range of contexts.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

General

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Prepare an operational plan

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Develop consultation processes as part of the operational planning process

1.2 Research the organisational, strategic and operational

- plans and establish links to the current year's priorities
- 1.3 Identify and review resources inventory and conduct a currency analysis
 - 1.4 Establish resource requirements for the yearly operational plan
 - 1.5 Research and document the current operational performance against the organisational operational strategies
 - 1.6 Consult with stakeholders to develop a draft yearly operational plan including operational strategies and key performance indicators
 - 1.7 Develop and implement contingencies for the operational plan
 - 1.8 Obtain approval for the plan from relevant personnel and communicate the plan to relevant personnel and stakeholders
- 2 Plan and manage resource acquisition and allocation**
- 2.1 Determine resources according to productivity and budgetary requirements
 - 2.2 Develop and implement strategies to ensure physical resources and services are acquired
 - 2.3 Allocate resources according to operational strategies and budgetary requirements
 - 2.4 Develop operational asset acquisition business cases
 - 2.5 Develop tools and equipment management strategies
- 3 Monitor and review operational performance**
- 3.1 Develop, monitor and review performance systems and processes for plans, rosters and strategies
 - 3.2 Analyse and interpret budget and actual financial information to monitor and review performance
 - 3.3 Identify areas of under-performance, recommend solutions and take prompt action to rectify the situation
 - 3.4 Negotiate recommendations for variations to operational plans and gain approval from stakeholders
 - 3.5 Develop and report operational performance outcomes

to key stakeholders

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPGEN015 Develop an operational plan.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPGEN031 Develop an operational plan

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- analysing and evaluating reports
- analysing problems and applying appropriate remedial solutions
- consulting and communicating effectively with relevant personnel and stakeholders to articulate information
- developing a resource schedule including:
 - after hour vehicle usage
 - on-call roster
 - rostered day and annual leave plans
- identifying opportunities for improved water management
- implementing and reviewing standard operating procedures
- interpreting a range of complex and technical documents, including relevant:
 - codes and standards
 - organisational policies
 - regulatory, legislative, licensing and organisational requirements
 - specifications
- interpreting, maintaining and checking records and documents
- monitoring assets to ensure performance meets specifications in management plans
- varying the operational plan and developing and implementing contingencies

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and include knowledge of:

- asset acquisition requirements
- budgeting processes
- methods for problem solving
- national performance indicators
- organisational operational strategies and key performance indicators

- performance monitoring systems and processes
- relevant legislation, industry standards and workplace policies and procedures
- resources inventory requirements
- resource requirements including:
 - equipment
 - labour
 - plant

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPGEN032 Ensure compliance with water industry standards, guidelines and legislation

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to ensure compliance with water industry standards, guidelines and legislation.

It includes complying with risk management principles and standards established in national and state guidelines and legislation for water, sewage and recycling which contribute to the improved management of water supply systems and the reduction of water quality risks for water supplies.

This unit applies to those working in all roles in the water industry. Those undertaking this unit would work autonomously, usually with supervisory responsibilities, while performing complex tasks in a range of contexts.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

General

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Interpret key legislation and guidelines of the

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Access and interpret the relevant guidelines and

water industry		legislative requirements
2 Lead compliance with legislation and reporting function	1.2	Analyse the key features or elements of the guidelines and legislation
	1.3	Determine the relationships between the guidelines and the state and territory requirements
	2.1	Interpret organisational standards and processes for reporting compliance with legislative requirements
	2.2	Integrate legislative requirements into organisational water quality management plan
	2.3	Identify the links between the regulatory framework and work practices
	2.4	Identify the importance of multiple barrier principles and their general functions
	2.5	Identify hazards, assess risks and implement control measures according to workplace procedures
	2.6	Collate relevant collected data to support compliance with legislation and review for completeness and accuracy
	2.7	Refine and disseminate compliance reporting procedures to relevant personnel
	3.1	Monitor and report compliance to relevant personnel according to workplace procedures
3 Communicate compliance with legislation	3.2	Take corrective actions on areas of non-compliance according to workplace procedures
	3.3	Communicate compliance issues to team members
	3.4	Review operational procedures and make recommendations for future preventive measures

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPGEN002 Ensure compliance with water industry standards, guidelines and legislation.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPGEN032 Ensure compliance with water industry standards, guidelines and legislation

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- accessing and interpreting risk management principles
- analysing records of water quality incidents
- collating and analysing data
- communicating principles of relevant guidelines and putting into context
- initiating problem solving
- integrating requirements of risk management plans
- interpreting, analysing and applying relevant legislative requirements, industry codes and standards
- managing risk control measures
- providing advice and feedback

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and include knowledge of:

- multiple barrier principles and their importance including:
 - chronic and acute health impacts from human exposure
 - concept of the Disability Adjusted Life Year (DALY)
 - log reduction
- organisational risk management procedures
- relevant guidelines and guiding principles and elements
- relevant legislation, codes of practice and industry standards
- strategies to communicate compliance responsibilities to team members
- water management plans including:
 - drinking water
 - recycled water
- water quality risk assessment and control procedures
- water quality risk factors and performance indicators

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPGEN033 Sample and test trade wastewater

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to sample and test trade waste.

It includes collecting and preparing trade waste samples, performing field tests and conducting and recording analysis.

This unit applies to those working as trade waste officers or inspectors with responsibility for sampling and testing trade wastewater. Those undertaking this unit would work autonomously, usually with supervisory responsibilities, while performing complex tasks in a range of contexts.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

General

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Prepare for trade waste sampling and testing

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1	Schedule sampling and testing in accordance with a monitoring program
1.2	Identify the need to sample based on trade waste customer risk, sewer catchment and infrastructure issues

- 1.3 Review the trade waste approval for the site and determine the relevant flow meter and its location
 - 1.4 Obtain the relevant approvals for access to the site
 - 1.5 Identify quality parameters for waste to be tested according to workplace procedures and relevant trade waste approvals
 - 1.6 Identify appropriate sampling location and type of sample to be taken in accordance with the monitoring program
 - 1.7 Communicate with laboratory regarding sampling, preservation, parameters to be analysed and transportation requirements
 - 1.8 Select and prepare the appropriate sample preservation methods
 - 1.9 Select, check, calibrate and prepare equipment and resources for the proposed testing sampling
 - 1.10 Select, fit and use personal protective equipment relevant to site hazards
- 2 **Conduct trade waste sampling and testing**
 - 2.1 Carry out job safety analysis or risk assessment and adopt necessary hazard controls
 - 2.2 Adopt hygienic work practices and secure the work area
 - 2.3 Determine the appropriate sampling method according to workplace procedures
 - 2.4 Sample and determine the trade waste related to the typical operation of the business
 - 2.5 Collect samples ensuring the sampling techniques, locations and times provide a representative sample of the business trade waste discharge
 - 2.6 Maintain integrity of samples during sampling and field testing
 - 2.7 Conduct field trade waste tests
 - 2.8 Limit hazards and contamination to self, work area and environment according to workplace procedures

3 Finalise work

- 3.1** Apply chain of custody according to workplace procedures
- 3.2** Organise transportation of samples to the laboratory
- 3.3** Assess observational and field data and report any abnormal characteristics to the discharger, seeking explanation and early corrective action
- 3.4** Clean testing equipment and sampling site according to workplace procedures
- 3.5** Review and record results from field and laboratory testing according to workplace procedures
- 3.6** Interpret test results, assess compliance and amend the sampling plan as required

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPGEN014 Sample and test trade wastewater.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPGEN033 Sample and test trade wastewater

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- applying labels to samples and prepare appropriate documentation for external analyses
- conducting appropriate manual grab samples
- conducting at least two types of trade waste tests on-site according to job specifications
- conducting hazard and risks assessments
- identifying necessary equipment and resources for sampling and testing
- identifying which parameters can be analysed in-field and which need laboratory testing
- maintaining a safe work environment
- planning working activities
- selecting appropriate sampling containers and preparing documentation
- setting up sampling, flow measuring (if applicable) and recording equipment according to manufacturer specifications
- using field test kits

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and include knowledge of:

- characteristics of trade waste discharges from regular business types
- hazards associated with collection of trade waste samples
- range and purpose of trade waste quality testing and sampling
- range of requirements in order to gain access to worksites
- relevant legislative and organisational requirements
- relevant policies and procedures including chain of custody and required laboratory accreditations
- relevant sampling calculations
- relevant standard methods for testing of water
- sample methods including:
 - grab sample; manual or automatic

- time-weighted or flow weighted composite sampling
- trade waste sample preparation requirements including:
 - appropriate containers
 - disposal procedures for excess trade waste samples
 - documentation and transportation procedures for trade waste samples including labelling
 - equipment
 - location selection
 - preservation
 - prevention of contamination
 - sampling and testing requirements
 - volume of sample
- trade waste volumes
- water quality parameters of significance to a range of trade waste discharges
- workplace recording requirements

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPHYD006 Measure discharge and process discharge data using a range of methods and equipment

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to measure discharge and process discharge data using a range of methods and equipment.

It includes collecting data using a range of discharge measuring methods and equipment, to measure and calculate readings and to interpret and report data to clients and stakeholders.

This unit applies to hydrographers and water operators involved in the monitoring of all the elements of the water cycle and their impact on the related environment. Those undertaking this unit would work autonomously, usually with supervisory responsibilities, while performing complex tasks in a range of contexts.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Hydrometric Monitoring

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Prepare to undertake

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Identify the monitoring objective of the site and gauging

flow gauging		requirements
2 Collect depth and velocity data	1.2	Identify appropriate methods based on site conditions for measuring discharge
	1.3	Select appropriate equipment and instruments to meet site conditions
	1.4	Identify stream conditions and factors affecting gauging accuracy
	1.5	Identify hazards, assess risks and implement control measures according to workplace procedures
	2.1	Perform a pre-discharge measurement check on equipment and ensure it is working within specifications
	2.2	Prepare the gauging site according to workplace procedures
	2.3	Calculate the equipment configuration settings
	2.4	Securely position equipment on mounting device
	2.5	Take measurements during gauging and review data for abnormalities
	2.6	Pack and store equipment safely for transport
	3.1	Apply corrections to data where required
	3.2	Perform calculations of mean velocity, area and discharge according to workplace procedures
	3.3	Calculate and record the mean stage and rate of change
	4.1	Compare the discharge measurements with the current rating and record deviation
	4.2	Grade and record the gauging quality with interpretation comments
	4.3	Gather and document supporting information from the site and update gauging database
	4.4	Report site issues or significant deviations from ratings to relevant personnel and stakeholders

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit supersedes and is equivalent to NWPHYD014 Measure and process medium and high flows using a range of methods and equipment.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPHYD006 Measure discharge and process discharge data using a range of methods and equipment

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- applying corrections to measurements
- assembling and testing metering equipment
- assessing risks and applying precautions and action
- checking and preparing gauging section
- confirming and recording the percentage deviation from the rating determined by checking:
 - calculations
 - equipment
 - gauging station control
 - recording equipment
 - repeat measurement
- estimating and explaining the anticipated vertical distribution
- gathering and documenting supporting information relevant to the discharge measurement
- gathering, analysing, verifying, interpreting, storing, archiving and reporting data for a range of clients and stakeholders
- identifying, reporting and solving potential issues in relation to discharge measurement
- making calculations on depth and velocity
- measuring and calculating readings
- plotting discharge measurements on organisation's preferred scale
- selecting appropriate equipment and techniques relevant to site conditions transferring data to database
- using a range of suitable techniques to determine mean stage in rapidly changing situations
- using area velocity methods
- using formulae for determining the percentage deviation

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the

requirements of the elements and performance criteria and include knowledge of:

- client service agreements
- correction procedures for horizontal angles and suspension measurements
- discharge and mean stage adjustment
- equipment and required techniques including:
 - Acoustic Doppler Current Profiler (ADCP)
 - area slope method
 - area velocity method
 - dilution gauging
 - Doppler velocity meter
 - electromagnetic current meter
 - float gauging
 - mechanical current meter
- factors impacting on discharge measurements and the quality of the discharge
- impacts of site conditions, gauging techniques or equipment on discharge accuracy
- mathematical principles for area and velocity measurements
- methods for calculating mean velocity in a vertical
- methods for determining the cross-sectional area at a site
- principles and alternative methods of discharge measurement
- relevant legislation, industry standards, workplace policies and procedures including:
 - Bureau of Meteorology
 - international and national standards
 - work health and safety
 - World Meteorological Organisation
- requirements for surface velocity float measurements
- technical components in calculating discharge
- techniques for monitoring stage changes during discharge measurement
- weighted mean stage calculations

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy

requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPHYD007 Measure discharge using wading method

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to measure discharge using wading method.

It includes collecting stream discharge data using a range of current meters, collecting depth and velocity data, assessing risk and factors affecting the accuracy and precision of the area velocity gauging method.

This unit applies to hydrographers and technicians involved in the monitoring of all elements of the water cycle and impacts on the environment. Those undertaking this unit would work autonomously, usually with supervisory responsibilities, while performing complex tasks in a range of contexts.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Hydrometric Monitoring

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Prepare for discharge measurement

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Identify hazards, assess risks and implement control measures according to workplace procedures

- 1.2 Identify the monitoring objective of the work measurement or monitoring site and gauge requirements
 - 1.3 Identify, analyse and confirm data collection methods appropriate to site conditions
 - 1.4 Select appropriate equipment and instruments to meet site conditions
 - 1.5 Verify calibration and maintenance status of equipment according to manufacturer instructions and workplace procedures
 - 1.6 Evaluate and prepare site to take discharge measurements according to workplace procedures
 - 1.7 Identify influences on discharge measurement
 - 1.8 Select cross-section for discharge measurement according to workplace procedures
- 2 **Collect depth and velocity data**
 - 2.1 Measure the width of the section according to workplace procedures
 - 2.2 Select appropriate sounding points and verticals to subdivide the cross-section
 - 2.3 Measure the depth of vertical using method suited to site conditions
 - 2.4 Select appropriate velocity measurement method to suit flow and cross section conditions
 - 2.5 Collect velocity data at appropriate depths for each vertical
- 3 **Calculate discharge**
 - 3.1 Calculate the point velocity according to workplace procedures
 - 3.2 Calculate the mean velocity for each vertical
 - 3.3 Calculate the area of subsection corresponding to each vertical
 - 3.4 Calculate the discharge corresponding to each subsection
 - 3.5 Calculate the area and discharge at the section by summation of the subsection data

	3.6	Apply corrections for oblique flow when required
4	Record and document discharge measurement	
	4.1	Gather supporting information from the site and complete measurement documentation
	4.2	Calculate and record the mean stage height and rate of change using relevant mathematical techniques
	4.3	Grade and record the gauging quality according to workplace procedures
	4.4	Check measurement computations and record results in database according to workplace procedures
	4.5	Compare discharge measurement to site rating curve and note deviation
	4.6	Enter gauging results into database according to workplace procedures
	4.7	Report site issues or significant deviations from ratings to relevant personnel and stakeholders

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPHYD011 Measure and process low and medium flows using area velocity methods.

Links

Companion Volume implementation guides are found in VETNet - <https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPHYD007 Measure discharge using wading method

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- analysing and verifying data using workplace procedures, software and databases
- assessing risks and taking appropriate precautions and/or actions
- collecting, entering and archiving data
- collecting field measurements
- communicating with employees and customers
- gathering, interpreting and applying documentation related to the specifics of hydrological data collection and reporting procedures
- identifying potential or actual operational problems
- identifying, reporting and solving potential or actual problems within scope of job function
- interpreting and applying technical documentation
- maintaining testing equipment in good order and verifying calibration
- performing calculations including mean velocity in a vertical
- preparing documentation
- using positioning or distance measurement equipment
- using safety equipment and personal protective equipment

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- area velocity methods including:
 - acoustic Doppler current profiler
 - Doppler velocity meter
 - electromagnetic current meter
 - mechanical current meter
- appropriateness of measurement methods
- measurement equipment and quality assurance methods
- measurement section issues and solutions

- relevant legislation, industry standards, workplace policies and procedures including:
 - Bureau of Meteorology
 - International and Australian Standards
 - WHS
 - World Meteorological Organisation
- relevant technology
- relevant workplace procedures
- suitable measurement sections, attributes and issues
- turbulent and laminar flow
- workplace documentation for data and reports

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPHYD008 Operate, maintain and decommission monitoring sites

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to operate, maintain and decommission monitoring sites.

It includes planning the operation, maintenance and decommissioning of sites, instruments and equipment for monitoring. It also includes operating, testing, maintaining and calibrating instruments, equipment and systems and reporting processes and outcomes.

This unit applies to hydrographers and water operators involved in the monitoring of all the elements of the water cycle and their impact on the related environment. Those undertaking this unit would work autonomously, usually with supervisory responsibilities, while performing complex tasks in a range of contexts.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Hydrometric Monitoring

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1 Plan the operation and maintenance of sites, instruments and equipment	1.1 Identify monitoring objective of sites as per stakeholder agreements
	1.2 Prepare schedules for operation and maintenance for monitoring sites
	1.3 Review performance of instruments and equipment required for site and its conditions according to agency procedures and manufacturer specifications
	1.4 Address logistical requirements, prepare relevant equipment, authorisations and documentation requirements for operational and maintenance inspections
2 Maintain sites	2.1 Maintain sites using tools and personal protective equipment according to schedules and environmental conditions
	2.2 Assess conditions of sites and take corrective actions according to workplace procedures
	2.3 Review the effectiveness of previous corrective actions undertaken at sites
	2.4 Complete and store operational and maintenance records according to workplace procedures
3 Test, maintain and calibrate instruments, equipment and systems	3.1 Test hydrometric instruments and equipment
	3.2 Calibrate equipment according to agency procedures and manufacturer specifications
	3.3 Make and test adjustments to comply with the required tolerances
	3.4 Report errors or deviations from the appropriate range or tolerance levels to relevant stakeholders
	3.5 Maintain and archive test records according to workplace procedures
	3.6 Complete routine site maintenance according to maintenance schedules

	3.7	Store and protect hydrometric instruments and equipment
4 Operate monitoring equipment	4.1	Use monitoring equipment to collect data required to meet monitoring objectives
	4.2	Make calculations and adjustments to monitoring equipment according to the requirements of the site and equipment
	4.3	After calibration and adjustment recheck accuracy and reliability of readings
5 Report processes and outcomes	5.1	Compile data reports according to monitoring objectives
	5.2	Identify potential and current problems proactively and take corrective action or report to relevant stakeholders
	5.3	Identify indicators of urgency and high risk for priority response
	5.4	Identify additional actions required following decommissioning of site
6 Decommission monitoring sites	6.1	Demolish or decommission monitoring sites according to workplace procedures
	6.2	Restore area of monitoring sites according to stakeholder or agency requirements
	6.3	Identify and address any potential or remaining problems and report to appropriate personnel

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPHYD013 Operate, maintain and decommission monitoring sites.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPHYD008 Operate, maintain and decommission monitoring sites

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- analysing risks in a range of locations and conditions and working safely in routine and extreme conditions
- applying mechanical, electrical and electronic skills to the operation and maintenance of instruments and equipment according to agency operational procedures
- conducting inspections of monitoring sites
- conducting tests of a range of hydrometric instruments and equipment and adjusting to maintain accuracy
- drafting decommissioning report with authorisation
- identifying, reporting and solving potential and current problems, and taking immediate action to address high risk conditions
- implementing decommissioning procedures for data management, site database, telemetry and internet
- interpreting and applying technical documentation to the operation and maintenance of instruments and equipment
- interpreting and applying technical information and applications related to the operation and maintenance of a range of hydrometric instruments and equipment
- maintaining a range of hydrometric instruments and equipment in a range of sites and conditions and under conditions of extreme weather and high risk
- producing reports
- reading and interpreting plans, specifications, maps and job instructions
- recording and analysing data
- storing and protecting instruments and equipment in the field and during transportation
- using required work practices to minimise environmental impact of the operation and maintenance of site
- using systems and system analysis equipment and tools to conduct in situ calibration of monitoring equipment and systems
- using tools, safety and personal protective equipment

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and include knowledge of:

- effects of weather and extreme conditions on operating of hydrometric instruments and equipment
- electrical and electronic systems
- instrument and system analysis software and packages
- mathematical and scientific principles
- operating parameters, processes and capacity limitations of hydrometric instruments and equipment
- relevant legislation, industry standards, manufacturer specifications and requirements
- relevant workplace policies and procedures
- risk factors and potential hazards involved with installing and monitoring instruments and equipment
- workplace reporting requirements

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPHYD009 Undertake surveying of monitoring sites

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to undertake surveying of monitoring sites. It includes using appropriate survey equipment to collect survey data at monitoring sites and to process and manage the data for hydrometric purposes.

This unit applies to hydrographers and water operators involved in the monitoring of all the elements of the water cycle and their impact on the related environment. Those undertaking this unit would work autonomously, usually with supervisory responsibilities, while performing complex tasks in a range of contexts.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Hydrometric Monitoring

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Plan and assess survey requirements

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Identify survey objectives according to workplace procedures

1.2 Identify the location and value of survey reference

- marks from maps and plans
- 1.3** Choose and justify appropriate survey techniques for hydrometric purposes
 - 1.4** Identify and evaluate the source of levelling errors and misclosures
 - 1.5** Plan and manage the logistics and personnel to ensure effective outcomes and resource management
 - 1.6** Apply correct care procedure for storage, transport and use of survey equipment
 - 1.7** Assess and address WHS issues encountered during the surveying exercise, taking appropriate risk management strategies
- 2 Operate survey equipment**
- 2.1** Select, set up and prepare survey equipment and check level of accuracy according to workplace procedures
 - 2.2** Use mathematical techniques to check for correct operation of surveying equipment
 - 2.3** Use and select appropriate survey equipment according to site conditions
- 3 Select and survey monitoring sites**
- 3.1** Identify required survey reference benchmarks according to workplace procedures
 - 3.2** Identify and survey high-flow measurement cross-section, control section and cease-to-flow
 - 3.3** Survey cross sections of the channel to determine the profile of the channel in the gauging station reach including the use of stadia methods
 - 3.4** Identify and assess monitoring site survey reference points according to workplace procedures
 - 3.5** Establish benchmark and survey to Australian Height Datum according to workplace procedures
- 4 Document survey and data results**
- 4.1** Verify, document, store and archive results according to workplace procedures
 - 4.2** Produce a site layout plan of survey reference points
 - 4.3** Produce a plot of survey cross section

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit supersedes and is equivalent to NWPHYD015 Undertake surveying of monitoring sites.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPHYD009 Undertake surveying of monitoring sites

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- analysing and verifying data using standard procedures, software and databases
- applying appropriate datum and projections
- applying sightings and standard error checks
- capturing, storing and archiving data
- carrying out collimation test to survey equipment accuracy
- ensuring cross sections and survey reference marks are suitable to a range of flow conditions
- identifying survey reference marks
- gathering and interpreting documentation
- locating features on maps and plans, finding survey reference marks and plotting locations
- maintaining surveying equipment
- measuring horizontal distance by stadia
- preparing and holding survey staff
- preparing and loading surveying equipment for transportation
- preparing clear and accurate reports
- preparing, setting up and operating surveying equipment

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and include knowledge of:

- agency remote area work health and safety procedures
- computer software relevant to the analysis and archiving of hydrometric data
- global positioning systems
- mathematical and other scientific techniques relevant to the analysis of hydrometric data
- relevant legislation and industry standards including:
 - Bureau of Meteorology
 - international and national standards
 - work health and safety

- World Meteorological Organisation
- relevant workplace policies and procedures
- workplace data recording and reporting requirements

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPIRR035 Coordinate and monitor the operation of drainage systems

Modification History

Release	Comments
1	This unit was released in NWP Water Training Package release 1.0 and meets the Standards for Training Packages. This unit supersedes and is equivalent to NWP427B Coordinate and monitor the operation of drainage systems. • Unit code updated • Content and formatting updated to comply with the new standards • All PC transitioned from passive to active voice • PC 1.2, 1.3 and 1.4 merged

Application

This unit describes the skills required to coordinate and monitor drainage systems to ensure compliance with the drainage systems management plan, including system performance, maintenance planning and customer liaison.

This unit applies to those working as field or operational staff with a specific responsibility for ensuring that the operation of drainage systems complies with organisational and statutory requirements.

The skills and knowledge described in this unit must be applied within the legislative, regulatory and policy environment in which they are carried out. Organisational policies and procedures must be consulted and adhered to, particularly those related to WHS.

Those undertaking this unit would work independently or in a team, while performing complex tasks ensuring minimum damage to the environment, in a familiar context. However, the level of responsibility may vary according to the size, scope, location, and technical complexity of process.

No licensing, legislative or certification requirements apply to unit at the time of publication.

Competency Field

Irrigation

Elements and Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA
Elements describe the essential outcomes	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the range of conditions section.
1. Confirm performance measures in the drainage system management plan	1.1 Confirm data gathering requirements specified in the drainage system management plan. 1.2 Identify, analyse and address issues, environmental factors and stakeholder requirements that impact on drainage systems. 1.3 Access historic system information and apply as required.
2. Monitor and coordinate processes and resource targets	2.1 Select, fit and use equipment, including personal protective equipment. 2.2 Conduct system performance monitoring and testing according to the drainage management plan. 2.3 Analyse and report test results. 2.4 Identify current and potential problems, conduct investigations and report results and recommendations. 2.5 Identify breaches of the drainage management plan, conduct investigations and report results and recommendations. 2.6 Evaluate maintenance budgets, activity programs and output target measures and identify, analyse and address any deviations from targets. 2.7 Identify and record links between operational problems and maintenance activities.
3. Report outcomes of coordination and monitoring	3.1 Analyse, record and report coordination and monitoring data. 3.2 Identify and report current and potential problems. 3.3 Make recommendations to improve system performance and/or customer service standards.

Foundation Skills

The foundation skills demands of this unit have been mapped for alignment with the Australian Core Skills Framework (ACSF). The following tables outline the performance levels indicated for successful attainment of the unit.

ACSF levels indicative of performance:

1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Learning NA					Reading					Writing					Oral communication					Numeracy				

Performance variables:

1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Support					Context					Text complexity					Task complexity				

Further information on ACSF and the foundation skills underpinning this unit can be found in the Foundation Skills Guide on the GSA website.

Unit Mapping Information

This unit supersedes and is equivalent to NWP427B Coordinate and monitor the operation of drainage systems.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
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<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPIRR035 Coordinate and monitor the operation of drainage systems

Modification History

Release	Comments
1	These Assessment Requirements were released in NWP Water Training Package release 1.0 and meet the Standards for Training Packages. • Assessment Requirements created drawing upon specified assessment information from superseded unit

Performance Evidence

Evidence required to demonstrate competence must satisfy all of the requirements of the elements and performance criteria. If not otherwise specified the candidate must demonstrate evidence of performance of the following on at least one occasion.

- conducting investigations
- assessing environmental impact
- use safety equipment and personal protective equipment
- interpreting plans, topographic drawings, charts, service diagrams, service search diagrams and instructions
- interpreting the drainage system management plan and confirming data to be gathered
- identifying, analysing and addressing issues that impact on drainage systems, including stakeholder requirements and environmental factors
- accessing historic system information
- conducting system performance monitoring and testing
- analysing and reporting test results
- investigating system faults and breaches of the drainage management plan and reporting results and recommendations
- monitoring budgets, programs and targets, evaluating data and investigating and reporting on deviations from the drainage system management plan
- submitting recommendations to improve system performance and/or customer service standards

Knowledge Evidence

Evidence required to demonstrate competence must satisfy all of the requirements of the elements and performance criteria. If not otherwise specified the depth of knowledge demonstrated must be appropriate to the job context of the candidate.

- relevant legislation, policies and procedures
- enterprise financial systems and key performance indicators
- inspection of drainage systems
- coordination processes
- system layout and processes
- environmental aspects of drainage systems
- risk factors and potential hazards involved in drainage systems
- equipment operation, capacity and limitations
- effects of weather and conditions on operation of drainage systems
- pipes and fittings
- pumping and valving systems
- gravity and control systems

Assessment Conditions

Competency should be assessed in an actual workplace or in a simulated environment, with access to equipment and infrastructure appropriate to the outcome. Competency should be demonstrated over time to ensure the candidate is assessed across a variety of situations.

Assessors must satisfy the NVR/AQTF mandatory competency requirements for assessors.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPIWS001 Monitor and operate rural irrigation and domestic delivery systems

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to monitor and operate rural irrigation and domestic delivery systems.

It includes checking and controlling irrigation, stock and domestic supply systems to ensure the delivery of water.

This unit applies to those working as field and operational staff with responsibility for delivering raw water supplies to meet customer orders. Those undertaking this unit would work independently or in a team, under appropriate supervision. They would use own familiar resources as required, while performing routine tasks in range of familiar contexts.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Irrigation Water Supply

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Interpret delivery

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Schedule deliveries according to customer orders and

requirements	delivery plan
2 Operate irrigation or stock and domestic supply systems	1.2 Monitor system flow rates or sources to ensure orders can be met
	1.3 Interpret system data to ensure correct operation of system
	1.4 Undertake a risk assessment according to workplace procedures
	2.1 Identify and apply organisational requirements, plans, orders and schedules for the operation of rural irrigation or stock and domestic supply systems
	2.2 Operate irrigation or stock and domestic supply systems, using safe work methods and appropriate equipment
	2.3 Monitor deliveries, record adjustments and irregularities and communicate with relevant stakeholders
3 Identify and address issues	3.1 Identify actual and potential problems that may reduce service standards and communicate to relevant personnel
	3.2 Resolve identified problems within own capability
	3.3 Record and report workplace activities according to workplace procedures

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPIRR001 Monitor and operate irrigation and domestic delivery systems

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -

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Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPIWS001 Monitor and operate rural irrigation and domestic delivery systems

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- checking channel flow and water deliveries
- communicating with stakeholders
- completing relevant records and reports
- ensuring water is delivered to schedule
- following plans, charts and instructions
- identifying and reporting problems and irregularities
- identifying and responding to operational problems
- interpreting system data
- interpreting irrigation requirements
- operating irrigation or stock and domestic supply systems
- operating, adjusting and monitoring irrigation systems

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- communication protocols
- control systems
- effects of weather and conditions on operation of system, site and plant
- equipment operation, capacity and limitations
- flow measurement procedures
- impact of the principles of hydraulics on the operation of flows
- interpretation of system data
- layout of drainage or irrigation system
- lock-out procedures
- relevant legislation, regulations and workplace procedures
- relevant service bodies
- risk factors and potential hazards involved with water system

- transit time calculations and measurements

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPIWS002 Operate regulating devices in rural irrigation systems

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to operate regulating devices in rural irrigation systems.

It includes monitoring flows in irrigation systems, recording and reporting system adjustments and responding to contingencies.

This unit applies to those working as field or operational staff with responsibility for using flow control and metering devices according to workplace procedures. Those undertaking this unit would work in a team or under appropriate supervision using own familiar resources as required, while performing routine tasks in range of familiar contexts.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Irrigation Water Supply

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Monitor and regulate required flows in

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Access and apply operating requirements for flows in

irrigation systems	irrigation systems
	1.2 Use and secure equipment to assist operational activities according to workplace procedures 1.3 Monitor, measure and record flows at designated locations according to work schedule 1.4 Identify potential operational problems and provide solutions 1.5 Adjust and maintain flow regulation and control mechanisms to increase and decrease flow according to workplace procedures
2 Record and report system adjustments	2.1 Produce trend information relating to flow adjustments 2.2 Collect, record and report information on flows and abnormalities
3 Respond to contingencies	3.1 Identify and assess potential risks and contingencies in the operation of regulating devices 3.2 Respond to potential and actual risks and contingencies 3.3 Inform relevant personnel of potential risks according to workplace procedures

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPIRR002 Operate basic flow control and regulating devices in irrigation systems.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPIWS002 Operate regulating devices in rural irrigation systems

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

- adjusting and maintaining flow system control mechanisms
- completing records and reports
- collecting and reporting system performance information
- identifying and reporting operational problems
- identifying flow requirements
- interpreting data
- producing information
- securing flow regulation devices
- using equipment relevant for controlling and regulating water flow for irrigation

Knowledge Evidence

- effects of weather conditions on system operation and worksite
- equipment operation, capacity and limitations
- methods for data collection and reporting
- irrigation system layout
- principles of hydraulics impacting on the operation of flows
- relevant legislation, regulations and workplace procedures
- relevant lock-out procedures for mechanical and electrical installations
- risk factors and potential hazards
- system flow control mechanisms

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the

time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

Links

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NWPIWS003 Inspect and operate water diversion systems

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to inspect and operate water diversion systems.

It includes coordinating the operation of surface water systems, measuring and reporting on surface water usage and system performance. It also includes collecting data, monitoring and adjusting regulatory systems, coordinating system performance and producing technical reports.

This unit applies to those working as field operators with a specific responsibility for inspecting and operating surface water systems and for ensuring that flows are regulated according to organisational specifications and system demands. Those undertaking this unit would work under appropriate supervision, while performing routine tasks ensuring minimum damage to the environment, in a familiar context.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Irrigation Water Supply

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Inspect and report on

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Schedule and complete routine inspections of surface

surface water system performance and usage		supply areas according to licensing requirements	
2 Monitor inflows, outflows and releases	1.2	Collect and record data on system capacity and flow to ensure system operational parameters are being met	
	1.3	Use appropriate safety equipment, including personal protective equipment according to workplace procedures	
	2.1	Inspect flow regulating structures and adjust to meet demand requirements	
	2.2	Monitor flows and coordinate diversions or extractions to control usage requirements, according to demand or local management rules	
	2.3	Read meters, record volumes and enter data into database according to workplace procedures	
3 Operate and coordinate system performance	3.1	Locate and record process faults and operational conditions	
	3.2	Adjust system parameters to optimise process performance	
	3.3	Undertake routine maintenance according to product specifications and workplace procedures	
4 Complete documentation	4.1	Record inspection results according to workplace procedures	
	4.2	Report data from inspection results to relevant personnel	

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPIRR003 Inspect and operate surface water systems.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPIWS003 Inspect and operate water diversion systems

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- calculating flow and system capacity
- collecting, recording and reporting data
- completing relevant documentation
- monitoring and identifying delivery system faults and reporting to relevant personnel
- inspecting and adjusting flow regulating systems
- inspecting and coordinating the operation of surface water systems
- inspecting surface supply areas
- monitoring flows
- reading meters
- using safety equipment and personal protective equipment

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- adjusting flow regulating systems
- customer water order requirements
- data collection requirements
- methods of measuring and calculating flow
- methods of monitoring flows
- operations of surface water systems
- principles of hydraulics on the surface water system
- relevant legislation, regulations and workplace procedures
- reporting systems
- system capacity and system faults

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

Links

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<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPIWS004 Install meters for rural water supplies

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to install meters for rural water supplies.

It includes confirming conditions of the site for meter installation, installing meter facilities and restoring site.

This unit applies to those working as field or operational staff installing meters. Those undertaking this unit would work independently under appropriate supervision, while performing routine tasks ensuring minimum damage to the environment, in a familiar context.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Irrigation Water Supply

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Confirm conditions of the site for meter installation

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Identify the location of the site and establish client information from work plans and job specifications

	1.2	Identify access to the site and any conditions of access
	1.3	Assess the conditions of the site
	1.4	Set out the site for installation of meter according to workplace procedures
	1.5	Complete risk assessment and identify and control hazards
2	Install meter facilities	
	2.1	Calculate installation elevations according to design
	2.2	Install meter as set out according to design and manufacturer specifications
	2.3	Check fittings, seals and operation according to workplace procedures
	2.4	Install ancillary equipment and check for operation and seal
	2.5	Check meter installation for compliance with manufacturer specifications
3	Restore site	
	3.1	Backfill with suitable material, moisture content and compact
	3.2	Restore the site according to workplace procedures

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPIRR014 Install meters for rural water supplies.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPIWS004 Install meters for rural water supplies

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- calculating pipe and meter pit elevation, fall and presentation
- checking power supply and links
- compacting backfill
- identifying faults, changes and failure indicators
- identifying risks
- installing ancillary equipment
- planning meter installation and construction
- restoring site
- undertaking a risk assessment and checking hazards and safety requirements

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- causes of flow disturbance
- different types of meters
- environmental impact guidelines
- meter manufacturer guidelines and installation manual for specific meters
- potential causes of meter failure
- relevant legislation, regulations and workplace procedures
- relevant meter standards
- relevant safety requirements
- requirements for checking the pattern approval of meters and compliance with meter installation standards
- workplace policies and procedures for water meter installation

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training

Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPIWS005 Maintain and repair irrigation channels and drains

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to maintain and repair irrigation channels and drains.

It includes preparing worksite, maintaining irrigation channels, drains and associated fittings, checking work, restoring worksite and finalising work.

This unit applies to those working as field and operational staff with responsibility for carrying out planned and reactive maintenance and repair work on rural water delivery systems. Those undertaking this unit would work under appropriate supervision using familiar resources as required. They will perform routine tasks, ensuring minimum damage to the environment, in a range of familiar contexts.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Irrigation Water Supply

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Maintain irrigation channels and drains

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Conduct routine inspections of designated work areas according to workplace procedures

	1.2	Identify system faults and apply corrective action according to workplace procedures
	1.3	Repair earthworks and embankments according to workplace procedures
	1.4	Calculate material requirements and perform maintenance of channels and drains
2 Prepare worksite	2.1	Follow work requirements from plans, drawings, specifications and instructions
	2.2	Notify relevant stakeholders and customers of maintenance and repair work activities
	2.3	Make appropriate de-watering and diversion arrangements
	2.4	Complete job safety analysis and identify and control hazards
	2.5	Select and check equipment and work methods to meet safety requirements of task and site
3 Finalise work	3.1	Check, maintain and store equipment, tools and materials
	3.2	Complete and process workplace records according to workplace procedures

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPIRR021 Maintain and repair irrigation channels and drains.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPIWS005 Maintain and repair irrigation channels and drains

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- completing reports
- following plans and instructions
- identifying and responding to operational problems
- inserting dewatering barrier
- inspecting irrigation drains and channels and identifying faults
- performing maintenance and repair tasks
- performing work related calculations
- planning and preparing worksite
- using tools and machinery

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- effects of weather and conditions on site or plant
- environmental aspects of maintenance
- landscape and ground structure of work area
- maintenance and repair control systems
- maintenance and repair processes
- maintenance of channels and drains includes:
 - access tracks
 - erosion repair
 - removal of blockages
 - removal of flow obstructions
 - removal of silt
 - removal of trees
 - removal of vegetation
- recording and reporting systems

- relevant legislation, regulations and workplace procedures
- repairs include:
 - erosion
 - leaks
- risk factors and potential hazards of maintenance processes
- work related calculations

Assessment Conditions

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

Links

Companion Volume implementation guides are found in VETNet -
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<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPIWS006 Maintain meters for rural water supplies

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to maintain meters for rural water supplies. It includes maintaining operational integrity of already installed meters, metering systems and components. It also includes corrective, predictive and preventative maintenance.

This unit applies to those working in the water industry as field or operational staff, maintaining meters for rural water supply. Those undertaking this unit would work under appropriate supervision, while performing routine tasks in familiar context.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Irrigation Water Supply

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Confirm meter type and location

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

- 1.1** Obtain organisational maintenance plan and manufacturer guidelines
- 1.2** Locate meter facility according to workplace procedures

	1.3	Confirm meter type and number match to maintenance plan
2	Check condition of meters and metering system	
	2.1	Conduct a risk assessment of a meter site according to workplace procedures
	2.2	Check metering components and identify faults according to workplace procedures
	2.3	Establish maintenance requirements according to workplace procedures
3	Maintain meter and meter facilities	
	3.1	Repair or replace faulty components according to workplace procedures
	3.2	Identify faults which need to be rectified by a third party to relevant personnel
4	Test and recommission	
	4.1	Ensure meter complies with standards
	4.2	Perform on-site re-test of meter according to workplace procedures
	4.3	Record faults and meter performance, maintenance and repairs

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPIRR022 Maintain meters for rural water supplies.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPIWS006 Maintain meters for rural water supplies

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- applying seals
- checking and reporting meter condition
- confirming location of worksite and meter
- identifying manufacturer instructions, plans, exploded drawings and parts catalogues
- identifying verification marks
- reading and analysing meter display
- replacing components
- reporting maintenance requirements
- working with low voltage wiring

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- checking pattern approval requirements
- location methods including:
 - GPS
 - maps
- manufacturer maintenance procedures for specific meter types
- meter types and accuracy limits
- relevant legislation, regulations and workplace procedures
- relevant workplace policies and procedures for water meter maintenance
- standards for non-urban metering
- work, health and safety (WHS) risk assessments

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training

Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

Links

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<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPIWS007 Detect and rectify faults with automated channel regulators

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to detect and rectify faults with automated channel regulators.

It includes determining problems with operating automated water regulating devices used in irrigation and stock and domestic supply systems. It also includes collecting data, finding and fixing problems and compiling operational reports.

This unit applies to those working as part of an irrigation delivery team with duties to maintain and rectify faults in automated regulating devices. Those undertaking this unit would work under appropriate supervision performing routine tasks in a familiar context.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Irrigation Water Supply

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Prepare work

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Undertake risk assessment at worksite according to

- workplace procedures
- 1.2** Identify and access fault records from workplace systems
- 1.3** Interpret and categorise fault information according to workplace procedures
- 1.4** Schedule and prioritise actions for repair of faults
- 2 Rectify the faults of regulating devices**
 - 2.1** Use systems to assist in rectifying faults
 - 2.2** Inspect faulty device and determine problems and solutions
 - 2.3** Undertake regulator repairs to rectify faults according to workplace procedures and safety requirements
 - 2.4** Check operating conditions of the regulating device meet manufacturer specifications
- 3 Finalise work**
 - 3.1** Notify operational team of the state of repair work and operating conditions of regulating device
 - 3.2** Complete and file reports of repair according to workplace procedures
 - 3.3** Liaise with stakeholders according to workplace procedures

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPIRR023 Detect and rectify faults with automated channel regulator.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPIWS007 Detect and rectify faults with automated channel regulators

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- completing workplace reports and documentation
- conducting worksite inspections
- maintaining components
- identifying faults, changes and failure indicators
- interpreting manufacturer requirements for rectifying and repairing faults
- liaising with stakeholders
- undertaking a job safety and environmental analysis

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- automated regulating device manufacturer guidelines and user manuals
- organisational communication systems
- problems including:
 - batteries
 - blockages
 - cabling
 - faulty sensors
 - low voltage electrical wiring
 - solar panels
- relevant legislation, regulations and workplace procedures
- risk factors and potential hazards
- system operating parameters
- stakeholders including:
 - contractors
 - customers
 - internal employees

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

Links

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<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPIWS008 Monitor and conduct maintenance on rural irrigation assets

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to monitor and conduct maintenance on rural irrigation assets.

This includes monitoring asset and equipment performance, conducting maintenance on assets and equipment and compiling process records and reports. It also includes pipelines and associated fittings.

This unit applies to those working as field staff with the responsibility for monitoring the operation of flow control, measuring and regulating devices, conducting maintenance and ensuring problems and anomalies are rectified by specialist technicians. Those undertaking this unit would work under appropriate supervision, performing routine tasks and ensuring minimum damage to the environment, in a familiar context.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Irrigation Water Supply

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1 Prepare for work	1.1 Interpret work requirements for monitoring rural irrigation assets from plans, drawing specifications and instructions
	1.2 Select and check equipment and tools to meet the safety requirements of the task and site
	1.3 Select, fit and use required safety equipment, including personal protective equipment
	1.4 Undertake risk assessment at worksite according to workplace procedures
2 Monitor asset and equipment performance	2.1 Identify rural irrigation assets and equipment
	2.2 Check and interpret information and specifications on assets and equipment performance
	2.3 Report on assets and equipment performance
3 Conduct maintenance on assets and equipment	3.1 Undertake routine maintenance according to maintenance schedule
	3.2 Secure assets and equipment according to workplace procedures
	3.3 Identify and report problems to relevant personnel for correction
	3.4 Identify, select, place and join components and associated fittings
4 Monitor asset and equipment performance	4.1 Schedule and monitor routine inspections of system assets
	4.2 Collect, analyse and report data on system asset performance and usage
5 Compile process records and reports	5.1 Identify process faults and monitor the operational condition of assets and equipment
	5.2 Report on adjustment requirements according to workplace procedures

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of

competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPIRR024 Monitor and conduct maintenance on flow control and metering devices.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
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Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPIWS008 Monitor and conduct maintenance on rural irrigation assets

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- collecting and recording data on asset performance
- collecting and recording information on equipment performance
- conducting a risk assessment and identifying control measures
- conducting routine maintenance tasks and securing assets and equipment
- identifying and reporting on asset performance
- identifying and reporting operational problems
- inspecting rural irrigation assets and equipment
- interpreting plans and instructions
- interpreting policies, procedures and standards
- producing reports
- selecting appropriate equipment and tools, including personal protective equipment

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- data collection and recording
- effects of weather and conditions on maintenance and assets
- equipment operation, capacity and limitations
- flow measurement procedures
- ground structure
- irrigation asset and equipment performance parameters
- lock out procedures
- relevant utilities and service bodies
- relevant legislation, regulations and workplace procedures
- risk factors, and potential hazards and control measures
- system hydraulics
- system layout

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

Links

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<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPIWS009 Monitor and control drainage operations

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to monitor and control drainage operations.

It includes inspecting drainage systems, monitoring flows and controlling and operating processes. It also includes identifying faults, gathering data, interpreting technical information and operating technical equipment.

This unit applies to those working as field staff with a responsibility for inspecting and reporting faults in drainage systems and for operating, integrating and regulating drainage system processes. Those undertaking this unit would work under appropriate supervision, while performing routine tasks ensuring minimum damage to the environment, in a familiar context.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Irrigation Water Supply

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Inspect drainage systems

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Schedule and conduct routine inspections of drainage systems

	1.2	Undertake risk assessment at worksite according to workplace procedures
	1.3	Monitor faults and organise remedial action
	1.4	Collect and report data on drainage system performance and usage according to workplace procedures
2	Monitor flows	
	2.1	Monitor flows entering drains
	2.2	Monitor flows in drains to ensure correct drain operation
3	Control and operate processes	
	3.1	Control flows to maintain parameters of operation
	3.2	Identify, address and report problems and operational conditions of the drainage network to relevant personnel
	3.3	Integrate processes to improve drainage network performance according to workplace procedures
	3.4	Compile and document process records

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPIRR031 Monitor and control drainage operations.

Links

Companion Volume implementation guides are found in VETNet - <https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPIWS009 Monitor and control drainage operations

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- collecting performance and usage data
- completing and compiling required documentation
- controlling and integrating processes
- identifying and addressing problems
- inspecting and adjusting flow regulating systems
- interpreting plans policies and procedures
- monitoring discharge flows
- monitoring faults
- monitoring, operating and controlling drainage systems
- scheduling and conducting inspections

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- effects of weather and conditions on operation of drainage systems
- environmental aspects of drainage systems
- equipment operation, capacity and limitations
- gravity systems
- inspection of drainage systems
- policies and standard operating procedures
- relevant legislation, regulations and workplace procedures
- relevant utilities and service bodies
- risk factors and potential hazards involved in drainage systems
- system layout and processes

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

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NWPIWS010 Monitor and control rural water distribution operations

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to monitor and control rural water distribution operations.

It includes coordinating rural water flow, scheduling and reporting on rural water distribution, including irrigation, domestic and stock supply systems. It also includes identifying faults, gathering data, interpreting technical information and operating technical equipment.

This unit applies to those working as field staff with responsibility for monitoring and operating rural water distribution systems. Those undertaking this unit would work under appropriate supervision, while performing routine tasks and ensuring minimum damage to the environment, in a familiar context.

No licensing, legislative or certification requirements apply to unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Irrigation Water Supply

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1 Monitor water delivery systems	1.1 Perform routine inspections of channel flow rates, regulations and delivery according to demand, statutory requirements and workplace procedures
	1.2 Gather and record system performance data
	1.3 Identify and correct system problems according to plans and service standards
	1.4 Undertake risk assessment at worksite according to workplace procedures
	1.5 Select, fit and use required safety equipment, including personal protective equipment
2 Control processes	2.1 Calculate, determine and apply system adjustments required to meet water delivery demands
	2.2 Initiate and coordinate system adjustments required for delivery or channel flow rates
	2.3 Integrate processes to improve the delivery network performance
3 Analyse data and compile reports	3.1 Conduct analysis of actual performance against planned system performance using system data and historical records
	3.2 Compile reports from system performance data and report to relevant personnel

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPIRR032 Monitor and control rural water distribution

operations.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPIWS010 Monitor and control rural water distribution operations

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- adjusting system to meet demand
- analysing system performance
- calculating water flows
- completing required documentation
- conducting system inspections
- gathering and recording system performance data
- identifying and correcting system faults
- identifying risks
- interpreting and following plans, instructions and standard operating procedures
- monitoring, controlling and coordinating rural water flow, scheduling and delivery
- solving operational problems
- using safety equipment and personal protective equipment

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- coordination processes
- effects of weather and conditions on operation of rural water distribution systems
- environmental aspects of rural distribution systems
- equipment operation, capacity and limitations
- gravity and control systems
- inspection of rural distribution systems
- relevant legislation, regulations and workplace procedures
- relevant utilities and service bodies
- risk factors and potential hazards
- system layout and processes
- workplace policies and procedures

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPIWS011 Identify and apply water entitlements and delivery processes

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to identify and apply water entitlements and delivery processes.

It includes identifying and applying irrigation, stock and domestic supply systems, measuring water and reporting water usage.

This unit applies to those working as field operators involved with the operation of rural water systems, including the identification of water entitlements and delivery processes. Those undertaking this unit would work under appropriate supervision, using own familiar resources as required, while performing routine tasks in range of familiar contexts.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Irrigation Water Supply

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

PERFORMANCE CRITERIA

Elements describe the essential outcomes.

Performance criteria describe the performance needed to demonstrate achievement of the element.

1	Identify and apply water	1.1	Apply principles of allocation or sale of water to

entitlements	properties and landholders
	1.2 Apply changes to entitlement or allocation to properties and between properties according to workplace procedures
	1.3 Apply relevant legislation relating to water distribution and delivery according to workplace procedures, including breach notification
	1.4 Identify relevant water products and services offered to customers and customer contracts
2 Identify and apply legislative requirements	2.1 Identify relevant type and structure of water supply networks and their interaction
	2.2 Identify design and operation of relevant components of water distribution system
	2.3 Identify and monitor principles of water flow and factors affecting water flow
	2.4 Identify and apply principles of regulating water through the water supply system
3 Record and monitor water use	3.1 Calculate, measure, monitor and report water flows and volumes according to workplace procedures
	3.2 Identify and monitor balance of water entitlements according to workplace procedures

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPIRR041 Identify and apply water entitlements and delivery processes.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPIWS011 Identify and apply water entitlements and delivery processes

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- calculating water flows and volumes
- completing balance estimates and recording water use
- identifying and applying irrigation, stock and domestic supply systems
- interpreting data
- measuring water and reporting water usage
- operating a range of flow control devices
- reading meters and other measurement instruments
- regulating water delivery

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- allocation and trading rules
- channel regulating practices
- depth and flow conversion charts
- hydraulics
- range of structures in network system
- range of water products
- relevant legislation, regulations and workplace procedures
- workplace system networks or distribution systems

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the

time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPIWS012 Monitor and schedule water deliveries

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to monitor and schedule water deliveries.

It includes scheduling water deliveries for irrigation and domestic or supply systems, including monitoring flows, analysing data, coordinating hydraulic processes and compiling operational reports.

This unit applies to those working as field staff and operators with a specific responsibility for ensuring water deliveries meet customer requirements. Those undertaking this unit would work under appropriate supervision, while performing routine tasks and ensuring minimum damage to the environment, in a familiar.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Irrigation Water Supply

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Schedule water deliveries 1.1

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

Identify and record customer water orders according to workplace procedures

	1.2	Analyse water orders to determine water delivery and flow rate requirements
	1.3	Schedule water deliveries to meet flow rate requirements and organisational standards for channel balance and capacity restraints
2	Monitor water delivery	
	2.1	Monitor channel flow rate, regulation and delivery according to customer requirements
	2.2	Maintain delivery performance records according to workplace procedures
	2.3	Analyse system performance using system data and records to determine actual and planned performance
3	Coordinate and control water delivery	
	3.1	Calculate system adjustments according to demand and organisational requirements
	3.2	Coordinate flow regulation, channel levels, security of flow devices and settings according to demand and organisational requirements
4	Compile records of water delivery	
	4.1	Compile reports from systems performance data
	4.2	Maintain appropriate measurement and delivery records according to workplace procedures

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPIRR042 Monitor and schedule water deliveries.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPIWS012 Monitor and schedule water deliveries

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- adjusting system according to demand
- analysing volumes and flow rates required for water deliveries
- completing relevant documentation
- coordinating flow regulating devices
- identifying and responding to operational problems
- identifying control system faults
- monitoring and regulating system performance
- monitoring channel flow
- performing work related calculations
- preparing schedules for water deliveries for customer orders for irrigation and domestic stock supply systems
- producing reports

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- control systems
- coordination processes
- effects of weather and conditions on operation of site plant
- environmental aspects of irrigation and/or stock and domestic supply system
- equipment operation, capacity and limitations
- flow measurement procedures
- gravity systems
- impact of the principles of hydraulics on the operation of flows
- policies and standard operating procedures
- principles of scheduling
- relevant legislation, regulations and workplace procedures

- system hydraulics
- system layout and operations
- water flow calculations

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

Links

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<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPIWS013 Coordinate and monitor pumped rural irrigation systems

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to coordinate and monitor pumped rural irrigation systems.

It includes ensuring the irrigation plan's performance measures are met, environmental issues are addressed and a source of supply is maintained.

This unit applies to those working as field and operational staff with a specific responsibility for ensuring the operation of pumped rural irrigation systems complies with the requirements of the organisation's irrigation plan and with relevant organisational and statutory requirements. Those undertaking this unit would work autonomously, usually with supervisory responsibilities, while performing complex tasks in a range of contexts.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Irrigation Water Supply

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1 Confirm irrigation plan performance measures	1.1 Identify water flow requirements in water sources
	1.2 Identify water quality and quantity requirements, including release rates
	1.3 Identify environmental factors impacting water flows and quality
	1.4 Identify performance measures for the water resource and operation of the system
	1.5 Identify and communicate with stakeholders
	1.6 Access monitoring data and consult stakeholders
2 Monitor the performance of assets	2.1 Conduct monitoring and testing programs according to irrigation plan
	2.2 Select, fit and use personal protective equipment
	2.3 Monitor assets to ensure performance meets specifications in the irrigation plan
	2.4 Schedule maintenance programs to ensure irrigation plan performance
3 Monitor, coordinate and report processes	3.1 Test and monitor water usage and quality according to the irrigation plan
	3.2 Coordinate processes to meet the irrigation plan's requirements and targets
	3.3 Identify and implement actions to optimise system performance
	3.4 Analyse, record and report coordination and monitoring data to relevant stakeholders and personnel

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work

environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit supersedes and is equivalent to NWPIRR034 Coordinate and monitor surface water systems.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPIWS013 Coordinate and monitor pumped rural irrigation systems

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- accessing and analysing data, completing records and producing reports
- assessing environmental impact
- conducting or supervising asset monitoring and testing programs
- conducting or supervising testing and monitoring of water usage and water quality
- conducting site inspections
- consulting with stakeholders
- coordinating and monitoring the operation of irrigation water systems
- coordinating measuring and testing activities
- coordinating processes to meet targets and optimise system performance
- identifying irrigation water system performance measures from the irrigation plan
- identifying water flow, quality and quantity requirements and any environmental factors that may affect these

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and include knowledge of:

- environmental, climatic and weather characteristics and impacts
- hydraulic analysis
- irrigation water systems
- relevant legislation and workplace policies and procedures
- requirements for monitoring and testing programs
- stakeholder expectations and requirements

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPIWS014 Coordinate and monitor the operation of irrigation delivery systems

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to coordinate and monitor the operation of irrigation delivery systems.

It includes meeting operational and environmental performance standards including system maintenance and customer liaison.

This unit applies to those working as field or operational staff with a specific responsibility for ensuring the operation of irrigation systems complies with organisational and statutory requirements. Those undertaking this unit would work autonomously, usually with supervisory responsibilities, while performing complex tasks in a range of contexts.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Irrigation Water Supply

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Confirm performance measures in irrigation

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Communicate with customers to identify irrigation

system's management plan	requirements
	1.2 Identify environmental factors impacted by the irrigation system
	1.3 Interpret historic system information and consult stakeholders
	1.4 Confirm performance requirements for an irrigation system management plan
2 Monitor and coordinate processes and resource targets	2.1 Monitor and test programs and identify, investigate and report any deviations from water quantity, quality, release or flow
	2.2 Evaluate the duration, volume and flow rates of water deliveries and identify, investigate and report deviations from agreed service levels
	2.3 Identify and plan maintenance requirements according to irrigation plan
	2.4 Identify and implement operational resources for the irrigation management plan
	2.5 Develop and implement an operational risk management plan
	2.6 Review the scheduling and flow calculations
3 Report outcomes of coordination and monitoring	3.1 Monitor and report the performance of the irrigation system
	3.2 Make recommendations for improvements in system performance and/or customer service

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit supersedes and is equivalent to NWPIRR033 Coordinate and monitor the operation of irrigation delivery systems.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPIWS014 Coordinate and monitor the operation of irrigation delivery systems

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- analysing and reporting data
- assessing environmental impact
- checking flows
- confirming performance requirements for an irrigation system management plan
- evaluating performance of water deliveries and investigating and reporting deviations from agreed service levels
- evaluating performance targets
- identifying and reporting problems
- identifying customer requirements and environmental factors that impact on the irrigation system
- implementing, monitoring and testing programs and investigating and reporting deviations from planned parameters
- interpreting historic system information and consulting stakeholders
- making recommendations for system performance or customer service improvements

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and include knowledge of:

- coordination processes
- customer expectations and requirements
- environmental and topography influence on the operation area
- evaluation strategies for effectiveness of performance
- impact of the principles of hydraulics on the operation of flows
- irrigation SCADA systems
- maintenance contingencies
- operational contingencies
- operational risk factors
- principles of scheduling for supply

- relevant legislation, policies and procedures
- requirements for monitoring and testing programs
- system equipment operation, capacity and limitations
- system layout and operations
- water flow calculations
- workplace documentation including requirements for an operational risk management plan

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPNET018 Disinfect network assets

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to disinfect network assets.

It includes planning and preparing the worksite and performing volumetric calculations, when additional disinfection is required.

This unit applies to those working as field and operational staff with responsibility for the operation and maintenance of chemical dosing equipment. Those undertaking this unit would work independently, under appropriate supervision, while performing routine tasks with a moderate level of complexity in a familiar context.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Networks

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Prepare for work

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Determine work requirements from specifications, instructions and pre-work inspections

1.2 Conduct risk assessment for environment, safety and

- water quality factors
- 1.3** Select and check equipment and personal protective equipment to meet safety requirements of task and worksite
 - 1.4** Determine size of area to be disinfected according to work requirements
 - 1.5** Perform calculations to establish dose rate, target residual and contact time
- 2 Conduct disinfection**
- 2.1** Set up and operate chemical dosing equipment at injection point according to manufacturer instructions
 - 2.2** Commence chemical dosing at predetermined dose rate
 - 2.3** Perform residual measurement to ensure target disinfection residual is being met
 - 2.4** Achieve contact time and stop chemical dosing
- 3 Finalise work**
- 3.1** Collect samples ensuring types, locations and times comply with work requirements
 - 3.2** Prepare samples for laboratory testing according to work requirements
 - 3.3** Check, maintain and store equipment, tools and materials according to workplace procedures
 - 3.4** Restore worksite, complete and submit workplace records according to workplace procedures

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPNET001 Disinfect network assets.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPNET018 Disinfect network assets

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- conducting risk assessment
- handling of chlorine in different forms, including at least one of the following forms:
 - liquid
 - solid
- operating analytical equipment
- operating and maintaining chemical dosing equipment
- operating system valves
- operating network mains
- performing calculations
- performing chemical dosing on at least one of the following network assets:
 - bores
 - network mains and services
 - network storages
- using maps and diagrams

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- chemical dosing
- chlorine handling techniques in at least one of the following forms:
 - gas
 - liquid
 - solid
- interrogation of supervisory control and data acquisition (SCADA) system
- network assets including:
 - bores

- network mains and services
- network storages
- principles of chlorination and chloramination
- relevant legislation, regulations and workplace procedures
- safe limits of disinfectant residual
- water chemistry
- water network operation

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPNET019 Prepare and restore worksite

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to prepare and restore worksite.

It includes following work instructions, using a range of equipment and tools to prepare a safe worksite and restoring worksite to the required condition.

This unit applies to those working as field and operational staff performing a wide range of functions and supporting construction, maintenance and operations processes. Those undertaking this unit would work under appropriate supervision, performing routine tasks, in mostly familiar contexts.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Networks

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Prepare for work

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Identify and report potential hazards to public and environment and assess risks

1.2 Determine worksite preparation requirements from

- specifications, instructions and pre-work inspections
- 1.3** Perform a worksite check according to legislative and organisational requirements to identify risks and prevent damage to other utilities
 - 1.4** Source and check worksite equipment, tools and materials as appropriate to meet task and safety specifications
 - 1.5** Select, fit and use personal protective equipment
 - 1.6** Identify, notify and communicate with customers and stakeholders according to workplace procedures
- 2 Prepare worksite**
- 2.1** Position safety equipment and materials to prevent potential risks to public and environment
 - 2.2** Store and secure equipment and materials according to workplace procedures
 - 2.3** Use worksite equipment, excavation equipment, tools and materials according to manufacturer instructions and workplace procedures
 - 2.4** Drain and divert water flows from worksite to prevent damage to environment
- 3 Restore worksite**
- 3.1** Backfill and compact excavations according to specifications
 - 3.2** Restore worksite by landscaping, planting and materials
 - 3.3** Remove excess soil, debris and unwanted materials from worksite according to workplace procedures
 - 3.4** Restore worksite using equipment, tools and materials to meet environmental and workplace procedures
- 4 Review and report activities**
- 4.1** Tag and report faulty equipment, tools and advise appropriate personnel
 - 4.2** Store equipment, tools and materials according to manufacturer and workplace instructions
 - 4.3** Complete and process workplace records according to workplace procedures

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPNET002 Prepare and restore work site.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPNET019 Prepare and restore worksite

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- cleaning, maintaining and storing equipment
- clearing and preparing worksite according to specifications
- communicating with appropriate environmental controls
- compacting and reinstating worksite
- excavating backfill
- identifying and responding to worksite issues
- interpreting and applying numerical data in specifications and plans
- interpreting plans, instructions, workplace procedures and work requirements
- planning worksite layout
- preparing worksite for planting and plant vegetation
- selecting, using, maintaining, cleaning, storing and securing materials and equipment
- using tools and equipment

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- communication systems
- effects of weather and conditions on construction worksite or plant
- environmental aspects of worksite preparation and restoration
- equipment operation, capacity and limitations
- excavation procedures and worksite restoration
- landscape and ground structure of work area
- relevant legislation, industry standards and guidelines
- relevant utilities and service bodies
- relevant workplace procedures
- risk factors and potential hazards of worksite preparation and restoration

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPNET020 Control electrical risk on metallic pipes

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to control electrical risk on metallic pipes.

It includes safely working on and assessing metallic pipes for electricity. It also includes using electrical detection devices, identifying yourself to customers and identifying utility assets.

This unit applies to those working as field and operational staff with responsibility for the control measures of high-risk electrical hazards. Those undertaking this unit would work independently under indirect supervision while performing routine tasks with a moderate level of complexity in a familiar context.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Networks

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Prepare for work

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Identify and locate area of work from job specifications, plans and diagrams

1.2 Conduct risk assessment for environmental safety

		according to workplace procedures
	1.3	Select safety and electrical equipment and fit and use personal protective equipment according to workplace procedures
	1.4	Identify yourself to your customers and determine customer needs
	1.5	Identify utility assets or services by contacting relevant authorities
2	Assess metallic pipes for electricity	
	2.1	Use electrical testing device to check for presence of electricity on metallic water pipe according to workplace procedures
	2.2	Follow organisational procedures when electricity is detected
	2.3	Identify and clean attachment points and apply the testing and monitoring equipment and bridging conductors if no electricity is detected
	2.4	Continue to enforce electrical control measures during pipe replacement
3	Finalise work	
	3.1	Store and secure equipment and materials according to manufacturer instructions
	3.2	Restore worksite to meet environmental and organisational requirements
	3.3	Report and tag any damaged or faulty equipment according to workplace procedures

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPNET003 Control electrical risk on metallic pipes.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPNET020 Control electrical risk on metallic pipes

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- applying bridging conductors
- contacting relevant authorities for the correct location of utilities or services
- identifying and selecting appropriate equipment
- reading plans and diagrams
- replacing metallic pipe according to manufacturer or workplace requirements
- testing of bridging conductors
- using electrical testing and monitoring safety devices

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- customer service procedures
- electrical testing
- equipment operation, capacity and limitations
- excavation procedures and site restoration
- metallic pipes including:
 - cast iron
 - copper pipe
 - ductile iron
 - galvanised pipe
 - mild steel
- relevant legislation, regulations and workplace procedures
- relevant authorities to contact for the correct location of utilities or services including Dial Before You Dig
- risk factors and potential hazards associated with metallic pipes

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
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Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPNET028 Monitor and operate network systems

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to monitor and operate network systems.

It includes planning and preparing the worksite, monitoring performance and usage of distribution systems.

This unit applies to those working as field and operational staff with responsibility for water distribution systems including practical delivery, monitoring and regulation of reticulated water distribution services. Those undertaking this unit would work under appropriate supervision, while performing routine tasks, in a familiar context, ensuring minimum damage to the environment.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Networks

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Establish network systems and prepare worksite

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Conduct risk assessment for environmental, safety and water quality factors according to authorities and workplace procedures

	1.2	Identify network system layout and determine operational problem areas from job specifications, plans and charts
	1.3	Operate and adjust water reticulation system according to standard operating procedures and manufacturer instructions
	1.4	Select and check relevant equipment and personal protective equipment to meet safety requirements of task and worksite
	1.5	Identify and locate isolation valves and hydrants according to workplace maps and plans
	1.6	Collect and report data on system performance and usage
2	Operate pump station	
	2.1	Identify and set or adjust pump station components
	2.2	Check and report on storage levels
	2.3	Identify faults and adjust system according to manufacturer instructions
3	Monitor performance and usage of distribution systems	
	3.1	Identify fluctuations in supply, system changes, community demands and water quality complaints
	3.2	Collect, calculate and report data on system performance and usage
	3.3	Collect and record water samples to monitor water quality
4	Regulate flow and pressure and identify issues	
	4.1	Inspect flow regulating systems and adjust to meet demand requirements
	4.2	Regulate and divert flows to facilitate repair or emergency activities
	4.3	Monitor and adjust pressure to meet optimum delivery
	4.4	Investigate and report pressure fluctuations to relevant personnel
	4.5	Document and report reticulation and distribution information to relevant personnel

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPNET004 Monitor and operate network systems.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPNET028 Monitor and operate network systems

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- collecting data
- collecting samples
- conducting risk assessment and identifying hazards
- following plans, charts and instructions
- identifying and responding to operational problems
- identifying conditions of system
- identifying system faults
- implementing remedial action to maintain supply
- installing and operating a stand pipe or fire plug
- monitoring and adjusting pressure
- monitoring and diverting flow
- monitoring system performance and usage
- operating reticulation and distribution systems
- performing work-related calculations
- preparing worksite
- producing reports
- recording water losses
- using tools and machinery

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- conditions for connection to live water mains
- control systems
- effects of weather conditions on systems, site or plant
- electrical safety for disconnecting and changing meters and fittings
- environmental aspects of operation

- equipment operation, capacity and limitations including water hammer
- impact of the principles of hydraulics on the operation of flows
- isolation procedures
- relevant legislation, regulations and workplace procedures
- risk factors and potential hazards of operating water distribution systems
- standard operating procedures and manufacturer instructions
- system layout and performance
- water hammer
- water pumping stations and reservoirs
- water quality

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPNET029 Locate, identify and protect utilities

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to locate, identify and protect utilities.

It includes preparing to locate utility services at the worksite, locating utility assets by excavation, operating plant near underground or overhead utility assets. It also includes protecting and supporting utility assets during excavation and backfilling and initiating emergency procedures.

This unit applies to those involved in locating, constructing, repairing or installing underground utility infrastructure to prevent damage, injury, death or loss of service. Those undertaking this unit would work under appropriate supervision, performing routine tasks, in mostly familiar context ensuring minimum damage to the environment.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Networks

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Prepare to locate utility services at worksite

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Identify utility assets or services by communicating with relevant authorities

	1.2	Determine and mark worksite boundaries and requirements from plans, specifications and workplace instructions
	1.3	Determine type, size and likely configuration of all underground and overhead services from plans and typical or local installation practices
	1.4	Conduct risk assessment for environmental and safety factors including personal and protective equipment to ensure it is safe to commence work
	1.5	Identify yourself to your customers and determine customer needs
2	Operate pipe and cable locating equipment	
	2.1	Identify and select appropriate locating equipment
	2.2	Operate pipe and cable locating equipment according to manufacturer instructions
	2.3	Interpret false signals or interference with pipe and cable locating equipment and make appropriate adjustments
	2.4	Mark the approximate location of services on the surface of the worksite according to workplace procedures
	2.5	Conduct test excavation to visually confirm service location according to workplace procedures
3	Operate plant near underground or overhead utility assets	
	3.1	Monitor plant during work activities according to workplace procedures
	3.2	Identify potential or actual encroaches of plant on minimum clearances to assets
	3.3	Give instructions to plant operator using agreed signals
4	Protect and support utility assets during excavation and backfilling	
	4.1	Protect and support assets according to utility owner requirements to prevent damage
	4.2	Report damage to assets to utility owner according to workplace procedures
	4.3	Restore worksite using equipment, tools and materials to meet environmental and workplace procedures

5 Maintain locating equipment	5.1 Perform daily maintenance of equipment according to manufacturer instructions
	5.2 Record maintenance details according to workplace procedures

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPNET011 Locate, identify and protect utilities.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPNET029 Locate, identify and protect utilities

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- applying safe work methods for locating and protecting utilities at or near a worksite
- assessing and identifying risk of potential hazards associated with each utility
- communicating with stakeholders
- contacting relevant authorities for the correct location of utilities or services
- monitoring use of equipment
- protecting and supporting utility assets during performance of work tasks and during worksite restoration
- selecting and using tools and equipment

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- communication systems for locating utilities
- plans of underground and overhead services
- effects of weather and conditions on worksite or plant
- emergency response procedures
- environmental aspects of excavation
- equipment operation, capacity and limitations
- landscape and ground structure of work area
- relevant legislation, regulations and workplace procedures
- relevant utilities and service bodies to contact for the correct location of utilities or services including Dial Before You Dig
- risk assessment and identification of potential hazards associated with each utility

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training

Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPNET030 Identify and respond to water quality problems

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to identify and respond to water quality problems.

It includes monitoring, identifying and resolving water quality problems in water distribution systems. It also includes identifying and investigating operational problems, collecting samples, analysing technical information, communicating effectively with stakeholders and interpreting and applying incident management procedures.

This unit applies to field and operational staff with a specific responsibility for monitoring water quality and responding to issues affecting water quality in distribution systems. Those undertaking this unit would work under appropriate supervision, while performing routine tasks, in a familiar context, and ensuring minimum damage to the environment.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Networks

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Identify and locate water

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Conduct monitoring of water quality according to

quality problems	workplace procedures
	1.2 Investigate water quality problems and causes
	1.3 Collect, analyse and report system data
	1.4 Collect, label and record samples according to workplace procedures
	1.5 Select, fit and use required safety equipment according to workplace procedures
	1.6 Identify and communicate with customers and stakeholders according to workplace procedures
2 Respond to water quality problems	2.1 Analyse incidents and apply incident management procedures to resolve water quality problems
	2.2 Notify customers and stakeholders of resolution to identified problems
	2.3 Monitor and measure recovery of the system according to workplace procedures
	2.4 Investigate and review results and take appropriate action according to workplace procedures
3 Complete documentation	3.1 Report process faults to relevant stakeholders according to workplace procedures
	3.2 Document reports from system data according to workplace procedures

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPNET013 Identify and respond to water problems.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPNET030 Identify and respond to water quality problems

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- collecting, analysing and reporting system data
- collecting and recording water quality data
- collecting, labelling and recording samples
- completing incident reports and other relevant documentation
- identifying and communicating with customers and stakeholders
- identifying and investigating water quality problems and causes
- identifying and reporting process faults
- producing reports
- using safety equipment and personal protective equipment

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- causes of water quality deterioration
- communication techniques
- customer and stakeholder requirements
- environmental impact assessments
- incident management procedures
- relevant legislation, regulations and workplace procedures
- risk management principles
- sampling and testing procedures
- water quality including:
 - characteristics
 - issues
 - potential hazards
 - primary agencies
 - risk factors

- specifications
- water system standards including:
 - environmental aspects and management procedures
 - infrastructure
 - layout
 - operation
 - pipes and fittings
 - processes
 - pumping and valving systems

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPNET035 Perform odour and infiltration investigations

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to perform odour and infiltration investigations.

It includes investigating and reporting odours and infiltration problems in the wastewater collection and transfer systems. It also includes resolving wastewater system problems, operating technical equipment and preparing technical reports.

This unit applies to those working as field and operational staff, with a specific responsibility for ensuring odour and infiltration problems are identified and remedied. Those undertaking this unit would work under appropriate supervision, while performing routine tasks in a familiar context, and ensuring minimum damage to the environment.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Networks

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Prepare for infiltration detection

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Determine worksite boundaries and infiltration detection requirements from plans, specifications and instructions

	1.2	Conduct risk assessment for environmental and safety factors including personal and protective equipment to ensure it is safe to commence work
	1.3	Select and check infiltration equipment according to workplace procedures
	1.4	Determine work requirements for the maintenance and repair of assets from work drawings, plans, specifications and instructions
	1.5	Identify, notify and communicate with customers according to workplace procedures
2	Investigate odour and infiltration complaints	
	2.1	Investigate root cause of odour and determine appropriate remedial action
	2.2	Control odour through repair or replacement by taking appropriate remedial action according to workplace procedures
	2.3	Update customer by advising of odour resolution methods utilised
3	Operate infiltration detection equipment	
	3.1	Operate infiltration equipment according to manufacturer instructions
	3.2	Determine the location of infiltration and mark according to testing outcomes and workplace procedures
	3.3	Maintain and repair structural damage to assets
	3.4	Restore worksite according to environmental and workplace procedures
4	Review, report and record work	
	4.1	Tag and report faulty equipment and tools and advise appropriate personnel
	4.2	Store equipment, tools and materials according to manufacturer and workplace procedures
	4.3	Complete and process workplace records according to workplace procedures

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPNET014 Perform odour and infiltration investigations.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPNET035 Perform odour and infiltration investigations

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- completing required documentation
- conducting risk assessments
- identifying and reporting illegal inflows or discharges
- inspecting and selecting tools and equipment
- integrating processes
- interpreting and completing workplace documents
- interpreting plans, diagrams, charts, specifications
- investigating and reporting on odour and infiltration problems in the wastewater collection and transfer systems
- monitoring inflows
- reporting flow regulations, diversions and isolation of the site
- reviewing and addressing investigation results
- scheduling inspections and further corrective actions
- using safety equipment and personal protective equipment

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- communication systems
- effects of weather and conditions on operation of collection infrastructure
- environment, landscape and ground structure of work area
- environmental aspects of wastewater collection systems and infrastructure
- gravity and control systems including infrastructure and system hydraulics
- infiltration and inflow sources
- monitoring processes
- plans, diagrams, charts, specifications
- relevant legislation and regulations

- relevant utilities and service bodies
- relevant workplace policies and procedures
- risk factors and potential hazards involved in wastewater collection systems equipment operation, capacity and limitations

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPNET036 Perform leak detection

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to perform leak detection.

It includes planning leak detection activities and locating, identifying and reporting leaks in pressure mains water distribution networks.

This unit applies to those working as field staff with a specific responsibility for planning and implementing leak detection activities. Those undertaking this unit would work under appropriate supervision, while performing routine tasks in a familiar context, and ensuring minimum damage to the environment.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Networks

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Prepare for leak detection

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

- 1.1** Determine worksite boundaries and leak detection requirements from plans, specifications and instructions
- 1.2** Conduct risk assessment for environmental and safety

		factors including personal and protective equipment to ensure it is safe to commence work
	1.3	Select and check leak detection equipment according to workplace procedures
	1.4	Determine work requirements for the maintenance and repair of assets from work drawings, plans, specifications and instructions
	1.5	Identify, notify and communicate with customers according to workplace procedures
2	Operate leak detection equipment	
	2.1	Determine and mark worksite boundaries from plans and service search diagrams
	2.2	Operate leak detection equipment according to manufacturer instructions
	2.3	Mark the location of leaks according to workplace procedures
	2.4	Locate leaks and arrange repair according to testing outcomes, relevant legislation and workplace procedures
3	Review, report and record work	
	3.1	Restore worksite according to environmental and workplace procedures
	3.2	Store equipment, tools and materials according to manufacturer and workplace procedures
	3.3	Complete and process workplace records according to workplace procedures

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPNET015 Perform leak detection.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPNET036 Perform leak detection

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- analysing data according to workplace procedures
- completing documentation
- identifying safety risks and hazards
- interpreting plans, specifications, policies and procedures
- locating and marking leaks and arranging repair activities
- locating, identifying and reporting leaks in water distribution networks
- operating leak detection equipment
- preparing for leak detection activities
- providing maintenance records for equipment

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- calculations and measurements
- landscape and ground structure of work area
- leak detection equipment
- relevant legislation, regulations and workplace procedures
- relevant utilities and service bodies
- risk assessment and the identification of potential hazards including:
 - effects of weather and conditions on site or plant
 - environmental aspects
 - equipment operation, capacity and limitations
 - identification, repair and lock out procedures
- system hydraulics
- system layout
- work drawings, plans and specifications

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPNET037 Inspect sewer or stormwater assets

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to inspect sewer or stormwater assets.

It includes planning, preparing and conducting inspections of gravity sewers or stormwater assets, using specialised inspection equipment and transport systems, and reporting on observed defects. It also includes interpreting technical information, identifying and assessing hazards, operating and maintaining specialised technical equipment and generating data and images on the condition and features of the asset inspected.

This unit applies to those working as operators with a specific responsibility for inspecting and reporting on the condition of operational gravity sewers and stormwater assets and new or rehabilitated sewers or stormwater assets; and operating and maintaining specialised inspection equipment. This unit may also be applied to the inspection of other types of asset system. Those undertaking this unit would work under appropriate supervision, while performing routine tasks in a familiar context, and ensuring minimum damage to the environment.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Networks

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1 Prepare for asset inspection	1.1 Identify inspection purpose and location, size, type and extent of the assets
	1.2 Determine the inspection method and equipment to be used
	1.3 Conduct and document hazard identification and risk assessment and implement appropriate risk control processes
	1.4 Establish and implement asset isolation, flow management plans and inspection schedules in consultation with the system operator
	1.5 Arrange for preparation of the asset and worksite for inspection
2 Operate and maintain inspection equipment	2.1 Set up, calibrate and operate equipment relevant to size, type and conditions of the asset according to industry codes and specifications
	2.2 Examine, record and report features of the asset
	2.3 Conduct routine maintenance of inspection equipment according to manufacturer instructions
	2.4 Diagnose and correct equipment malfunction
	2.5 Recognise and respond to potential risks to equipment or system operation
3 Identify and code defects and features observed during inspection	3.1 Identify and code structural defects, service conditions and other features of the asset
	3.2 Record asset and inspection data using approved data capture software
	3.3 Investigate and report defects, service conditions or other features according to workplace procedures
	3.4 Identify an asset at risk of imminent failure and communicate details to the system operator or owner
	3.5 Identify and report defects or malfunctions of access structures
4 Withdraw inspection equipment and reinstate	4.1 Clean and inspect equipment for damage during and after withdrawal from the asset

system operation

	4.2	Reinstate system operation according to asset isolation, flow management plan and specifications
	4.3	Restore worksite to meet organisational, safety, environmental and property owner requirements
5	Review, record and report work	
	5.1	Check inspection data and images prior to removal of equipment for completeness, quality and accuracy
	5.2	Compile inspection reports and present to the stakeholder in the required format
	5.3	Complete job documentation and communication according to workplace procedures

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPNET016 Inspect sewer or stormwater line.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPNET037 Inspect sewer or stormwater assets

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- accessing and interpreting drawings, plans, maps, diagrams, instructions, specifications relevant to workplace procedures
- applying industry inspection reporting code requirements
- inspection procedures
- assessing risks and preparing for hazards
- calibrating equipment for asset inspection
- completing and processing inspection information according to workplace procedures
- conducting inspections and identifying and coding asset defects and condition
- identifying structural defects, service conditions and other features in a range of different assets
- identifying the location and extent of the work, methods to be applied and equipment, including safety equipment, to be used
- implementing and reinstating isolation techniques
- investigating and recording defects and asset conditions
- operating and maintaining specialised inspection equipment
- planning, preparing and conducting an inspection of gravity sewer or stormwater assets
- preparing for asset inspection
- removing equipment and reinstating system operation
- reporting asset at risk of failure
- restoring worksite
- using data capture software
- using safety equipment and personal protective equipment.

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- capabilities of specialised equipment
- confined space entry procedures

- construction and operation of sewerage and stormwater systems
- data capture, recording and reporting software
- drawings, plans, maps and diagrams
- effects of weather and conditions on operation of worksite or plant
- environmental aspects of operation and installation
- equipment operation
- industry inspection reporting code
- potential hazards and risk factors of operational processes
- relevant legislation, regulations and workplace procedures
- routine maintenance and calibration requirements of inspection equipment.

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPNET038 Install metering equipment

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to install metering equipment.

It includes preparing, reading, installing and maintaining flow control metering equipment. It also includes finalising work, restoring worksite and completing documentation.

This unit applies to those working as field staff with responsibility for installing meter equipment in compliance with relevant workplace and statutory requirements. Those undertaking this unit would work under appropriate supervision while performing routine tasks, in a familiar context and ensuring minimum damage to the environment.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Networks

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Prepare for installing metering equipment

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

- 1.1** Conduct environmental and work, health and safety risk assessment according to workplace procedures
- 1.2** Determine work requirements and worksite from plans,

- specifications and instructions
- 1.3** Check permission to access third-party sites, isolations and permits to work with relevant personnel
 - 1.4** Conduct earth leakage risk assessment according to workplace procedures
 - 1.5** Identify, check and prepare materials, equipment and resources required to satisfy job plan
 - 1.6** Identify metering equipment and recognise specifications for operation
 - 1.7** Select safety equipment and fit and use personal protective equipment (PPE)
 - 1.8** Present identification to customers and organise arrangements to complete repairs
 - 1.9** Select and use earth leakage safety equipment to metallic pipe for installing meters
- 2 Read metering equipment**
- 2.1** Collect and report information on the performance of the metering equipment
 - 2.2** Identify potential faulty meters and apply workplace procedures
- 3 Install flow control and metering devices**
- 3.1** Apply earth leakage safety equipment to metallic pipe according to workplace procedures
 - 3.2** Isolate water flow according to workplace requirements and procedures
 - 3.3** Install new meter or replace existing meter according to manufacturer instructions
 - 3.4** Restore water flow, check for leaks and meter is operating according to manufacturer instructions
 - 3.5** Remove earth leakage safety equipment and restore worksite
- 4 Maintain flow control and metering devices**
- 4.1** Inspect flow control and metering facilities in water distribution
 - 4.2** Complete preventative maintenance and service equipment and facilities according to workplace procedures

5 Finalise work and complete documentation	5.1 Review, record and report work according to workplace procedures
	5.2 Restore worksite, complete and submit workplace records
	5.3 Check, maintain, store equipment, tools, materials and tag and report faulty equipment according to workplace procedures

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPNET021 Install metering equipment.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPNET038 Install metering equipment

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- completing workplace documentation
- conducting risk assessments on worksite for operational, electrical and environmental safety factors
- conducting inspections, maintenance and servicing of metering, flow control and regulating devices
- identifying yourself to customers
- identifying and responding to operational problems
- installing and testing metering equipment
- installing flow control and metering devices
- installing, replacing and securing volumetric metering equipment for domestic, industrial and commercial premises
- interpreting plans, specifications and instructions for installation of flow control and metering devices
- preparing for installation of flow control and metering devices
- producing documentation
- using electrical safety procedures
- using personal protective equipment

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- data collection and recording system
- electrical earth leakage safety procedures
- environmental, landscape and ground structure of work area for restoration
- equipment operation, capacity and limitations
- flow measurement principles and procedures
- materials handling
- meter types

- relevant legislation, regulations and workplace procedures
- relevant utilities and service bodies
- risk factors and potential hazards
- system layout
- work in confined spaces and at heights

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPNET039 Maintain and repair network assets for drinking water

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to maintain and repair network assets for drinking water.

It includes conducting maintenance and repairs on a variety of water distribution assets including storages, pumping stations, dosing stations and pipelines. It also includes reviewing, reporting and recording work.

This unit applies to those working as field staff with specific responsibility for ensuring the repair and maintenance of water assets. Those undertaking this unit would work under appropriate supervision, while performing routine tasks, in a familiar context, and ensuring minimum damage to the environment.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Networks

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1 Prepare for work	1.1 Conduct risk assessment for environmental, safety and water quality factors to ensure worksite is safe to work
	1.2 Determine work requirements, materials and configuration from plans, specifications, instructions and workplace procedures
	1.3 Check coordination issues with relevant personnel, including isolations, licences and permits to work
	1.4 Identify networks system operation requirements
	1.5 Identify, notify and communicate with customers according to workplace procedures
	1.6 Select, fit and use personal protective equipment (PPE)
2 Conduct maintenance and repairs	2.1 Isolate infrastructure according to workplace procedures
	2.2 Determine appropriate repair method from job specifications and instructions
	2.3 Ensure materials, pipes and fittings are appropriately disinfected prior to installation
	2.4 Check maintenance and repairs to assets to ensure specifications are met according to workplace procedures
	2.5 Restore worksite according to environmental and workplace procedures including performing calculations
3 Review and report work	3.1 Tag and report faulty equipment and tools and advise appropriate personnel
	3.2 Store equipment, tools and materials according to manufacturer and workplace instructions

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work

environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPNET022 Maintain and repair network assets for drinking water.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPNET039 Maintain and repair network assets for drinking water

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- applying disinfection according to workplace procedures
- assisting with worksite planning including personnel, equipment and materials
- checking permits, approvals, other utilities diagrams and maps with relevant personnel
- communicating with appropriate personnel and customers
- conducting risk assessment on worksite for safety and environmental factors
- determining location, size, utilities, services from plans, specifications and workplace procedures
- ensuring system hygiene and water quality
- interpreting plans, instructions and procedures
- maintaining and repairing assets
- performing work-related calculations
- selecting and applying appropriate PPE
- using appropriate tools and equipment for work to be undertaken

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- characteristics of pipe materials
- concrete placement techniques including compaction
- control system procedures
- disinfection of systems and chemical usage
- effects of weather and conditions on construction worksite or plan
- environmental, health aspects and impacts
- equipment operation, capacity and limitations
- excavation techniques and requirements
- ground support systems
- landscape and ground structure of work area

- lockout procedures
- pipe systems and installation requirements
- relevant legislation, policies and procedures
- relevant utilities and service bodies to identify allocation of road reserve
- risk factors and potential hazards of maintenance processes
- safety data sheets
- system hydraulics
- testing and sampling processes
- workplace drawings, plans, specifications and instructions

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPNET040 Maintain and repair network assets for wastewater

Modification History

Release 2. Alteration to PE item 9, removal of PE item 12 and alteration to KE point 15.

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to maintain and repair network assets for wastewater.

It includes conducting maintenance and repair on a variety of wastewater distribution assets including pipes, drains and wastewater collection assets. It also includes reviewing, reporting and recording work.

This unit applies to those working as field staff with specific responsibility for ensuring repair and maintenance of wastewater assets is completed in a safe and timely manner. Those undertaking this unit would work under appropriate supervision, while performing routine tasks, in a familiar context, and ensuring minimum damage to the environment.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Networks

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1 Prepare for work	1.1	Conduct risk assessment for environmental and safety factors to ensure worksite is safe to work
	1.2	Determine work requirements, materials and configuration from plans, specifications, instructions and workplace procedures
	1.3	Check coordination issues with relevant personnel, including isolations, licences and permits to work
	1.4	Identify networks system operation requirements
	1.5	Identify, notify and communicate with customers according to workplace procedures
	1.6	Select, fit and use personal protective equipment (PPE)
2 Conduct maintenance and repairs	2.1	Isolate infrastructure according to workplace procedures
	2.2	Determine appropriate repair method from job specifications and instructions
	2.3	Check maintenance and repairs to assets to ensure specifications are met according to workplace procedures
	2.4	Restore worksite according to environmental and workplace procedures including performing calculations
3 Review and report work	3.1	Tag and report faulty equipment and tools and advise appropriate personnel
	3.2	Store equipment, tools and materials according to manufacturer and workplace instructions

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPNET023 Maintain and repair network assets for wastewater.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPNET040 Maintain and repair network assets for wastewater

Modification History

Release 2. Alteration to PE item 9, removal of PE item 12 and alteration to KE point 15.

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- assisting with planning worksite including personnel, equipment and materials
- checking permits, approvals, other utilities diagrams and maps with relevant personnel
- communicating with appropriate personnel and customers
- conducting risk assessment on worksite for safety and environmental factors
- determining location, size, utilities, services from plans, specifications and workplace procedures
- identifying and responding to operational problems including main, connection chokes, pump stations and faults
- interpreting plans, instructions and procedures
- maintaining and repairing assets by:
 - maintaining pump stations
 - repairing access chambers
 - undertaking excavation
- maintaining, repairing and replacing wastewater infrastructure including at least 5 of the following:
 - clearing blockages
 - controlling flows in gravity networks
 - installing connections
 - installing pipes and fittings
 - jet cleaning
 - jet foaming
 - locating and repairing chokes
 - making joints
 - measuring and cutting pipes
 - repairing valves
 - selecting and placing bedding and backfill material
 - undertaking closed-circuit television (CCTV) inspection

- undertaking excavation
- performing work-related calculations
- preserving personal safety
- selecting and applying appropriate PPE
- using tools and equipment for work in wastewater

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- causes of blockages including:
 - foreign objects
 - pipe displacements
 - roots intrusion
- characteristics of pipes and fittings
- concrete placement techniques including compaction
- control system procedures
- effects of weather and conditions on construction site or plant
- environmental, health aspects and impacts
- equipment operation, capacity and limitations
- excavation techniques and requirements
- formwork preparation and positioning
- ground support systems
- infiltration of foreign matter into the wastewater system
- landscape and ground structure of work area
- lockout procedures
- pipe systems and installation requirements
- relevant legislation, regulations, policies and procedures
- relevant utilities and service bodies to identify allocation of road reserve
- risk factors and potential hazards of maintenance processes
- safety data sheets
- system hydraulics
- testing and sampling systems
- work drawings, plans, specifications and instructions

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the

time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPNET046 Maintain and repair network assets for bulkwater

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to maintain and repair network assets for bulkwater.

It includes preparing for work, conducting maintenance and repair work and cleaning, flushing and disinfecting.

This unit applies to those working as field staff with responsibility for ensuring maintenance and repair work on bulkwater assets is completed in a safe and timely manner. Those undertaking this unit would work under appropriate supervision, while performing routine tasks, in a familiar context, and ensuring minimum damage to the environment.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Networks

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Prepare for maintenance

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Determine work requirements for the maintenance and repair of assets from work drawings, plans, specifications and instructions

	1.2	Select and check equipment and tools required to meet safety requirements of task and worksite
	1.3	Select, fit and use personal protective equipment (PPE)
2	Maintain and repair assets, pipes and fittings	2.1 Repair or replace assets according to workplace procedures
	2.2	Perform appropriate disinfections before installing pipes and fittings
	2.3	Perform disinfection and flushing according to workplace procedures
	2.4	Check work to ensure it complies with specifications
3	Finalise work	3.1 Tag and report faulty equipment, tools and materials and advise appropriate personnel
	3.2	Restore worksite according to environmental and workplace procedures
	3.3	Complete and process workplace records according to manufacturer and workplace instructions

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPNET024 Maintain and repair network assets for bulkwater.

Links

Companion Volume implementation guides are found in VETNet - <https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPNET046 Maintain and repair network assets for bulkwater

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- checking work, restoring worksite, storing equipment and completing documentation
- conducting cleaning, flushing and disinfection
- conducting maintenance and repair work on bulkwater assets
- following plans and instructions
- performing maintenance and repair tasks according to manufacturer specifications and workplace procedures
- planning and preparing the worksite
- recording work activities
- using safety equipment and personal protective equipment

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- control system procedures
- disinfection procedures
- environmental aspects of operation and maintenance
- landscape and ground structure of work area
- lock-out procedures
- mobile technology
- pipes and fittings
- relevant legislation, policies and procedures.
- system hydraulics
- work drawings, plans, specifications and instructions

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training

Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPNET047 Install, maintain and repair hydrants

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to install, maintain and repair hydrants.

It includes conducting a risk assessment, isolating and testing hydrant repairs. It also includes ensuring replacement hydrant is in working order and worksite is restored.

This unit applies to those working as field staff with specific responsibility for ensuring the work related to hydrants is completed in compliance with all relevant organisational and statutory requirements. Those undertaking this unit work independently under appropriate supervision while performing routine tasks, and ensuring minimum damage to the environment, in a familiar context.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Networks

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Prepare for work

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Identify utility assets or services by contacting relevant authorities

- 1.2 Present identification and notify customers of works and potential supply interruptions
 - 1.3 Conduct risk assessment of worksite and work and select appropriate personal protective equipment according to workplace procedures
 - 1.4 Conduct earth leakage risk assessment according to workplace procedures
 - 1.5 Determine work requirements from specifications and instructions
 - 1.6 Test hydrant to determine if replacement or repair of hydrant is required and record results
 - 1.7 Identify, check and prepare materials, equipment and resources required for work
 - 1.8 Select and install appropriate earth leakage equipment according to workplace procedures
- 2 **Conduct installation, maintenance and refurbishment**
 - 2.1 Implement isolation of water system according to workplace procedures
 - 2.2 Implement controls in relation to safety, environment, and isolating the worksite according to workplace procedures
 - 2.3 Excavate worksite to gain access to hydrant for replacement or repair according to workplace procedures
 - 2.4 Install new hydrant or complete repairs to existing hydrant according to workplace procedures
 - 2.5 Remove earth leakage equipment according to workplace procedures
- 3 **Finalise work**
 - 3.1 Remove isolations according to workplace procedures
 - 3.2 Retest hydrant and record results
 - 3.3 Check, maintain and store equipment, tools and materials according to workplace procedures
 - 3.4 Restore worksite, complete and submit workplace records

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPNET026 Install, maintain and repair hydrants.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
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Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPNET047 Install, maintain and repair hydrants

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- applying excavation techniques including:
 - locating cables
 - potholing
- charging and discharging water mains before and after isolation
- communicating with customers
- complying with water off notices, flow control and shut plans
- conducting risk assessments on worksite for operational, electrical and environmental safety factors
- contacting relevant authorities for the correct location of utilities or services
- determining location, size, utilities and services from plans
- implementing isolations
- installing or maintaining hydrants and associated components
- maintaining and storing tools and equipment
- operating valves for isolation
- planning work
- reading and interpreting plans and drawings, and relevant standards and instructions
- restoring worksite
- selecting personal protective equipment
- using tools and specific water equipment

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- electrical earth leakage safety procedures
- equipment operation, capacity, and limitations
- isolation methods and procedures
- operating within permit to works and shut plans

- relevant authorities to contact for the correct location of utilities or services including Dial Before You Dig
- relevant legislation, policies and procedures
- tools and equipment
- worksite restoration techniques

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPNET048 Monitor and control vacuum sewer systems

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to monitor and control vacuum sewer systems.

It includes maintaining the operation of wastewater vacuum collection systems and measuring and reporting on the operation of the system. It also includes the ability to interpret technical documentation and identify and investigate operational problems.

This unit applies to those working as field and operational staff with responsibility for ensuring vacuum sewer systems perform effectively. Those undertaking this unit would work under appropriate supervision performing routine tasks in a range of familiar contexts and ensuring minimum damage to the environment.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Networks

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Prepare for work

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Determine work requirements for monitoring vacuum sewer systems from plans, specifications and

		instructions
	1.2	Select and check equipment, documentation and tools to meet safety and work requirements of task and worksite
	1.3	Communicate with stakeholders of the work to be performed
	1.4	Obtain permits required to complete work according to workplace procedures
	1.5	Select, fit and use personal protective equipment (PPE)
2	Maintain vacuum pump station	
	2.1	Maintain vacuum station building according to workplace procedures
	2.2	Check and monitor vacuum pumps, wastewater pump out and performance of odour control systems to ensure specifications are met and make necessary adjustments
	2.3	Complete pump station workplace records for all pumps and instruments according to workplace procedures
3	Investigate faults in vacuum sewer system	
	3.1	Identify and record links between operational problems and maintenance activities and report to relevant personnel
	3.2	Investigate and control operational status of system components according to manufacturer and supplier specifications
	3.3	Ensure system is returned to operational mode according to workplace procedures
4	Compile process records	
	4.1	Compile reports from system data
	4.2	Record the condition of equipment and report faults and anticipated problems

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work

environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPNET027 Monitor and control vacuum sewer systems

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPNET048 Monitor and control vacuum sewer systems

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- collecting and analysing data
- communicating with stakeholders
- compiling reports
- identifying and investigating operational problems
- identifying system faults
- interpreting plans, charts, service search diagrams and instructions and specifications
- interpreting policies, workplace procedures and standards
- operating control systems
- responding to and correcting operational problems
- using safety equipment and personal protective equipment (PPE)

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- control systems
- coordination and control of processes
- policies, standard operating procedures and legislation
- pump fittings
- pumping and valving systems
- risk factors and potential hazards involved with wastewater including:
 - effects of weather and conditions on operation of wastewater vacuum systems
 - environmental aspects of vacuum systems
- safety procedures
- system processes
- vacuum sewer collection system layout
- vacuum station odour control methods

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPNET049 Construct and install water distribution assets

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to construct and install water distribution assets.

It includes constructing and installing assets, pipes and associated fittings, confirming work quality and finalising work.

This unit applies to those working as field and operational staff with responsibility for ensuring water distribution assets are constructed and installed in a safe and timely manner. Those undertaking this unit would work under appropriate supervision either independently or in a team using own familiar resources as required, while performing routine tasks in a range of familiar contexts, ensuring minimum damage to the environment.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

NWPNET020 Control electrical risk on metallic pipes

Competency Field

Networks

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Prepare for construction and installation

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Determine work requirements for construction and installation from plans, specifications and instructions

	1.2	Perform worksite checks to prevent damage to other utilities
	1.3	Select and check equipment and tools required to meet safety and work requirements of task and worksite
	1.4	Select, fit and use personal protective equipment (PPE)
	1.5	Identify potential risks to public and environment, and take appropriate steps to minimise and eliminate risks
2	Construct and install distribution assets and associated fittings	
	2.1	Excavate and prepare trenches according to workplace procedures
	2.2	Lay bedding or foundations according to workplace procedures
	2.3	Inspect pipes and fittings, lay and joint
	2.4	Install or place prefabricated components according to manufacturer instructions
	2.5	Connect to existing water system according to industry standards and workplace procedures
	2.6	Backfill excavations according to specifications
3	Confirm work quality and finalise work	
	3.1	Check constructed and installed distribution assets, pipes and fittings to ensure specifications are met
	3.2	Check water quality testing results to ensure organisational requirements are met
	3.3	Check, maintain and store equipment, tools and materials according to workplace procedures
	3.4	Restore worksite to meet environmental and workplace procedures
	3.5	Complete workplace records and as constructed drawings and process

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPNET031 Construct and install water distribution assets.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPNET049 Construct and install water distribution assets

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- checking quality of work and ensuring water quality standards
- completing documentation
- constructing and installing water distribution system assets
- identifying and responding to operational risks
- identifying hazards
- installing associated fittings and components
- interpreting plans, instructions and standard operating procedures
- laying and joining pipes
- planning work and preparing worksite safely
- restoring worksite
- using tools and machinery.

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- conditions for connection to live water mains
- electrical safety for disconnection and changing meters and fittings
- environmental aspects of construction and installation
- equipment operation, capacity and limitations
- excavation techniques including shoring and levelling
- relevant legislation, regulations and workplace procedures
- risk factors and potential hazards of construction and installation processes
- water distribution components and parts.

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training

Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPNET050 Construct and install wastewater collection assets

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to construct and install wastewater collection assets.

It includes preparing for work, confirming work quality and finalising work. It also includes excavating, preparing trenches, installing or placing prefabricated components and completing documentation.

This unit applies to those working as field staff with specific responsibility for ensuring that wastewater pipelines are constructed and installed in a safe and timely manner. Those undertaking this unit would work under appropriate supervision or in a team using own familiar resources, while performing routine tasks in a range of familiar contexts.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Networks

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Prepare for construction and installation

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Determine work requirements for construction and installation from plans, specifications and instructions

	1.2	Perform worksite check to prevent damage to other utilities
	1.3	Select and check equipment and tools required to meet safety and work requirements of task and worksite
	1.4	Select, fit and use personal protective equipment (PPE)
	1.5	Identify potential risks to public and environment, and take appropriate steps to minimise and eliminate risks
2	Construct and install collection pipelines	
	2.1	Excavate and prepare trenches according to workplace procedures
	2.2	Lay bedding or foundations according to workplace procedures
	2.3	Inspect pipes, fitting, lay and joint
	2.4	Install or place prefabricated components according to manufacturer instructions and workplace procedures
	2.5	Backfill excavations according to workplace procedures
3	Confirm work quality and finalise work	
	3.1	Check constructed or installed collection assets, pipes and fittings to ensure specifications are met
	3.2	Check, maintain and store equipment, tools and materials according to workplace procedures
	3.3	Restore worksite to meet environmental and organisational requirements
	3.4	Complete workplace records, constructed drawings and process

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPNET032 Construct and install wastewater assets.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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Assessment Requirements for NWPNET050 Construct and install wastewater collection assets

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- checking quality of work
- completing documentation
- constructing and installing pipes according to specifications and instructions
- constructing appropriate assets
- installing components specified for wastewater collection system, including requirements for protection
- installing fittings including junctions and side lines
- planning work and preparing worksite safely
- restoring worksite

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- construction and installation procedures and materials
- environmental aspects of construction and installation
- excavation techniques including shoring and levelling
- relevant legislation, regulations and workplace procedures
- risk factors and potential hazards of construction and installation processes including:
 - effects of weather and conditions on operation of site or plant
 - excavation
- techniques for levelling including:
 - profiles and boning rods
 - safe use of lasers
- techniques for pipe or foundation laying and excavation
- wastewater distributions components and parts.

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

Links

Companion Volume implementation guides are found in VETNet -
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NWPNET051 Monitor and operate water distribution systems

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

It includes coordinating the operation of bulkwater or water distribution systems and measuring and reporting on the operation of the system. It also includes interpreting technical documentation, identifying and investigating operational problems and collecting and analysing technical information.

This unit applies to those working as field staff and operators with a specific responsibility for inspecting and measuring the performance of bulkwater or water distribution systems and for ensuring that flow, pressure and volume parameters are regulated according to organisational specifications and system demands. Those undertaking this unit would work under appropriate supervision, while performing routine tasks, in a familiar context, and ensuring minimum damage to the environment.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Networks

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1 Monitor system performance and usage	1.1 Select and check equipment and tools required for monitoring system performance
	1.2 Schedule and conduct routine inspections and report identified faults to relevant personnel
	1.3 Collect, analyse and report system performance and usage data
	1.4 Monitor and coordinate sample collection and records according to workplace procedures
2 Regulate flow, pressure and volume	2.1 Inspect and adjust flow regulating systems according to performance measures
	2.2 Monitor and adjust pressures and volumes
	2.3 Monitor flows and diversions required for repair
3 Operate and control distribution processes	3.1 Control distribution processes to maintain required parameters of operation
	3.2 Identify, address and report process faults to relevant personnel
	3.3 Optimise process performance according to workplace procedures
4 Compile process reports	4.1 Compile reports from system data according to workplace procedures
	4.2 Record the condition of equipment and report faults or anticipated problems to relevant personnel

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPNET041 Monitor and operate water distribution systems.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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Assessment Requirements for NWPNET051 Monitor and operate water distribution systems

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- analysing and reporting system performance data
- collecting and analysing technical information
- completing relevant work documentation
- conducting routine inspections
- controlling system operations
- identifying and investigating operational problems
- identifying and reporting control system faults
- interpreting a range of technical documentation
- meeting organisational standards for optimising water distribution performance
- monitoring and coordinating the operation of bulkwater and water distribution systems
- responding to and correcting operational problems

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- chemical use requirements
- control systems
- coordination and control of processes
- effects of weather and conditions on operation of bulkwater and water distribution systems
- environmental aspects of bulkwater and water distribution systems
- equipment operation
- forces including gravitational, valve operation, hydraulic and pumps
- relevant legislation, regulations and workplace procedures
- relevant utilities and service bodies
- risk management principles
- types of pipes and fittings

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

Links

Companion Volume implementation guides are found in VETNet -
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<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPNET052 Monitor and operate wastewater collection and transfer systems

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

It includes measuring and reporting on the operation of the system. It also includes interpreting technical documentation, identifying and investigating operational problems and collecting and analysing technical information.

This unit applies to those working as field staff and operators with a specific responsibility for inspecting and measuring the performance of wastewater collection and/or wastewater transfer systems and for ensuring that flows are regulated according to organisational specifications and system demands. Those undertaking this unit would work under appropriate supervision, while performing routine tasks, in a familiar context, and ensuring minimum damage to the environment.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Networks

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1 Monitor system performance and usage	1.1 Select and check equipment and tools required for monitoring system performance
	1.2 Schedule and conduct routine inspections and report identified faults to relevant personnel
	1.3 Collect, analyse and report system performance and usage data
	1.4 Monitor and coordinate sample collection and records according to workplace procedures
2 Regulate flows	2.1 Inspect and adjust flow regulating systems according to performance measures
	2.2 Monitor and adjust pressures and volumes according to workplace procedures
	2.3 Monitor flows and diversions required for repair
3 Operate and control processes	3.1 Control and improve processes to maintain operating parameters
	3.2 Identify, address and report process faults to relevant personnel
	3.3 Optimise process performance according to workplace procedures
4 Compile process records	4.1 Compile reports from system data according to workplace procedures
	4.2 Record the condition of equipment and report faults or anticipated problems to relevant personnel

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPNET042 Monitor and operate wastewater collection and transfer systems.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPNET052 Monitor and operate wastewater collection and transfer systems

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- completing relevant workplace documentation
- controlling system operations and optimising processes
- identifying and reporting system and process faults
- measuring wastewater flows
- monitoring and coordinating the operation of wastewater collection and wastewater transfer systems
- monitoring the system and collecting, analysing and reporting data
- responding to and correcting operational problems.

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- control systems
- coordination and control of processes
- discharges
- disinfection and chemical use
- effects of weather and conditions on operation of collection and transfer systems
- environmental aspects of wastewater collection and transfer systems
- equipment operation
- forces including gravitational, valve operation, hydraulic and pumps
- infiltration and inflow sources
- relevant legislation, regulations and workplace procedures
- relevant utilities and service bodies
- risk management principles
- types of pipes and fittings.

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

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NWPNET053 Test and commission water distribution systems

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

It includes planning and implementing the testing and commissioning of water distribution systems. It includes interpreting technical information, identifying and assessing hazards and performing technical testing procedures.

This unit applies to those working as field staff and operators with specific responsibility for commissioning water distribution systems, post-installation or repair, and for ensuring that the functioning of the system complies with relevant specifications and organisational requirements. Those undertaking this unit would work under appropriate supervision, while performing routine tasks, in a familiar context, and ensuring minimum damage to the environment.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Networks

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Prepare for testing and

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Locate section of distribution system to be tested using

commissioning		plans and diagrams
	1.2	Identify and interpret system operation requirements according to workplace procedures
	1.3	Identify and assess potential hazards and take preventive measures according to workplace procedures
	1.4	Select and use tools and equipment according to manufacturer instructions
	1.5	Check testing equipment for accuracy and identify and correct malfunctions
2 Maintain water system hygiene	2.1	Arrange disinfection of construction asset according to workplace procedures
	2.2	Isolate and flush the relevant section of the distribution system according to workplace procedures
	2.3	Dispose of discharged water according to workplace procedures
3 Test the pipeline system	3.1	Determine the correct test pressure for the pipeline according to workplace procedures
	3.2	Locate and report failed pipes, joints and fittings and reschedule testing
4 Commission the distribution system	4.1	Ensure the distribution system is operational according to workplace procedures
	4.2	Check, maintain and store equipment, tools and materials according to manufacturer instructions
	4.3	Restore worksite according to workplace procedures
5 Record and report results	5.1	Maintain workplace and calibration records and certificates
	5.2	Collect and store all testing and compliance results

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPNET044 Test and commission water distribution systems.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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Assessment Requirements for NWPNET053 Test and commission water distribution systems

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- cleaning a water distribution system using at least one of the following techniques:
 - air scouring
 - flushing
 - pigging
 - swabbing
- commissioning the distribution system
- completing required reports and records
- conducting test procedures
- identifying and addressing hazards
- identifying and analysing system requirements
- identifying system faults
- maintaining the quality of water in the system
- monitoring work processes and ensuring safe work practices
- planning the testing of water distribution systems
- restoring worksite and equipment
- testing and commissioning water distribution systems
- testing pipes

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- characteristics of pipes, materials and fittings
- environmental aspects of flushing and test procedures
- relevant legislation, regulations and workplace procedures
- risk factors and potential hazards of test procedures
- testing equipment operation
- testing methods used for water distribution systems

- water hygiene and system disinfection requirements.

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

Links

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<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPNET054 Test and commission wastewater collection systems

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

It includes planning and implementing testing and commissioning of wastewater collection systems. It also includes interpreting technical information, identifying and assessing hazards and performing testing procedures.

This unit applies to those working as field staff and operators with specific responsibility for commissioning wastewater collection systems, post-installation or repair, and for ensuring that the functioning of the system complies with relevant specifications and organisational requirements. Those undertaking this unit would work under appropriate supervision, while performing routine tasks in a familiar context, and ensuring minimum damage to the environment.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Networks

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1 Prepare for testing and commissioning	1.1 Identify and interpret the system operation requirements
	1.2 Confirm and schedule testing and commissioning tasks
	1.3 Identify and assess potential hazards and take required preventative measures
	1.4 Select and use tools and equipment according to manufacturer instructions
	1.5 Check testing equipment for accuracy, correct malfunctions and report to relevant personnel
2 Conduct pipeline and access structure testing	2.1 Select and install tensioning and measuring equipment according to manufacturer instructions
	2.2 Select and fit gauges of the correct range to test equipment according to workplace procedures
	2.3 Locate and report failed assets for repair and reschedule for further testing
3 Commission the wastewater collection system	3.1 Ensure the system is operational and conduct post commissioning checks according to workplace procedures
	3.2 Restore the worksite according to workplace procedures
	3.3 Check, maintain and store equipment tools and materials according to manufacturer instructions
4 Record and report results	4.1 Maintain workplace documents, calibration records or certificates
	4.2 Collect and store testing and compliance results according to workplace procedures

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPNET045 Test and commission wastewater collection systems.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPNET054 Test and commission wastewater collection systems

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- applying testing procedures
- assessing risks and hazards and taking appropriate preventive measures
- completing relevant documentation
- identifying and reporting faulty system components
- identifying, reporting and recording hazards and risks
- interpreting testing requirements of the system from relevant documentation
- maintaining and checking records and documents
- making the system operational and conducting post-commissioning checks
- monitoring work processes and ensuring safe work practices
- ensuring compliance with standards, regulations and policies
- planning and implementing the testing and commissioning of wastewater collection systems
- preparing and checking testing equipment
- restoring the worksite
- using testing equipment.

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- characteristics of pipes, materials and fittings
- layout and construction of wastewater collection systems
- manufacture instructions
- overview of wastewater systems
- relevant legislation, regulations and workplace procedures
- risk factors and potential hazards of test procedures
- testing procedures for wastewater systems.

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

Links

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NWPNET055 Coordinate and manage maintenance and repair of network assets

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to coordinate and manage maintenance and repair of network assets.

It includes inspecting asset condition, planning for asset repairs and monitoring and reporting on maintenance and repair work completion. It also includes identifying faults, gathering data, interpreting technical information, assessing risks and producing technical work plans and reports.

This unit applies to those working as field staff with responsibility for ensuring that water collection, distribution, storage and transfer assets are regularly monitored and for conducting scheduled maintenance and repair work on assets. Those undertaking this unit would work autonomously, usually with supervisory responsibilities, while performing complex tasks in a range of contexts.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Networks

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

PERFORMANCE CRITERIA

Elements describe the essential Performance criteria describe the performance needed to

outcomes.

demonstrate achievement of the element.

1 Analyse asset condition and determine remedial action	1.1 Schedule routine inspections of assets and monitor fault reporting according to workplace procedures 1.2 Collect and analyse data on asset and infrastructure condition 1.3 Determine and cost asset maintenance and repair methods 1.4 Select, fit and use equipment and materials including personal protective equipment
2 Plan and prepare for asset repair	2.1 Schedule and plan worksite investigations and repair activities 2.2 Develop repair plans and procedures and communicate to relevant stakeholders 2.3 Assess and record environmental and work, health and safety (WHS) risks and specify control measures 2.4 Select equipment, materials, prefabricated components and fittings and make available for use on worksite
3 Monitor and report maintenance activities	3.1 Monitor repair and maintenance progress and keep records 3.2 Inspect, confirm and report completion of repair and maintenance to relevant personnel according to workplace procedures
4 Complete records and reports	4.1 Complete workplace records and reports according to workplace procedures 4.2 Make recommendations which contribute to the continuous improvement and quality of the organisation's systems

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPNET025 Coordinate and manage maintenance and repair of network assets.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPNET055 Coordinate and manage maintenance and repair of network assets

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- assessing risks and specifying control methods
- collecting and analysing operational data
- conducting operational and maintenance inspections
- determining work requirements
- developing plans and instructions
- developing repair procedures
- identifying and assessing work methods effectiveness and efficiencies
- identifying improvement and solving operational problems
- interpreting organisational policies, procedures and standards for monitoring and maintenance of assets
- monitoring fault reports
- monitoring system operations and processes
- planning investigations and repairs
- producing reports
- selecting equipment, materials, prefabricated components and fittings
- using safety equipment and personal protective equipment

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and include knowledge of:

- cleaning and protection of assets
- communication methods and systems
- control systems
- effects of weather and conditions on operation of supply infrastructure
- environment, landscape and ground structure of work area
- environmental aspects of distribution systems and infrastructure
- equipment operation, capacity and limitations

- lock out procedures for mechanical, electrical and hydraulic installations
- policies and standard operating procedures for monitoring and maintenance of assets
- relevant legislation
- relevant utilities and service bodies
- risk factors and potential hazards involved with water pressures and flows
- system layout, process, operation
- work, health and safety (WHS) procedures
- workplace records and reports

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

Links

Companion Volume implementation guides are found in VETNet -
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NWPNET056 Coordinate and monitor network asset construction

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to coordinate and monitor network asset construction.

It includes site management and associated commissioning and post-commissioning activities, conducting often complex planning of activities, scheduling and resourcing projects and monitoring the project to ensure completion of the work in line with organisational requirements to the required quality.

This unit applies to those working as operators with responsibility for ensuring network asset construction activities are performed and completed in compliance with all relevant organisational and statutory requirements. Those undertaking this unit would work autonomously, usually with supervisory responsibilities, while performing complex tasks in a range of contexts.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Networks

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1 Prepare for network asset construction	1.1 Conduct risk assessment and propose appropriate control measures 1.2 Determine and record work requirements, equipment, materials and configurations according to task from plans, specifications, instructions and organisational procedures 1.3 Conduct site inspections and audits 1.4 Select and source materials to complete work 1.5 Sequence and schedule work to meet organisational requirements for the efficient completion of the project 1.6 Confirm networks system operational plans 1.7 Identify and address stakeholder issues according to organisational requirements 1.8 Identify and check construction guidelines, standards and other regulatory requirements 1.9 Collate and check project documentation and assess for impact on work planning 1.10 Identify and specify roles and responsibilities of relevant personnel
2 Monitor construction	2.1 Monitor material handling procedures according to risk assessment 2.2 Monitor tasks and jobs to ensure compliance with plans in terms of time frames, quality assurance issues and organisational requirements 2.3 Conduct inspections by applying commissioning programs according to commissioning and stakeholder requirements 2.4 Monitor test results to ensure network assets function within specifications 2.5 Provide guidance to relevant personnel
3 Conduct post construction activities	3.1 Monitor network asset performance and undertake a review of the construction or installation 3.2 Identify defects and schedule repairs

- 3.3 Ensure completion and recording of all reports and documentation according to workplace procedures
- 3.4 Communicate any resources reallocation or rescheduling to relevant personnel
- 3.5 Confirm and certify completion of construction or installation

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPNET033 Coordinate and monitor water asset construction.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPNET056 Coordinate and monitor network asset construction

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- adjusting and altering designs
- ensuring organisational, planning and statutory obligations are met including stakeholder needs
- exercising judgement if the project plan or schedule requires revision due to unforeseen circumstances
- identifying and securing required resources to complete work
- managing costs
- managing risks
- monitoring the project plan or schedule
- overseeing and ensuring quality outcomes are achieved
- providing targeted, timely and constructive feedback to relevant personnel
- reporting the outcomes
- scheduling and sequencing of the project
- supervising and advising relevant personnel

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and include knowledge of:

- characteristics, technical capabilities and limitations of materials and equipment according to manufacturer specifications
- evaluation and investigation requirements
- organisational auditing and recording procedures and reporting requirements
- organisational contract conditions and compliance
- relevant legislation, industry standards, organisational policies, procedures, guidelines and requirements
- risk factors and potential hazards
- system layout, integrity, design and performance

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPNET057 Establish connections of water and wastewater systems

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to establish connections of water and wastewater systems.

It includes planning for establishing connections, evaluating connection applications and assessing network capacity. It also includes hydraulic assessments, infrastructure capacity and maintaining connection records.

This unit applies to those with responsibility for managing applications and approvals for connection requests. Those undertaking this unit would work autonomously, usually with supervisory responsibilities, while performing complex tasks in a range of contexts.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Networks

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Prepare for establishing

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Respond to customer enquiries regarding applications

connections		for new connections	
		1.2	Advise customer of the procedures involved in processing and approving and monitoring applications
		1.3	Identify hazards, assess risks and implement control measures according to workplace procedures
2	Evaluate connection application	2.1	Identify and confirm the location and nature of the work to be assessed from the job specifications
		2.2	Review the asset connection conditions and assess the issues that affect the conditions
		2.3	Liaise with stakeholders affected by the work according to workplace procedures
3	Assess the infrastructure capacity	3.1	Identify network infrastructure with the use of relevant database systems
		3.2	Assess utility assets to determine suitability for connection
		3.3	Determine impacts on the infrastructure
		3.4	Select connection and application methods to suit network requirements
4	Conduct hydraulic assessment	4.1	Apply delegations and obtain approval from relevant organisational authority
		4.2	Conduct community and stakeholder notifications
		4.3	Apply the connection conditions according to workplace procedures
		4.4	Make connection to existing network according to organisational requirements
5	Maintain connection records	5.1	Compile assessment findings according to organisational requirements
		5.2	Prepare and store stakeholder documentation in information systems for access and review
		5.3	Complete customer requests and generate compliance data

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPTRD024 Establish connections of water and wastewater systems.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPNET057 Establish connections of water and wastewater systems

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- applying delegations and obtaining appropriate authorisation for connections
- assessing utility assets for connection suitability and determining the impacts on infrastructure
- identifying and confirming work requirements and connection conditions
- identifying and evaluating network connection processes
- identifying and responding to risks and hazards
- interpreting and evaluating data for establishing connections to infrastructure
- interpreting and reviewing hydraulic, architectural and site plans
- managing change in customer requirements and responding to enquiries
- managing, liaising and notifying stakeholders in relation to establishing connections
- preparing, compiling and storing relevant data and documentation

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and include knowledge of:

- asset creation reporting processes
- asset spatial information
- basic hydraulics
- communication and liaison techniques
- customer expectations and requirements
- investigation procedures
- methods to collect and record data and other workplace documentation
- network systems
- relevant organisational policies and procedures for:
 - connection management
 - customer connections
 - metering guides

- supplier instructions
- risk and hazard management principles
- relevant legislation, workplace policies and procedures
- water quality parameters

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPNET058 Optimise network systems

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to optimise network systems.

It includes coordinating, monitoring and optimising system performance and maintenance planning in drinking water distribution systems.

This unit applies to those working as staff members with a specific responsibility for ensuring drinking water systems comply with organisational and statutory requirements. Those undertaking this unit would work autonomously, usually with supervisory responsibilities, while performing complex tasks in a range of contexts.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Networks

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Evaluate drinking water distribution system performance

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Review existing distribution system performance data against relevant organisational and legislative requirements

	1.2	Identify the impact of the distribution system on water quality
	1.3	Identify and coordinate any sampling and testing required for valid evaluation of current system performance
2	Investigate water distribution system issues	
	2.1	Review existing system fault reports and relevant water quality information
	2.2	Identify and record links between operational problems and maintenance activities
	2.3	Investigate the operational status of system components and equipment with reference to manufacturer and supplier specifications
	2.4	Carry out distribution system configuration investigations to identify potential deficiencies
3	Plan optimisation of drinking water distribution system	
	3.1	Identify potential hazards to the distribution system and propose appropriate preventative measures
	3.2	Develop and validate a system optimisation plan according to workplace procedures

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit supersedes and is equivalent to NWPNET005 Optimise network systems.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPNET058 Optimise network systems

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- analysing problems and recommending appropriate solutions
- assessing distribution system performance and impacts on water quality
- conducting hazard assessment and proposing prevention strategies
- identifying opportunities for improved distribution system management
- identifying risks and hazards
- investigating system faults and deficiencies and assessing the status of system components
- optimising system performance and maintenance planning
- participating in the provision of appropriate information to inform workplace processes
- producing and monitoring a drinking water distribution system optimisation plan
- producing optimisation reports

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and include knowledge of:

- equipment operation, capacity and limitations of control system
- incident management processes according to workplace procedures
- relevant legislation, industry standards, policies and procedures including:
 - customer expectations and requirements
- risk factors and potential hazards involved in water systems
- system hydraulics
- system layout, processes and operations
- workplace documentation including requirements for a system optimisation plan

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPNET059 Supervise and report on conduit inspections

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to supervise and report on conduit inspections.

It includes supervising or managing the inspection and reporting of the condition and features in sewer or stormwater conduits using specialised equipment.

This unit applies to those who supervise or manage work involved in the inspection and reporting of the condition and features in sewer or stormwater conduits using specialised equipment. It is also applicable to people who prepare inspection reports from data supplied by specialised sewer inspection operators. Those undertaking this unit would work autonomously, usually with supervisory responsibilities, while performing complex tasks in a range of contexts.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Networks.

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Determine inspection reporting requirements

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Determine the inspection reporting standard and special inspection and reporting requirements of the

		stakeholders from specifications and instructions
	1.2	Obtain plans and maps of assets to be inspected and identify relevant asset data
	1.3	Verify the competence of operators undertaking the inspection according to workplace procedures
2	Review images, data and reports from inspections	2.1 Compile documentation from inspection and check for completeness and accuracy
	2.2	Label and reference inspection information according to workplace procedures
	2.3	Review and recognise unsatisfactory images and other non-compliant data and compile non-compliance reports
3	Identify structural defects and service conditions	3.1 Identify and code structural defects, service conditions and other features of the conduit
	3.2	Record asset and inspection data according to workplace procedures
	3.3	Review, investigate and report hidden defects, service conditions or other features
	3.4	Identify a conduit at risk of imminent failure and communicate details to the system operator/asset owner
	3.5	Confirm defects or malfunctioning of maintenance holes, pits or other access structures with the operator and report
4	Prepare conduit inspection reports for stakeholders	4.1 Compile inspection reports and present to stakeholder
	4.2	Store inspection report and data according to workplace security procedures

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPNET017 Supervise and report on conduit inspections.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPNET059 Supervise and report on conduit inspections

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- accessing and interpreting details from asset information systems including construction drawings, plans, maps, house service diagrams
- compiling documentation from inspections and checking for completeness and accuracy
- identifying and correctly coding all critical defects and/or features of conduits observable in inspection records
- identifying inspection reporting requirements in specifications
- labelling and referencing inspection information
- recognising non-compliant images and data from conduit inspections
- supervising or managing the inspection and reporting of the condition and features in sewer or stormwater conduits using specialised equipment
- using data capture systems

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and include knowledge of:

- asset information systems
- characteristics of gravity and pressurised sewers or stormwater
- construction and operation of sewerage or stormwater systems
- data capture, recording and reporting systems
- design plans for construction
- features of conduits used in Australia or operating area for sewer or stormwater construction utilising historical data
- industry inspection reporting code
- operational plans and maps

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training

Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPTRD006 Investigate trade waste incidents and non-compliances

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to investigate trade waste incidents and non-compliances.

It includes identifying trade waste incident locations, investigating the cause and effect of trade waste incidents and identifying incident source and arranging rectification. It also includes compiling trade waste incident reports and conducting post incident monitoring to ensure ongoing compliance.

This unit applies to those working as trade waste officers or inspectors with a specific responsibility for investigating trade waste incidents, identifying the source of the problem, arranging corrective action and compiling comprehensive reports. Those undertaking this unit would work autonomously, usually with supervisory responsibilities, while performing complex tasks in a range of contexts.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Trade waste

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

PERFORMANCE CRITERIA

Elements describe the essential Performance criteria describe the performance needed to

outcomes.

demonstrate achievement of the element.

1 Identify trade waste incident location	1.1 Identify and confirm the location and cause of trade waste incidents and notify relevant stakeholders
	1.2 Develop processes to deal with an incident, assess the extent of the incident and identify the possible effects
	1.3 Implement actions or make recommendations to minimise potential harm
	1.4 Conduct inspections and sampling of incident locations and environs and analyse and report findings and results
2 Investigate the cause and effect of trade waste incidents	2.1 Identify and confirm the trade waste catchment for incident locations
	2.2 Analyse the wastewater catchment for possible sources of unauthorised or illegal discharge and report to relevant personnel
	2.3 Schedule inspections of potential sources of unauthorised or illegal discharge and make appropriate preparations
	2.4 Investigate the possible effects of trade waste incidents and assess the level of severity
3 Identify incident source and arrange rectification	3.1 Conduct inspections of potential sources according to workplace procedures
	3.2 Gather, record and analyse evidence and where possible, confirm the correct source of unauthorised or illegal trade waste discharge
	3.3 Identify, analyse and select methods for rectifying problems
	3.4 Consult with the approval holder or representative and advise of rectification requirements and incident repercussions
4 Compile trade waste incident reports	4.1 Record and process data and information relating to investigations and evidence gathered
	4.2 Compile, process and distribute incident reports for prosecutions, including rectification arrangements to relevant personnel

5 Conduct post incident monitoring to ensure ongoing compliance	5.1 Adjust trade waste treatment and discharge monitoring schedules and prepare and apply a post-incident monitoring plan
	5.2 Identify instigators and investigate breaches of trade waste discharge provisions and report rectification measures

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPTRD012 Investigate, rectify and report on trade waste incidents.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPTRD006 Investigate trade waste incidents and non-compliances

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- assessing environmental impact against appropriate industry standards
- assessing the type and extent of incident impact
- assessing wastewater treatment methods, processes, plant and equipment
- completing incident reports for prosecutions
- developing monitoring plans and coordinating measuring, testing and sampling activities
- evaluating process and wastewater system inputs and outputs
- identifying and analysing incident locations
- identifying and evaluating trade waste producing processes
- identifying and selecting appropriate corrective measures
- identifying, confirming and analysing sources of trade waste catchment incidents
- interpreting and applying legislation and policies applicable to trade waste
- interpreting and evaluating sample analysis data
- interpreting and reviewing hydraulic and site plans
- investigating possible sources and identifying the instigators of the incidents
- investigating the instigating organisations and negotiating rectification measures
- planning and conducting investigations
- using wastewater sampling and preservation techniques for onsite and laboratory testing

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and include knowledge of:

- approval holder expectations and requirements
- corrective measures relevant to approval holder base and associated risk
- data records and report writing procedures
- impact and interaction of pollutants and toxins
- investigation procedures and techniques
- personal protection and safety precautions for wastewater sampling including requirements

for relevant inoculations

- range of appropriate measuring, testing and sampling procedures
- relevant enterprise policies for trade waste management
- relevant legislation, industry standards and codes of practice
- trade waste treatment methods and processes
- water quality parameters of significance to the wastewater system
- work health and safety legislation and requirements

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPTRD007 Monitor trade waste approvals

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to monitor trade waste approvals.

It includes coordinating, implementing and reporting on monitoring programs for trade waste treatment and disposal in retail commercial and light industrial organisations. It also applies to the monitoring of complex trade waste systems in large organisations.

This unit applies to those working with a specific responsibility for coordinating and conducting monitoring and testing of trade waste treatment and disposal. Those undertaking this unit would work autonomously, usually with supervisory responsibilities, while performing complex tasks in a range of contexts.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Trade waste

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Prepare for monitoring

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Identity the appropriate sampling technique to collections

	1.2	Identify the appropriate flow metering to trade waste
	1.3	Determine the appropriate monitoring plan according to business type and risk
2	Implement monitoring and testing	
	2.1	Apply monitoring and testing programs and procedures for trade waste
	2.2	Collect and monitor samples according to sample plan and workplace and safety procedures
	2.3	Analyse testing results where appropriate and report to relevant personnel
	2.4	Identify and investigate issues and inconsistencies and consult stakeholders
	2.5	Report results of the investigation and make recommendations to relevant personnel according to workplace procedures
	2.6	Select and use appropriate equipment for undertaking onsite monitoring
3	Monitor treatment and disposal	
	3.1	Monitor trade waste treatment and disposal
	3.2	Identify and investigate breaches of trade waste discharge provisions and approvals
	3.3	Report results and/or recommendations to relevant personnel
	3.4	Complete, review and store trade waste management records for the work area
4	Monitor compliance of trade waste discharge	
	4.1	Monitor compliance of trade waste treatment and discharge by customers
	4.2	Establish processes to identify and report non-compliance with trade waste approvals
	4.3	Identify and apply enforcement measures to manage identified non-compliances according to relevant legislation and enforcement authorities
	4.4	Plan and conduct safe onsite investigations to determine compliance by customer

- 4.5** Complete and prepare chain of custody documentation for samples according to workplace procedures

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPTRD023 Coordinate, implement and report on trade waste monitoring procedures.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPTRD007 Monitor trade waste approvals

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- analysing test results
- assessing environmental impact against relevant industry standards
- assessing risks and hazards associated with sampling activities
- assessing waste treatment methods, processes, plant and equipment
- coordinating measuring, testing and sampling activities
- developing monitoring plans
- implementing monitoring and testing programs
- interpreting and applying legislation and policies applicable to trade waste
- interpreting and evaluating sample analysis data
- investigating problems on-site
- monitoring process inputs and outputs
- monitoring treatment and disposal provisions on-site
- planning and conducting investigations
- recording and reporting data
- taking samples using the followings methods:
 - grab
 - composite
- using appropriate personal protective equipment for protection against physical, chemical and biological hazards
- using wastewater sampling and preservation techniques for on-site and laboratory testing
- workplace documentation for data and reports

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and include knowledge of:

- customer expectations and requirements

- investigation procedures
- monitoring techniques include:
 - continuous monitoring
 - flow metering
 - sampling
 - self-monitoring
- personal protection and safety precautions for wastewater sampling including requirements for relevant inoculations:
 - diphtheria
 - hepatitis A and B
 - polio
 - Q fever
 - tetanus
- range of appropriate measuring, testing and sampling procedures
- relevant enterprise policies for trade waste management
- relevant legislation
- sample collection techniques and chain of custody requirements
- standard industrial waste treatment methods, processes and procedures for retail commercial and light industrial organisations
- trade waste monitoring equipment includes:
 - composite sampler
 - gatic and maintenance hole lifters
 - portable monitoring equipment
 - sludge judge
- water quality parameters of significance to the wastewater system
- work, health and safety (WHS) requirements

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment

currently used in industry

- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPTRD008 Process standard trade waste approvals

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to process standard trade waste approvals.

It includes assessing and processing applications for standard trade waste discharges from retail commercial and light industrial organisations; monitoring compliance with the trade waste discharge approval issued; and renewing, amending, suspending or revoking trade waste approvals.

This unit applies to those working as trade waste officers or inspectors with a specific responsibility for managing applications and approvals for standard liquid trade waste discharges to wastewater collection systems from small commercial and light industrial organisations. Those undertaking this unit would work autonomously, usually with supervisory responsibilities, while performing complex tasks in a range of contexts.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Trade waste

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Prepare for trade waste

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Identify significant pollutants generated from different

discharges	business types
	1.2 Identify and apply trade waste management processes and workplace procedures
	1.3 Interpret and apply legislation and policies relating to trade waste approvals
	1.4 Advise customers who have trade waste application queries according to workplace procedures
2 Assess trade waste applications	2.1 Assess the application is properly made according to workplace procedures
	2.2 Assess standard trade waste applications against trade waste policies and plans
	2.3 Establish relevant approval conditions according to trade waste policies and plans
	2.4 Hazards are identified, risks assessed and control measures implemented in accordance with workplace procedures
	2.5 Determine monitoring activities and schedules and discuss with the applicant
3 Implement trade waste approvals	3.1 Calculate relevant charges and review with applicant according to charging policies and formulae
	3.2 Communicate the approval conditions to the customer according to workplace procedures
	3.3 Create and maintain customer database records according to relevant legislation and guidelines

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPTRD001 Evaluate, implement and monitor standard low risk trade waste discharge approvals.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPTRD008 Process standard trade waste approvals

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- advising customers of requirements for obtaining and complying with trade waste discharge approvals
- advising customers of the trade waste management policies and procedures in operation
- assessing and evaluating applications for standard trade waste treatment and disposal including:
 - concentration
 - discharges of prohibited substances
 - environmental issues
 - local sewerage issues
 - mass and flow limits
- assessing environmental impact against appropriate standards
- assessing waste treatment methods, processes, plant and equipment
- developing monitoring plans and coordinating measuring, testing and sampling activities
- identifying and evaluating trade waste producing processes
- implementing charging and monitoring procedures
- interpreting and applying legislation and policies applicable to trade waste
- interpreting and evaluating sample analysis data
- interpreting and reviewing hydraulic and site plans
- maintaining records and reports
- planning and conducting investigations
- using appropriate personal protective equipment for protection against physical, chemical and biological hazards
- using flow measuring or flow assessment techniques
- using wastewater sampling and preservation techniques for onsite and laboratory testing

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the

requirements of the elements and performance criteria and include knowledge of:

- basic hydraulics, chemistry or equivalent science
- customer expectations and requirements
- investigation procedures
- personal protection and safety precautions for wastewater sampling
- quality parameters of significance to the sewerage system
- range of appropriate measuring, testing and sampling procedures
- relevant approval conditions including proposed pre-treatment and monitoring systems for suitability
- relevant legislation, industry standards and codes of practice
- relevant workplace policies and procedures
- significant pollutants generated by business type
- site plans
- standard industrial waste treatment methods and processes for retail commercial and light industrial organisations
- trade waste metering data, characteristics and tariffs
- wastewater collection, treatment and disposal systems

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPTRT005 Monitor and operate water treatment processes

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to monitor and operate water treatment processes.

It includes reporting on water treatment plant system performance and processing quality control. It also includes operating water treatment processes, and complying with relevant legislation, regulations and guidelines.

This unit applies to operational staff in water treatment plants with responsibility for the practical and safe operation of plant, equipment and processes. Those undertaking this unit would work under appropriate supervision, while performing routine tasks, within a familiar context.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Treatment

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Prepare for work

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Determine work requirements from job specifications and plans

	1.2	Select and check equipment required to meet safety requirements of task and worksite
	1.3	Select, fit and use required safety equipment, including personal protective equipment (PPE)
2 Monitor and operate treatment processes	2.1	Inspect plant according to workplace procedures
	2.2	Collect process samples and conduct standard tests according to workplace procedures
	2.3	Operate treatment processes according to workplace procedures
	2.4	Perform adjustments to enhance system performance
3 Complete documentation	3.1	Collect, record and complete process data according to workplace procedures
	3.2	Identify and report observations outside defined parameters to relevant personnel for further action

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPTRT001 Operate and control water treatment processes.

Links

Companion Volume implementation guides are found in VETNet - <https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPTRT005 Monitor and operate water treatment processes

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- applying workplace procedures
- collecting and labelling samples
- collecting and recording data
- completing documentation
- conducting routine plant inspections
- performing disinfection processes
- performing water treatment separation processes
- preparing and applying chemical dosing.

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- demands and uses of water, both domestic and industrial
- interpreting safety data sheets
- physical, chemical and microbiological characteristics of water
- post-treatment processes
- pre-treatment processes
- reasons for water treatment
- relevant legislation, regulations and workplace procedures
- relevant technologies for operating and controlling water treatment processes
- relevant water treatment guidelines and standards
- risk factors and potential hazards associated with the operation of water treatment processes
- risk management principles
- sources of water
- types of chemicals and water chemistry
- types of treatment plants and processes
- water and chemical principles

- water cycle.

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPTRT006 Monitor and operate fluoride addition processes

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to monitor and operate fluoride addition processes.

It includes preparing for fluoridation processes, applying fluoride dosing and reporting on water quality control.

This unit applies to those working as water operators responsible for fluoridation processes in water treatment. Those undertaking this unit would work under appropriate supervision, while performing routine tasks, in a range of familiar contexts.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Treatment

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Prepare for work

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Determine work requirements from job specifications and plans

1.2 Select and check equipment required to meet safety

- requirements of task and worksite
- 1.3 Select, fit and use required safety equipment, including personal protective equipment (PPE)
 - 1.4 Handle and store fluoridation chemicals according to workplace procedures
- 2 Monitor processes**
- 2.1 Monitor fluoridation processes according to workplace procedures
 - 2.2 Collect samples and conduct process tests according to workplace procedures
 - 2.3 Perform calculations and make process adjustments to maintain effectiveness of fluoride according to workplace procedures
 - 2.4 Monitor the parameter set points for critical control points and operational control points
- 3 Apply fluoride dosing**
- 3.1 Prepare and apply fluoridation chemicals according to workplace procedures
 - 3.2 Control fluoride dosing to maintain required fluoride concentration
 - 3.3 Maintain information relating to fluoride supply and usage according to workplace procedures
- 4 Complete documentation**
- 4.1 Collect, record and complete process data according to workplace procedures and process requirements
 - 4.2 Identify data outside of normal operational parameters to relevant personnel for further action

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPTRT012 Operate and control fluoride addition process.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPTRT006 Monitor and operate fluoride addition processes

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- calculating average fluoride concentrations
- collecting and reporting process data
- collecting process samples and determining fluoride residuals
- completing documentation
- determining work requirements
- identifying and reporting control system faults and operational problems
- identifying and reporting hazards
- interpreting and following safety data sheets (SDS)
- performing fluoride chemical dosing calculations
- preparing and applying fluoride dosing safely
- selecting and using appropriate tools and equipment, including personal protective equipment

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- automatic feed rate control systems
- fluoride addition points
- fluoride dosing processes and calculations
- fluoride sampling and record keeping
- fluoride system layout
- policies and workplace procedures for fluoride processes
- properties of fluoridation chemicals
- relationship of fluoridation to public health
- relevant legislation, regulations and workplace procedures
- risk factors and potential hazards associated with fluoridation
- safe handling of fluoride compounds with reference to safety data sheets

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPTRT007 Monitor and operate liquefied chlorine gas disinfection processes

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to monitor and operate liquefied chlorine gas disinfection processes.

It includes preparing to work with liquefied chlorine gas and performing liquefied chlorine gas container changeover procedures. It also includes completing documentation, reporting on process quality control and working safely. It also includes using self-contained breathing apparatus.

This unit applies to operational staff with specific responsibility for disconnecting and connecting liquefied chlorine gas containers in water and wastewater treatment plants. Those undertaking this unit would work under appropriate supervision, while performing routine tasks, in a range of familiar contexts.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

MSMWHS216 Operate breathing apparatus

Competency Field

Treatment

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1 Prepare to work	1.1 Determine work requirements from job specifications and plans
	1.2 Select and check equipment required to meet safety requirements of task and worksite
	1.3 Check first aid provisions for potential liquefied chlorine gas exposure hazards
	1.4 Select, fit and use personal protective equipment (PPE), including breathing apparatus according to workplace procedures
2 Perform liquefied chlorine gas container changeover procedures	2.1 Handle liquefied chlorine gas containers according to workplace procedures
	2.2 Conduct disconnection and connection of gas containers for chlorine gas draw or chlorine liquid draw systems according to workplace procedures
	2.3 Check connections for leaks according to workplace procedures
	2.4 Store tools and equipment according to workplace procedures
3 Monitor processes	3.1 Perform process tests and compare to process operational requirements
	3.2 Check critical and operational control point values according to workplace procedures
	3.3 Comply with relevant work, health and safety requirements and emergency procedures
	3.4 Make process adjustments to maintain effectiveness of the disinfection system
4 Complete documentation	4.1 Collect, record and complete process data according to workplace procedures and process requirements
	4.2 Identify data outside of normal operational parameters and report to relevant personnel for further action

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of

competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPTRT013 Operate and control liquefied chlorine gas disinfection.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPTRT007 Monitor and operate liquefied chlorine gas disinfection processes

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- applying correct liquefied chlorine gas container procedures for handling and storage
- collecting samples and conducting tests in at least one of the following:
 - free chlorine
 - measuring pH
 - temperature
 - total chlorine
 - turbidity
- complying with emergency procedures relating to liquefied chlorine gas hazards
- implementing relevant industry standards, safety data sheet (SDS) requirements and other legislative and organisational requirements
- operating safely and following workplace procedures when disconnecting and connecting liquified chlorine gas systems
- performing at least one of the following process calculations:
 - Ct calculation
 - dosage
 - feed rate
- selecting, fitting and using personal protective equipment (PPE) including air supplied breathing apparatus.

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- chlorine disinfection principles
- chlorine residuals
- codes of practice
- emergency equipment and its application
- functions and components of gas draw or liquid draw chlorinator systems

- handling procedures including:
 - container disconnection and connection procedures for chlorine gas or chlorine liquid draw systems
 - liquefied chlorine gas containers
 - storage of liquefied chlorine gas cylinders or drums
- hazards of liquefied chlorine gas handling
- microbiological guidelines
- national standards for the storage and handling of liquefied chlorine gas
- PPE and its application
- properties of liquefied chlorine gas
- relevant legislation, regulations and workplace procedures
- safety data sheet (SDS)
- self-contained breathing apparatus
- workplace policies, manuals and induction programs.

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPTRT008 Operate and control iron and manganese removal processes

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to operate and control iron and manganese removal processes.

It includes identifying faults, applying process adjustments, following instructions and reporting on processes.

This unit applies to those working as operational staff in treatment. Those undertaking this unit would work under appropriate supervision, performing routine tasks, within a familiar context.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Treatment

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Prepare for work

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Determine work requirements from job specifications and plans

1.2 Select and check equipment required to meet safety

		requirements of task and worksite
	1.3	Select, fit and use required safety equipment including personal protective equipment (PPE)
2 Operate and control processes for iron and manganese removal	2.1	Conduct routine inspections according to workplace procedures
	2.2	Identify and report process faults to relevant personnel
	2.3	Collect process samples and conduct standard tests according to workplace procedures
	2.4	Interpret data and make process adjustments to maintain operational parameters
3 Report on process	3.1	Collect, interpret and record process data according to workplace procedures and process requirements
	3.2	Identify data outside of normal operational parameters and report to relevant personnel for further action

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPTRT014 Operate and control iron and manganese removal processes.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPTRT008 Operate and control iron and manganese removal processes

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

- applying process formulae according to type of process
- completing documentation
- conducting routine process inspections
- identifying and reporting faults
- making process adjustments according to type of process
- monitoring test results and processes
- operating and controlling equipment and systems for removing iron and manganese
- reporting data outside of specified parameters to relevant personnel
- sampling and testing products

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- chemical dosing processes
- chemical forms and occurrence of iron and manganese
- chemistry of common oxidation removal processes including aeration, chlorination, potassium permanganate
- components of iron and manganese systems
- impact of stratification in reservoirs
- ion exchange removal processes
- manganese coated filtration removal processes
- problems associated with iron and manganese in drinking water systems
- relevant legislation, regulations and workplace procedures
- sequestering with polyphosphates

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training

Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

Links

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<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPTRT009 Operate and control coagulation and flocculation processes

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to operate and control coagulation and flocculation processes.

It includes monitoring, measuring and reporting on system performance and quality control. It also includes identifying faults, determining and applying technical adjustments and conducting chemical dosing procedures.

This unit applies to operational staff with a specific responsibility for coagulation and flocculation processes in water and wastewater plants. Those undertaking this unit would work under appropriate supervision, while performing routine tasks, within a familiar context.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Treatment

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Prepare for work

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Determine work requirements from job specifications

		and plans
	1.2	Select and check equipment to meet safety requirements of task and worksite
	1.3	Select, fit and use required safety equipment, including personal protective equipment (PPE)
2	Control chemical use	
	2.1	Handle and store chemicals according to workplace procedures
	2.2	Maintain chemical supply and usage records according to workplace procedures
3	Monitor coagulation and flocculation processes	
	3.1	Conduct routine inspections according to workplace procedures
	3.2	Identify and report process faults to relevant personnel
	3.3	Collect process samples according to workplace procedures
4	Operate and control coagulation and flocculation processes	
	4.1	Conduct jar tests and determine optimum chemical dosages
	4.2	Perform process calculations and adjust chemical dosing according to jar test results
	4.3	Collect and test samples to confirm dosage adjustments
5	Complete documentation	
	5.1	Collect, interpret and record process data according to workplace procedures and process requirements
	5.2	Identify data outside of normal operational parameters and report to relevant personnel for further action

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPTRT015 Operate and control coagulation and flocculation processes.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPTRT009 Operate and control coagulation and flocculation processes

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- applying optimised jar test results to the process
- completing required documentation including at least one of the following:
 - process set point changes
 - routine maintenance reports
 - routine plant inspection and safety checks
 - water quality and safety incident reports
 - water quality sampling and test results
- conducting routine plant inspections
- identifying and reporting system faults
- making system adjustments including at least one of the following:
 - coagulant or flocculant dosing
 - pH correction
- preparing and applying chemical dosing
- preparing jar test solutions and solutions strengths
- producing reports
- performing process calculations for at least one of the following:
 - dry and liquid chemical feed rates
 - jar test dosages
 - mixing intensity
 - preparation of dosing solutions
- taking samples, performing a jar test and at least two of the following:
 - alkalinity
 - true colour
 - dosage feed rate review and checks
 - drop tests
 - flocculation growth and size
 - flocculation time

- mixing energy
- mixing time
- pH
- residual aluminium or iron
- turbidity

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- chemical dosing procedures
- chemical handling and storage procedures
- chemicals including:
 - coagulants
 - flocculants
 - pH correction
- coagulation and flocculation control systems
- effects of weather and conditions on operation of site or plant
- features and components of coagulation and flocculation systems including mixing
- jar testing principles
- plant layout
- principles of coagulation and flocculation processes
- safety data sheets
- relevant legislation, regulations and workplace procedures
- risk factors and controls for potential hazards related to coagulation and flocculation systems

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry

- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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NWPTRT010 Operate and control sedimentation and clarification processes

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to operate and control sedimentation and clarification processes.

It includes monitoring sedimentation and clarification plant measuring and reporting on system performance and process quality control. It also includes identifying faults, determining and applying adjustments, conducting chemical dosing procedures and producing reports.

This unit applies to operational staff with a specific responsibility for sediment and clarification processes in water treatment plants. Those undertaking this unit would work under appropriate supervision, while performing routine tasks, within a range of familiar contexts.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Treatment

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Prepare for work

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Determine work requirements from job specifications

		and plans
	1.2	Select and check equipment required to meet safety requirements of task and worksite
	1.3	Select, fit and use safety equipment including personal protective equipment (PPE)
2	Operate and control sedimentation and clarification processes	
	2.1	Conduct routine plant inspections according to workplace procedures
	2.2	Identify and report process faults to relevant personnel
	2.3	Collect process samples and conduct standard tests according to workplace procedures
	2.4	Interpret data and make process adjustments to maintain operational parameters
3	Complete documentation	
	3.1	Collect, interpret and record process data according to workplace procedures and process requirements
	3.2	Identify data outside of normal operational parameters and report to relevant personnel for further action

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPTRT031 Operate and control sedimentation and clarification processes and NWPTRT073 Operate and control wastewater sedimentation processes.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -

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Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPTRT010 Operate and control sedimentation and clarification processes

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- completing required documentation
- conducting routine plant inspections
- identifying control system faults
- making system adjustments
- monitoring sludge blanket levels
- performing process calculations
- preparing and applying chemical dosing
- taking samples and performing tests

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- chemical dosing processes
- control systems
- effects of weather and conditions on operation of site or plant
- enhanced particle settling theory
- equipment operation, capacity and limitations
- relevant legislation, regulations and workplace procedures
- risk factors and potential hazards relating to water or wastewater treatment
- sedimentation and clarification processes including chemical and biological principles
- sedimentation and clarification theory and operation
- settling aids
- system layout

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training

Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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NWPTRT016 Operate and control dissolved air flotation processes

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to operate and control dissolved air flotation (DAF) processes.

It includes measuring and reporting on system performance and processing quality control of DAF processes. It also includes identifying faults, determining and applying process adjustments and producing reports.

This unit applies to those working as operational staff with a specific responsibility for DAF processes. Those undertaking this unit would work under appropriate supervision, while performing routine tasks, within a familiar context.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Treatment

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Prepare for work

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Determine work requirements from job specifications

		and plans
	1.2	Select and check equipment to meet safety requirements of task and worksite
	1.3	Select, fit and use safety equipment including personal protective equipment (PPE)
2	Operate and control dissolved air flotation processes	
	2.1	Conduct routine inspections according to workplace procedures
	2.2	Identify and report process faults to relevant people
	2.3	Collect process samples and conduct standard tests according to workplace procedures
	2.4	Interpret data and make process adjustments to maintain operational parameters
3	Complete documentation	
	3.1	Collect, interpret and record process data according to workplace procedures and process requirements
	3.2	Identify data outside of normal operational parameters and report to relevant personnel for further action

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPTRT033 Operate and control DAF processes.

Links

Companion Volume implementation guides are found in VETNet - <https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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Assessment Requirements for NWPTRT016 Operate and control dissolved air flotation processes

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- applying a relevant dissolved air flotation (DAF) process on at least one of the following categories of water including:
 - drinking water
 - industrial water
 - wastewater
- collecting samples and conducting tests including at least one of the following:
 - colour
 - flotation tests
 - jar testing
 - solids
 - turbidity
- completing documentation
- conducting routine plant inspections
- identifying and reporting faults
- making at least one of the following process adjustments:
 - recycled flow rate
 - saturator pressure
 - water level
- monitoring test results and processes
- performing process calculations including:
 - hydraulic loading rate
 - recycle ratio

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- chemicals used for coagulation and flocculation or thickening
- DAF process operations theory
- features and components of DAF systems
- feed water quality impacts and characteristics
- process adjustments
- range of appropriate measuring and testing procedures including:
 - float solids content
 - true colour
 - turbidity
- relevant legislation, regulations and workplace procedures
- types of DAF processes including:
 - dissolved air flotation
 - dissolved air flotation filtration (DAFF)
 - dissolved air flotation sludge thickening

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

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NWPTRT017 Operate and control activated carbon processes

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to operate and control activated carbon processes.

It includes identifying faults, determining and applying adjustments and completing documentation.

This unit applies to those working as operational staff in treatment. Those undertaking this unit would work under appropriate supervision, while performing routine tasks, within a familiar context.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Treatment

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Prepare for work

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Determine work requirements from job specifications and plans

1.2 Select and check equipment to meet safety requirements

		of task and worksite
	1.3	Select, fit and use required safety equipment including personal protective equipment (PPE)
2 Operate and control processes	2.1	Conduct routine inspections according to workplace procedures
	2.2	Identify and report process faults to relevant personnel
	2.3	Collect process samples and conduct standard tests according to workplace procedures
	2.4	Interpret data and make process adjustments to maintain operational parameters
3 Complete documentation	3.1	Collect, interpret and record process data according to workplace procedures and process requirements
	3.2	Identify data outside of normal operational parameters and report to relevant personnel for further action

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPTRT034 Operate and control activated carbon processes.

Links

Companion Volume implementation guides are found in VETNet - <https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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Assessment Requirements for NWPTRT017 Operate and control activated carbon processes

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- applying process formulae of at least one of the following:
 - backwash flow rates (biological activated carbon (BAC), granular activated carbon (GAC))
 - bed expansion
 - dosage powdered activated carbon (PAC)
 - empty bed contact time
- conducting routine plant inspections on asset conditions
- identifying and reporting faults
- making at least one of the following process adjustments:
 - backwash flow rate
 - backwash frequency
 - detention time (PAC)
 - dosage
 - flow rate
 - process flow rate (BAC, GAC)
- performing at least one of the following processes:
 - biologically activated carbon (BAC)
 - granular activated carbon (GAC)
 - powdered activated carbon (PAC)
- taking samples and conducting at least one of the following tests:
 - jar testing
 - odour analysis
 - ultraviolet absorbance at 254 nanometres

Knowledge Evidence

- activated carbon adsorption principles
- features and components of activated carbon processes

- relevant legislation, regulations and workplace procedures
- risk factors and potential hazards associated with activated carbon
- water quality characteristics including:
 - assimilable organic carbon (AOC)
 - biodegradable dissolved organic carbon (BDOC)
 - dissolved organic carbon (DOC)
 - total organic carbon (TOC)

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

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NWPTRT018 Operate and control ion exchange and softening processes

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to operate and control ion exchange and softening processes.

It includes monitoring an ion exchange plant, measuring and reporting on system performance and processing quality control. It also includes identifying faults, determining and applying adjustments.

This unit applies to operational staff with a specific responsibility for ion exchange processes in treatment plants. Those undertaking this unit would work under appropriate supervision within a familiar context while performing routine tasks.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Treatment

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Prepare for work

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Determine work requirements from job specifications

		and plans
	1.2	Select and check equipment required to meet safety requirements of task and worksite
	1.3	Select, fit and use required safety equipment, including personal protective equipment (PPE)
2	Operate and control ion exchange processes	
	2.1	Conduct routine inspections according to workplace procedures
	2.2	Identify and report process faults to relevant personnel
	2.3	Collect process samples and conduct standard tests according to workplace procedures
	2.4	Interpret data and make process adjustments to maintain operational parameters
3	Complete documentation	
	3.1	Collect, interpret and record process data according to workplace procedures and process requirements
	3.2	Identify data outside or normal operational parameters and report to relevant personnel for further action

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPTRT035 Operate and control ion exchange and softening processes.

Links

Companion Volume implementation guides are found in VETNet - <https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPTRT018 Operate and control ion exchange and softening processes

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- collecting data and completing required documentation
- conducting routine plant inspections
- identifying and reporting faults
- making process adjustments according to workplace procedures
- monitoring test results and processes
- performing system calculations
- reporting data outside of specified parameters to relevant personnel
- solving operational problems
- taking samples and performing tests
- using safety and personal protective equipment

Knowledge Evidence

- chemical principles of water treatment processes
- components of ion exchange and softening equipment
- equipment operation, capacity and limitations
- interpretation of safety data sheets
- ion exchange and softening process operation, capacity and limitations
- mechanical and electrical control systems
- relevant legislation, regulations and workplace procedures
- risk factors and potential hazards involved with ion exchange and softening processes
- system layout

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
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NWPTRT019 Operate and control granular media filters

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to monitor and operate groundwater extraction.

It includes monitoring the extraction of water from waterways and water bodies and reporting risks, compliance and complaints. It also includes operating pumps and meters, monitoring availability and quality of supply, controlling water flows from the source and applying legislative and workplace requirements.

This unit applies to field staff with responsibility for ensuring water extraction complies with water use legislation. Those undertaking this unit would work under appropriate supervision, while performing routine tasks in range of familiar contexts.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Treatment

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Prepare for work

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Determine work requirements from job specifications and plans

	1.2	Select and check equipment required to meet safety requirements of task and worksite
	1.3	Select, fit and use required safety equipment, including personal protective equipment (PPE)
2 Operate and control filtration processes	2.1	Conduct routine inspections according to workplace procedures
	2.2	Identify and report process faults to relevant personnel
	2.3	Collect process samples and conduct standard tests according to workplace procedures
	2.4	Interpret data and make process adjustments to maintain operational parameters
3 Complete documentation	3.1	Collect, interpret and record process data according to workplace procedures and process requirements
	3.2	Identify data outside of normal operational parameters to relevant personnel for further action

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPTRT041 Operate and control granular media filters.

Links

Companion Volume implementation guides are found in VETNet - <https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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Assessment Requirements for NWPTRT019 Operate and control granular media filters

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- collecting data and completing required documentation
- completing reports
- conducting routine plant inspections
- identifying and reporting faults
- identifying control system faults
- making process adjustments including at least one of the following:
 - backwash settings
 - filter aid dosing
 - filtration rate
 - pH correction
- monitoring test results and processes
- performing process calculations
- solving operational problems
- taking samples and conducting tests
- using safety and personal protective equipment

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- filtration equipment operation, capacity and limitations
- interpretation and use of safety data sheets
- pressure sand filters, gravity sand filters and backwashing
- principles of granular media filtration processes
- relevant legislation, regulations and workplace procedures
- risk factors and potential hazards relating to granular media filtration processes
- system layout

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

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<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPTRT020 Operate and control membrane filters

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to operate and control membrane filters.

It includes monitoring membrane filtration plant, microfiltration, ultrafiltration and nanofiltration, measuring and reporting on system performance and processing quality control. It also includes identifying faults, determining and applying adjustments and conducting chemical procedures.

This unit applies to operational staff members with a specific responsibility for membrane filtration processes in treatment plants. Those undertaking this unit would work under appropriate supervision, while performing routine tasks, within a familiar context.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Treatment

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Prepare for work

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Determine work requirements from job specifications

		and plans
	1.2	Select and check equipment and tools required to meet safety requirements of task and worksite
	1.3	Select, fit and use required safety equipment, including personal protective equipment (PPE)
2	Operate and control membrane filtration processes	
	2.1	Conduct routine inspections according to workplace procedures
	2.2	Identify and report process faults to relevant personnel
	2.3	Collect process samples and conduct standard tests according to workplace procedures
	2.4	Interpret data and make process adjustments to maintain operational parameters
	2.5	Determine and apply chemical dosing for cleaning requirements according to workplace procedures
3	Complete documentation	
	3.1	Collect, interpret and record process data according to workplace and process requirements
	3.2	Identify data outside of normal operational parameters and report to relevant personnel for further action

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPTRT043 Operate and control membrane filters.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPTRT020 Operate and control membrane filters

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- collecting data and completing required documentation
- identifying and correcting operational problems
- identifying and reporting faults
- identifying control system faults
- making process adjustments of at least one of the following:
 - backwash frequency
 - clean in place cycles
- monitoring test results and processes
- interpreting Trans Membrane Pressure data
- taking samples and performing tests

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- components of membrane filtration equipment
- equipment operation, capacity and limitations
- mechanical and electrical control systems
- membrane filter operation, capacity and limitations
- principles of membrane filtration processes for water or wastewater treatment
- relevant legislation, regulations and workplace procedures
- risk factors and potential hazards involved with membrane filtration processes
- safety data sheets
- system layout

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training

Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPTRT021 Operate and control desalination processes

Modification History

Release 2. Added 1 item to Knowledge Evidence.

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to operate and control desalination processes.

It includes monitoring a desalination plant and measuring and reporting on system performance and processing quality control. It also includes identifying faults, determining and applying technical adjustments.

This unit applies to operational staff with a specific responsibility for desalination processes in treatment plants. Those undertaking this unit would work under appropriate supervision, while performing routine tasks, within a familiar context.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Treatment

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1 Prepare for work	1.1 Determine work requirements from job specifications and plans
	1.2 Select and check equipment required to meet safety requirements of task and worksite
	1.3 Select, fit and use required safety equipment, including personal protective equipment (PPE)
2 Operate and control desalination processes	2.1 Conduct routine inspections according to workplace procedures
	2.2 Identify and report process faults according to workplace procedures
	2.3 Collect process samples and conduct standard tests according to workplace procedures
	2.4 Interpret data and make process adjustments and conduct pre-treatment to maintain operational parameters
3 Complete documentation	3.1 Collect, interpret and record process data according to workplace and process requirements
	3.2 Identify data outside of normal operational parameters to relevant personnel for further action

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPTRT044 Operate and control desalination processes.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPTRT021 Operate and control desalination processes

Modification History

Release 2. Minor upgrade - added 1 item to Knowledge Evidence.

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- collecting data and completing required documentation
- conducting routine plant inspections
- identifying and reporting faults
- interpreting data and making process adjustments
- making process adjustments including:
 - chemical cleaning
 - flow control
 - pre-treatment optimisation
 - waste disposal
- monitoring test results and processes
- operating control equipment
- performing one of the following desalination processes:
 - electrodialysis reversal (EDR)
 - nanofiltration (NF)
 - reverse osmosis
 - thermal desalination
- performing process calculations
- taking samples and performing tests
- using safety and personal protective equipment

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- chemical dosing requirements for pre-treatment or cleaning
- desalination equipment operation, capacity and limitations

- impact of electrical flow or current and how reversal effects the process
- interpretation of safety data sheets
- lockout procedures for mechanical and electrical installations
- mechanical and electrical control systems
- pre-treatment processes
- principles of desalination processes
- relevant legislation, regulations and workplace procedures
- risk factors and potential hazards
- system layout

Assessment Conditions

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPTRT022 Monitor and operate hypochlorite disinfection processes

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to monitor and operate hypochlorite disinfection processes.

It includes monitoring hypochlorite disinfection systems and reporting on process quality control. It also includes working safely with, transporting and storing sodium hypochlorite solution or calcium hypochlorite solids and implementing emergency response procedures.

This unit applies to operational staff with specific responsibility for hypochlorite disinfection systems in water or wastewater treatment plants. Those undertaking this unit would work under appropriate supervision, while performing routine tasks, in a range of familiar contexts.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Treatment

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Prepare for work

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Determine work requirements from job specifications

- and plans
- 1.2 Select and check equipment and hypochlorite supplies to meet safety requirements of task and worksite
 - 1.3 Select, fit and use required safety equipment, including personal protective equipment (PPE)
 - 1.4 Handle and store hypochlorite chemicals to maximise shelf life and reduce loss of available chlorine
 - 1.5 Conduct the percentage available chlorine test according to workplace procedures
- 2 Monitor processes**
- 2.1 Monitor hypochlorite disinfection processes according to workplace procedures
 - 2.2 Collect process samples and conduct standard tests according to workplace procedures
 - 2.3 Make process adjustments to maintain effectiveness of hypochlorite disinfection
 - 2.4 Monitor the parameter set points for critical control points and operational control points
- 3 Apply chemical dosing**
- 3.1 Prepare and apply hypochlorite chemicals
 - 3.2 Control hypochlorite dosing to maintain required chlorine residual
- 4 Complete documentation**
- 4.1 Maintain information relating to hypochlorite supply and usage
 - 4.2 Collect, record and complete process data according to workplace procedures and process requirements
 - 4.3 Identify data outside of normal operational parameters and report to relevant personnel for further action

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work

environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPTRT052 Operate and control hypochlorite disinfection processes.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPTRT022 Monitor and operate hypochlorite disinfection processes

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- collecting and reporting process data
- identifying and responding to process faults
- identifying hazards
- interpreting and following safety data sheets
- monitoring, operating and reporting on hypochlorite disinfection systems
- performing at least one of the following concentration tests:
 - calcium hypochlorite
 - sodium hypochlorite solution
- performing chlorine residual sampling and testing
- performing process calculations including at least one of the following:
 - Ct calculation dosage
 - feed rate
- preparing and applying hypochlorite dosing safely
- selecting and using appropriate tools and equipment, including personal protective equipment

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- automatic feed rate control systems
- breakpoint
- chlorine demands including:
 - ammonia
 - iron, manganese and nitrite
 - natural organic matter (NOM)
 - turbidity
- contact time
- disinfection by-products (DBP)

- effects of pH, time, temperature, UV exposure and impurities on hypochlorite breakdown
- hypochlorite dosing system layout for sodium hypochlorite or calcium hypochlorite dosing systems
- impact of pH
- microbiological guidelines
- properties and chemistry of hypochlorite chemicals
- reactions with water to produce hypochlorous acid/hypochlorite ion
- relevant legislation, regulations and workplace procedures
- risk factors and potential hazards associated with hypo chlorination
- safety data sheets

Assessment Conditions

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

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NWPTRT023 Monitor and operate ultraviolet processes

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to monitor and operate ultraviolet (UV) processes.

It includes preparing and maintaining UV irradiation disinfection processes and reporting on microbiological quality control.

This unit applies to operational staff with specific responsibility for ensuring UV irradiation disinfection systems comply with workplace requirements. Those undertaking this unit would work under appropriate supervision while performing routine tasks in a range of familiar contexts.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Treatment

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Prepare for work

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Determine work requirements from job specifications and plans

	1.2	Select and check equipment required to meet safety requirements of task and worksite
	1.3	Select, fit and use required safety equipment including, personal protective equipment (PPE)
2 Monitor processes	2.1	Monitor UV irradiation disinfection processes according to workplace procedures
	2.2	Collect process samples and conduct standard tests according to workplace procedures
	2.3	Make process adjustments to maintain effectiveness of UV irradiation disinfection processes
	2.4	Monitor the parameter set points for critical control points and operational control points
3 Maintain and operate UV irradiation disinfection system	3.1	Perform routine inspections of system components
	3.2	Clean and replace system components according to workplace procedures
	3.3	Operate UV lamp sequencing according to manufacturer instructions
4 Complete documentation	4.1	Maintain information relating to UV processes
	4.2	Collect, record and complete process data according to workplace procedures and process requirements
	4.3	Identify data outside of normal operational parameters and report to relevant personnel for further action

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPTRT053 Operate and control UV processes.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
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Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPTRT023 Monitor and operate ultraviolet processes

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- collecting and reporting process data
- identifying and responding to process faults
- identifying hazards
- interpreting and following safety data sheets
- maintaining and operating ultraviolet (UV) irradiation disinfection systems
- monitoring, operating and reporting on UV irradiation disinfection systems
- performing calculations to determine ultraviolet generation requirements
- performing at least one of the following standard tests:
 - hardness
 - iron
 - lamp intensity
 - suspended solids
 - total organic carbon
 - turbidity
 - ultraviolet transmittance (UVT)
- selecting and using appropriate tools and equipment including personal protective equipment
- using cleaning chemicals, safely

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- effects of weather and conditions on operation of worksite or plant
- lockout procedures for mechanical and electrical installations
- microbiological water quality guidelines
- risk factors and potential hazards associated with UV irradiation systems
- safe use of cleaning chemicals and prevention of associated hazards
- safety data sheets

- UV irradiation disinfection systems including:
 - components
 - layout
 - maintenance
 - operation
 - properties
- UV irradiation generation equipment operation, capacity and limitations
- workplace policies and procedures, legislation and industry codes of practice

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

Links

Companion Volume implementation guides are found in VETNet -
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<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPTRT024 Operate and control chloramination processes

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to operate and control chloramination processes.

It includes monitoring chloramination processes, measuring and reporting on system performance and process quality control. It also includes identifying faults, determining and applying technical adjustments.

This unit applies to operational staff with a specific responsibility for chloramination processes. Those undertaking this unit would work under appropriate supervision, while performing routine tasks, within a range of familiar contexts.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Treatment

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Prepare for work

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Determine work requirements from job specifications and plans

	1.2	Select and check equipment required to meet safety requirements of task and worksite
	1.3	Select, fit and use required safety equipment, including personal protective equipment (PPE)
2 Operate and control chloramination processes	2.1	Conduct routine inspections according to workplace procedures
	2.2	Identify and report process to relevant personnel
	2.3	Collect process samples and conduct chlorine residual tests according to workplace procedures
	2.4	Interpret data and make process adjustments to maintain operational parameters
3 Apply chloramination chemical dosing	3.1	Use, handle and store chemicals according to workplace procedures
	3.2	Determine and apply chemical dosing according to system specifications and organisational requirements
	3.3	Maintain information related to chlorine and ammonia supply and usage
4 Complete documentation	4.1	Collect, interpret and record process data according to workplace procedures and process requirements
	4.2	Identify data outside of normal operational parameters and report to relevant personnel for further action

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPTRT054 Operate and control chloramination

processes.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -

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Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPTRT024 Operate and control chloramination processes

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- analysing tests
- collecting samples and conducting at least one of the following tests:
 - ammonia and hypochlorite strength
 - free chlorine
 - monochloramine
 - pH
 - total chlorine
- identifying and reporting process and operational faults
- making at least one of the following appropriate system adjustments:
 - ammonia feed rate
 - calibration of chemical dosing equipment
 - chlorine feed rate
 - chlorine to ammonia ratio
 - flow rate
- monitoring chloramination systems
- operating control and chemical dosing equipment
- performing at least one of the following chloramination process calculations:
 - chlorine and ammonia dosage rate
 - chlorine to ammonia ratio
 - dichloramine concentration
- preparing and applying at least one of the following chloramination chemical dosings:
 - anhydrous ammonia
 - aqua ammonia
 - liquefied chlorine gas
 - pH correcting chemicals including lime soda ash
 - sodium hydroxide
 - sodium hypochlorite

Knowledge Evidence

- chloramination process theory
- chlorine and ammonia dosing equipment
- control systems
- equipment operation, capacity and limitations
- microbiological aspects of water quality
- operational problems including nitrification
- reasons for chloramination
- risk factors and potential hazards associated with chloramination processes
- workplace policies and procedures, legislation and industry codes of practice

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

Links

Companion Volume implementation guides are found in VETNet -
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Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPTRT025 Monitor and operate chlorine dioxide processes

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to monitor and operate chlorine dioxide processes.

It includes monitoring and operating chlorine dioxide systems, preparing and applying chemical dosing and reporting on process quality control.

This unit applies to operational staff with specific responsibility for ensuring chlorine dioxide system processes comply with organisational requirements. Those undertaking this unit would work under appropriate supervision while performing routine tasks in a range of familiar contexts.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Treatment

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Prepare for work

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Determine work requirements from job specifications and plans

	1.2	Select and check equipment required to meet safety requirements of task and worksite
	1.3	Select, fit and use required safety equipment including, personal protective equipment (PPE)
2 Monitor processes	2.1	Monitor chlorine dioxide processes according to workplace procedures
	2.2	Collect process samples and conduct standard tests according to workplace procedures
	2.3	Maintain and monitor relevant work health and safety requirements
3 Prepare and apply chemical dosing	3.1	Handle, use and store chemicals safely according to workplace procedures
	3.2	Maintain information relating to chemical supply and usage according to workplace procedures
4 Complete documentation	4.1	Collect, record and complete process data according to workplace procedures and process requirements
	4.2	Identify data outside of normal operational parameters and report to relevant personnel for further action

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPTRT055 Operate chlorine dioxide processes.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPTRT025 Monitor and operate chlorine dioxide processes

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- collecting and reporting on at least one of the following data processes:
 - chlorine dioxide residuals
 - pH
- collecting process samples and performing standard tests
- conducting chlorine dioxide residual sampling
- identifying control system faults and operational problems
- interpreting safety data sheets
- monitoring chlorine dioxide disinfection processes
- performing chlorine dioxide calculations
- preparing and applying chemical dosing, including at least one of:
 - generation of chlorine dioxide (sodium chlorite, hydrochloric acid, sodium hypochlorite and/or liquefied chlorine)
 - pH adjustment (lime, soda ash or caustic)
- selecting and using appropriate tools and equipment, including personal protective equipment

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- automatic feed rate control systems
- chlorine dioxide including:
 - chlorine dioxide generation equipment operation, capacity and limitations
 - chlorine dioxide system layout
 - dosing processes
 - properties and chemistry
- hazardous substances handling
- impact of pH
- microbiological water quality guidelines

- relevant legislation, regulations and workplace procedures
- risk factors and potential hazards associated with chlorine dioxide
- safety data sheets

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

Links

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NWPTRT026 Monitor and operate ozone processes

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to monitor and operate ozone processes.

It includes monitoring and operating ozone treatment systems, preparing and applying chemical dosing and reporting on process quality control.

This unit applies to operational staff with specific responsibility for ensuring ozone treatment systems comply with workplace requirements. Those undertaking this unit would work under appropriate supervision while performing routine tasks in a range of familiar contexts.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Treatment

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Prepare for work

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Determine work requirements from job specifications and plans

1.2 Select and check equipment and ozone supplies to meet safety requirements of task and site

	1.3	Select, fit and use required safety equipment including, personal protective equipment (PPE)
2	Monitor processes	
	2.1	Monitor ozone generation and treatment processes according to workplace procedures
	2.2	Collect process samples and conduct standard tests according to workplace procedures
	2.3	Make process adjustments to maintain effectiveness of ozone treatment
	2.4	Monitor the parameter set points for critical control points and operational control points
	2.5	Calculate dosage and disinfection performance for ozone treatment
	2.6	Control ozone generation and dosing to maintain operational parameters
3	Complete documentation	
	3.1	Maintain information relating to ozone generation and dosing
	3.2	Collect, record and complete process data according to workplace procedures and process requirements
	3.3	Identify data outside or normal operational parameters and report to relevant personnel for further action

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPTRT056 Operate and control ozone processes.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPTRT026 Monitor and operate ozone processes

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- collecting process samples and performing standard tests including at least one of the following:
 - exhaust gas ozone concentration
 - ozone residual level in water supply
- collecting and reporting process data
- generating and applying ozone dosing safely
- identifying control system faults
- identifying hazards
- interpreting safety data sheets
- monitoring ozone treatment processes
- performing work-related ozone calculations
- selecting and using appropriate tools and equipment including personal protective equipment

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- automatic feed rate control systems
- hazardous substances handling
- microbiological guidelines
- operation, capacity and limitations of ozone generation equipment
- ozone properties including:
 - chemistry
 - calculation
 - dosing processes
 - system layout
- impact of pH
- risk factors and potential hazards associated with ozonation

- relevant legislation, workplace policies and industry standards
- safety data sheets

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

Links

Companion Volume implementation guides are found in VETNet -
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NWPTRT027 Monitor and operate wastewater treatment processes

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to operate and control wastewater processes. It includes monitoring and operating wastewater treatment plants, reporting system performance and process quality control. It also includes ensuring wastewater disposal or re-use meets state or territory legislative requirements.

This unit applies to operational staff in wastewater treatment plants with responsibility for the practical and safe operation of plant, equipment and processes. Those undertaking this unit would work under appropriate supervision, performing routine tasks within a familiar context.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Treatment

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Prepare for work

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Determine work requirements from job specifications and plans

	1.2	Select and check equipment required to meet safety requirements task and worksite
	1.3	Select, fit and use required safety equipment including, personal protective equipment (PPE)
2 Monitor treatment processes	2.1	Inspect plant according to workplace procedures
	2.2	Collect process samples and conduct standard tests according to workplace procedures
	2.3	Operate wastewater treatment processes according to workplace procedures
	2.4	Perform adjustments to enhance system performance
3 Complete documentation	3.1	Collect, record and complete process data according to workplace procedures and process requirements
	3.2	Identify, data outside of operational parameters and report to relevant personnel for further action

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPTRT061 Operate and control wastewater processes.

Links

Companion Volume implementation guides are found in VETNet - <https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPTRT027 Monitor and operate wastewater treatment processes

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- applying workplace procedures
- completing documentation
- conducting routine plant inspections
- operating and adjusting at least one of the following processes:
 - primary treatment
 - secondary treatment
 - tertiary treatment
 - solids management
- taking samples and performing standard tests

Knowledge Evidence

- chemical and biological principles of wastewater treatment
- hydraulics and organic loading in wastewater plants
- physical, chemical and microbiological characteristics of wastewater treatment
- preliminary treatment, primary treatment, secondary treatment, tertiary treatment and solids management
- reasons for wastewater treatment
- relevant workplace procedures, guidelines and industry standards
- state or territory legislative requirements for wastewater treatment processes
- risk factors and potential hazards relating to wastewater treatment
- sources of wastewater
- types of components
- water cycle

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training

Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

Links

Companion Volume implementation guides are found in VETNet -
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NWPTRT028 Operate and control reclaimed water irrigation

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to operate and control reclaimed water irrigation.

It includes assessing sites for reclaimed water irrigation and quality of reclaimed water for irrigation. It also includes implementing reclaimed water irrigation, responding to water or soil quality issues and compiling reclaimed water irrigation records.

This unit applies to staff members with a specific responsibility for analysing the critical aspects of reclaimed water reuse management relating to a project or site and implementing reclaimed water reuse irrigation. Those undertaking this unit would work under appropriate supervision, performing routine tasks in a familiar context, and ensuring minimum damage to the environment.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Treatment

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Assess sites for reclaimed

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Identify soil and water interactions and soil properties

water irrigation		important for plant growth
	1.2	Identify soil sampling sites, collect samples and conduct soil testing according to workplace procedures
	1.3	Classify soils using field texture, pH and structure analysis
	1.4	Monitor and determine the water holding capacity of soil
2	Assess quality of reclaimed water for irrigation	
	2.1	Sample and test reclaimed water and interpret quality parameters
	2.2	Determine crops suitable for the quality of reclaimed water and worksite conditions
3	Implement reclaimed water irrigation	
	3.1	Identify features of irrigation systems
	3.2	Operate and maintain irrigation equipment according to manufacturer instructions
	3.3	Identify and apply irrigation scheduling options for reclaimed water
	3.4	Produce water budgets using crop factors and climate data
	3.5	Apply irrigation water and collect and monitor tail water or runoff
4	Respond to water or soil quality issues	
	4.1	Develop irrigation management options to respond to water quality issues
	4.2	Identify and apply requirements and options for soil ameliorants
	4.3	Monitor infiltration and drainage
5	Compile reclaimed water irrigation records	
	5.1	Compile reports from system data according to workplace procedures
	5.2	Report observations outside defined parameters for further action to relevant personnel

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPTRT062 Operate and control reclaimed water irrigation.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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Assessment Requirements for NWPTRT028 Operate and control reclaimed water irrigation

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- analysing critical aspects of reclaimed water reuse management relating to the project or site
- applying environmental policies, plans and procedures
- assessing environmental risks at the worksite
- identifying environment, health and safety risks and impact on soil, stock and operators
- identifying soil groups
- implementing reclaimed water reuse irrigation
- monitoring and managing soil
- monitoring, operating and controlling reclaimed water irrigation
- participating in and contributing to reviews of reclaimed water reuse procedures
- sampling and testing soil and water
- solving operational problems
- using safety and personal protective equipment (PPE)

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- best management practices for the use of reclaimed water for irrigation purposes
- community and agency roles and responsibilities in monitoring water quality
- effects of weather and conditions on operation of site or plant
- environmental, landscape and ground structure of work area
- equipment operation, capacity and limitations
- interpretation and use of safety data sheets
- key characteristics of reclaimed water
- key principles of irrigation practices, including irrigation scheduling
- primary agencies involved in drinking water quality management
- reclaimed water usage licensing procedures and requirements
- relevant legislative requirements

- soil groups
- water hazardous agents and preventative strategies
- water quality performance indicators
- water supply system
- workplace procedures

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

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NWPTRT029 Monitor and operate pre-treatment processes

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to monitor and operate pre-treatment processes.

It includes reporting on pre-treatment processes, separation processes, screens and grit removal used in municipal, industrial or domestic treatment plants prior to further treatment.

This unit applies to operational staff with specific responsibility for pre-treatment processes. Those undertaking this unit would work under appropriate supervision while performing routine tasks in a range of familiar contexts.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Treatment

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Prepare for work

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Determine work requirements from job specifications and plans

1.2 Select and check equipment required to meet safety

		requirements of task and worksite
	1.3	Select, fit and use required safety equipment including, personal protective equipment (PPE)
2	Monitor pre-treatment processes	
	2.1	Inspect plant according to workplace procedures
	2.2	Collect process samples and conduct standard tests according to workplace procedures
	2.3	Operate pre-treatment processes according to workplace procedures
	2.4	Perform adjustments to enhance system performance
3	Complete documentation	
	3.1	Collect, record and complete process data according to workplace procedures and process requirements
	3.2	Identify data outside of normal operational parameters and report to relevant personnel for further action

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPTRT071 Operate and control pre-treatment processes.

Links

Companion Volume implementation guides are found in VETNet - <https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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Assessment Requirements for NWPTRT029 Monitor and operate pre-treatment processes

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- applying workplace procedures
- collecting and labelling samples
- collecting and recording data
- identifying faults and operational problems
- operating and adjusting at least one of the following processes:
 - chemical additions
 - chemical usage
 - dissolved oxygen levels
 - flow control
 - plant performance data
 - screen rotation frequency
 - solids removal
- preparing for work

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- control systems
- equipment operation, capacity and limitations
- impacts of variable flows
- plant layout
- principles of and need for effective pre-treatment
- relevant legislation and regulations
- risk factors and potential hazards relating to treatment
- workplace policies and procedures applied to pre-treatment processes

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

Links

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NWPTRT030 Operate and control odour removal processes

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to operate and control odour removal processes.

It includes monitoring, operating and controlling odour removal processes, reporting on process performance, and identifying faults and applying technical adjustments.

This unit applies to operational staff with a specific responsibility for odour removal processes. Those undertaking this unit would work under appropriate supervision, performing routine tasks within a familiar context.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable

Competency Field

Treatment

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1 Prepare for work	1.1 Determine work requirements from job specifications and plans
	1.2 Select and check equipment required to meet safety requirements of task and worksite
	1.3 Select, fit and use required safety equipment, including personal protective equipment (PPE)
2 Operate and control odour removal processes	2.1 Conduct routine inspections according to workplace procedures
	2.2 Identify and report faults to relevant personnel
	2.3 Compare performance against operational requirements
	2.4 Interpret data and make process adjustments to maintain operational parameters
3 Complete documentation	3.1 Collect, interpret and record process data according to workplace procedures
	3.2 Identify data outside of normal operational parameters and report to relevant personnel for further action

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPTRT072 Operate and control odour removal processes.

Links

Companion Volume implementation guides are found in VETNet - <https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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Assessment Requirements for NWPTRT030 Operate and control odour removal processes

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- collecting data and completing required documentation
- comparing system performance against operational requirements
- conducting routine plant inspections
- identifying and reporting faults
- identifying control system faults
- making process adjustments according to instructions
- operating odour control equipment
- performing at least one of the following processes:
 - adsorption
 - biological
 - chemical

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- equipment operation, capacity and limitations
- odour removal processes and principles including:
 - adsorption
 - biological
 - chemical
- odour removal system layout
- risk factors and potential hazards
- relevant regulations and workplace procedures

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training

Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

Links

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NWPTRT036 Operate and control activated sludge processes

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to operate and control activated sludge processes.

It includes measuring and reporting on system performance and process quality control. It also includes identifying faults, determining and applying technical adjustments.

This unit applies to operational staff with a specific responsibility for wastewater activated sludge in treatment plants. Those undertaking this unit would work under appropriate supervision, performing routine tasks within a familiar context.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Treatment

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Prepare for work

2 Operate and control processes

3 Complete documentation

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1	Determine work requirements from job specification and plans
1.2	Select and check equipment required to meet safety requirements of task and site
1.3	Select, fit and use required safety equipment, including personal protective equipment (PPE)
2.1	Conduct routine inspections according to workplace procedures
2.2	Identify and report process faults to relevant personnel
2.3	Collect process samples and conduct standard tests according to workplace procedures
2.4	Perform basic process adjustments to maintain process performance parameters
3.1	Collect, interpret and record process data according to workplace procedures and process requirements
3.2	Identify data outside of normal operational parameters and report to relevant personnel for further action

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPTRT081 Operate and control activated sludge processes.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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Assessment Requirements for NWPTRT036 Operate and control activated sludge processes

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- applying process formulae
- applying workplace procedures
- collecting data and completing required documentation
- identifying and correcting operational and control process problems
- identifying and reporting faults
- making process adjustments according to instructions
- taking samples and performing tests

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- activated sludge processes
- activated sludge process variations
- chemical and biological principles of activated sludge
- chemicals used for pH control and sludge bulking and foaming
- control of solids
- features and components of activated sludge processes
- flow measurement and detention time
- microscopy
- operational problems such as sludge bulking and foaming
- plant layout
- process specific hazards and risks factors
- relevant legislation, regulations and workplace procedures

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training

Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPTRT037 Operate and control nutrient removal processes

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to operate and control nutrient removal processes.

It includes operating and controlling nutrient removal processes, measuring and reporting on process performance. It also includes identifying faults, determining and applying technical adjustments.

This unit applies to operational staff with a specific responsibility for nutrient removal. Those undertaking this unit would work under appropriate supervision, while performing routine tasks within a familiar context.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Treatment

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Prepare for work

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Determine work requirements from job specifications and plans

	1.2	Select and check equipment required to meet safety requirements of task and site
	1.3	Select, fit and use required safety equipment including personal protective equipment(PPE)
2 Operate and control processes	2.1	Conduct routine inspections according to workplace procedures
	2.2	Identify and report process faults to relevant personnel
	2.3	Collect process samples and conduct standard tests according to workplace procedures
	2.4	Interpret data and make process adjustments to maintain operational parameters
3 Complete documentation	3.1	Collect, interpret and record process data according to workplace procedures and process requirements
	3.2	Identify data outside of normal operational parameters and report to relevant personnel for further action

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPTRT082 Operate and control nutrient removal processes.

Links

Companion Volume implementation guides are found in VETNet - <https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPTRT037 Operate and control nutrient removal processes

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- applying process formulae
- collecting data and completing required documentation
- conducting routine plant inspections
- identifying and reporting faults
- identifying control system faults
- making process adjustments
- taking samples and performing at least one of the following tests:
 - ammonia
 - jar testing
 - mixed liquor suspended solids
 - nitrate
 - nitrogen
 - ortho-phosphorus
 - pH
 - solids analysis
 - total nitrogen

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- chemical dosing requirements for pH control and nutrient removal
- flow measure and detention time
- nutrient removal processes and principles including:
 - biological nutrient removal
 - chemical nutrient removal
- process specific hazards and risks
- relevant legislation, regulations and workplace procedures

- relevant process calculations

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

Links

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NWPTRT038 Operate and control fixed film processes

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to operate and control fixed film processes.

It includes monitoring fixed film processes such as trickling filters, Moving Bed Bioreactor and rotating biological contactors. It also includes measuring and reporting on system performance and process quality control.

This unit applies to operational staff with a specific responsibility for fixed film processes in treatment assets. Those undertaking this unit would work under appropriate supervision, while performing routine tasks, within a range of familiar contexts.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Treatment

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Prepare for work

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Monitor test results and processes to maintain parameters of operation

1.2 Select and check equipment required to meet safety

		requirements of task and worksite
	1.3	Select, fit and use required safety equipment, including personal protective equipment (PPE)
2	Operate and control fixed film aerobic bioreactor processes	
	2.1	Conduct routine inspections according to workplace procedures
	2.2	Identify and report faults to relevant personnel
	2.3	Collect process samples and conduct standard tests according to workplace procedures
	2.4	Interpret data and make process adjustments to maintain operational parameters
3	Complete documentation	
	3.1	Collect, interpret and record process data according to workplace procedures and process requirements
	3.2	Identify data outside of normal operational parameters to relevant personnel for further action

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPTRT083 Operate and control aerobic bioreactor processes.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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Assessment Requirements for NWPTRT038 Operate and control fixed film processes

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- collecting data and completing required documentation
- completing reports
- conducting routine asset inspections
- identifying and correcting operational and control system problems
- identifying and reporting faults
- making process adjustments
- monitoring test results
- performing relevant process calculations
- taking samples and performing tests

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- asset layout
- equipment operation, capacity and limitations
- features and components of fixed film systems
- fixed film adjustment processes
- flow measurement
- operational problems
- principles of fixed film aerobic wastewater treatment
- process calculations
- process operation and monitoring
- recirculation principles
- relevant legislation, regulations and workplace procedures
- risk factors and potential hazards relating to fixed film systems
- types of fixed film processes and variations
- process calculations including:

- hydraulic and organic loading rates
- recirculation ratios
- tests including:
 - dissolved oxygen
 - microscopic observation
 - pH
 - settling tests

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

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NWPTRT039 Operate and control solids handling processes

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to operate and control solids handling processes.

It includes monitoring water, wastewater dewatering, sludge thickening plant and measuring and reporting on system performance and process quality control. It also includes identifying faults, determining and applying technical adjustments and conducting chemical dosing procedures.

This unit applies to operational staff with a specific responsibility for water or wastewater dewatering and sludge thickening processes in a treatment plant. Those undertaking this unit would work under appropriate supervision, while performing routine tasks within a familiar context.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Treatment

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

PERFORMANCE CRITERIA

Elements describe the essential outcomes.

Performance criteria describe the performance needed to demonstrate achievement of the element.

1 Monitor dewatering process performance	1.1	Monitor test results and processes to maintain the parameters of operation
	1.2	Identify and report process faults to relevant personnel
2 Control chemical use	2.1	Use, handle and store chemicals according to workplace procedures
	2.2	Prepare and apply chemical dosing according to workplace procedures
	2.3	Maintain chemical supply and usage records
	2.4	Select, fit and use required safety equipment, including personal protective equipment (PPE)
3 Operate and control dewatering processes	3.1	Conduct routine inspections according to workplace procedures
	3.2	Conduct and analyse process tests and determine performance against plant operational requirements
	3.3	Make integrated process adjustments to optimise system performance
4 Complete documentation	4.1	Collect, interpret and record process data according to workplace procedures and process requirements
	4.2	Identify data outside of normal operational parameters and report to relevant personnel for further action

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPTRT091 Operate and control solids handling processes.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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Assessment Requirements for NWPTRT039 Operate and control solids handling processes

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- collecting data and completing required documentation
- conducting routine plant inspections
- identifying and reporting faults
- making process adjustments according to process performance indicators
- monitoring test results and processes
- preparing and applying chemical dosing
- taking samples and performing tests and calculations on at least one of the following:
 - centrate or filtrate clarity
 - solids handling process efficiency
 - jar testing
 - sludge density
 - solids analysis

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- chemical dosing processes
- chemicals used for sludge conditioning including polymers
- equipment operation, hazards, capacity and limitations
- features and components of thickening and dewatering systems
- hazardous materials handling
- plant layout
- principles of solids handling processes
- relevant legislation, regulations and workplace procedures
- safety data sheets
- solids classifications and reuse options

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
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NWPTRT040 Operate and control digestion processes

Modification History

Release 2. Performance evidence point 4 reworded and moved to knowledge evidence.

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to operate and control digestion processes.

It includes reporting on system performance within domestic and industrial wastewater treatment plants. It also includes conducting inspections, identifying process faults and collecting samples.

This unit applies to operational staff with specific responsibility for operating anaerobic processes in treatment plants and checking that the processes comply with organisational requirements. Those undertaking this unit would work under appropriate supervision, performing routine tasks within a familiar context.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Treatment

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Prepare for work

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Determine work requirements from job specifications

		and plans
	1.2	Select and check equipment required to meet safety requirements of task and site
	1.3	Select, fit and use required safety equipment, including personal protective equipment (PPE)
2	Operate and control processes	
	2.1	Conduct routine inspections according to workplace procedures
	2.2	Identify and report process faults to relevant personnel
	2.3	Collect process samples and conduct standard tests according to workplace procedures
	2.4	Interpret data and make process adjustments to maintain operational parameters
3	Complete documentation	
	3.1	Collect, interpret and record process data according to workplace procedures and process requirements
	3.2	Identify data outside of normal operational parameters and report to relevant personnel for further action

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPTRT092 Operate and control digestion processes.

Links

Companion Volume implementation guides are found in VETNet - <https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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Assessment Requirements for NWPTRT040 Operate and control digestion processes

Modification History

Release 2. Performance evidence point 4 reworded and moved to knowledge evidence.

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- applying process formulae of at least one of the following:
 - solids loading
 - solids retention time
 - volatile acids to alkalinity ratio
- collecting data and completing documentation
- making process adjustments according to instructions including at least one of the following:
 - feed rate
 - mixing
 - pH
 - sludge withdrawal
- planning and conducting routine inspections
- taking samples and performing at least one of the following tests:
 - alkalinity (anaerobic)
 - gas composition
 - pH
 - Redox
 - total solids
 - volatile acids
 - volatile solids

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- chemical and biological principles of anaerobic digestion
- chemicals used for pH control, odour control, nutrient addition

- detention times
- operation of anaerobic processes
- relevant legislation, regulations and workplace procedures
- risk factors and potential hazards relating to anaerobic bioreactor systems including hazards related to explosives, hydrogen sulphide and carbon dioxide

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

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NWPTRT046 Operate and control incineration processes

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to operate and control incineration processes.

It includes monitoring an incineration plant, measuring and reporting on system performance and process quality control. It also includes identifying faults and determining and applying technical adjustments essential to performance.

This unit applies to operational staff with a specific responsibility for incineration processes in water treatment plants. Those undertaking this unit would work under appropriate supervision, while performing routine tasks, within familiar contexts.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Treatment

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Prepare for work

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Determine work requirements from job specifications and plans

	1.2	Select and check equipment required to meet safety requirements of task and worksite
	1.3	Select, fit and use required safety equipment, including personal protective equipment (PPE)
	1.4	Monitor online instrumentation trends and combustion processes to maintain parameters of operation
2	Operate and control processes	
	2.1	Conduct routine inspections according to workplace procedures
	2.2	Identify and report process faults to relevant personnel
	2.3	Collect process samples and conduct standard tests according to workplace procedures
	2.4	Interpret data and make process adjustments to maintain operational parameters
3	Complete documentation	
	3.1	Collect, interpret and record process data according to workplace procedures and process requirements
	3.2	Identify data outside of normal operational parameters and report to relevant personnel for further action

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPTRT094 Operate and control incineration processes.

Links

Companion Volume implementation guides are found in VETNet - <https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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Assessment Requirements for NWPTRT046 Operate and control incineration processes

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- identifying control system faults
- making system adjustments
- monitoring and operating equipment and systems for incineration operation
- monitoring, recording and reporting incineration by-products
- performing routine calculations when sampling and monitoring incineration performance
- preparing and applying incineration processes according to workplace procedures
- reporting data outside of specified parameters to relevant personnel
- sampling and testing products

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- components of incineration systems
- composition of incineration end-products including:
 - ash
 - cooling water by-products
 - gaseous emissions
- equipment operation, capacity and limitations
- hazardous materials handling
- lockout procedures for mechanical and electrical installations
- mechanical and electrical control systems
- incineration system layout
- incineration system processes
- relevant legislation, regulations and workplace procedures

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

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NWPTRT047 Monitor, operate and control lagoon processes

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to monitor, operate and control lagoon processes.

It includes measuring and reporting on system performance and process quality control, monitoring and operating wastewater lagoon processes and reporting on system performance.

This unit applies to operational staff with a specific responsibility for wastewater lagoons in treatment plants. Those undertaking this unit would work under appropriate supervision, performing routine tasks within a familiar context.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Treatment

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Prepare for work

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Determine work requirements from job specifications and plans

1.2 Select and check equipment required to meet safety

		requirements of task and worksite
	1.3	Select, fit and use required safety equipment, including personal protective equipment (PPE)
2 Monitor lagoon processes	2.1	Inspect plant according to workplace procedures
	2.2	Collect process samples and conduct standard tests according to workplace procedures
	2.3	Prepare samples for offsite testing
3 Operate and control lagoon processes	3.1	Operate lagoon processes according to workplace procedures
	3.2	Perform adjustments or maintenance to enhance process performance
	3.3	Collect, record and communicate process data
	3.4	Identify and report observations outside defined parameters to relevant personnel for further action

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPTRT101 Operate and control lagoon processes.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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Assessment Requirements for NWPTRT047 Monitor, operate and control lagoon processes

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- collecting and labelling samples
- collecting and recording data
- completing required documentation
- identifying and reporting process faults
- making process adjustments
- monitoring, operating and reporting on lagoon processes
- taking samples and performing onsite tests including:
 - dissolved oxygen
 - pH
 - temperature

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- communication processes
- features and components of wastewater lagoon systems
- flow measurement
- operational problems
- plant layout
- principles of lagoon wastewater treatment
- recirculation principles
- relevant legislation, regulations and workplace procedures
- risk factors and potential hazards relating to wastewater lagoon systems
- types of lagoon processes including:
 - aerated
 - anaerobic
 - facultative

- maturation
- sludge

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPTRT048 Monitor and operate reclaimed water irrigation

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to monitor and operate reclaimed water irrigation.

It includes monitoring sites for irrigation needs, applying reclaimed water for irrigation and determining the quality of reclaimed water and impacts of use. It also includes compiling reclaimed water irrigation records and reporting conditions outside of defined parameters.

This unit applies to staff members with a specific responsibility for applying reclaimed water to a site. Those undertaking this unit would work under appropriate supervision, performing routine tasks in a familiar context, and ensuring minimum damage to the environment.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Treatment

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Prepare to irrigate reclaimed water

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Identify reclaimed water guidelines and apply reclaimed water according to workplace procedures

	1.2	Perform tests on samples of reclaimed water to determine composition and suitability for identified crops
	1.3	Determine volume of reclaimed water to be applied according to crop requirements and watering schedule
	1.4	Identify potential environmental impacts and problems from using reclaimed water
2 Irrigate reclaimed water	2.1	Apply and monitor reclaimed water to an area according to workplace procedures
	2.2	Monitor, operate and maintain irrigation equipment according to manufacturer guidelines and workplace procedures
	2.3	Monitor volume of reclaimed water applied and tailwater or runoff
	2.4	Adjust reclaimed water irrigation application system output to ensure optimal conditions for crops
3 Complete documentation	3.1	Collect, record and report reclaimed water usage according to workplace procedures
	3.2	Identify and report observations outside defined parameters to relevant personnel for further action

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This is a new unit.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPTRT048 Monitor and operate reclaimed water irrigation

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- applying reclaimed water irrigation according to workplace procedures
- monitoring, operating and maintaining equipment and systems for irrigating reclaimed water
- monitoring, recording and reporting reclaimed water usage and runoff volumes
- reporting data outside of specified parameters to relevant personnel
- sampling and testing of reclaimed water and determining composition

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- components of irrigation systems
- composition of reclaimed water and impacts of levels of the following including:
 - algae
 - nutrients
 - other solids
 - pH
 - salt
- crop watering requirements
- impacts of over irrigation including environmental issues
- irrigation systems infrastructure
- potential environmental impacts from using reclaimed water
- principles of irrigation scheduling
- relevant legislation, regulations and workplace procedures
- water recycling guidelines

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training

Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPTRT049 Assess and improve activated sludge and biological nutrient removal processes

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to assess and improve activated sludge and biological nutrient removal (BNR) processes.

It includes assessing, evaluating system performance and investigating and reporting on the optimisation of activated sludge and biological nitrogen or phosphorus removal treatment processes.

This unit applies to those working as technical staff with a specific responsibility for optimising activated sludge and BNR treatment processes. Those undertaking this unit would work autonomously, usually with supervisory responsibilities, while performing complex tasks in a range of contexts.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Treatment

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

PERFORMANCE CRITERIA

Elements describe the essential Performance criteria describe the performance needed to

outcomes.

demonstrate achievement of the element.

1 Evaluate activated sludge and BNR processes	1.1 Review existing process performance data against activated sludge and BNR organisational operating protocol 1.2 Identify the impact of influent quality on activated sludge and BNR treatment processes 1.3 Identify additional sampling and testing required for valid evaluation of current process performance
2 Investigate activated sludge and BNR configuration	2.1 Assess existing effluent quality reports, fault reports and other relevant plant asset information 2.2 Investigate the operational status of plant components with reference to manufacturer and plant design specifications 2.3 Assess the effectiveness of process control strategies 2.4 Identify treatment process conditions for optimising the growth of beneficial microorganisms 2.5 Identify hazards, assess risks and control measures according to workplace procedures 2.6 Identify biological risks and controls
3 Develop and record a plan for process optimisation	3.1 Determine plant configuration or chemical options for process optimisation 3.2 Plan a trial to test the performance of the determined optimisation options 3.3 Compile report with recommendations on optimisation options

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work

environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPTRT084 Assess and improve activated sludge and nutrient removal processes.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPTRT049 Assess and improve activated sludge and biological nutrient removal processes

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- assessing fault reports and investigating the current operational status of activated sludge or biological nutrient removal (BNR) treatment process plant components
- determining data relevance
- identifying a range of wastewater microorganisms, and their general characteristics and types of problems caused
- identifying and responding to risks and hazards
- identifying effluent quality and selecting process control strategies to optimise the growth of beneficial microorganisms
- identifying wastewater characteristics that impact on microorganism growth
- interpreting a range of complex and technical documents including at least one of the following:
 - codes of practice
 - national and industry standards
 - organisational policies
 - regulatory, legislative, licensing and organisational requirements
 - specifications
- investigating and optimising return and wasting rates
- investigating current and potential chemical addition practices
- operating an activated sludge and nutrient removal process
- performing various calculations to provide data for the analysis and development of options and solutions, including at least one of the following:
 - food to microorganism ratio (F:M ratio)
 - sludge age
- planning trials to test the performance of the determined activated sludge or BNR treatment process optimisation options
- preparing reports outlining the optimum treatment for various microorganisms including measures to ensure validity
- reviewing existing activated sludge or BNR treatment process performance with reference to historical data, differences in influent water quality and plant configuration

- selecting measures to optimise the growth of beneficial microorganisms

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and include knowledge of:

- activated sludge and BNR microbiology
- effluent quality and process control strategies
- impact of process variables including:
 - carbon dosing
 - dissolved oxygen
 - mixed liquor suspended solids
 - mixed liquor volatile suspended solids
 - pre-fermentation and readily biodegradable carbon
 - recirculation
 - sludge age
- operational problems caused by wastewater microorganisms
- principles that form the basis of activated sludge treatment processes
- principles that form the basis of BNR-activated sludge treatment processes, including nitrification and de-nitrification, enhanced biological phosphorus removal
- process control strategies
- relevant legislation, industry standards and workplace policies and procedures relating directly to assess activated sludge and BNR microbiology
- risk and hazard management principles
- types of activated sludge and BNR-activated sludge treatment processes including:
 - Anammox and Microbi
 - Nereda
 - Nitrite shunt
- workplace reporting requirements

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPTRT050 Assess and improve anaerobic digestion processes

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to assess and improve anaerobic digestion processes.

It includes evaluating system performance and investigating and reporting on optimisation of anaerobic bioreactor processes.

This unit applies to those working as technical staff with a specific responsibility for optimising mixed, fixed and suspended media anaerobic bioreactor processes in wastewater treatment plants. Those undertaking this unit would work autonomously, usually with supervisory responsibilities, while performing complex tasks in a range of contexts.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Treatment

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Evaluate anaerobic treatment process performance

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Review existing process performance data against organisational operating protocol

	1.2	Identify the impact of incoming feed quality on anaerobic treatment processes
	1.3	Identify any additional sampling and testing required for valid evaluation of current process performance
2 Investigate anaerobic treatment plant configuration	2.1	Assess existing fault reports and other relevant plant asset information
	2.2	Investigate the operational status of plant components with reference to manufacturer or plant design specifications
	2.3	Contribute to plant configuration investigations to identify potential deficiencies
	2.4	Identify hazards, assess risks and control measures according to workplace procedures
3 Investigate the operational options for process optimisation	3.1	Review relevant fault and incident reports and report on effectiveness of remedial action
	3.2	Investigate potential changes to operational processes to identify possible optimisation strategies
4 Develop and record a plan for process optimisation	4.1	Plan a trial to test the performance of the determined optimisation options
	4.2	Compile a report making recommendations on optimisation options

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPTRT093 Assess and improve anaerobic digestion processes.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPTRT050 Assess and improve anaerobic digestion processes

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- assessing fault reports and investigating the current operational status of anaerobic treatment process plant components
- evaluating system performance
- facilitating anaerobic treatment process inspection, sampling and testing and interpreting tests results
- identifying and responding to risks and hazards
- identifying data deficiencies and organising additional data collection through appropriate sampling and testing
- interpreting a range of complex and technical documents including at least one of the following:
 - codes of practice
 - national and industry standards
 - organisational policies
 - regulatory, legislative, licensing and organisational requirements
 - specifications
- investigating current and potential chemical addition practices
- operating an anaerobic treatment process
- performing mathematical calculations to provide data for the analysis and development of options and solutions for at least one of the following:
 - chemical oxygen demand (COD) removal
 - solids retention time
 - volatile solids reductions
- planning trials to test the performance of the determined anaerobic treatment process optimisation options
- preparing reports with recommendations
- reviewing existing anaerobic treatment process performance with reference to historical data, differences in feed water quality and plant configuration

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and include knowledge of:

- anaerobic microbiology
- anaerobic treatment process variations including:
 - anaerobic digesters
 - bulk volume fermenters (BVF)
 - fluidised bed reactors
 - high rate anaerobic lagoons (HRAL)
 - up flow anaerobic sludge blanket reactors (UASB)
- chemical and nutrient dosing processes
- gas production and characterisation including:
 - carbon dioxide
 - hydrogen sulphide
 - methane
 - sulphur dioxide
- inhibitory substances
- macro and micronutrient requirements
- pH range and alkalinity
- principles of anaerobic system maintenance and troubleshooting
- principles of anaerobic treatment processes including:
 - design parameters
 - feed water quality
- relevant legislation, industry standards and workplace policies and procedures
- relevant operational protocols
- risk and hazard management principles relating to anaerobic treatment processes
- sampling and testing requirements
- strategies to evaluate system performance
- system layout
- volatile fatty acids (VFA)/to alkalinity ratio
- workplace data recording and reporting requirements

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so;

where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPTRT057 Assess and improve coagulation and flocculation processes

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to assess and improve coagulation and flocculation processes.

It includes reviewing, coordinating and optimising coagulation and flocculation processes and evaluating and reporting on system performance and process quality control.

This unit applies to those working as technical staff with a responsibility for optimising chemical addition processes in water treatment plants and processes. Those undertaking this unit would work autonomously, usually with supervisory responsibilities, while performing complex tasks in a range of contexts.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Treatment

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

PERFORMANCE CRITERIA

Elements describe the essential outcomes.

Performance criteria describe the performance needed to demonstrate achievement of the element.

1 Evaluate coagulation and flocculation process

1.1 Review existing process performance data against coagulation and flocculation organisational operating

performance	protocol
	1.2 Identify the impact of changing raw water quality on coagulation and flocculation processes
	1.3 Identify any additional sampling and testing required for valid evaluation of current process performance
2 Investigate coagulation and flocculation configuration	2.1 Assess existing fault reports and other plant asset information
	2.2 Investigate the operational status of plant components with reference to manufacturer and plant design specifications
	2.3 Contribute to plant configuration investigations to identify potential operational improvements
	2.4 Identify hazards, assess risks and control measures according to workplace procedures
3 Investigate coagulation and flocculation for process optimisation	3.1 Review current coagulation and flocculation practices with reference to organisational protocol to identify potential deficiencies
	3.2 Investigate dosing options for current chemicals
	3.3 Identify and investigate tests to assess effectiveness of existing or alternative chemicals and related dosing options
4 Develop and record a plan for process optimisation	4.1 Determine plant configuration or chemical options for process optimisation
	4.2 Plan a trial to test the performance of the determined optimisation options
	4.3 Compile report with recommendations on optimisation options

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPTRT011 Assess and improve chemical dosing process.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPTRT057 Assess and improve coagulation and flocculation processes

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- analysing and evaluating reports and reference materials
- analysing problems and recommending appropriate remedial solutions
- assessing effectiveness of treatment chemicals by conducting a range of tests
- assessing fault reports and investigating the current operational status of plant components
- conducting investigations and reporting on operational and control system problems
- identifying and responding to risks and hazards
- identifying data deficiencies and plan additional data collection through appropriate sampling and testing
- identifying opportunities for improved water treatment
- interpreting a range of complex and technical documents including at least one of the following:
 - codes of practice
 - national and industry standards
 - organisational policies
 - regulatory, legislative, licensing and organisational requirements
 - specifications
- investigating chemicals and current and potential coagulation and flocculation practices
- operating a coagulation and flocculation process
- planning trials to test the performance of the determined optimisation options and compiling recommendation reports
- reviewing existing process performance with reference to historical or seasonal data, differences in raw water quality and plant configuration

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and include knowledge of:

- chemical concepts and reactions relevant to coagulation and flocculation processes, including pH and alkalinity

- chemical dosing system layout
- coagulation and flocculation plant and equipment
- dosing pump capacity and calibration chart including:
 - detention times
 - draw down tests
 - mixing intensity for flash or rapid mixing and flocculation
- factors affecting the selection of chemicals in coagulation and flocculation processes
- factors influencing the effectiveness of chemicals in coagulation and flocculation processes
- functions of various chemicals in coagulation and flocculation processes
- identify chemical dosing points
- impacts of incorrect dosing
- range and characteristics of chemicals used in coagulation and flocculation processes
- range of appropriate measuring and testing procedures
- risk and hazard management principles
- safety data sheets, site manifests and dangerous goods handling
- workplace documentation for data and reports

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPTRT058 Assess and improve desalination processes

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to assess and improve desalination processes.

It includes assessing, evaluating system performance, investigating and reporting on the optimisation of desalination processes for water treatment and water recycling.

This unit applies to those working as water treatment operators responsible for water quality in a range of technical and process applications in water and wastewater treatment. Those undertaking this unit would work autonomously, usually with supervisory responsibilities, while performing complex tasks in a range of contexts.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Treatment

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Evaluate desalination processes

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Review existing process performance and maintenance data against relevant organisational and legislative requirements

	1.2	Identify the impact of feed water quality on desalination treatment processes
	1.3	Identify any additional sampling and testing required for valid evaluation of current process performance
2 Investigate desalination process plant configuration	2.1	Review existing fault reports and other relevant plant asset information
	2.2	Investigate the operational status of plant components with reference to manufacturer and plant designer specifications
	2.3	Contribute to plant configuration investigations to identify potential operational improvements
	2.4	Identify hazards, assess risks and control measures according to workplace procedures
3 Investigate options for desalination process optimisation	3.1	Review current desalination processes with reference to organisational procedures protocol to identify potential deficiencies
	3.2	Identify and investigate new or additional chemicals and related dosing options
4 Develop and record a plan for process optimisation	4.1	Plan a trial to test the performance of the determined optimisation options
	4.2	Compile a report making recommendations on optimisation options

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPTRT045 Assess and improve desalination processes.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPTRT058 Assess and improve desalination processes

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- analysing and evaluating reports and reference materials
- analysing problems and recommending appropriate remedial solutions
- assessing effectiveness of treatment chemicals by conducting a range of tests
- assessing fault reports and investigating the current operational status of plant components
- conducting investigations and reporting on operational and control system problems
- identifying and responding to risks and hazards
- identifying data and planning additional data collection through appropriate sampling and testing
- identifying opportunities for improved water treatment
- interpreting a range of complex and technical documents including at least one of the following:
 - codes of practice
 - national and industry standards
 - organisational policies
 - regulatory, legislative, licensing and organisational requirements
 - specifications
- operating a desalination process using at least one of the following:
 - electrodialysis reversal (EDR)
 - reverse osmosis (RO)
 - thermal desalination
- planning trials to test the performance of the determined optimisation options and compiling recommendation reports
- reviewing existing process performance with reference to historical or seasonal data, differences in raw water quality and plant configuration

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the

requirements of the elements and performance criteria and include knowledge of:

- antiscaling
- impact of electrical flow or current and how reversal effects the process
- Langelier saturation index
- log removal value concept
- permeate flux
- principles of desalination treatment processes
- problems for desalination processes caused by chemical and biological contamination
- relevant legislation, industry standards and workplace policies and procedures relating directly to the control and operation of desalination processes
- risk and hazard management principles
- salt passage
- saturation indices used for prediction of scaling formation
- silt and/or fouling indices used for prediction of solids or colloidal fouling
- types and application of chemicals and chemical cleaning methods for desalination processes
- types and characteristics of chemical and microbial contaminants treated through desalination processes
- workplace reporting requirements

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPTRT059 Assess and improve granular media filters

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to assess and improve granular media filters.

It includes evaluating and reporting on system performance and process quality control and may require the control and coordination of granular media filtration processes used in water and wastewater treatment.

This unit applies to those working as technical staff with responsibility for optimising granular media filtration processes in water or wastewater treatment plants. This role may include coordination or supervision of a work team, or may be performed by a single operator, depending on the size of the treatment plant. Those undertaking this unit would work autonomously, usually with supervisory responsibilities, while performing complex tasks within a range of familiar contexts.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Treatment

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1 Assess granular media filtration process performance	1.1 Review existing process performance and maintenance data against relevant organisational and legislative requirements
	1.2 Identify the impact of incoming water quality on granular media filtration processes
	1.3 Identify any additional sampling and testing required for valid evaluation of current process performance
2 Investigate granular media filtration plant or equipment operation	2.1 Review existing fault reports and other relevant plant asset information
	2.2 Investigate the operational status of plant components with reference to manufacturer and plant design specifications
	2.3 Contribute to plant configuration investigations to identify potential operational improvements
	2.4 Identify hazards, assess risks and control measures according to workplace procedures
3 Investigate the operational options for process optimisation	3.1 Review relevant fault and incident reports and remedial actions taken
	3.2 Investigate current media and system status with reference to manufacturer or plant design specifications
	3.3 Investigate potential changes to operational processes to identify possible optimisation strategies
4 Develop and record a plan for process optimisation	4.1 Determine plant configuration or media options and revised operational procedures for process optimisation
	4.2 Plan a trial to test the performance of the determined optimisation options
	4.3 Compile a report making recommendations on optimisation options

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPTRT042 Assess and improve granular media filters.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPTRT059 Assess and improve granular media filters

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- analysing problems and recommending appropriate remedial solutions
- assessing faults and incident reports and investigating the status of filtration plant components and media
- compiling recommendation reports
- conducting system investigation and reporting on operational, maintenance or control system problems
- conducting trend analysis for long-term filter monitoring
- coordinating filter inspection, sampling and testing
- determining filter run and backwash profiles and times
- identifying and responding to risks and hazards
- identifying data deficiencies and organising additional data collection through appropriate sampling and testing
- interpreting a range of complex and technical documents including at least one of the following:
 - codes of practice
 - national and industry standards
 - organisational policies
 - regulatory, legislative, licensing and organisational requirements
 - specifications
- investigating potential changes to filtration operational processes to identify possible optimisation strategies
- operating a granular media process
- performing calculations to provide data for the analysis and development of options and solutions, including backwash rates and filtration rates
- planning trials to test the performance of the determined filtration optimisation options
- reviewing existing filtration process performance with reference to historical data, initial specifications and differences in incoming water quality and plant configuration

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and include knowledge of:

- backwash principles and optimisation
- filter inspection and sampling
- filter media properties and selection
- filter ripening and turbidity breakthrough
- filter run profiles
- filter to waste
- granular media filtration process principles
- principles of filter maintenance including:
 - caustic washing
 - double backwashes
 - filter cleaning
 - lancing
 - surface cleaning
- range and performance of filter aids
- range of appropriate measuring and testing procedures
- relevant legislation, industry standards and workplace policies and procedures relating directly to the control and operation of granular media filters
- risk and hazard management principles
- types of filters and their range of applications, conditions for use and manufacturer requirements
- workplace records and reports

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace

procedures and operation manuals.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPTRT060 Assess and improve membrane bioreactor processes

Modification History

Release 1. This is the first release of this unit of competency in the NWP - National Water Training Package.

Application

This unit involves the skills and knowledge required to assess and improve membrane bioreactor (MBR) processes.

It includes evaluating MBR process performance, investigating MBR plant configuration and options for process optimisation. It also includes developing and recording a plan for process optimisation.

This unit applies to workers responsible for operating an MBR plant ensuring system operations are coordinated and monitored to ensure compliance with organisational and statutory requirements. Those undertaking this unit would work autonomously, usually with supervisory responsibilities, while performing complex tasks in a range of contexts.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Treatment

Unit Sector

Not applicable.

Elements and Performance Criteria

PERFORMANCE CRITERIA	
Elements describe the essential outcomes.	Performance criteria describe the performance needed to demonstrate achievement of the element.
1 Evaluate membrane bioreactor processes	1.1 Review existing process performance and maintenance data against relevant organisational and legislative

	requirements
	1.2 Identify the impact of changing influent water quality on membrane processes
	1.3 Identify any additional sampling and testing required for valid evaluation of current process performance
	1.4 Identify the impact of mixed liquor on membrane processes
2 Investigate membrane bioreactor plant configuration	2.1 Review existing fault reports and other plant asset information
	2.2 Investigate the operational status of plant components with reference to manufacturer and plant design specifications
	2.3 Contribute to plant configuration investigations to identify potential operational improvements
	2.4 Identify hazards, assess risks and control measures according to workplace procedures
3 Investigate options for membrane process optimisation	3.1 Review current membrane processes with reference to organisational protocol to identify potential deficiencies
	3.2 Identify and investigate new or additional chemicals and related dosing options
4 Develop and record a plan for process optimisation	4.1 Plan a trial to test the performance of the determined optimisation options
	4.2 Compile report with recommendations on optimisation options

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the NWP - National Water Training Package Companion Volume Implementation Guide.

Unit Mapping Information

This is a new unit. No equivalent unit.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPTRT060 Assess and improve membrane bioreactor processes

Modification History

Release 1. This is the first release of this unit of competency in the NWP - National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and include:

- analysing problems and recommending appropriate remedial solutions
- assessing effectiveness of treatment chemicals by conducting a range of tests
- assessing fault reports and investigating the current operational status of membrane bioreactor (MBR) components
- conducting investigations and reporting on operational and control system problems
- identifying and responding to risks and hazards
- identifying data and planning additional data collection through appropriate sampling and testing
- identifying impacts of mixed liquor on membrane processes
- interpreting a range of complex and technical documents including at least one of the following:
 - codes of practice
 - national and industry standards
 - organisational policies
 - regulatory, legislative, licensing and organisational requirements
 - specifications
- operating a MBR process
- planning trials to test the performance of the determined optimisation options and compiling recommendation reports
- reviewing existing process performance with reference to historical or seasonal data, differences in influent water quality and flow and plant configuration

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and include knowledge of:

- activated sludge processes relevant to MBRs
- effluent water quality
- factors affecting the selection of chemicals in membrane cleaning in place (CIP) processes

- MBR system layout
- membrane cleaning methods
- membrane performance concepts
- membrane plant and equipment
- preservation of membranes
- range and characteristics of operational performance measures
- range of appropriate measuring and testing procedures
- relevant legislation, industry standards and workplace policies and procedures
- risk and hazard management principles
- safety data sheets, site manifests and dangerous goods handling
- strategies to evaluate process performance and maintenance data
- workplace data recording and reporting requirements

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPTRT063 Assess and improve membrane filters

Modification History

Release 1. This is the first release of this unit of competency in the NWP - National Water Training Package.

Application

This unit involves the skills and knowledge required to assess and improve membrane filters.

It includes evaluating membrane filter process performance, investigating membrane filter plant configuration and options for process optimisation. It also includes developing and recording a plan for process optimisation.

This unit applies to those working as technical staff with a responsibility for optimising chemical addition processes in water treatment plants and processes. Those undertaking this unit would work autonomously, usually with supervisory responsibilities, while performing complex tasks in a range of contexts.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Treatment

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

PERFORMANCE CRITERIA

Elements describe the essential outcomes.

Performance criteria describe the performance needed to demonstrate achievement of the element.

1 Evaluate membrane filter processes

- 1.1** Review existing process performance and maintenance data against relevant organisational and legislative requirements

	1.2	Identify the impact of changing raw or influent water quality on membrane processes
	1.3	Identify any additional sampling and testing required for valid evaluation of current process performance
2 Investigate membrane filter plant configuration	2.1	Review existing fault reports and other plant asset information
	2.2	Investigate the operational status of plant components with reference to manufacturer and plant design specifications
	2.3	Contribute to plant configuration investigations to identify potential operational improvements
	2.4	Identify hazards, assess risks and control measures according to workplace procedures
3 Investigate options for membrane process optimisation	3.1	Review current membrane processes with reference to organisational protocol to identify potential deficiencies
	3.2	Identify and investigate new or additional chemicals and related dosing options
4 Develop and record a plan for process optimisation	4.1	Plan a trial to test the performance of the determined optimisation options
	4.2	Compile report with recommendations on optimisation options

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the NWP - National Water Training Package Companion Volume Implementation Guide.

Unit Mapping Information

This is a new unit. No equivalent unit.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPTRT063 Assess and improve membrane filters

Modification History

Release 1. This is the first release of this unit of competency in the NWP - National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and include:

- analysing and evaluating reports and reference materials
- analysing problems and recommending appropriate remedial solutions
- assessing effectiveness of treatment chemicals by conducting a range of tests
- assessing fault reports and investigating the current operational status of plant components
- conducting investigations and reporting on operational and control system problems
- identifying and responding to risks and hazards
- identifying data and planning additional data collection through appropriate sampling and testing
- identifying opportunities for improved water treatment
- interpreting a range of complex and technical documents including at least one of the following:
 - codes of practice
 - national and industry standards
 - organisational policies
 - regulatory, legislative, licensing and organisational requirements
 - specifications
- operating a membrane process using at least one of the following:
 - microfiltration
 - nanofiltration
 - ultrafiltration
- planning trials to test the performance of the determined optimisation options and compiling recommendation reports
- reviewing existing process performance with reference to historical or seasonal data, differences in raw water quality and plant configuration

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the

requirements of the elements and performance criteria and include knowledge of:

- factors affecting the selection of chemicals in membrane filtration processes
- impacts of incorrect dosing
- membrane filtration concepts
- membrane filtration system layout
- membrane plant and equipment
- preservation of membranes
- range and characteristics of operational performance measures
- range of appropriate measuring and testing procedures
- relevant legislation, industry standards and workplace policies and procedures
- risk and hazard management principles
- safety data sheets, site manifests and dangerous goods handling
- workplace reporting requirements

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPTRT064 Assess and improve sedimentation processes

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to assess and improve sedimentation processes.

It includes evaluating system performance and investigating and reporting on the optimisation of sedimentation and clarification processes.

This unit applies to those working as technical staff with responsibility for optimising sedimentation and clarification processes in water and wastewater treatment plants. Those undertaking this unit would work autonomously, usually with supervisory responsibilities, while performing complex tasks in a range of contexts.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Treatment

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Assess sedimentation and clarification process performance

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Review existing process performance data against organisational operating protocol

	1.2	Identify the impact of changing incoming water quality on sedimentation and clarification processes in a range of conditions
	1.3	Identify any additional sampling and testing required for valid evaluation of current process performance
2 Investigate sedimentation and clarification assets	2.1	Review existing fault reports and other plant asset information
	2.2	Investigate the operational status of plant components with reference to manufacturer and plant design specifications
	2.3	Conduct investigations to identify potential deficiencies in asset performance
	2.4	Identify hazards, assess risks and control measures according to workplace procedures
3 Investigate process optimisation	3.1	Review relevant fault and incident reports and remedial actions taken
	3.2	Investigate potential changes to operational processes to identify possible optimisation strategies
4 Plan process optimisation	4.1	Determine plant configuration and revised operational processes for process optimisation
	4.2	Plan a trial to test the performance of the determined optimisation options
	4.3	Compile a report making recommendations on optimisation options

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPTRT032 Assess and improve sedimentation processes.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPTRT064 Assess and improve sedimentation processes

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- assessing fault reports and investigating the current operational status of sedimentation and clarification plant components
- conducting investigations and reporting on operational or control system problems including sedimentation and clarification inspection, sampling and testing
- identifying and responding to risks and hazards
- identifying data deficiencies and organising additional data collection through appropriate sampling and testing
- interpreting a range of complex and technical documents including at least one of the following:
 - codes of practice
 - national and industry standards
 - organisational policies
 - regulatory, legislative, licensing and organisational requirements
 - specifications
- investigating current and potential chemical addition practices
- operating a sedimentation process
- performing calculations to provide data for the analysis and development of options and solutions, including at least one of:
 - detention time
 - surface loading rate
 - upflow velocity
 - weir loading rate
- planning trials to test the performance of the determined sedimentation and clarification optimisation options and compiling recommendation reports
- reviewing existing sedimentation and clarification process performance with reference to historical data, differences in incoming water quality and plant configuration

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and include knowledge of:

- investigation procedures
- polymers and weighting agent characteristics and applications
- principles of sedimentation and clarification processes and asset operation
- range of appropriate measuring and testing procedures
- re-establishing and maintaining sludge blankets
- relevant legislation, industry standards and workplace policies and procedures relating to the assessment and improvement of sedimentation processes
- risk and hazard management principles relating to sedimentation and clarification systems
- system layout
- types of sedimentation and clarification processes
- workplace reporting requirements

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPTRT065 Assess and improve treatment for removal of microorganisms in drinking water and recycled water

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to assess and improve treatment for removal of microorganisms in drinking water and recycled water.

It includes identifying microorganisms and assessing the appropriate drinking water or recycled water treatment processes for inactivation or removal.

This unit applies to those working as water treatment operators responsible for water quality in a range of technical and process applications in drinking water and recycled water treatment. Those undertaking this unit would work autonomously, usually with supervisory responsibilities, while performing complex tasks in a range of contexts.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Treatment

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Assess performance of processes to remove or

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Identify microorganisms in water source to assess

inactivate microorganisms	potential operational impacts
	1.2 Review existing process performance data according to regulatory or workplace requirements
	1.3 Review existing operational processes with reference to manufacturer and plant design specifications
	1.4 Identify the impact of raw water quality on treatment effectiveness for microorganism removal
	1.5 Identify and respond to faults and other relevant plant asset performance information according to workplace procedures
	1.6 Monitor the operational status of plant components and maintenance schedule
	1.7 Investigate the cause of treated water quality issues relating to microorganisms
	1.8 Assess the effectiveness of process control strategies for microorganism removal or inactivation
2 Improve process performance for removal of microorganisms	2.1 Identify treatment process conditions for optimising microorganism removal
	2.2 Determine plant configuration and revised operational processes for process optimisation
	2.3 Plan a trial to test the performance of the determined optimisation options
	2.4 Identify hazards, assess risks and control measures according to workplace procedures
3 Report on system performance and improvement	3.1 Report on the current operational status of the water treatment process according to workplace procedures
	3.2 Report on effective treatment processes and associated sampling and testing procedures to maintain water quality
	3.3 Compile a report making recommendations on optimisation options

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPTRT051 Assess and improve treatment for pathogen removal.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPTRT065 Assess and improve treatment for removal of microorganisms in drinking water and recycled water

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- analysing general characteristics caused by waterborne microorganisms
- analysing types of problems caused by waterborne microorganisms
- assessing and recommending water or re-use treatment processes for physically removing or deactivating pathogenic microorganisms
- assessing causes of nuisance and toxicity problems
- assessing fault reports and investigating current operational status of processes for microorganism removal
- assessing process performance and applying process adjustments according to workplace procedures
- identifying a range of waterborne microorganisms
- identifying and responding to risks and hazards
- identifying data deficiencies and additional data collection through sampling and testing
- identifying pathogenic microorganisms and the diseases they cause
- interpreting a range of complex and technical documents including at least one of the following:
 - codes of practice
 - national and industry standards
 - organisational policies
 - regulatory, legislative, licensing and organisational requirements
 - specifications
- optimising the treatment process to mitigate at least one of the following impacts of microorganisms including:
 - algal toxins
 - disinfection by-products
 - pathogens
 - regrowth, nitrification and disinfection failure
 - taste and odour compounds

- planning trials to test the performance of the treatment optimisation options for microorganism removal
- preparing recommendation reports
- preparing reports on the optimum treatment for a range of microorganisms
- reviewing existing process barrier performance with reference to historical data, differences in raw water quality and plant configuration
- selecting pre- or post-treatment processes for removing the causes of nuisance and toxicity problems

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and include knowledge of:

- Ct concept for disinfection (concentration of disinfectant x time of contact)
- log removal value concept for physical barriers
- nuisance problems caused by waterborne microorganisms
- principles of water or re-use treatment processes
- properties and modes of action for physical barriers
- properties and modes of action of disinfectants
- raw water sources and composition
- relevant legislation, industry standards and workplace policies and procedures relating directly to the control and treatment of waterborne microorganisms
- risk and hazard management principles
- toxicity and pathogenic problems caused by waterborne microorganisms types, lifecycle and characteristics of waterborne microorganisms
- workplace reporting requirements

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry

- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPTRT066 Assess and improve wastewater processes to control microbial impacts

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to assess and improve wastewater processes to control microbial impacts.

It includes identifying wastewater microorganisms and selecting appropriate measures to optimise the growth of beneficial microorganisms.

This unit applies to those working as wastewater treatment operational specialists. Those undertaking this unit would work autonomously, usually with supervisory responsibilities, while performing complex tasks in a range of contexts.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Treatment

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Investigate wastewater microorganisms

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Identify a range of typical wastewater microorganisms

	1.2	Identify the general characteristics of different types of microorganisms
	1.3	Identify wastewater characteristics that impact on microorganism growth
	1.4	Identify the problems caused by microorganisms in specific wastewater treatment processes
2	Select strategies to optimise the growth of beneficial microorganisms	
	2.1	Investigate the cause of effluent quality issues
	2.2	Investigate the operational status of the wastewater treatment process
	2.3	Assess the effectiveness of various process control strategies to optimise the growth of beneficial microorganisms
	2.4	Identify hazards, assess risks and control measures according to workplace procedures
3	Identify and report on appropriate process controls	
	3.1	Identify treatment process conditions for optimising the growth of beneficial microorganisms
	3.2	Compile report with recommendations for optimising the growth of beneficial microorganisms

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to NWPTRT085 Assess and improve wastewater processes

and microbial impacts.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPTRT066 Assess and improve wastewater processes to control microbial impacts

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- compiling reports with recommendations for optimising the growth of beneficial microorganisms
- identifying a range of beneficial wastewater microorganisms
- identifying a range of wastewater microorganisms and their general characteristics and types of problems caused
- identifying and responding to risks and hazards associated with wastewater microorganisms
- identifying and selecting strategies for optimising the beneficial growth of microorganisms
- interpreting a range of complex and technical documents including at least one of the following:
 - codes of practice
 - national and industry standards
 - organisational policies
 - regulatory, legislative, licensing and organisational requirements
 - specifications
- investigating causes of effluent quality issues

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and include knowledge of:

- effluent quality problems caused by wastewater microorganisms
- operational problems caused by wastewater microorganisms
- principles of maintaining beneficial organisms in wastewater treatment processes
- relevant legislation, industry standards and workplace policies and procedures
- risk and hazard management principles
- types and applications of chemical additives
- types, lifecycle, characteristics of wastewater microorganisms
- workplace reporting requirements

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPTRT067 Assess and optimise chemical dosing processes in wastewater

Modification History

Release 1. This is the first release of this unit of competency in the NWP - National Water Training Package.

Application

This unit involves the skills and knowledge required to assess and improve chemical dosing processes in wastewater.

It includes reviewing, facilitating and optimising chemical addition processes and evaluating and reporting on system performance and process quality control.

This unit applies to those working as technical staff with a responsibility for optimising chemical addition processes in wastewater treatment. Those undertaking this unit would work autonomously, usually with supervisory responsibilities, while performing complex tasks in a range of contexts.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Treatment

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Evaluate chemical addition process

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Review existing process performance data against

performance	organisational operating protocol
	1.2 Identify the impact of changing feed characteristics on chemical addition processes
	1.3 Identify any additional sampling and testing required for valid evaluation of current process performance
2 Investigate chemical addition plant configuration	2.1 Assess existing fault reports and other plant asset information
	2.2 Investigate the operational status of plant components with reference to manufacturer and plant design specifications
	2.3 Contribute to plant configuration investigations to identify potential deficiencies
	2.4 Identify hazards, assess risks and control measures according to workplace procedures
3 Investigate chemical options for process optimisation	3.1 Review current chemical addition practices with reference to organisational protocol to identify potential deficiencies
	3.2 Investigate dosing options for current chemicals
	3.3 Identify and investigate tests to assess effectiveness of existing or alternative chemicals and related dosing options
4 Develop and record a plan for process optimisation	4.1 Determine plant configuration or chemical options for process optimisation
	4.2 Plan a trial to test the performance of the determined optimisation options
	4.3 Compile report with recommendations on optimisation options

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the NWP - National Water Training Package Companion Volume Implementation Guide.

Unit Mapping Information

This is a new unit. No equivalent unit.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPTRT067 Assess and optimise chemical dosing processes in wastewater

Modification History

Release 1. This is the first release of this unit of competency in the NWP - National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and include:

- analysing and evaluating reports and reference materials
- analysing problems and recommending appropriate remedial solutions
- assessing effectiveness of treatment chemicals by conducting a range of tests
- assessing fault reports and investigating the current operational status of plant components
- conducting investigations and reporting on operational and control system problems
- identifying and responding to risks and hazards
- identifying data deficiencies and plan additional data collection through appropriate sampling and testing
- identifying opportunities for improved treatment
- interpreting a range of complex and technical documents including at least one of the following:
 - codes of practice
 - national and industry standards
 - organisational policies
 - regulatory, legislative, licensing and organisational requirements
 - specifications
- investigating chemicals and current and potential chemical addition practices
- operating a chemical dosing process
- planning trials to test the performance of the determined optimisation options and compiling recommendation reports
- reviewing existing process performance with reference to historical or seasonal data, differences in influent characteristics and process configuration

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and include knowledge of:

- chemical addition plant and equipment

- chemical concepts and reactions relevant to chemical addition processes
- chemical dosing system layout
- dosing pump capacity and calibration chart including:
 - detention times
 - draw down tests
 - mixing intensity
- factors affecting the selection of chemicals in chemical addition processes
- factors influencing the effectiveness of chemicals in chemical addition processes
- functions of various chemicals in chemical addition processes
- identify chemical dosing points
- impacts of incorrect dosing
- interpreting a range of complex and technical documents including:
 - codes and standards
 - organisational policies
 - regulatory, legislative, licensing and organisational requirements
 - specifications
- range and characteristics of chemicals used in chemical addition processes
- range of appropriate measuring and testing procedures
- relevant legislation, industry standards and workplace policies and procedures
- risk and hazard management principles relating to chemical dosing processes including safety data sheets, site manifests and dangerous goods handling
- workplace reporting requirements

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

AHCBUS504 Prepare estimates, quotes and tenders

Modification History

Release	TP Version	Comment
1	AHCv1.0	Initial release

Application

This unit of competency describes the skills and knowledge required to prepare estimates, quote and tenders.

All work must be carried out to comply with organisational requirements, work health and safety legislation and codes and in consultation with the management team.

This unit applies to individuals who take personal responsibility and exercise autonomy in undertaking complex work. They must analyse information and exercise judgement to complete a range of advanced skilled activities.

No occupational licensing, legislative or certification requirements are known to apply to this unit at the time of publication.

Pre-requisite Unit

Nil.

Unit Sector

Business (BUS)

Elements and Performance Criteria

Element	Performance criteria
Elements describe the essential outcomes.	Performance criteria describe the performance needed to demonstrate achievement of the element.
1. Carry out preliminary planning activities for	1.1 Identify nature and scope of the project in consultation with the

Element	Performance criteria
estimating, quoting and tendering	client 1.2 Confirm format, specifications and deadline for submission with the client 1.3 Interpret available relevant documentation 1.4 Inspect project site and reconcile with scaled drawings, project and other site plans
2. Determine resource requirements	2.1 Interpret and record detailed project information and financial requirements from client specifications 2.2 Identify and estimate size, type and quantity of required project resources 2.3 Identify and evaluate sources for the procurement of suitable project resources 2.4 Calculate the size, type and quantity of resource items 2.5 Calculate and document unit and total cost for resource items 2.6 Determine and document contingencies 2.7 Record calculations on a price summary sheet
3. Prepare schedules for the estimate, quote or tender	3.1 Document works schedule according to client specifications 3.2 Document scheduling of resources consistent with the requirements of the works schedule 3.3 Document scheduling of financial requirements
4. Prepare and document the estimate, quote or tender for submission to the client	4.1 Calculate and check estimate, quote or tender price 4.2 Compile costed summaries and works, resource and financial schedules 4.3 Adhere to quality assurance requirements, enterprise customer service procedures, conventional formatting and industry standards in the development of documentation 4.4 Complete and submit total estimate, quotation or tender by the specified date 4.5 Provide further information and make adjustments according to client requirements

Foundation Skills

Foundation Skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Unit Mapping Information

This unit is equivalent to AHCBUS504A Prepare estimates, quotes and tenders.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=c6399549-9c62-4a5e-bf1a-524b2322cf72>

Assessment Requirements for AHCBUS504 Prepare estimates, quotes and tenders

Modification History

Release	TP Version	Comment
1	AHCv1.0	Initial release

Performance Evidence

The candidate must be assessed on their ability to integrate and apply the performance requirements of this unit in a workplace setting. Performance must be demonstrated consistently over time and in a suitable range of contexts.

The candidate must provide evidence that they can:

- research the details of the quoted service and clarify with the client
- identify requirements for estimate, quote or tender including format, specifications and deadline for submission
- identify and cost the resources and services required to fulfil the tender and check for availability
- investigate options for supplies, services, contractors and consultants with current pricing structures and availability
- develop a work schedule with timelines and expenditure
- consider potential problems and risks and develop contingency plans
- develop detailed costing sheets with the final quoted cost, including an estimated margin for risk
- submit the completed tender to the client with supporting information including details of organisations previous work and client feedback
- seek feedback from the client to ensure information supplied is sufficient.

Knowledge Evidence

The candidate must demonstrate knowledge of:

- relevant State and Federal legislation, awards, enterprise agreements and management policies relating to labour hire and employment terms
- current pricing structures and options for supplies, services, contractors and consultants
- enterprise and industry standards and practices for formatting, organising and presenting financial and quantitative information
- business ethics in relation to confidentiality and the tendering process.

Assessment Conditions

Competency is to be assessed in the workplace or simulated environment that accurately reflects performance in a real workplace setting.

Assessors must satisfy current standards for RTOs.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=c6399549-9c62-4a5e-bf1a-524b2322cf72>

AHCCHM101 Follow basic chemical safety rules

Modification History

Release	Comments
Release 2	This version released with AHC Agriculture, Horticulture and Conservation and Land Management Training Package Version 3.0.
Release 1	This version released with AHC Agriculture, Horticulture and Conservation and Land Management Training Package Version 1.0.

Application

This unit of competency describes the skills and knowledge required to follow instructions and direction for safe handling, storage and use of chemicals.

The unit applies to individuals who undertake a range of defined routine activities alongside a supervisor in most situations. They exercise limited autonomy within established and well-known parameters and identify and seek help for simple problems.

No occupational licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Nil

Unit Sector

Chemicals (CHM)

Elements and Performance Criteria

Elements	Performance Criteria
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Prepare to work with chemicals	1.1 Confirm the activity to be undertaken with supervisor 1.2 Confirm tools and equipment to be used with supervisor 1.3 Use appropriate personal protective equipment (PPE) and ensure

Elements	Performance Criteria
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
	correct fit as directed by supervisor 1.4 Identify functions of chemicals in the workplace
2. Identify risks associated with chemicals	2.1 Identify and interpret chemical labels, safety signs, symbols and safety data sheets according to supervisors' instructions 2.2 Identify health and safety hazards and risks in the workplace and report to supervisor 2.3 Control risks as directed
3. Follow chemical handling and storage rules	3.1 Identify and locate chemical store 3.2 Interpret and follow safe chemical handling, transport, and storage according to product label and supervisor instructions 3.3 Observe instructions for maintenance and storage of PPE and application equipment 3.4 Follow safety rules when working in areas where chemicals are stored 3.5 Identify emergency procedures to follow in the event of an accident or spillage 3.6 Record information as directed by supervisor

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential for performance in this unit of competency but are not explicit in the performance criteria.

Skill	Description
Reading	Interpret chemical labels, instructions and information
Oral Communication	Use clear language and concepts, tone and pace appropriate when communicating with supervisor
Navigate the world of work	Recognises organisational expectations and follows explicit instructions, protocols and procedures when working with chemicals
Get the work done	Follow clearly defined instructions and sequencing, and monitors own progress for the task, seeks assistance when necessary

Unit Mapping Information

Code and title current version	Code and title previous version	Comments	Equivalence status
AHCCHM101 Follow basic chemical safety rules Release 2	AHCCHM101 Follow basic chemical safety rules Release 1	Minor changes to Performance Criteria for clarity Updated Performance Evidence and Knowledge Evidence	Equivalent unit

Links

Companion Volumes, including Implementation Guides, are available at VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=c6399549-9c62-4a5e-bf1a-524b2322cf72>

Assessment Requirements for AHCCHM101 Follow basic chemical safety rules

Modification History

Release	Comments
Release 2	This version released with AHC Agriculture, Horticulture and Conservation and Land Management Training Package Version 3.0.
Release 1	This version released with AHC Agriculture, Horticulture and Conservation and Land Management Training Package Version 1.0.

Performance Evidence

An individual demonstrating competency must satisfy all of the elements and performance criteria in this unit. There must be evidence that on at least one occasion the individual has demonstrated that they have followed basic rules relevant to chemical safety, including:

- confirmed work requirements and equipment for chemical use with supervisor
- located and followed information on chemical labels and relevant safety data sheets according to supervisors' instructions
- recognised the use of chemicals and complied with chemical safety signs and symbols in the workplace
- recognised chemical hazards and risks and reported to supervisor and applied risk controls
- used, maintained and stored personal protective equipment (PPE)
- maintained and stored chemical application equipment according to supervisors' instructions
- located chemical store, handled, transported, stored and worked with chemicals according to supervisors' instructions
- followed emergency procedures for accidents or chemical spillage and reported to supervisor
- maintained records according to supervisor instructions.

Knowledge Evidence

An individual must be able to demonstrate the knowledge required to perform the tasks outlined in the elements and performance criteria of this unit. This includes knowledge of:

- rules and instructions for working with and around chemicals
- common types of chemicals used in the workplace
- common types of chemical application equipment to be maintained and stored
- the structure and purpose of chemical labels and safety data sheets

- basics of hazards and risks of chemical use
- safety signage and symbols for chemical use in the workplace
- level of hazard and risks associated with common chemicals used in the workplace and methods of control
- PPE, when and how it should be worn, stored and maintained
- methods of reporting to supervisors' chemical hazards and risks
- safe methods of transporting, handling and storage of chemicals
- types of emergencies and the procedures for accidents and spills of chemicals
- records commonly kept for chemical use.

Assessment Conditions

Assessment of skills must take place under the following conditions:

- physical conditions:
 - skills must be demonstrated in a typical workplace environment or an environment that accurately represents workplace conditions
 - access to chemicals and chemical store
- resources, equipment and materials:
 - PPE
- specifications:
 - workplace instructions and procedures
 - chemical safety data sheets
 - common chemical labels
- relationships:
 - supervisor.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

Links

Companion Volumes, including Implementation Guides, are available at VETNet - <https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=c6399549-9c62-4a5e-bf1a-524b2322cf72>

AHCLPW306 Undertake sampling and testing of water

Modification History

Release Number	TP Version	Comments
1	AHCv1.0	Initial release

Application

This unit of competency describes the skills and knowledge required to plan and carry out sampling and testing of water quality as part of a monitoring program.

This unit applies to individuals who work under broad direction and use discretion and judgement in the selection and use of available resources.

No occupational licensing, legislative or certification requirements are known to apply to this unit at the time of publication.

Pre-requisite Unit

Nil.

Unit Sector

Lands, Parks and Wildlife (LPW)

Elements and Performance Criteria

Element	Performance criteria
Elements describe the essential outcomes.	Performance criteria describe the performance needed to demonstrate achievement of the element.
1. Plan for sampling and testing field work	1.1 Confirm monitoring schedule 1.2 Identify water quality and environmental parameters 1.3 Identify samples to be collected 1.4 Determine and arrange equipment requirements for water sampling and testing 1.5 Assess range of likely operating conditions, hazards and difficult

Element	Performance criteria
	or sensitive environments for impact on sampling and testing
2. Prepare equipment and resources	2.1 Obtain equipment required for sampling and testing 2.2 Check and calibrate equipment for availability and serviceability 2.3 Verify correct and accurate performance of equipment 2.4 Repair and maintain field-based equipment and instruments 2.5 Collect data or record sheets for use 2.6 Install and protect equipment 2.7 Brief staff undertaking sampling and testing on responsibilities
3. Carry out sampling and testing of water	3.1 Undertake tests in accordance with monitoring plan 3.2 Take and test samples in accordance with monitoring standards 3.3 Prepare, package and send samples to laboratory for external analysis 3.4 Make specific and general observations including information on relevant ambient and antecedent environmental conditions 3.5 Inform appropriate person of obvious water quality or environmental issues immediately
4. Complete water sampling and testing activities	4.1 Clean, repair and store equipment and clothing 4.2 Repair damaged or malfunctioning equipment on site or send to manufacturer or specialist 4.3 Record test results and observations on data sheets 4.4 Report changes in field conditions and equipment

Foundation Skills

Foundation Skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Unit Mapping Information

This unit is equivalent to AHCLPW306A Undertake sampling and testing of water.

Links

Companion Volume implementation guides are found in VETNet - <https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=c6399549-9c62-4a5e-bf1a-524b2322cf72>

Assessment Requirements for AHCLPW306 Undertake sampling and testing of water

Modification History

Release Number	TP Version	Comments
1	AHCv1.0	Initial release

Performance Evidence

The candidate must be assessed on their ability to integrate and apply the performance requirements of this unit in a workplace setting. Performance must be demonstrated consistently over time and in a suitable range of contexts.

The candidate must provide evidence that they can:

- plan a water sampling program under direction according to regulatory and organisation requirements
- test and calibrate equipment according to regulatory and organisation requirements
- sample and test water according to regulatory and organisation requirements
- record results on data sheets
- record and report water testing results to organisational standards
- report obvious water quality issues observed during sampling to supervisor or manager immediately
- apply work health and safety practices in the context of own work

Knowledge Evidence

The candidate must demonstrate knowledge of:

- water monitoring schedules and guidelines
- standards for water quality
- sampling and testing methods

Assessment Conditions

Assessors must satisfy current standards for RTOs.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=c6399549-9c62-4a5e-bf1a-524b2322cf72>

AHCLPW306A Undertake sampling and testing of water

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit covers the process of sampling and testing water quality as part of a monitoring program and defines the standard required to: plan a water sampling program under direction; test and correlate equipment; sample and test water; record results on data sheets.

Application of the Unit

Application of the unit	This unit relates to undertaking sampling and testing of water and is likely to be under limited supervision from others with checking only related to overall progress. Sampling and testing water quality requires knowledge of monitoring schedules, hydrological cycle, water quality determinations and standards, principles of water quality control, sampling and testing methods and groundwater salinity.

Licensing/Regulatory Information

Not Applicable

Pre-Requisites

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Not Applicable

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Plan for sampling and testing field work	1.1. Monitoring schedule is read/heard and confirmed with manager. 1.2. Advanced water quality and environmental parameters are identified. 1.3. Samples to be collected to determine water quality and environmental parameters are identified by supervisory staff. 1.4. Equipment requirements for water sampling and testing are determined and arranged. 1.5. Range of likely operating conditions, hazards and difficult/sensitive environments are assessed for impact on sampling and testing.
2. Prepare equipment and resources	2.1. Equipment required for sampling and testing is sourced according to monitoring procedures. 2.2. Equipment is checked for availability and serviceability in accordance with enterprise procedures. 2.3. Testing and correlation is carried out to verify correct and accurate performance of equipment. 2.4. Repairs and maintenance of field-based equipment and instruments are carried out in accordance with enterprise procedures and manufacturer's instructions. 2.5. Data or record sheets/books are collected for use. 2.6. Equipment, data sheets and personnel are moved to

ELEMENT	PERFORMANCE CRITERIA
	sampling sites without injury or damage and readied for use. 2.7. Equipment is installed and protected according to manufacturer's specifications, safety and enterprise requirements. 2.8. Staff undertaking sampling and testing are briefed on and are aware of responsibilities in accordance with monitoring schedule. 2.9. Testing equipment is confirmed and serviceable for monitoring procedures in field conditions to enterprise and manufacturers' requirements.
3. Carry out sampling and testing of water	3.1. Tests are undertaken in accordance with monitoring plan and enterprise procedures to avoid erroneous readings. 3.2. Samples are taken and tested in accordance with monitoring standards and guidelines. 3.3. Samples for external analysis are prepared, packaged and sent to laboratory in accordance with monitoring schedule and laboratory standards. 3.4. Specific and general observations including information on relevant ambient and antecedent environmental conditions are made in accordance with monitoring schedule. 3.5. Personnel undertaking sampling and testing tasks are supervised and feedback given on work performance. 3.6. Equipment operation and work practices conform to OHS requirements.
4. Complete water sampling and testing activities	4.1. Equipment and clothing is cleaned, sanitised, repaired and stored in accordance with enterprise procedures. 4.2. Damaged or malfunctioning equipment is repaired on site or sent to manufacturer or specialist. 4.3. Test results and observations are accurately recorded on data sheets and forwarded in accordance with enterprise procedures. 4.4. Changes in field conditions and equipment are conveyed to supervisor according to enterprise procedures.

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- plan for sampling and testing
- prepare equipment and resources
- carry out sampling and testing
- complete water sampling and testing activities
- use literacy skills to read, interpret and follow organisational policies and procedures, follow sequenced written instructions, record accurately and legible information collected and select and apply procedures for a range of tasks
- use oral communication skills/language competence to fulfil the job role as specified by the organisation, including questioning techniques, active listening, clarifying information and consulting with supervisors as required
- use numeracy skills to estimate, calculate and record routine workplace measures
- use interpersonal skills to work with and relate to people from a range of cultural, social and religious backgrounds and with a range of physical and mental abilities.

Required knowledge

- hydrological cycle
- water monitoring schedules and guidelines
- standards for water quality
- sampling and testing methods
- groundwater contamination evaluation
- sources of groundwater contamination
- groundwater salinity - mechanisms, occurrence and management
- irrigation induced salinity, mechanisms and management.

Evidence Guide

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment

Critical aspects for assessment and

The evidence required to demonstrate competency in this

EVIDENCE GUIDE	
evidence required to demonstrate competency in this unit	unit must be relevant to workplace operations and satisfy holistically all of the requirements of the performance criteria and required skills and knowledge and include achievement of the following: • plan a water sampling program under direction • test and correlate equipment • sample and test water • record results on data sheets.
Context of and specific resources for assessment	Competency requires the application of work practices under work conditions. Selection and use of resources for some worksites may differ due to the regional or enterprise circumstances.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole.	
Sampling may include:	• the range of water quality and environmental parameters such as dissolved oxygen, hardness, ammonia, nitrite, nitrate, carbon dioxide, alkalinity, temperature, salinity, pH and turbidity.

Unit Sector(s)

Unit sector	Lands, parks and wildlife

Co-requisite units

Co-requisite units		

Co-requisite units		

Competency field

Competency field	

AHCLPW313 Undertake sampling and testing of water

Modification History

Release	Comments
Release 1	This version released with AHC Agriculture, Horticulture and Conservation and Land Management Training Package Version 6.0.

Application

This unit of competency describes the skills and knowledge required to plan and carry out sampling and testing of water quality as part of a monitoring program.

The unit applies to individuals who work in the land management sector. They work under broad direction and use discretion and judgement in the selection, allocation and use of available resources and for problem solving.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Nil

Unit Sector

Lands, Parks and Wildlife (LPW)

Elements and Performance Criteria

Elements	Performance Criteria
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Plan for sampling and testing fieldwork	1.1 Confirm sampling and testing program from supervisor instruction and sampling plan 1.2 Identify parameters for water quality tests 1.3 Identify characteristics and number of samples to be collected 1.4 Identify and select equipment required for water sampling and testing

Elements	Performance Criteria
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
	1.5 Identify hazards, assess risks and implement controls for safe operating conditions and environmental impact of sampling and testing
2. Prepare equipment and resources	2.1 Obtain equipment required for sampling and testing 2.2 Check equipment for availability and serviceability 2.3 Check and calibrate equipment according to workplace procedures and industry standards 2.4 Prepare data or recording documents ready for use 2.5 Secure testing equipment 2.6 Commence use of testing equipment
3. Carry out sampling and testing of water	3.1 Collect and test water samples according to sampling and testing program, industry standards and workplace procedures 3.2 Prepare, package and store samples for transport 3.3 Conduct and record observations for ambient and antecedent environmental conditions 3.4 Report urgent water quality or environmental issues according to workplace procedures
4. Complete water sampling and testing activities	4.1 Clean, check and store equipment 4.2 Consign unserviceable equipment to specialist for repair 4.3 Check data for accuracy and integrity 4.4 Record and report test results and observations according to workplace procedures and traceability requirements 4.5 Report changes in field conditions and equipment

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential for performance in this unit of competency but are not explicit in the performance criteria.

Skill	Description
Reading	Interpret and comprehend standards and operating procedures for

Skill	Description
	conducting water tests and recording and presenting results
Numeracy	Calculate quantities and measurements required to prepare water samples and reagents for testing from standards and operating procedures

Unit Mapping Information

Code and title current version	Code and title previous version	Comments	Equivalence status
AHCLPW313 Undertake sampling and testing of water	AHCLPW306 Undertake sampling and testing of water	Minor changes to Application Changes to Performance Criteria for clarity and brevity Updated Performance Evidence, Knowledge Evidence and Assessment Conditions	Not equivalent

Links

Companion Volumes, including Implementation Guides, are available at VETNet: -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=c6399549-9c62-4a5e-bf1a-524b2322cf72>

Assessment Requirements for AHCLPW313 Undertake sampling and testing of water

Modification History

Release	Comments
Release 1	This version released with AHC Agriculture, Horticulture and Conservation and Land Management Training Package Version 6.0.

Performance Evidence

An individual demonstrating competency must satisfy all of the elements and performance criteria in this unit.

There must be evidence that the individual has collected, tested, prepared and dispatched at least five water samples to a laboratory. The water samples must be from at least three of the following bodies of water:

- fresh water – river or stream
- fresh water – lakes or impoundments
- storm water and drains
- marine – open ocean
- marine – coastal or intertidal
- salt lakes
- water with high turbidity
- farmland dams and impoundments
- bore water.

There must also be evidence that the individual has:

- planned a water testing and sampling program under direction according to regulatory and organisation requirements
- tested, verified accuracy and prepared equipment according to manufacturer instructions and regulatory and workplace requirements
- collected and tested water samples according to regulatory requirements, workplace procedures and industry standards, including tested for at least five of any of the following:
 - pH
 - electrical conductivity
 - dissolved oxygen
 - turbidity
 - nitrate

- phosphorous
- prepared data sheets and recorded results
- reported water testing results according to workplace procedures
- reported urgent water quality and environmental concerns observed during sampling according to workplace procedures
- ensured traceability forms have been completed for environmental protection agencies
- applied workplace health and safety practices.

Knowledge Evidence

An individual must be able to demonstrate the knowledge required to perform the tasks outlined in the elements and performance criteria of this unit. This includes knowledge of:

- water monitoring in land management, including:
 - purpose for testing water
 - types of water bodies and their related ecological and environmental characteristics
 - scheduling guidelines for testing water quality
 - standards for water quality
- methods and steps involved in collecting water samples, including:
 - water sampling equipment operation and maintenance
 - sampling techniques and procedures
 - storing water samples
 - transporting water samples
 - packaging and labelling for despatch to laboratories
 - packaging and labelling procedures for workplace testing
- purpose of water test, equipment used, methods and procedures, including for:
 - temperature (in situ)
 - pH
 - electrical conductivity
 - dissolved oxygen
 - turbidity
 - nitrate
 - phosphorous
- varied operating conditions, hazards and environmental conditions that may impact sampling and testing in the field.

Assessment Conditions

Assessment of the skills in this unit of competency must take place under the following conditions:

- physical conditions:

- skills must be demonstrated in the field, on sites covering a range of environments indicated in the Performance Evidence
- access to a water testing laboratory or an environment that accurately represents a water testing laboratory
- resources, equipment and materials:
 - equipment and resources required for collecting and storing water samples
 - equipment and consumables used for conducting tests on water samples
- specifications:
 - workplace procedures and processes for collecting and testing water samples
 - manufacturer operating instructions for testing equipment
 - safety data sheets for chemical reagents used in testing procedures
 - workplace instructions and specifications for purpose of water sampling
 - legislation, codes of practice and industry standards for conducting tests.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

Links

Companion Volumes, including Implementation Guides, are available at VETNet: -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=c6399549-9c62-4a5e-bf1a-524b2322cf72>

AHCSAW302 Implement erosion and sediment control measures

Modification History

Release	TP Version	Comment
1	AHCv1.0	Initial release

Application

This unit of competency describes the skills and knowledge required to construct, install and maintain a range of measures specified on erosion and sediment control plans.

This unit applies to individuals who work under broad direction and take responsibility for their own work including limited responsibility for the work of others.

No occupational licensing, legislative or certification requirements are known to apply to this unit at the time of publication.

Pre-requisite Unit

Nil.

Unit Sector

Soil and Water Conservation (SAW)

Elements and Performance Criteria

Element	Performance criteria
Elements describe the essential outcomes.	Performance criteria describe the performance needed to demonstrate achievement of the element.
1. Prepare for implementation and construction	1.1 Confirm that erosion and sediment control plan and schedule of works match site conditions 1.2 Identify survey pegs and site indicators on site 1.3 Match equipment and tools to program works and terrain on site 1.4 Verify work readiness of selected equipment and tools

Element	Performance criteria
	1.5 Assess and minimise risks to others and the environment 1.6 Select and use appropriate personal protective equipment 1.7 Select materials to complete proposed works in line with construction schedule
2. Carry out implementation and construction	2.1 Plan work sequence 2.2 Construct earthworks 2.3 Install erosion and sediment control products and materials
3. Carry out repairs and maintenance procedures	3.1 Monitor site, identify issues and carry out repairs as necessary 3.2 Complete maintenance procedures as required 3.4 Clean and store machinery, tools and equipment 3.5 Complete work records

Foundation Skills

Foundation Skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Unit Mapping Information

This unit is equivalent to AHCSAW302A Implement erosion and sediment control measures

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=c6399549-9c62-4a5e-bf1a-524b2322cf72>

Assessment Requirements for AHCSAW302 Implement erosion and sediment control measures

Modification History

Release	TP Version	Comment
1	AHCv1.0	Initial release

Performance Evidence

The candidate must be assessed on their ability to integrate and apply the performance requirements of this unit in a workplace setting. Performance must be demonstrated consistently over time and in a suitable range of contexts.

The candidate must provide evidence that they can:

- construct, install and maintain a range of erosion and sediment control measures
- identify hazards and implement safe work procedures
- prepare for implementation and construction
- read and follow plans to carry out implementation and construction
- identify survey pegs and site indicators on site and on the plans
- carry out repairs and maintenance procedures to enterprise standards
- select equipment and materials appropriate for the task
- operate equipment and machinery according to safe work practices and manufacturer instructions
- clean and store equipment, machinery and tools according to organisational requirements

Knowledge Evidence

The candidate must demonstrate knowledge of:

- materials cartage pollution control
- sequence of working and timing/duration
- work health and safety issues relating to the equipment and the site
- equipment used
- materials suitable for constructing erosion and sediment control measures and where to source them on site
- limitations of structures including timing of maintenance, structure life cycle, specifications and standards

Assessment Conditions

Assessors must satisfy current standards for RTOs.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=c6399549-9c62-4a5e-bf1a-524b2322cf72>

BSBCMM201 Communicate in the workplace

Modification History

Release	Comments
Release 1	This version first released with BSB Business Services Training Package version 1.0

Application

This unit describes the skills and knowledge required to communicate in the workplace including gathering, conveying and receiving information and completing routine written correspondence.

It applies to individuals who perform a range of routine workplace communication tasks using a limited range of practical skills and fundamental knowledge of effective listening, questioning and non-verbal communication in a defined context under direct supervision or with limited individual responsibility.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Unit Sector

Communication – Interpersonal Communication

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1 Gather, convey and receive information and ideas	1.1 Collect information to achieve work responsibilities from appropriate sources 1.2 Use method/s and/or equipment to communicate appropriate ideas and information to the audience 1.3 Use effective listening and speaking skills in verbal communication

ELEMENT	PERFORMANCE CRITERIA
	1.4 Seek input from internal and external sources to develop and refine new ideas and approaches 1.5 Respond to instructions or enquiries promptly and in accordance with organisational requirements
2 Complete workplace documentation and correspondence	2.1 Present written information and ideas in clear and concise language to ensure the intended meaning of correspondence is understood by the recipient 2.2 Draft and present correspondence within designated time lines 2.3 Ensure presentation of written information meets organisational standards of style, format and accuracy 2.4 Complete workplace forms and documentation in a clear, concise and easy to read format
3 Communicate in a way that responds positively to individual differences	3.1 Value all individuals and treat them with respect, courtesy and sensitivity 3.2 Take into consideration cultural differences in all verbal and non-verbal communication 3.3 Use communication to develop and maintain positive relationships, mutual trust and confidence 3.4 Make efforts to use basic strategies to overcome language barriers 3.5 Ensure that behaviour is consistent with legislative requirements, enterprise guidelines and/or social protocols

Foundation Skills

This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.

Skill	Performance Criteria	Description
Learning	1.4	Seeks advice from others to implement strategies to improve knowledge or skills
Reading	1.1, 1.4, 1.5, 2.3, 2.4	Reviews textual information to identify and interpret communication requirements and organisational standards
Writing	1.2, 1.5, 2.1, 2.2,	Develops simple written texts using appropriate grammar, spelling and punctuation in accordance with

	2.3, 2.4	organisational formats Completes workplace forms and texts in accordance with organisational conventions and legislative requirements.
Oral Communication	1.1, 1.2, 1.3, 1.4, 1.5, 3.3, 3.4	- Explains ideas and requirements clearly and listens carefully to verbal instructions and discussions - Asks questions to confirm understanding
Navigate the world of work	1.5, 2.3, 3.5	Understands responsibilities of role and complies with legislative, regulatory and organisational requirements
Interact with others	1.2, 1.4, 1.5, 3.1, 3.2, 3.3, 3.4	- Recognises common cultural and other differences of people in the work context and makes adjustments to accommodate the differences - Follows accepted communication practices and protocols to assist in building and maintaining positive working relationships
Get the work done	1.1, 1.2, 1.4, 1.5, 2.1-2.4	- Plans and implements routine tasks and workload making limited decisions on sequencing, timing and collaboration, seeking assistance in setting priorities - Uses digital technology to find, record or communicate basic information

Unit Mapping Information

Code and title current version	Code and title previous version	Comments	Equivalence status
BSBCMM201 Communicate in the workplace	BSBCMM201A Communicate in the workplace	Updated to meet Standards for Training Packages	Equivalent unit

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10>

Assessment Requirements for BSBCMM201 Communicate in the workplace

Modification History

Release	Comments
Release 1	This version first released with Business Services Training Package Version 1.0.

Performance Evidence

Evidence of the ability to:

- communicate information and ideas verbally and non-verbally, taking cultural differences and language barriers into consideration
- produce written material, used routinely in day to day work, which is clear, concise and effectively convey the intended meaning to the recipient
- complete workplace forms
- use style, format and level of accuracy appropriate to the type of written material
- provide prompt responses to requests for information in accordance with organisational requirements.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- identify any organisational policies, plans and procedures which detail organisation's standards or protocols for workplace communication
- describe different communication styles
- outline barriers to communication.

Assessment Conditions

Assessment must be conducted in a safe environment where evidence gathered demonstrates consistent performance of typical activities experienced by individuals using interpersonal communication skills in the workplace and include access to:

- office equipment
- business resources

- workplace policies and procedures relating to communication
- case studies and, where possible, real situations
- interaction with others.

Assessors must satisfy NVR/AQTF assessor requirements.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10>

BSBCUS401 Coordinate implementation of customer service strategies

Modification History

Release	Comments
Release 2	This version released with BSB Business Services Training Package Version 2.0 Version created to clarify assessment conditions
Release 1	This version first released with BSB Business Services Training Package Version 1.0.

Application

This unit describes the skills and knowledge required to advise, carry out and evaluate customer service strategies.

It applies to individuals who have well developed skills and a broad knowledge of customer service strategies for addressing customer needs and problems, and who may provide guidance or delegate work related tasks to others.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Unit Sector

Stakeholder Relations – Customer Service

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1 Advise on customer service needs	1.1 Clarify and accurately assess customer needs using appropriate communication techniques

ELEMENT	PERFORMANCE CRITERIA
	1.2 Diagnose problems matching service delivery to customers and develop options for improved service within organisational requirements 1.3 Provide relevant and constructive advice to promote the improvement of customer service delivery 1.4 Use business technology and/or online services to structure and present information on customer service needs
2 Support implementation of customer service strategies	2.1 Ensure customer service strategies and opportunities are promoted to designated individuals and groups 2.2 Identify and allocate available budget resources to fulfil customer service objectives 2.3 Promptly action procedures to resolve customer difficulties and complaints within organisational requirements 2.4 Ensure that decisions to implement strategies are taken in consultation with designated individuals and groups
3 Evaluate and report on customer service	3.1 Review client satisfaction with service delivery using verifiable data in accordance with organisational requirements 3.2 Identify and report changes necessary to maintain service standards to designated individuals and groups 3.3 Prepare conclusions and recommendations from verifiable evidence and provide constructive advice on future directions of client service strategies 3.4 Maintain systems, records and reporting procedures to compare changes in customer satisfaction

Foundation Skills

This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.

Skill	Performance Criteria	Description
Reading	1.2, 1.4, 2.3, 3.1	Reviews textual information and comprehends details that relate to the interests or requirements of the client and organisation
Writing	1.4, 3.3, 3.4	Creates a range of formal texts using structure, grammar and clear and specialised language to

		describe customer needs, maintain information and support a particular position
Oral Communication	1.1, 1.3, 2.1, 2.4, 3.2	Uses pace, intonation, intelligible pronunciation and listening and questioning techniques to interact effectively with others
Numeracy	2.2	Recognises and interprets numerical information and performs calculations on familiar mathematical information
Navigate the world of work	1.2, 2.3, 3.1, 3.2	Recognises and applies organisational protocols and meets expectations associated with own work
Interact with others	1.1, 1.3, 2.1, 2.4, 3.2, 3.3	- Selects the appropriate form, channel and mode of communication for a specific purpose relevant to own role - Uses a range of strategies to establish a sense of connection and build rapport with customers - Collaborates with others contributing knowledge and skills to achieve joint outcomes
Get the work done	1.2, 1.4, 2.3, 3.1- 3.4	- Applies formal and logical processes when planning and implementing tasks - Applies standard procedures when responding to familiar problems within own work context - Uses digital technologies to access, organise, present and store information relevant to own role

Unit Mapping Information

Code and title current version	Code and title previous version	Comments	Equivalence status
BSBCUS401 Coordinate implementation of customer service strategies Release 2	BSBCUS401 Coordinate implementation of customer service strategies Release 1	Updated to clarify assessment conditions	Equivalent unit

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10>

Assessment Requirements for BSBCUS401 Coordinate implementation of customer service strategies

Modification History

Release	Comments
Release 2	This version released with BSB Business Services Training Package Version 2.0. Version created to clarify assessment conditions
Release 1	This version first released with Business Services Training Package Version 1.0.

Performance Evidence

Evidence of the ability to:

- identify the needs and priorities of the organisation in delivering services to customers
- diagnose problems in delivery of customer service
- respond to and report on customer feedback and complaints
- review client satisfaction using verifiable data
- consult and communicate effectively with relevant people
- develop and implement strategies and methods to improve customer service delivery including:
 - budgeting
 - promotion to staff
 - documentation and follow up.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline the principles of customer service
- explain sources of information and techniques for identifying customer needs and reviewing customer satisfaction
- explain the organisational business structure, products and services related to customer service
- describe product and service standards and best practice models.

Assessment Conditions

Assessment must be conducted in a safe environment where evidence gathered demonstrates consistent performance of typical activities experienced in the customer service field of work and include access to:

- office equipment
- business technology
- organisational policies and procedures for customer service
- examples of customer complaints and feedback
- client satisfaction data
- case studies and, where possible, real situations
- interaction with others.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10>

BSBFIN501 Manage budgets and financial plans

Modification History

Release	Comments
Release 1	This version first released with BSB Business Services Training Package Version 7.0.

Application

This unit describes the skills and knowledge required to undertake financial management in an organisation or work area. It includes planning and implementing financial management approaches and supporting and evaluating effectiveness of financial management processes.

The unit applies to managers in a wide range of organisations and sectors who have responsibility for the effective use of financial resources within work teams. They are responsible for ensuring that financial resources are managed in line with the financial objectives of the team and organisation.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Unit Sector

Business Competence – Financial Literacy

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Plan financial management approaches	1.1 Access budget and financial plans for work team 1.2 Evaluate budget and financial plan outcomes with required organisational personnel 1.3 Negotiate any changes required to be made to budget and financial plans with required organisational personnel 1.4 Prepare contingency plans in the event that initial plans need to be varied
2. Implement and monitor financial	2.1 Communicate details of agreed budget and financial plans to relevant team members

ELEMENT	PERFORMANCE CRITERIA
management plans	2.2 Support team members to access resources and systems to perform required roles 2.3 Implement processes to monitor actual expenditure, control costs and modify contingency plans as required according to financial objectives 2.4 Report on budget and expenditure according to organisational protocols
3. Review and evaluate financial management plans	3.1 Collect information on effectiveness of financial management processes within work team 3.2 Analyse variance between actual and budgeted finances 3.3 Identify and recommend improvements to existing financial management processes 3.4 Implement agreed improvements according to financial objectives of work team and organisation 3.5 Evaluate agreed improvements

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance but not explicit in the performance criteria.

SKILL	DESCRIPTION
Numeracy	Uses a wide range of mathematical calculations to analyse numeric information in budgets or financial plans
Oral communication	- Presents information about financial issues and requirements to a range of audiences using structure and language to suit audience - Uses active listening and questioning to clarify information and to confirm understanding
Reading	Interprets and analyses information to determine activities required
Writing	Records information in correct forms and prepares materials which convey detailed and factual content according to internal procedures
Teamwork	Uses a range of strategies to connect, collaborate and cooperate with other work colleagues in activities requiring collective effort and diverse skills and knowledge
Initiative and enterprise	Applies organisational requirements in undertaking own work
Planning and organising	Uses logical processes in planning, implementing and evaluating complex tasks and developing alternative strategies to achieve goals

SKILL	DESCRIPTION
	and timelines
Technology	• Uses a range of digital technologies to access, filter, compile, integrate and logically present complex information from multiple sources

Unit Mapping Information

Supersedes and is equivalent to BSBFIM501 Manage budgets and financial plans.

Supersedes but is not equivalent to BSBGOV403 Analyse financial reports and budgets.

Links

Companion Volume Implementation Guide is found on VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10>

Assessment Requirements for BSBFIN501 Manage budgets and financial plans

Modification History

Release	Comments
Release 1	This version first released with BSB Business Services Training Package Version 7.0.

Performance Evidence

The candidate must demonstrate the ability to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including evidence of the ability to:

- manage the budget and financial plan of an organisation for one reporting period.

In the course of the above, the candidate must:

- communicate with relevant people to clarify budget and financial plans, negotiate changes and disseminate information
- prepare, implement and modify financial contingency plans
- monitor expenditure and control costs
- support and monitor team members
- report on budget and expenditure
- review and make recommendations for improvements to financial processes
- meet record-keeping requirements for Australian Taxation Office (ATO) and for auditing purposes.

Knowledge Evidence

The candidate must be able to demonstrate knowledge to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including knowledge of:

- basic accounting principles
- types of budgets and financial plans
- legislation and current ATO requirements, including the Goods and Services Tax (GST)
- key requirements for financial record keeping and auditing
- principles for managing work teams
- principles and techniques involved in managing:
 - budgeting
 - cash flows
 - electronic spreadsheets

- Goods and Services Tax
- ledgers and financial statements
- profit and loss statements
- evaluation of budget and financial plans.

Assessment Conditions

Skills in this unit must be demonstrated in a workplace or simulated environment where the conditions are typical of those in a working environment in this industry.

This includes access to:

- workplace policies and procedures
- workplace budgets and financial plans.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

Links

Companion Volume Implementation Guide is found on VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10>

BSBFLM305 Support operational plan

Modification History

Release	Comments
Release 1	This version first released with BSB Business Services Training Package Version 1.0.

Application

This unit describes the skills and knowledge required to provide support for operational practices and procedures within the organisation's productivity and profitability plans. This includes contributing to the operational plan, assisting in recruiting employees and acquiring resources, and monitoring and adjusting operational performance.

It applies to individuals who use planning and analytical skills to achieve the measurable, stated objectives of the team and the organisation. At this level, work will normally be carried out within known routines, methods and procedures, and may also involve a number of complex or non-routine activities that require some discretion and judgement.

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Unit Sector

Management and Leadership – Frontline Management

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1 Contribute to implementation of operational plan	1.1 Collect and record details of resource requirements and report to relevant personnel 1.2 Ensure the operational plan contributes to the achievement of the organisation's performance and business plan 1.3 Identify key performance indicators to measure own and work

ELEMENT	PERFORMANCE CRITERIA
	team's performance 1.4 Undertake contingency planning as required 1.5 Support the development and presentation of proposals for resource requirements as necessary
2 Assist in recruiting employees and acquiring resources	2.1 Assist with employee recruitment and/or induction as required, within the organisation's policies, practices and procedures 2.2 Acquire physical resources and services according to the organisation's policies, practices and procedures, and in consultation with relevant personnel
3 Support operations	3.1 Identify and utilise performance systems and processes to assess team progress in achieving plans and targets 3.2 Compare actual productivity and performance with identified short-term budgets, targets and performance results 3.3 Identify and report unsatisfactory performance to relevant personnel, to enable action to be taken to rectify situation 3.4 Provide coaching to support individuals and teams to use resources effectively, economically and safely 3.5 Support consultation processes for development and/or variation of the operational plan as required 3.6 Present recommendations for variation to operational plans to relevant personnel 3.7 Follow performance systems, procedures and recording processes in accordance with organisation requirements

Foundation Skills

This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.

Skill	Performance Criteria	Description
Learning	3.4	Contributes to ongoing organisational improvement by training others to use resources appropriately
Reading	1.1-1.3, 2.1, 2.2, 3.1, 3.2, 3.7	Interprets information from a range of familiar texts

Writing	1.1, 1.4, 1.5, 3.3, 3.6	Uses appropriate vocabulary and grammatical structures to achieve precise meaning in a range of documentation
Oral Communication	1.1, 2.1, 2.2, 3.3-3.6	- Articulates information concisely using appropriate terminology, tone and style - Uses questioning and listening techniques to exchange and clarify information
Numeracy	1.1, 1.2, 2.2, 3.2, 3.4	Interprets and analyses numerical information to support resource acquisition and broader business plan
Navigate the world of work	2.1, 2.2, 3.7	Adheres to organisational policies and procedures and understands and meets expectations associated with own role
Interact with others	1.5, 2.1, 3.4-3.6	- Selects and uses appropriate conventions and protocols when communicating with relevant personnel - Collaborates and cooperates with others to achieve joint outcomes
Get the work done	1.1-1.4, 3.1, 3.3	- Takes responsibility for planning, sequencing and prioritising tasks and own workload for effective outcomes - Makes routine decisions and implements standard procedures for routine tasks - Recognises and responds to predictable routine problems related to role in the immediate work context

Unit Mapping Information

Code and title current version	Code and title previous version	Comments	Equivalence status
BSBFLM305 Support operational plan	BSBFLM305C Support operational plan	Updated to meet Standards for Training Packages	Equivalent unit

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10>

Assessment Requirements for BSBFLM305 Support operational plan

Modification History

Release	Comments
Release 1	This version first released with BSB Business Services Training Package Version 1.0.

Performance Evidence

Evidence of the ability to:

- assist in planning resource acquisition and usage including human resources, risk management and contingency planning
- share information and support members of the work team to achieve plans and targets
- monitor, analyse and report individual and team performance against identified targets.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain the processes used to plan and acquire resources
- summarise organisational recruitment and induction processes
- explain the relationship between key performance indicators and achievement of the operational plan
- explain the role of contingency planning in supporting the operational plan
- identify systems and processes for monitoring and reporting performance
- identify alternative approaches to improving resource usage and eliminating resource inefficiencies and waste
- identify relevant legislation, regulations, standards or codes of practice that may affect the operational plan
- identify the organisational policies, practices and procedures relevant to implementation of the operational plan.

Assessment Conditions

Assessment must be conducted in a safe environment where evidence gathered demonstrates consistent performance of typical activities experienced in the management field of work and include access to:

- relevant legislation and regulations
- relevant workplace documentation and resources
- case studies and, where possible, real situations
- interaction with others.

Assessors must satisfy NVR/AQTF assessor requirements.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10>

BSBFLM312 Contribute to team effectiveness

Modification History

Release	Comments
Release 1	This version first released with BSB Business Services Training Package Version 1.0.

Application

This unit describes the skills and knowledge required to contribute to the effectiveness of the work team. It involves planning with the team to meet expected outcomes, developing team cohesion, participating in and facilitating the work team, and communicating with the management of the organisation.

It applies to individuals who play a prominent part in motivating, mentoring, coaching and developing team cohesion through team leadership and forming the link between the management of the organisation and the team members. At this level, work will normally be carried out within known routines, methods and procedures, and may also involve complex or non-routine activities that require some discretion and judgement.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Unit Sector

Management and Leadership – Frontline Management

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1 Contribute to team outcomes	1.1 Consult team members to identify team purpose, roles, responsibilities, goals, plans and objectives 1.2 Support team members to meet expected outcomes

ELEMENT	PERFORMANCE CRITERIA
2 Support team cohesion	2.1 Encourage team members to participate in the planning, decision making and operational aspects of the work team to their level of responsibility 2.2 Encourage team members to take responsibility for their own work and to assist each other in undertaking required roles and responsibilities 2.3 Provide feedback to team members to encourage, value and reward team members' efforts and contributions 2.4 Identify and address issues, concerns and problems identified by team members, or refer to relevant persons as required
3 Participate in work team	3.1 Actively encourage and support team members to participate in team activities and communication processes and to take responsibility for their actions 3.2 Support the team to identify and resolve problems which impede its performance 3.3 Utilise own contribution to work team to serve as a role model for others and enhance the organisation's image within the work team, the organisation and with clients/customers
4 Communicate with management	4.1 Maintain open communication with line manager/management at all times 4.2 Communicate information from line manager/management to the team 4.3 Communicate unresolved issues to line manager/management and follow up to ensure action is taken in response to these matters

Foundation Skills

This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.

Skill	Performance Criteria	Description
Writing	2.3, 2.4, 4.2, 4.3	Uses appropriate vocabulary, grammatical structures and conventions to communicate information, matching style to purpose and audience
Oral	1.1, 1.2, 2.1-2.4, 3.1,	Presents ideas and seeks feedback from others using vocabulary and non-verbal features appropriate to the

Communication	3.2, 4.1-4.3	audience Participates in open discussions to elicit the views of others by asking questions and listening to responses
Navigate the world of work	1.1	Ensures that team members are aware of their rights and responsibilities in the workplace, including workplace safety
Interact with others	1.1, 1.2, 2.1-2.4, 3.1, 3.2, 4.1-4.3	- Collaborates, supports and cooperates with others to achieve work outcomes, and encourages others to do the same - Selects the appropriate form, channel and mode of communication for a specific purpose relevant to own role - Recognises importance of own interpersonal skills in projecting a positive image to others in work context - Understands the need to modify own communication style to accommodate individual differences
Get the work done	1.1, 2.4, 4.1, 4.3	- Plans and implements tasks required to achieve required outcomes - Recognises and responds to problems related to role and seeks assistance when problems are beyond immediate responsibilities

Unit Mapping Information

Code and title current version	Code and title previous version	Comments	Equivalence status
BSBFLM312 Contribute to team effectiveness	BSBFLM312C Contribute to team effectiveness	Updated to meet Standards for Training Packages	Equivalent unit

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10>

Assessment Requirements for BSBFLM312 Contribute to team effectiveness

Modification History

Release	Comments
Release 1	This version first released with BSB Business Services Training Package Version 1.0.

Performance Evidence

Evidence of the ability to:

- discuss and clarify goals and responsibilities with a team of people
- apply management and communication skills with a range of people that:
 - provides direction and leadership
 - assists individuals to achieve goals
 - motivates and builds team cohesion
 - fosters contribution of and respect for ideas
- apply techniques for resolving problems within organisational and legislative requirements
- communicate effectively with management including escalating problems outside own area of responsibility
- manage communication of information to, and between, the team.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- list organisational goals, objectives and plans that relate to the team
- identify legislation, regulations, standards or codes of practice that may impact team performance and outcomes
- describe the organisational structure with reference to the organisational chart
- describe options for addressing performance issues in the organisation
- explain the principles and techniques of:
 - group dynamics and processes
 - motivation

- negotiation
- explain why considering individual behaviour and differences is important to a manager.

Assessment Conditions

Assessment must be conducted in a safe environment where evidence gathered demonstrates consistent performance of typical activities experienced in the management field of work and include access to:

- relevant workplace documentation and resources
- relevant legislation
- case studies and, where possible, real situations
- interaction with others.

Assessors must satisfy NVR/AQTF assessor requirements.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10>

BSBHRM413 Support the learning and development of teams and individuals

Modification History

Release	Comments
Release 1	This version first released with BSB Business Services Training Package Version 7.0.

Application

This unit describes the skills and knowledge required to determine individual and team development needs and to facilitate the development of the workgroup.

The unit applies to individuals with a broad knowledge of learning and development who apply their skills in addressing development needs to meet team objectives. They may have responsibility to provide guidance or to delegate aspects of tasks to others.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Unit Sector

Technical Skills – Human Resources

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Contribute to needs development	1.1 Collect information on performance of team members from relevant sources 1.2 Identify individual and team learning and development needs in line with organisational requirements 1.3 Confirm learning plans meet individual and group training and development needs 1.4 Provide opportunities to individuals to self-evaluate performance and identify areas for improvement
2. Support implementation of	2.1 Develop collaborative learning plans to match skill needs of individuals and groups and match the competency standards

ELEMENT	PERFORMANCE CRITERIA
learning and development	relevant to the industry 2.2 Ensure learning delivery methods are relevant to the participants 2.3 Identify and coordinate workplace learning opportunities to facilitate individual and team achievement of competencies 2.4 Identify and manage resources and timelines relevant for learning activities according to organisational requirements
3. Monitor and evaluate workplace learning	3.1 Monitor learning plans to improve the efficiency and effectiveness of learning 3.2 Seek feedback from individuals or teams to identify and implement improvements in future learning arrangements 3.3 Assess and record outcomes and performance of individuals and teams to determine the effectiveness of development programs and the extent of additional development support 3.4 Document and maintain records and reports of competency according to organisational requirements

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance but not explicit in the performance criteria.

SKILL	DESCRIPTION
Learning	• Uses structured approaches to set goals, monitor progress and adjust learning approaches for self and others • Builds on knowledge and experience to facilitate interaction and learning with others
Reading	• Analyses textual information from a range of sources to identify organisational requirements • Analyses information from a range of sources to evaluate performance
Writing	• Develops materials to suit the requirements of different roles and individuals in the organisation • Maintains records using correct technical and organisational vocabulary
Oral Communication	• Uses vocabulary appropriate to context and to establish a supportive and learning environment • Uses listening and questioning techniques to confirm or show understanding of different perspectives • Selects and uses appropriate conventions and protocols when communicating with co-workers in a range of work contexts

SKILL	DESCRIPTION
Self-management	• Recognises and responds to explicit and implicit organisational procedures and protocols • Understands how own role meshes with others and contributes to broader goals
Teamwork	• Recognises the importance of building rapport to establish effective working relationships • Collaborates with others to achieve joint outcomes, playing an active role in facilitating effective group interaction • Negotiates with others to achieve agreeable outcomes playing an active role in facilitating consensus in potentially contentious situations
Problem solving	• Uses logical planning processes to organise, implement and monitor learning and development needs • Systematically gathers and analyses all relevant information and evaluates options to make informed decisions • Evaluates outcomes of decisions to identify opportunities for improvement

Unit Mapping Information

Supersedes and is equivalent to BSBLED401 Develop teams and individuals.

Supersedes but is not equivalent to:

- BSBFLM311 Support a workplace learning environment
- BSBLED301 Undertake e-learning.

Links

Companion Volume Implementation Guide is found on VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10>

Assessment Requirements for BSBHRM413 Support the learning and development of teams and individuals

Modification History

Release	Comments
Release 1	This version first released with BSB Business Services Training Package Version 7.0.

Performance Evidence

The candidate must demonstrate the ability to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including evidence of the ability to:

- contribute to, facilitate and monitor learning and development for at least one team and for at least one individual.

In the course of the above, the candidate must:

- collect data on team and individual and team development needs
- collaboratively develop learning plans to match skill needs of individuals and groups
- coordinate learning opportunities
- give and receive feedback during the implementation of learning plans
- monitor and review workplace learning plan implementation plans.

Knowledge Evidence

The candidate must be able to demonstrate knowledge to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including knowledge of:

- facilitation techniques to support team development and improvement
- organisational policies, plans and procedures for developing teams
- career paths and competency standards relevant to the industry
- key sources of information relevant to inform development needs
- key features of learning and development methods.

Assessment Conditions

Skills in this unit must be demonstrated in a workplace or simulated environment where the conditions are typical of those in a working environment in this industry.

This includes access to:

- learning and development plans, policies and procedures.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

Links

Companion Volume Implementation Guide is found on VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10>

BSBINM301 Organise workplace information

Modification History

Release	Comments
Release 1	This version first released with BSB Business Services Training Package Version 1.0.

Application

This unit describes the skills and knowledge required to gather, organise and apply workplace information in the context of an organisation's work processes and knowledge management systems.

It applies to individuals who perform a defined range of skilled operations in various work contexts. They may exercise discretion and judgement using appropriate knowledge of information management to provide technical advice and support to a team.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Unit Sector

Knowledge Management – Information Management

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1 Collect and assess information	1.1 Access product and service information in accordance with organisational requirements 1.2 Ensure methods of collecting information are reliable and make efficient use of available time and resources 1.3 Assess information for clarity, accuracy, currency and relevance to intended tasks 1.4 Use interpersonal skills to access relevant information from

ELEMENT	PERFORMANCE CRITERIA
	teams and individuals
2 Organise information	2.1 Organise information in a format suitable for analysis, interpretation and dissemination in accordance with organisational requirements 2.2 Use appropriate technology/systems to maintain information in accordance with organisational requirements 2.3 Collate information and materials and communicate to relevant designated persons 2.4 Identify difficulties organising and accessing information and solve collaboratively with individuals and team members 2.5 Update and store information in accordance with organisational requirements and systems
3 Review information needs	3.1 Actively seek feedback on clarity, accuracy and sufficiency of information to ensure relevance of information and system 3.2 Review the contribution of information to decision making and implement appropriate modifications to collection processes 3.3 Identify future information needs and incorporate modifications to collection processes 3.4 Document future information needs and incorporate in modifications to reporting processes

Foundation Skills

This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.

Skill	Performance Criteria	Description
Reading	1.1-1.3, 2.1-2.3, 2.5, 3.2	Recognises and assesses textual information to complete tasks according to requirements
Writing	2.1, 2.2, 2.3, 2.5, 3.1, 3.4	Completes workplace records, forms and documentation accurately using correct format, accurate spelling and grammar and terminology specific to requirements
Oral Communication	1.4, 2.3, 2.4, 3.1	Elicits the view and opinions of others and obtains information by listening and questioning

		Participates in a verbal exchange of ideas/solutions using clear language to contribute information and convey issues
Navigate the world of work	1.1, 2.1, 2.5	Understands rights and responsibilities and complies with explicit policies and procedures and legal and regulatory requirements
Interact with others	1.4, 2.3, 2.4, 3.1	- Identifies and follows accepted communication practices and protocols - Complies with work instructions and contributes to work group discussions using accepted conventions
Get the work done	1.1, 1.2, 2.1, 2.2, 2.4, 3.2, 3.3	- Plans and implements routine tasks and workload making decisions about sequencing and timing - Makes low impact decisions within familiar situations, based on a range of predefined or routine solutions, and evaluates the effectiveness of the outcome - Uses digital technology to access and record information and to communicate with others

Unit Mapping Information

Code and title current version	Code and title previous version	Comments	Equivalence status
BSBINM301 Organise workplace information	BSBINM301A Organise workplace information	Updated to meet Standards for Training Packages	Equivalent unit

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10>

Assessment Requirements for BSBINM301 Organise workplace information

Modification History

Release	Comments
Release 1	This version first released with BSB Business Services Training Package Version 1.0.

Performance Evidence

Evidence of the ability to:

- efficiently and effectively gather, assess, organise and use workplace information as part of own job role
- provide accurate information for defined purposes
- maintain and handle data and documents systematically
- use business technology to manage information
- communicate with colleagues and clients using effective interpersonal skills to obtain and check workplace information
- apply relevant legislation and regulations to workplace information
- monitor, review and modify information processes.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain how legislation and regulations may affect the gathering organising and distribution of workplace information
- describe methods for checking validity of information and its sources
- describe organisational recordkeeping and filing systems, security procedures and safe recording practices
- identify workplace policies and procedures relating to workplace information.

Assessment Conditions

Assessment must be conducted in a safe environment where evidence gathered demonstrates consistent performance of typical activities experienced in the knowledge management – information management field of work and include access to:

- business technology
- workplace policies and procedures
- relevant legislation and codes of practice
- office equipment and resources
- examples of information documents found in the workplace
- interaction with others.

Assessors must satisfy NVR/AQTF assessor requirements.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10>

BSBINS302 Organise workplace information

Modification History

Release	Comments
Release 1	This version first released with BSB Business Services Training Package Version 7.0.

Application

This unit describes the skills and knowledge required to receive, collect, organise and apply workplace information in the context of an organisation's work processes, record managing and knowledge management systems.

The unit applies to those who perform a defined range of skilled operations in various work contexts. They may exercise discretion and judgement using appropriate knowledge of information management to provide technical advice and support to a team.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Unit Sector

Technical Skills – Information Services

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Receive, acquire and assess information	1.1 Confirm that proposed methods of receiving and acquiring information meet organisational policies and procedures 1.2 Receive and acquire information according to organisational policies and procedures 1.3 Confirm information is clear, accurate, current and relevant to intended tasks 1.4 Access additional required information from relevant stakeholders

ELEMENT	PERFORMANCE CRITERIA
2. Organise information	2.1 Organise information in a format suitable for analysis, interpretation and distribution according to organisational policies and procedures 2.2 Store information using relevant systems and technology according to organisational policies and procedures 2.3 Distribute information to relevant stakeholders 2.4 Identify issues accessing, organising and storing information and solve collaboratively with relevant stakeholders
3. Review information needs	3.1 Seek feedback on clarity, accuracy, relevancy and sufficiency of information 3.2 Review feedback and suggest updates to receipt and acquisition processes, where required 3.3 Identify and document future information needs and suggest modifications to collection and organisation processes

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance but not explicit in the performance criteria.

Skill	Description
Reading	Recognises and assesses textual information to complete tasks according to requirements
Writing	Completes workplace records, forms and documentation accurately using correct format, accurate spelling and grammar and terminology specific to requirements
Oral Communication	- Collects information by listening and questioning - Participates in a verbal exchange using clear language to contribute information and convey issues
Self-management	Understands rights and responsibilities and complies with explicit policies and procedures and legal and regulatory requirements
Teamwork	Complies with work instructions and contributes to work group discussions using accepted conventions
Planning and organising	Plans and implements routine tasks and workload making decisions about sequencing and timing
Technology	Uses digital technology to access and record information and to communicate with others

Skill	Description
Problem solving	Makes low impact decisions within familiar situations, based on a range of predefined or routine solutions, and evaluates the effectiveness of the outcome

Unit Mapping Information

Supersedes and is equivalent to BSBINM301 Organise workplace information.

Links

Companion Volume Implementation Guide is found on VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10>

Assessment Requirements for BSBINS302 Organise workplace information

Modification History

Release	Comments
Release 1	This version first released with BSB Business Services Training Package Version 7.0.

Performance Evidence

The candidate must demonstrate the ability to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including evidence of the ability to:

- gather, assess, organise and distribute three pieces of workplace information.

In the course of the above, the candidate must:

- provide information according to organisational policies and procedures
- use business technology to coordinate information
- communicate with relevant stakeholders to obtain and check workplace information
- monitor, review and modify information organisation processes.

Knowledge Evidence

The candidate must be able to demonstrate knowledge to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including knowledge of:

- methods for checking information is clear, accurate, current and relevant for purpose
- organisational policies and procedures relating to workplace information
- features and functions of technology required to store and organise information.

Assessment Conditions

Skills in this unit must be demonstrated in a workplace or simulated environment where the conditions are typical of those in a working environment in this industry.

This includes access to:

- organisational policies and procedures relevant to workplace information
- examples of information documents found in the workplace.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

Links

Companion Volume Implementation Guide is found on VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10>

BSBLDR403 Lead team effectiveness

Modification History

Release	Comments
Release 1	This version first released with BSB Business Services Training Package Version 1.0.

Application

This unit defines skills, knowledge and outcomes required to plan and supervise the performance of the team and develop team cohesion.

It applies team leaders, supervisors and new emerging managers who have an important leadership role in the development of efficient and effective work teams.

Leaders at this level also provide leadership for the team and bridge the gap between the management of the organisation and the team members. As such they must 'manage up' as well as manage their team/s.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Unit Sector

Management and Leadership - Leadership

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Plan to achieve team outcomes	1.1 Lead the team to identify, establish and document team purpose, roles, responsibilities, goals, plans and objectives in consultation with team members 1.2 Engage team members to incorporate innovation and

ELEMENT	PERFORMANCE CRITERIA
	productivity measures in work plans 1.3 Lead and support team members in meeting expected outcomes
2. Lead team to develop cohesion	2.1 Provide opportunities for input of team members into planning, decision making and operational aspects of work team 2.2 Encourage and support team members to take responsibility for own work and to assist each other in undertaking required roles and responsibilities 2.3 Provide feedback to team members to encourage, value and reward individual and team efforts and contributions 2.4 Recognise and address issues, concerns and problems identified by team members or refer to relevant persons as required 2.5 Model expected behaviours and approaches
3. Participate in and facilitate work team	3.1 Actively encourage team members to participate in and take responsibility for team activities and communication processes 3.2 Give the team support to identify and resolve problems which impede its performance 3.3 Ensure own contribution to work team serves as a role model for others and enhances the organisation's image within the work team, the organisation and with clients/customers
4. Liaise with management	4.1 Maintain open communication with line manager/management at all times 4.2 Communicate information from line manager/management to the team 4.3 Communicate unresolved issues, concerns and problems raised by the team/team members to line manager/management and ensure follow-up action is taken 4.4 Communicate unresolved issues, concerns and problems related to the team/team members raised by line managers/management to the team and ensure follow-up to action is taken

Foundation Skills

This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.

Skill	Performance	Description

	Criteria	
Writing	1.1, 4.2	Prepares workplace plans that communicate intent and elicits feedback clearly and effectively
Oral communication	1.1, 1.3, 2.2, 2.3, 3.1, 3.2, 4.2-4.4	Engages in discussions or provides information using structure and language appropriate to the audience and situation
Interact with others	1.1-1.3, 2.1-2.5, 3.1, 3.3, 4.1	- Selects and uses appropriate conventions and protocols when communicating with team members - Adapts personal communication style to model required behaviours, build trust and positive working relationships and to show respect for the opinions and values of others - Plays a lead role in situations requiring effective collaboration, demonstrating conflict resolution skills and ability to engage and motivate others
Get the work done	1.1-1.3, 3.2	- Develops, implements and monitors plans and processes to ensure team engagement and effectiveness - Uses formal analytical thinking techniques to identify issues and generate possible solutions, seeking input from others as required

Unit Mapping Information

Code and title current version	Code and title previous version	Comments	Equivalence status
BSBLDR403 Lead team effectiveness	BSBWOR402A Promote team effectiveness	Updated to meet Standards for Training Packages Title change Minor edits to clarify intent of performance criteria	Equivalent unit

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10>

Assessment Requirements for BSBLDR403 Lead team effectiveness

Modification History

Release	Comments
Release 1	This version first released with BSB Business Services Training Package Version 1.0.

Performance Evidence

Evidence of the ability to:

- apply knowledge of organisational goals, objectives and plans
- develop a team work plan including documentation of how it was generated and how it will be monitored
- identify and incorporate innovation and productivity measures into a team work plan
- communicate with team members and management to identify and establish the team purpose, roles, responsibilities, goals plans and objectives and resolve problems
- use techniques to consult, encourage, support and provide feedback to team members
- model team leadership behaviours and approaches
- liaise with management to develop the teamwork plan, resolve issues and ensure follow-up action is taken.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must explain principles and techniques associated with:

- delegation and work allocation
- goal setting
- group dynamics and processes
- individual behaviour and difference
- leadership styles
- motivation
- negotiation
- problem solving
- planning

- workplace innovation
- workplace productivity.

Assessment Conditions

Assessment must be conducted in a safe environment where evidence gathered demonstrates consistent performance of typical activities experienced in the management and leadership field of work and include access to:

- information about the organisation, including organisational structure, goals, objectives and plans
- case studies, and where possible, real situations
- workplace equipment and resources
- interaction with others.

Assessors must satisfy NVR/AQTF assessor requirements.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10>

BSBLDR414 Lead team effectiveness

Modification History

Release	Comments
Release 1	This version first released with BSB Business Services Training Package Version 7.0.

Application

This unit describes the skills, knowledge and outcomes required to lead the performance of a team and to develop team cohesion.

The unit applies team leaders, supervisors and new emerging managers who have an important leadership role in the development of efficient and effective work teams. Leaders at this level also provide leadership for the team and bridge the gap between the management of the organisation and the team members. As such they must 'manage up' as well as manage their team/s.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Unit Sector

Social Competence – Leadership

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Plan team outcomes	1.1 Lead team to identify and establish team objectives and work processes 1.2 Support team to document identified objectives and work processes according to organisational processes 1.3 Encourage team members to incorporate innovation and productivity measures in work plans 1.4 Lead and support team members to meet expected outcomes
2. Promote team cohesion	2.1 Provide opportunities for input of team members into planning, decision making and operational aspects of work team

ELEMENT	PERFORMANCE CRITERIA
	2.2 Support team members to take responsibility for own work and to assist each other in undertaking required roles and responsibilities 2.3 Provide feedback to team members on their efforts and contributions 2.4 Address or refer issues, concerns and problems identified by team members 2.5 Model expected behaviours and approaches
3. Supervise team performance	3.1 Encourage team members to participate in and take responsibility for team activities and communication processes 3.2 Support team to identify and resolve problems which impede performance 3.3 Ensure own contribution to work team serves as a role model for others
4. Liaise with management	4.1 Establish open communication with line management 4.2 Communicate information from line management to the team 4.3 Communicate unresolved issues, concerns and problems raised by the team to line management to action 4.4 Communicate issues raised by management to the team to action

Foundation Skills

This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.

SKILL	DESCRIPTION
Writing	Prepares workplace plans that communicate intent and elicits feedback clearly and effectively
Oral communication	Engages in discussions or provides information using structure and language appropriate to the audience and situation
Teamwork	- Selects and uses appropriate conventions and protocols when communicating with team members - Adapts personal communication style to model required behaviours, build trust and positive working relationships and to show respect for the opinions and values of others - Plays a lead role in situations requiring effective collaboration, demonstrating conflict resolution skills and ability to engage and motivate others

Planning and organising	• Develops, implements and monitors plans and processes to ensure team engagement and effectiveness • Uses formal analytical thinking techniques to identify issues and generate possible solutions, seeking input from others, as required

Unit Mapping Information

Supersedes and is equivalent to BSBLDR403 Lead team effectiveness.

Supersedes but is not equivalent to BSBSMB407 Manage a small team.

Links

Companion Volume Implementation Guide is found on VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10>

Assessment Requirements for BSBLDR414 Lead team effectiveness

Modification History

Release	Comments
Release 1	This version first released with BSB Business Services Training Package Version 7.0.

Performance Evidence

The candidate must demonstrate the ability to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including evidence of the ability to:

- develop a team development plan, that addresses:
 - innovation and productivity measures
 - team cohesion
 - issues management and actions.

In the course of the above, the candidate must:

- apply knowledge of organisational goals, objectives and plans to work tasks
- communicate with team members and management to identify and establish team purpose, roles, responsibilities, goals plans and objectives and resolve problems
- consult, encourage, support and provide feedback to team members
- model team leadership behaviours and approaches.

Knowledge Evidence

The candidate must be able to demonstrate knowledge to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including knowledge of:

- work processes, including team purpose, roles, responsibilities, goals and plans
- organisational escalation policies and procedures
- behaviours which enhance organisational image for work team, clients and customers
- processes for setting goals that contribute to team effectiveness
- effects of individual behaviour on team effectiveness
- innovation and productivity measures in work plans
- key features of common leadership styles.

Assessment Conditions

Skills in this unit must be demonstrated in a workplace or simulated environment where the conditions are typical of those in a working environment in this industry.

This includes access to:

- information about the organisation, including organisational structure, goals, objectives and plans.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

Links

Companion Volume Implementation Guide is found on VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10>

BSBLDR522 Manage people performance

Modification History

Release	Comments
Release 1	This version first released with BSB Business Services Training Package Version 7.0.

Application

This unit describes the skills and knowledge required to manage the performance of staff that are direct reports.

The unit applies to individuals who manage people. It covers work allocation and the methods to review performance, reward excellence and provide feedback. The unit makes the link between performance management and performance development and reinforces both functions as a key requirement for effective managers.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Unit Sector

Social Competence – Leadership

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Allocate work	1.1 Consult relevant groups and individuals on work to be allocated and resources available 1.2 Develop work plans and allocate work according to organisational requirements and operational plans 1.3 Develop and confirm performance standards and key performance indicators with relevant staff prior 1.4 Conduct risk analysis according to organisational risk management plan and legal requirements
2. Assess performance	2.1 Review performance management and processes according to legislation, organisational objectives and policies

ELEMENT	PERFORMANCE CRITERIA
	2.2 Train participants in the performance management and review process 2.3 Conduct performance management according to organisational policies procedures and relevant timelines 2.4 Monitor and evaluate performance according to performance standards and key performance indicators
3. Provide feedback	3.1 Provide informal feedback and coaching to staff 3.2 Advise relevant personnel, where performance is poor and take necessary actions 3.3 Document feedback according to the organisational performance management system 3.4 Conduct formal structured feedback sessions as necessary and according to organisational policy
4. Manage follow up	4.1 Develop performance improvement and development plans according to organisational policies 4.2 Monitor underperforming individuals according to organisational policies 4.3 Respond to underperforming individuals, as required 4.4 Reinforce excellence in performance through recognition and continuous feedback

Foundation Skills

This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.

SKILL	DESCRIPTION
Learning	Consolidates and improves own knowledge and skills by coaching, mentoring or training others
Reading	Gathers, interprets and analyses texts in organisational documents to facilitate performance management
Writing	Plans and prepares documents for allocating work and managing performance suitable for the target audience and in accordance with organisational requirements
Oral Communication	Uses language and structure appropriate to context and audience to explain expected standards of performance, provide feedback and coach staff
Self-management	Applies legal and regulatory responsibilities related to own work and the organisation as a whole

	• Adheres to organisational policies and procedures
Teamwork	• Applies the protocols governing what to communicate to whom and how in a range of work contexts • Collaborates with others to achieve joint outcomes, influencing direction and taking a leadership role on occasion
Planning and organising	• Sequences and schedules complex activities, monitors implementation and manages relevant communication • Seeks advice, feedback and support, as required to assist in the decision-making process • Uses experiences to reflect on the ways in which variables impact on performance

Unit Mapping Information

Supersedes and is equivalent to BSBMGT502 Manage people performance.

Supersedes but is not equivalent to:

- BSBMGT404 Lead and facilitate off-site staff
- BSBLS502 Lead and manage a sales team.

Links

Companion Volume Implementation Guide is found on VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10>

Assessment Requirements for BSBLDR522 Manage people performance

Modification History

Release	Comments
Release 1	This version first released with BSB Business Services Training Package Version 7.0.

Performance Evidence

The candidate must demonstrate the ability to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including evidence of the ability to:

- manage performance of at least two individuals
- manage performance of at least one team.

In the course of the above, the candidate must:

- consult with stakeholders to identify work requirements, performance standards and agreed performance indicators
- develop work plans and allocate work to achieve outcomes efficiently and within organisational and legal requirements
- assess performance against performance indicators according to performance management and review processes
- monitor, evaluate and provide feedback on performance and provide coaching or training, as needed
- keep records and documentation in accordance with the organisational performance management system
- reinforce excellence in performance through recognition and continuous feedback
- respond to underperforming individuals according to organisational policies, as required.

Knowledge Evidence

The candidate must be able to demonstrate knowledge to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including knowledge of:

- legislative and regulatory and organisational requirements for performance management and review
- organisational risk management plan
- organisational human resource support services
- organisational performance measurement systems
- key features of unlawful dismissal rules and due process

- staff development options and information.

Assessment Conditions

Skills in this unit must be demonstrated in a workplace or simulated environment where the conditions are typical of those in a working environment in this industry.

This includes access to:

- legislation on performance management
- workplace documentation and resources for performance management and review.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

Links

Companion Volume Implementation Guide is found on VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10>

BSBMGT402 Implement operational plan

Modification History

Release	Comments
Release 1	This version first released with BSB Business Services Training Package Version 1.0.

Application

This unit describes the skills and knowledge required to implement the operational plan by monitoring and adjusting operational performance, planning and acquiring resources and providing reports on performance as required.

It applies to individuals who plan activities to achieve the measurable, stated objectives of the team and the organisation. At this level work will normally be carried out within routine and non-routine methods and procedures which require planning, evaluation, leadership and guidance of others.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Unit Sector

Management and Leadership – Management

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Implement operational plan	1.1 Collate, analyse and organise details of resource requirements in consultation with relevant personnel, colleagues and specialist resource managers 1.2 Implement operational plans to contribute to the achievement of organisation's performance/business plan 1.3 Identify and use key performance indicators (KPIs) to monitor

ELEMENT	PERFORMANCE CRITERIA
	operational performance 1.4 Manage contingencies by adjusting the implementation of the operational plan in consultation with others 1.5 Provide assistance in the development and presentation of proposals for resource requirements in line with operational planning processes
2. Implement resource acquisition	2.1 Recruit and induct employees within organisation's policies, practices and procedures 2.2 Implement plans for acquisition of physical resources and services within organisation's policies, practices and procedures and in consultation with relevant personnel
3. Monitor operational performance	3.1 Monitor performance systems and processes to assess progress in achieving profit/productivity plans and targets 3.2 Analyse and use budget and actual financial information to monitor profit/productivity performance 3.3 Identify unsatisfactory performance and take prompt action to rectify the situation according to organisational policies 3.4 Provide mentoring, coaching and supervision to support individuals and teams to use resources effectively, economically and safely 3.5 Present recommendations for variation to operational plans to the designated persons/groups and gain approval 3.6 Implement systems, procedures and records associated with performance in accordance with organisation's requirements

Foundation Skills

This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.

Skill	Performance Criteria	Description
Learning	3.4	Actively reinforces learning by applying new knowledge and skills in mentoring, coaching and supervising others
Reading	1.1-1.5, 2.1, 2.2, 3.1, 3.2, 3.6	Identifies, interprets, analyses and reviews textual information related to the operational plan and

		monitoring of operational performance
Writing	1.1-1.5, 2.1, 2.2, 3.2-3.6	- Communicates relationships between ideas and information, matching style of writing to purpose and audience - Researches, plans and prepares workplace documentation for relevant stakeholders using organisational formats
Oral Communication	1.1, 1.4, 1.5, 2.1, 2.2, 3.3, 3.4, 3.5	Participates in a variety of spoken exchanges with a range of audiences varying structure and language to suit the audience
Numeracy	1.1, 1.2, 1.3, 1.4, 1.5, 2.2, 3.1, 3.2, 3.3	Selects and uses familiar mathematical techniques to organise timely supply of adequate resources for the operational plan and to use budgetary information to monitor performance
Navigate the world of work	1.5, 2.1, 2.2, 3.3, 3.4, 3.6	Monitors adherence to organisational policies and procedures and considers own role in terms of its contribution to broader goals of the work environment
Interact with others	1.1, 1.4, 1.5, 2.1, 2.2, 3.3, 3.4, 3.5	- Selects and uses appropriate conventions and protocols when communicating with diverse individuals to build rapport, seek or present information - Collaborates with others to achieve joint outcomes, playing an active role in facilitating effective group communication, influencing direction and taking a leadership role on occasion
Get the work done	1.1, 1.2, 1.3, 1.4, 1.5, 2.2, 3.1, 3.2, 3.3, 3.6	- Takes responsibility for planning, organising, implementing and monitoring tasks required to achieve required outcomes - Uses systematic, analytical processes in complex, non-routine situations, setting goals, gathering relevant information and identifying and evaluating options against agreed criteria - Evaluates effectiveness of decisions in terms of how well they met stated goals - Recognises and addresses an increasing range of familiar problems by implementing contingency plans

Unit Mapping Information

Code and title current version	Code and title previous version	Comments	Equivalence status
BSBMGT402 Implement	BSBMGT402A Implement	Updated to meet Standards for	Equivalent unit

Code and title current version	Code and title previous version	Comments	Equivalence status
operational plan	operational plan	Training Packages. Edits to clarify intent of Performance Criteria.	

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10>

Assessment Requirements for BSBMGT402 Implement operational plan

Modification History

Release	Comments
Release 1	This version first released with BSB Business Services Training Package Version 1.0.

Performance Evidence

Evidence of the ability to:

- interact with a range of people/groups to identify resource requirements, performance objectives, systems, procedures and records relating to the operational plan
- vary the operational plan and gain approval to deal with contingencies
- monitor operational performance against the performance objectives and budgets and take action to rectify unsatisfactory performance
- plan and acquire physical and human resources using organisation's systems and procedures
- manage and support personnel to achieve performance objectives. including inducting new employees and providing mentoring and coaching
- present information and recommendations to support implementation and variation of the operational plan
- document and provide reports on performance as required by the organisation.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe performance monitoring systems and processes
- describe methods for problem solving
- explain how organisational policies and procedures relate to the operational plan.

Assessment Conditions

Assessment must be conducted in a safe environment where evidence gathered demonstrates consistent performance of typical activities experienced in the management and leadership field of work and include access to:

- organisational operational plans, policies and procedures
- workplace documentation and resources including budgets, physical and human resource procurement documentation, employee induction and performance monitoring procedures
- case studies and, where possible, real situations.

Assessors must satisfy NVR/AQTF assessor requirements.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10>

BSBOPS203 Deliver a service to customers

Modification History

Release	Comments
Release 1	This version first released with BSB Business Services Training Package Version 7.0.

Application

This unit describes the skills and knowledge required to deliver aspects of customer service at an introductory level. It includes creating a relationship with customers, identifying their needs, delivering services or products, and processing customer feedback.

The unit applies to those who perform a range of routine tasks in the workplace using a limited range of practical skills and fundamental knowledge of customer service in a defined context under direct supervision or with limited individual responsibility.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Unit Sector

Business Competence – Business Operations

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Establish contact with customers	1.1 Greet customers according to organisational requirements 1.2 Share relevant information with customers 1.3 Identify and respond to specific customer requirements 1.4 Express interest in customer needs and develop rapport with customer
2. Identify customer needs	2.1 Ask questions to identify customer needs 2.2 Assess customer needs for urgency and identify priorities for service delivery 2.3 Provide customer with information about available options

ELEMENT	PERFORMANCE CRITERIA
	2.4 Assess limitations in addressing customer needs and seek assistance from designated persons, where required
3. Provide service to customers	3.1 Confirm details of service and delivery with customer according to organisational requirements 3.2 Convey information regarding problems and delays, and follow-up within appropriate timeframes, where required 3.3 Identify opportunities to enhance the quality of service and products, and take action to improve the service
4. Process customer feedback	4.1 Seek customer feedback and handle according to organisational and legislative requirements 4.2 Record feedback and communication between customer and the organisation according to organisational requirements 4.3 Identify any unmet customer needs and discuss suitability of alternative products or services 4.4 Encourage customers to maintain contact with organisation for future needs

Foundation Skills

This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.

Skill	Description
Reading	- Identifies requirements from organisational policy and procedure documents - Interprets product and service information in a range of formats to provide customer advice
Writing	Records customer information according to organisational requirements
Oral communication	- Provides information and advice using structure and language to suit the audience - Asks questions and listens to gain information and confirm understanding
Planning and organising	Follows organisational procedures and practices relevant to own role
Teamwork	- Uses accepted communication practices to establish connections, build rapport and develop professional working relationships - Adjusts personal communication style in response to the opinions, values and needs of others

Skill	Description
Initiative and enterprise	Identifies opportunities to enhance work practices and outcomes
Problem solving	Addresses routine problems in familiar work contexts

Unit Mapping Information

Supersedes and is equivalent to BSBCUS201 Deliver a service to customers.

Links

Companion Volume Implementation Guide is found on VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10>

Assessment Requirements for BSBOPS203 Deliver a service to customers

Modification History

Release	Comments
Release 1	This version first released with BSB Business Services Training Package Version 7.0.

Performance Evidence

The candidate must demonstrate the ability to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including evidence of the ability to:

- deliver a service to at least three different customers.

In the course of the above, the candidate must:

- greet the customer and establish rapport according to organisational requirements
- identify customer needs using interpersonal skills
- provide prompt service to address customer needs
- identify and follow up opportunities to increase the quality of service and products
- respond to and record all customer feedback according to organisational standards, policies and procedures.

Knowledge Evidence

The candidate must be able to demonstrate knowledge to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including knowledge of:

- key provisions of customer service legislation and consumer law
- requirements for responding to the needs of customers from a diverse background
- workplace organisational policies and procedures relating to customer service and the customer service process.

Assessment Conditions

Skills in this unit must be demonstrated in a workplace or simulated environment where the conditions are typical of those in a working environment in this industry.

This includes access to:

- workplace documents, and organisational policies and procedures for customer service
- examples of customer complaints and feedback.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

Links

Companion Volume Implementation Guide is found on VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10>

BSBOPS304 Deliver and monitor a service to customers

Modification History

Release	Comments
Release 1	This version first released with BSB Business Services Training Package Version 7.0.

Application

This unit describes the skills and knowledge required to identify customer needs, deliver and monitor customer service and identify improvements in the provision of customer service.

The unit applies to those who apply a broad range of competencies in various work contexts. In this role, individuals often exercise discretion and judgement using appropriate knowledge of customer service. They provide technical advice and support to customers over short or long-term interactions.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Unit Sector

Business Competence – Business Operations

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Identify customer needs	1.1 Identify and clarify customer needs and expectations 1.2 Evaluate customer needs and determine priorities for service delivery according to organisational requirements 1.3 Inform customers about available choices for meeting their needs and assist selection of preferred options 1.4 Identify limitations in addressing customer needs and seek assistance from designated individuals, where required
2. Deliver a service to customers	2.1 Provide service to meet identified customer needs according to organisational and legislative requirements 2.2 Establish and maintain rapport with customers

ELEMENT	PERFORMANCE CRITERIA
	2.3 Manage customer complaints according to organisational and legislative requirements 2.4 Provide assistance and respond to customers with specific needs according to organisational and legislative requirements 2.5 Identify and use available opportunities to promote and enhance services and products to customers
3. Evaluate customer service delivery	3.1 Review customer satisfaction with service delivery using verifiable evidence according to organisational and legislative requirements 3.2 Seek and respond to customer feedback according to organisational policies and procedures 3.3 Identify opportunities to enhance the quality of customer service 3.4 Document recommendations for customer service improvements 3.5 Submit recommendations to relevant personnel according to organisational policies and procedures

Foundation Skills

This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.

Skill	Description
Learning	Identifies and follows up on opportunities to improve work practices and outcomes
Oral communication	- Provides information or advice using structure and language to suit the audience - Asks questions and listens to gain information or confirm understanding
Reading	- Evaluates textual information to determine customer service requirements - Proofreads texts for clarity of meaning and accuracy of grammar and punctuation
Writing	- Completes responses to customer complaints in required format - Prepares reports using sequencing, format and words to communicate recommendations clearly and effectively
Planning and organising	- Complies with organisational policies and procedures relevant to role - Plans and implements systems to gather and organise information

Skill	Description
Problem-solving	• Uses problem solving skills to analyse and respond to customer complaints or enquiries
Teamwork	• Selects and uses appropriate communication conventions to establish connections, build rapport, seek information and develop professional working relationships • Adjusts personal communication style in response to the opinions, values and particular needs of others

Unit Mapping Information

Supersedes and is equivalent to BSBCUS301 Deliver and monitor a service to customers.

Supersedes but is not equivalent to:

- BSBCUE309 Develop product and service knowledge for customer engagement operation
- BSBEDU303 Assist with the provision of international education information
- BSBINT303 Organise the importing and exporting of goods
- BSBINT304 Assist in the international transfer of services
- BSBLS407 Identify and plan sales prospects.

Links

Companion Volume Implementation Guide is found on VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10>

Assessment Requirements for BSBOPS304 Deliver and monitor a service to customers

Modification History

Release	Comments
Release 1	This version first released with BSB Business Services Training Package Version 7.0.

Performance Evidence

The candidate must demonstrate the ability to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including evidence of the ability to:

- deliver a service to at least three different customers, including:
 - using communication skills to establish rapport and build relationships with customers according to organisational requirements
 - identifying customer needs using appropriate questioning and active listening skills
 - providing customer service according to organisational requirements
 - responding to and recording customer feedback and action taken according to organisational standards, policies and procedures
 - producing a report which identifies and recommends ways to improve service delivery.

Knowledge Evidence

The candidate must be able to demonstrate knowledge to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including knowledge of:

- key provisions of customer service legislation and consumer law
- organisational policies and procedures relating to customer service, including complaints handling
- common forms of verifiable evidence that could be used to review customer satisfaction
- customer service standards and protocols for serving customers, including customers with specific needs.

Assessment Conditions

Skills in this unit must be demonstrated in a workplace or simulated environment where the conditions are typical of those in a working environment in this industry.

This includes access to:

- technology required to gather and provide information and assistance to customers

- workplace documents, and organisational policies and procedures relating to customer service
- examples of customer complaints and feedback.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

Links

Companion Volume Implementation Guide is found on VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10>

BSBOPS305 Process customer complaints

Modification History

Release	Comments
Release 1	This version first released with BSB Business Services Training Package Version 7.0.

Application

This unit describes skills and knowledge required to handle complaints from customers.

The unit applies to those who apply a broad range of competencies and may exercise discretion and judgement using appropriate knowledge of products, customer service systems and organisational policies to provide technical advice and support to a team.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Unit Sector

Business Competence – Business Operations

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Receive complaints	1.1 Assess complaint according to organisational policy 1.2 Inform relevant stakeholders that complaint has been received 1.3 Document customer complaints according to organisational policies and procedures
2. Process complaints	2.1 Identify complaints requiring escalation according to organisational policy, and escalate as required 2.2 Identify additional information requirements to resolve complaints that do not require escalation 2.3 Prepare information for resolving complaint
3. Resolve complaints	3.1 Identify implications of complaint for customer and organisation

ELEMENT	PERFORMANCE CRITERIA
	3.2 Analyse options to resolve customer complaints according to legislation, organisational policies and codes of practice 3.3 Propose options according to legislative requirements and organisational policies 3.4 Escalate matters for which a solution cannot be determined to relevant personnel

Foundation Skills

This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.

Skill	Description
Reading	Identifies and interprets textual information to determine legislative, regulatory and organisational requirements
Writing	- Documents complaints and actions taken according to organisational requirements - Records spoken information clearly and accurately for future reference
Oral communication	- Presents or requests information using words and non-verbal features appropriate to the audience and context - Uses listening and questioning techniques to gather information and confirm understanding
Planning and organising	- Takes responsibility for planning, sequencing and completing tasks to achieve required outcomes - Follows organisational communication practices and procedures when referring complaints, seeking advice or negotiating outcomes
Problem-solving	Addresses less predictable problems applying problem solving processes in determining solutions that meet organisational requirements
Technology	Uses the main features and functions of digital tools to complete work tasks

Unit Mapping Information

Supersedes and is equivalent to BSBCMM301 Process customer complaints.

Supersedes but is not equivalent to:

- BSBCUE304 Provide sales solutions to customers

- BSBCUE308 Conduct outbound customer engagement.

Links

Companion Volume Implementation Guide is found on VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10>

Assessment Requirements for BSBOPS305 Process customer complaints

Modification History

Release	Comments
Release 1	This version first released with BSB Business Services Training Package Version 7.0.

Performance Evidence

The candidate must demonstrate the ability to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including evidence of the ability to:

- process at least three customer complaints relating to business operations.

In the course of the above, the candidate must:

- follow organisational procedures when referring and resolving complaints.

Knowledge Evidence

The candidate must be able to demonstrate knowledge to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including knowledge of:

- key provisions of legislation relating to customers including Australian Consumer Law and consumer guarantees
- communication techniques for handling customer complaints
- organisational policies, procedures and standards for processing complaints
- organisational escalation procedures and relevant personnel.

Assessment Conditions

Skills in this unit must be demonstrated in a workplace or simulated environment where the conditions are typical of those in a working environment in this industry.

This includes access to:

- organisational policies and procedures relevant to customer complaints
- legislation and codes of practice relevant to customer complaints.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

Links

Companion Volume Implementation Guide is found on VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10>

BSBOPS402 Coordinate business operational plans

Modification History

Release	Comments
Release 1	This version first released with BSB Business Services Training Package Version 7.0.

Application

This unit describes the skills and knowledge required to implement operational plans by planning and acquiring resources, monitoring and adjusting operational performance and providing reports on performance, as required.

The unit applies to individuals who plan activities to achieve team and organisational objectives. At this level, work will normally be carried out within routine and non-routine methods and involve procedures that require planning, evaluation, leadership and guidance of others.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Unit Sector

Business Competence – Business Operations

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Prepare to implement operational plan	1.1 Consult with stakeholders to identify resource requirements relevant to operational plan 1.2 Collate, analyse and document details of resource requirements 1.3 Develop operational plan and determine implementation method 1.4 Plan for contingencies 1.5 Develop and present proposals for resource requirements
2. Implement operational plan	2.1 Assist in recruiting and onboarding employees required to implement operational plan according to organisational policies

ELEMENT	PERFORMANCE CRITERIA
	and procedures 2.2 Acquire physical resources and services according to organisational policies and procedures 2.3 Support efficient, cost-effective and safe use of resources 2.4 Adjust implementation of the operational plan in consultation with others to manage contingencies
3. Monitor operational performance	3.1 Collate relevant information and determine operational and productivity performance 3.2 Identify and use key performance indicators (KPIs) and assess operational performance 3.3 Identify unsatisfactory performance and take action to rectify the situation according to organisational policies
4. Review operations based on performance	4.1 Develop recommendations for variation to operational plans 4.2 Present recommendations to the designated persons or groups to gain approval 4.3 Maintain records related to operational performance according to organisational policies and procedures 4.4 Report information on operational performance to management

Foundation Skills

This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.

Skill	Description
Reading	Identifies, interprets, analyses and reviews textual information related to the operational plan and monitoring of operational performance
Writing	- Communicates relationships between ideas and information, matching style of writing to purpose and audience - Researches, plans and prepares workplace documentation for relevant stakeholders using organisational formats
Oral communication	Participates in a variety of spoken exchanges with a range of audiences varying structure and language to suit the audience
Numeracy	Selects and uses familiar mathematical techniques to organise timely supply of adequate resources for the operational plan and to use budgetary information to monitor performance
Enterprise and initiative	Monitors adherence to organisational policies and procedures and considers own role in terms of its contribution to broader goals of the work environment

Skill	Description
Teamwork	• Selects and uses appropriate conventions and protocols when communicating with diverse individuals to build rapport, seek or present information • Collaborates with others to achieve joint outcomes, playing an active role in facilitating effective group communication, influencing direction and taking a leadership role on occasion
Planning and organising	• Takes responsibility for planning, organising, implementing and monitoring tasks required to achieve required outcomes • Evaluates effectiveness of decisions in terms of how well they met stated goals • Identifies and addresses an increasing range of familiar problems by implementing contingency plans

Unit Mapping Information

No equivalent unit. Supersedes but is not equivalent to:

- BSBFLM305 Support operational plan
- BSBMGT402 Implement operational plan.

Links

Companion Volume Implementation Guide is found on VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10>

Assessment Requirements for BSBOPS402 Coordinate business operational plans

Modification History

Release	Comments
Release 1	This version first released with BSB Business Services Training Package Version 7.0.

Performance Evidence

The candidate must demonstrate the ability to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including evidence of the ability to:

- prepare, implement and review two operational plans.

In the course of the above, the candidate must:

- interact with a range of people and groups to identify resource requirements, performance objectives, systems, procedures and records relating to the operational plan
- plan and acquire physical and human resources using organisation's systems and procedures
- manage and support personnel to achieve performance objectives including facilitating new employee onboarding
- present information and recommendations to support implementation and variation of the operational plan
- monitor operational performance against the performance objectives and budgets and implement improvements to rectify unsatisfactory performance
- vary the operational plan and gain approval to deal with contingencies
- document and provide reports on performance as required by the organisation.

Knowledge Evidence

The candidate must be able to demonstrate knowledge to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including knowledge of:

- processes to identify resource requirements
- sources of information to identify resource requirements
- methods to manage contingencies including through consultation with relevant stakeholders
- key features of performance monitoring systems and processes
- common methods for problem solving
- methods to support staff including mentoring, coaching and supervision

- implementation methods for operational plan
- budget and other financial information related to the organisation
- organisational objectives including costs, identified shortfalls and surpluses.

Assessment Conditions

Skills in this unit must be demonstrated in a workplace or simulated environment where the conditions are typical of those in a working environment in this industry.

This includes access to:

- organisational operational plans, policies and procedures relevant to performance evidence
- workplace documentation and resources including budgets
- physical and human resource procurement documentation
- employee onboarding and performance monitoring procedures.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

Links

Companion Volume Implementation Guide is found on VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10>

BSBOPS404 Implement customer service strategies

Modification History

Release	Comments
Release 1	This version first released with BSB Business Services Training Package Version 7.0.

Application

This unit describes the skills and knowledge required to advise, carry out and evaluate customer service strategies.

The unit applies to individuals who have well developed skills and a broad knowledge of customer service strategies for addressing customer needs and problems. Individuals may provide guidance or delegate work related tasks to others.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Unit Sector

Business Competence – Business Operations

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Advise on customer service needs	1.1 Identify organisational customer service objectives and customer needs 1.2 Assess and clarify customer requirements 1.3 Identify and diagnose problems with service delivery 1.4 Develop options to improve customer service delivery according to organisational requirements 1.5 Provide recommendations to promote improvement of customer service delivery
2. Support implementation of customer service	2.1 Consult with relevant stakeholders to develop customer service strategies 2.2 Assess customer service strategies and opportunities against

ELEMENT	PERFORMANCE CRITERIA
strategies	customer service objectives 2.3 Identify and allocate available budget resources to fulfil customer service objectives 2.4 Action procedures to resolve customer difficulties and complaints according to organisational requirements
3. Evaluate and report on customer service	3.1 Review stakeholder satisfaction with service delivery according to organisational requirements 3.2 Identify and report changes necessary to meet customer service objectives 3.3 Prepare conclusions and recommendations on future directions of client service strategies 3.4 Monitor systems, records and reporting procedures for changes to customer satisfaction

Foundation Skills

This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.

Skill	Description
Reading	Reviews textual information and comprehends details that relate to the interests or requirements of the client and organisation
Writing	Creates a range of formal texts using structure, grammar and clear and specialised language to describe customer needs, maintain information and support a particular position
Oral communication	Uses pace, intonation, intelligible pronunciation and listening and questioning techniques to interact effectively with others
Numeracy	Recognises and interprets numerical information and performs calculations on familiar mathematical information
Enterprise and Initiative	Recognises and applies organisational protocols and meets expectations associated with own work
Teamwork	- Uses a range of strategies to establish a sense of connection and build rapport with customers - Collaborates with others contributing knowledge and skills to achieve joint outcomes
Planning and organising	- Applies formal and logical processes when planning and implementing tasks - Applies standard procedures when responding to familiar problems

Skill	Description
	within own work context
Technology	• Uses digital technologies to access, organise, present and store information relevant to own role

Unit Mapping Information

Supersedes and is equivalent to BSBCUS401 Coordinate implementation of customer service strategies.

Supersedes but is not equivalent to:

- BSBCUS402 Address customer needs
- BSBCUS403 Implement customer service standards
- BSBSLS408 Present, secure and support sales solutions.

Links

Companion Volume Implementation Guide is found on VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10>

Assessment Requirements for BSBOPS404 Implement customer service strategies

Modification History

Release	Comments
Release 1	This version first released with BSB Business Services Training Package Version 7.0.

Performance Evidence

The candidate must demonstrate the ability to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including evidence of the ability to:

- develop and implement at least two strategies to improve customer service delivery.

In the course of the above, the candidate must:

- respond to and report on customer feedback and complaints
- review client satisfaction using verifiable data
- consult and communicate effectively with relevant people
- develop and implement strategies and methods to improve customer service delivery, including:
 - budgeting
 - promotion to staff
 - documentation and follow up.

Knowledge Evidence

The candidate must be able to demonstrate knowledge to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including knowledge of:

- customer communication techniques
- principles of customer service
- sources of verified client information
- techniques for identifying customer needs and reviewing customer satisfaction
- organisational business structure, products and services related to customer service
- techniques for drawing insights from verifiable evidence to develop recommendations and conclusions
- product and service standards and best practice models.

Assessment Conditions

Skills in this unit must be demonstrated in a workplace or simulated environment where the conditions are typical of those in a working environment in this industry.

This includes access to:

- organisational policies and procedures for customer service
- examples of customer complaints and feedback
- client satisfaction data.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

Links

Companion Volume Implementation Guide is found on VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10>

BSBOPS502 Manage business operational plans

Modification History

Release	Comments
Release 1	This version first released with BSB Business Services Training Package Version 7.0.

Application

This unit describes the skills and knowledge required to develop and monitor the implementation of operational plans to support efficient and effective workplace practices and organisational productivity and profitability.

The unit applies to individuals who manage the work of others and operate within the parameters of a broader strategic and/or business plans.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Unit Sector

Business Competence – Business Operations

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Establish operational plan	1.1 Research, analyse and document resource requirements 1.2 Develop operational plan in consultation with, and with approval from, relevant stakeholders 1.3 Develop contingencies for operational plan 1.4 Explain plan to relevant work teams
2. Manage resource acquisition	2.1 Confirm that employees are recruited and inducted according to the organisation's human resources management policies, practices and procedures 2.2 Confirm that physical resources and services are acquired according to the organisation's policies, practices and procedures

ELEMENT	PERFORMANCE CRITERIA
	2.3 Identify and incorporate requirements for intellectual property rights and responsibilities related to acquisition of resources
3. Monitor and review operational performance	3.1 Assess progress of operational plan in achieving profit and productivity plans and targets 3.2 Identify areas of under-performance, recommend solutions and rectify the situation 3.3 Plan and implement relevant processes for ongoing monitoring and confirm that support is provided for individuals and teams 3.4 Negotiate recommendations for variations to operational plans and gain approval from designated persons

Foundation Skills

This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.

Skill	Description
Reading	Gathers, interprets and analyses workplace documentation to determine requirements for the operational plan
Writing	Develops and documents a range of detailed texts relating to the management of an operational plan according to organisational requirements
Oral communication	- Presents information to a range of audiences using appropriate register, vocabulary and paralinguistic features - Listens and comprehends information from a variety of spoken exchanges with clients, co-workers and other stakeholders
Numeracy	Selects and uses mathematical problem-solving strategies to organise resource requirements, performance benchmarks and financial viability of the operational plan
Enterprise and initiative	Monitors adherence to organisational policies, procedures and considers own role in terms of its contribution to broader goals of the work environment
Teamwork	Collaborates with others to achieve joint outcomes, playing an active role in facilitating effective group interaction, influencing direction and taking a leadership role on occasion
Planning and organising	- Takes responsibility for developing and implementing systems and processes to achieve organisational objectives, seeking advice, feedback and support as required to assist in the development and planning phase - Sequences and schedules complex activities, monitors

Skill	Description
	implementation, and manages relevant communication
Problem solving	• Uses systematic analytical processes to aid decision making, identify potential problems and generate contingency plans or solutions
Technology	• Demonstrates awareness of the importance of data security in a digital environment

Unit Mapping Information

Supersedes and is equivalent to BSBMGT517 Manage operational plan.

Links

Companion Volume Implementation Guide is found on VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10>

Assessment Requirements for BSBOPS502 Manage business operational plans

Modification History

Release	Comments
Release 1	This version first released with BSB Business Services Training Package Version 7.0.

Performance Evidence

The candidate must demonstrate the ability to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including evidence of the ability to:

- manage an operational plan for at least one business or work area.

In the course of the above, the candidate must:

- develop and implement an operational plan using a variety of information sources and consultation including:
 - resource requirements
 - key performance indicators
 - monitoring processes
 - contingency plans
- communicate with stakeholders to explain the plan and supporting information, seek approvals, negotiate variations and engage work teams
- confirm existence of relevant strategies, including strategies relating to:
 - recruiting, inducting and developing personnel
 - acquiring physical resources and services
 - protecting intellectual property
 - making variations to the plan
 - monitoring and documenting performance.

Knowledge Evidence

The candidate must be able to demonstrate knowledge to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including knowledge of:

- stakeholders involved in development and management of operations plan including escalation points, colleagues and specialist resource managers
- key information sources for proposal development and presentation including resource requirement specialists

- consultation processes
- content of operational plans, including:
 - procurement processes
 - employee recruitment and induction strategies
 - physical resource and service acquisition strategies
 - key indicators of organisational performance
- budget and actual financial relating to profit and productivity
- methods for preparing operational plans and contingency plans
- role of an operational plan in achieving an organisation's objectives
- procedures and records associated with documenting performance
- approaches for developing key performance indicators to meet business objectives
- legislative and regulatory framework relating to the development and implementation of operational plan of the organisation, including:
 - fair trading laws
 - work health and safety
- organisational policies, practices and procedures that relate to the operational plan.

Assessment Conditions

Skills in this unit must be demonstrated in a workplace or simulated environment where the conditions are typical of those in a working environment in this industry.

This includes access to:

- legislation and regulations relevant to operational plans
- workplace documentation and resources relevant to performance evidence.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

Links

Companion Volume Implementation Guide is found on VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10>

BSBPEF202 Plan and apply time management

Modification History

Release	Comments
Release 1	This version first released with BSB Business Services Training Package Version 7.0.

Application

This unit describes the skills and knowledge required to implement time management processes to organise and complete work tasks. It also addresses skills and knowledge to seek and review feedback for performance improvement regarding time management and use technology appropriate to the task.

The unit applies to individuals working under direct supervision. These individuals apply basic skills and knowledge in a broad range of work settings.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Unit Sector

Critical Thinking & Problem Solving – Personal Effectiveness

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Organise work schedule	1.1 Discuss and agree on work goals and plans with assistance from relevant personnel 1.2 Identify relationship between own work goals and plans, and organisational goals and plans 1.3 Research time management techniques and strategies 1.4 Plan and prioritise work tasks within allocated timeframes
2. Complete work tasks	2.1 Perform tasks according to designated timelines and instructions 2.2 Seek assistance from colleagues when difficulties arise in achieving allocated tasks

ELEMENT	PERFORMANCE CRITERIA
	2.3 Identify factors affecting work plan 2.4 Communicate progress on work plan to relevant personnel according to organisational policies and procedures
3. Review work performance	3.1 Seek feedback on time management from relevant personnel 3.2 Record changes to time management approach according to task instructions 3.3 Identify and plan opportunities for improvement in discussion with colleagues

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance but not explicit in the performance criteria.

Skill	Description
Reading	Identifies and interprets textual information to determine and adhere to organisational and task requirements
Writing	Completes required documents using organisational formats
Oral communication	- Uses listening and questioning techniques to seek information and confirm understanding - Participates in verbal interactions using language and features suitable to audience and context
Numeracy	Interprets numerical information related to timeframes
Enterprise and initiative	Complies with organisational policies, procedures and standards
Planning and organising	- Prioritises work and completes activities within designated timeframes - Identifies and solves routine problems
Technology	Selects and uses appropriate digital tools to complete tasks

Unit Mapping Information

Supersedes and is equivalent to BSBWOR202 Organise and complete daily work activities.

Links

Companion Volume Implementation Guide is found on VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10>

Assessment Requirements for BSBPEF202 Plan and apply time management

Modification History

Release	Comments
Release 1	This version first released with BSB Business Services Training Package Version 7.0.

Performance Evidence

The candidate must demonstrate the ability to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including evidence of the ability to:

- develop and implement at least one time management plan with support of relevant personnel.

In the course of the above, the candidate must:

- complete each work task within specified timeframe, seeking opportunities to use digital tools where applicable
- seek and use feedback from others to monitor and improve work performance.

Knowledge Evidence

The candidate must be able to demonstrate knowledge to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including knowledge of:

- time management techniques and strategies
- features of a time management plan
- organisational standards, policies and procedures relevant to own work role
- relationship between own work goals and plans and organisation's goals and plans
- factors affecting work progress and performance improvement techniques.

Assessment Conditions

Skills in this unit must be demonstrated in a workplace or simulated environment where the conditions are typical of those in a working environment in this industry.

This includes access to challenges and situations to demonstrate application of performance evidence.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

Links

Companion Volume Implementation Guide is found on VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10>

BSBPEF301 Organise personal work priorities

Modification History

Release	Comments
Release 1	This version first released with BSB Business Services Training Package Version 7.0.

Application

This unit describes the skills and knowledge required to organise personal work schedules, to monitor and obtain feedback on work performance and to maintain required levels of competence.

The unit applies to individuals who exercise discretion and judgement and apply a broad range of competencies in various work contexts.

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Unit Sector

Critical Thinking & Problem Solving – Personal Effectiveness

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Organise and complete own work schedule	1.1 Develop work goals and key performance indicators (KPIs) according to task and organisational requirements 1.2 Prioritise workload according to task timeframes 1.3 Identify factors affecting achievement of work objectives 1.4 Develop personal work plans
2. Evaluate own work performance	2.1 Identify variations between expected and actual work performance according to task requirements and KPIs 2.2 Report variations to relevant personnel 2.3 Seek feedback from relevant personnel for solutions to minimise variations in expected and actual work outputs

ELEMENT	PERFORMANCE CRITERIA
	2.4 Research sources of stress and access appropriate supports according to organisational policies and procedures
3. Coordinate personal skill development and learning	3.1 Identify personal and professional development needs for job role 3.2 Identify opportunities to undertake personal skill development activities in consultation with supervisor 3.3 Access professional development opportunities 3.4 Record professional development undertaken for continuous learning and career development process 3.5 Incorporate feedback into review of further learning needs

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance but not explicit in the performance criteria.

Skill	Description
Learning	Employs a range of approaches and investigative techniques to source the knowledge necessary to arrange personal learning experiences
Reading	Interprets textual information to determine organisation's procedures, own work performance and objectives
Writing	Prepares written reports and workplace documents that communicate information clearly and effectively
Oral communication	- Provides and receives feedback using specific and relevant language - Uses listening and questioning techniques to confirm understanding
Numeracy	Complies with organisational policies, procedures and protocols
Teamwork	- Selects the appropriate form, channel and mode of communication for a specific purpose relevant to own role - Proactively collaborates with others to achieve specific goals
Planning and organising	- Plans and organises work commitments to ensure deadlines and objectives are met - Uses formal analytical thinking techniques to recognise and respond to routine problems
Technology	Uses digital systems and tools to enter, store and monitor information

Unit Mapping Information

Supersedes and is equivalent to BSBWOR301 Organise personal work priorities and development.

Links

Companion Volume Implementation Guide is found on VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10>

Assessment Requirements for BSBPEF301 Organise personal work priorities

Modification History

Release	Comments
Release 1	This version first released with BSB Business Services Training Package Version 7.0.

Performance Evidence

The candidate must demonstrate the ability to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including evidence of the ability to:

- prepare and implement a personal work plan.

In the course of the above, the candidate must:

- prepare a work plan according to organisational requirements and work objectives
- use technology to schedule, prioritise and monitor completion of tasks in a work plan
- assess and prioritise own work tasks and address contingencies
- monitor and assess personal performance against job role requirements by seeking feedback from relevant personnel
- identify personal development needs and access, complete and record skill development and learning.

Knowledge Evidence

The candidate must be able to demonstrate knowledge to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including knowledge of:

- organisational policies and procedures relevant to work tasks
- goals, objectives and key performance indicators for task within scope of job role
- methods to elicit, analyse and interpret feedback when communicating with other people in the workplace
- content of work plans including:
 - timeframes
 - tasks requirements
 - risks
 - contingencies for identified risks
- types of personal learning and professional development requirements
- principles and techniques of goal setting, measuring performance and time management

- signs and sources of stress and strategies to deal with stress in the workplace
- methods to identify and prioritise personal learning needs.

Assessment Conditions

Skills in this unit must be demonstrated in a workplace or simulated environment where the conditions are typical of those in a working environment in this industry.

This includes access to:

- challenges and situations to demonstrate application of performance evidence.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

Links

Companion Volume Implementation Guide is found on VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10>

BSBPEF402 Develop personal work priorities

Modification History

Release	Comments
Release 1	This version first released with BSB Business Services Training Package Version 7.0.

Application

This unit describes the skills and knowledge required to plan and prioritise own work tasks. It also addresses the skills and knowledge to monitor and obtain feedback on personal work performance.

The unit applies to individuals who are required to design their own work schedules and work plans and to establish priorities for their work. They will typically hold some responsibilities for the work of others and have some autonomy in relation to their own role.

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Unit Sector

Critical Thinking & Problem Solving – Personal Effectiveness

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Plan personal work schedule	1.1 Identify task requirements 1.2 Identify own accountabilities in line with task requirements 1.3 Assess barriers for performance of personal accountabilities 1.4 Develop a personal work schedule
2. Implement personal work schedule	2.1 Communicate personal work schedule to relevant personnel 2.2 Monitor own performance according to personal work schedule 2.3 Document variations between expected and actual work performance according to task requirements and communicate to relevant personnel

ELEMENT	PERFORMANCE CRITERIA
3. Review personal work priorities	3.1 Seek and evaluate feedback from relevant stakeholders on own work performance 3.2 Analyse variations between expected and actual work performance 3.3 Update personal work schedule according to internal and external feedback and changes in circumstances

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance but not explicit in the performance criteria.

Skill	Description
Learning	Develops strategies to reflect on own performance and obtain feedback
Reading	Identifies and applies textual information from relevant sources to understand organisation's policies and practices
Writing	Prepares written reports and workplace documentation that communicate complex information clearly and effectively
Numeracy	Analyses numerical information related work accountabilities
Enterprise and initiative	Identifies and understands roles and responsibilities in relation to organisational objectives, policies and procedures
Planning and organising	- Plans, organises and implements tasks to meet organisational requirements - Uses the main features and functions of digital technologies and tools to complete work tasks efficiently and effectively

Unit Mapping Information

Supersedes and is equivalent to BSBWOR404 Develop work priorities.

Supersedes but is not equivalent to:

- BSBSMB408 Manage personal, family, cultural and business obligations
- BSBWOR424 Develop a time management plan.

Links

Companion Volume Implementation Guide is found on VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10>

Assessment Requirements for BSBPEF402 Develop personal work priorities

Modification History

Release	Comments
Release 1	This version first released with BSB Business Services Training Package Version 7.0.

Performance Evidence

The candidate must demonstrate the ability to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including evidence of the ability to:

- develop, implement and review one personal work schedule.

In the course of the above, the candidate must:

- identify personal responsibilities and barriers to their fulfilment according to task requirements
- prepare a personal work schedule
- communicate work schedule to relevant personnel
- monitor personal work performance to identify variations between expected and actual work performance
- review own work performance against workgroup objectives through self-assessment and seeking and acting on feedback from internal and external stakeholders.

Knowledge Evidence

The candidate must be able to demonstrate knowledge to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including knowledge of:

- content of work plans including:
 - resource requirements
 - stakeholder needs
 - workgroup targets
- business technology applications to schedule tasks and plan work
- methods of personal work performance review including:
 - self-assessment
 - feedback from others
- techniques to prepare personal plans and establish priorities
- methods to elicit, analyse and interpret feedback.

Assessment Conditions

Skills in this unit must be demonstrated in a workplace or simulated environment where the conditions are typical of those in a working environment in this industry.

This includes access to challenges and situations to demonstrate the application of performance evidence.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

Links

Companion Volume Implementation Guide is found on VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10>

BSBPMG430 Undertake project work

Modification History

Release	Comments
Release 1	This version first released with BSB Business Services Training Package Version 7.0.

Application

This unit describes the skills and knowledge required to undertake a minor project or a section of a larger project. It covers developing a project plan, administering and monitoring the project, finalising the project and reviewing the project to identify lessons learned for application to future projects.

The unit applies to individuals who play a significant role in ensuring a project meets timelines, quality standards, budgetary limits and other requirements set for the project.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Unit Sector

Business Competence – Project Management

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Establish project parameters	1.1 Identify project scope 1.2 Define project stakeholders 1.3 Seek clarification from delegating authority of issues related to project and project parameters 1.4 Identify responsibilities of relevant stakeholders and reporting requirements 1.5 Clarify relationship of project to other projects and to the objectives of the organisation 1.6 Identify availability and access of resources for undertaking the project

ELEMENT	PERFORMANCE CRITERIA
2. Develop project plan	2.1 Identify risks and develop a risk management plan for project, including Work Health and Safety (WHS) 2.2 Develop project budget and timeframe and seek approval from relevant stakeholders 2.3 Consult team members and apply their views in planning the project 2.4 Identify and access appropriate project management tools 2.5 Develop project plan according to project parameters and deliverables 2.6 Finalise project plan and gain necessary approvals to commence project according to documented plan
3. Administer and monitor project	3.1 Communicate to project team members their responsibilities and project requirements 3.2 Establish and maintain required recordkeeping systems throughout the project 3.3 Implement and monitor plans for managing the project 3.4 Undertake risk management as required
4. Finalise and review project	4.1 Complete financial recordkeeping associated with project and confirm according to agreed budget 4.2 Complete project documentation and obtain sign-offs for concluding project 4.3 Review project outcomes and processes against the project scope and plan 4.4 Document feedback and suggested improvements

Foundation Skills

This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.

SKILL	DESCRIPTION
Reading	• Organises, evaluates and critiques ideas and information from a range of complex texts
Writing	• Develops plans, reports and recommendations using vocabulary, structure and conventions appropriate to text • Establishes and maintains records according to organisational requirements
Numeracy	• Uses formal and some informal, oral and written mathematical language and representation to prepare and communicate budgetary and financial

SKILL	DESCRIPTION
	information
Oral communication	• Participates in verbal discussions using clear language and appropriate features to present or seek information • Using listening and questioning skills to seek information and confirm understanding
Self-management	• Identifies and responds to organisational and legislative/regulatory requirements
Teamwork	• Selects and uses appropriate communication protocols and practices to ensure shared understanding of project roles and expectations • Uses collaborative techniques to engage stakeholders in consultations and negotiations
Planning and organising	• Develops and implements plans to manage projects that involve diverse stakeholders with potentially competing demands • Systematically gathers and analyses all relevant information and evaluates options to make informed decisions • Evaluates outcomes of decisions to identify opportunities for improvement
Technology	• Uses digital technologies and applications to access, organise and share information

Unit Mapping Information

Supersedes and is equivalent to BSBPMG522 Undertake project work.

Supersedes but is not equivalent to BSBADM407 Administer projects.

Links

Companion Volume Implementation Guide is found on VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10>

Assessment Requirements for BSBPMG430 Undertake project work

Modification History

Release	Comments
Release 1	This version first released with BSB Business Services Training Package Version 7.0.

Performance Evidence

The candidate must demonstrate the ability to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including evidence of the ability to:

- undertake project work on a minor project or a section of a larger project.

In the course of the above, the candidate must:

- confirm the quality of project outcomes according to expectations of the organisation
- consult and communicate with relevant stakeholders to generate input and engagement in planning, implementing and reviewing the project
- provide support to team members to enable them to achieve deliverables and to transition them as appropriate at completion of the project.

Knowledge Evidence

The candidate must be able to demonstrate knowledge to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including knowledge of:

- project management tools
- types of documents and other sources of information commonly used in defining the parameters of a project
- mission, goals, objectives and operations of the organisation
- relevant legislation and regulations, including work health and safety (WHS) requirements, for project planning
- project management processes according to policies and procedures of the organisation and including:
 - lines of authority and approvals
 - quality assurance
 - human resources
 - budgets and finance
 - risk management
 - recordkeeping

- reporting.

Assessment Conditions

Skills in this unit must be demonstrated in a workplace or simulated environment where the conditions are typical of those in a working environment in this industry.

This includes access to:

- relevant legislation, regulations, standards and codes
- workplace documentation and resources relevant to performance evidence.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

Links

Companion Volume Implementation Guide is found on VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10>

BSBSMB407 Manage a small team

Modification History

Release	Comments
Release 2	This version released with BSB Business Services Training Package Version 2.0. Version created to clarify intent of unit
Release 1	This version first released with BSB Business Services Training Package Version 1.0.

Application

This unit describes the skills and knowledge required to select, induct, train and develop staff members to enhance business operations within the parameters of all relevant legislative requirements.

It applies to individuals who operate a small business that stands alone, or is part of a department within a larger organisation. Individuals in this role have a good knowledge of industrial relations and team management and use effective, responsive and supportive communication in workplace interactions.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Unit Sector

Management and Leadership – Small and Micro Business

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Develop staffing plan	1.1 Determine staffing requirements to allow the business to run effectively, in accordance with requirements outlined in the

ELEMENT	PERFORMANCE CRITERIA
	business plan 1.2 Identify and compare existing skills of owner/s and staff with business requirements to identify any gaps 1.3 Develop policies and procedures for owner/s and staff, in accordance with the business plan
2. Recruit, induct, train and retain team	2.1 Develop job or position descriptions, competencies required and selection criteria to meet business' needs 2.2 Judge information obtained from each candidate against specified selection criteria, and select according to business needs and legal requirements 2.3 Induct new staff members in accordance with policies and procedures of the business 2.4 Make team members aware of their responsibilities and performance requirements as soon as practicable, and take opportunities to coach team members who are unfamiliar with procedures of the business 2.5 Develop and implement a staff development program and career paths based on requirements of business and staff competencies 2.6 Advertise staff vacancies appropriately in accordance with staffing plan
3. Comply with industrial relations obligations	3.1 Clarify workplace rights and obligations of employers and employees, in accordance with legal requirements and codes of practice 3.2 Counsel staff, if required, in a positive and constructive manner and record outcomes accurately
4. Maintain staff records	4.1 Develop staff records system to provide timely and accurate information, in accordance with confidentiality, legal and taxation requirements 4.2 Monitor and accurately maintain system for recording and retrieving personnel and payroll information, and seek specialist advice where required
5. Manage staff	5.1 Regularly review contribution and skills of self and other team members to ensure performance is in line with agreed performance measures 5.2 Monitor and adjust staffing requirements to respond to any changes in tasks and functions required by the business 5.3 Support and encourage staff, and acknowledge and reward

ELEMENT	PERFORMANCE CRITERIA
	their contribution 5.4 Regularly provide opportunities for staff to discuss work related issues 5.5 Develop contingency plans to cope with unexpected or extreme situations and take appropriate corrective action as required
6. Review team performance	6.1 Develop positive and constructive relationships with and between team members 6.2 Review and update team objectives in support of business goals on a regular basis in consultation with team members 6.3 Identify strengths and weaknesses of team against current and expected work requirements 6.4 Schedule time, on a regular basis, for team members to review work operations to maintain and improve operational efficiency 6.5 Encourage team members to monitor their own performance, suggest improvements and identify professional development needs, in accordance with personal and business requirements 6.6 Monitor and review staff turnover rate

Foundation Skills

This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.

Skill	Performance Criteria	Description
Reading	1.1-1.3, 2.2, 2.3, 2.5, 2.6, 3.1, 4.1, 5.1, 6.3, 6.5, 6.6	Evaluates complex text to determine legislative, regulatory and workplace documentation
Writing	1.3, 2.1-2.6, 3.1, 3.2, 4.1, 4.2, 5.5, 6.1-6.3, 6.5	Prepares written reports and workplace documentation that communicate complex information clearly and effectively
Oral Communication	1.2, 2.2-2.4, 3.1, 3.2, 4.2, 5.3, 5.4, 6.1, 6.2, 6.4, 6.5	- Articulates clearly using specific and relevant language suitable to audience to convey requirements, and employs listening and questioning techniques to confirm understanding - Participates in verbal negotiations and coaching using tone and language suitable to audience

Numeracy	6.4	• Uses basic mathematical formulas to review staff performances within available work schedules
Navigate the world of work	1.3, 2.2, 3.1, 4.1	• Understands own legal rights and responsibilities and is extending understanding of general legal principles across work contexts • Monitors adherence to organisational policies and procedures and considers own role for its contribution to broader goals of the work environment
Interact with others	2.4, 2.6, 5.3, 6.1, 6.5	• Collaborates with others to achieve joint outcomes, playing an active role in facilitating effective group interaction, influencing direction and taking a leadership role on occasion • Looks for ways of establishing connections and building genuine understanding with a diverse range of people • Actively identifies important communication exchanges, selecting appropriate channels, format, tone and context to suit purpose and audience, and monitors impact
Get the work done	1.1, 1.2, 2.2, 2.3, 2.5, 4.2, 5.1, 5.2, 5.5, 6.3, 6.6	• Uses digital technologies and systems safely, legally and ethically when gathering, storing, accessing and sharing information • Develops plans to manage relatively complex, non-routine tasks with an awareness of how they may contribute to longer-term operational and strategic goals • Makes a range of critical and non-critical decisions in relatively complex situations, taking a range of constraints into account • Uses formal and informal processes to monitor implementation of ideas and reflect on outcomes • Recognises and anticipates an increasing range of familiar problems, their symptoms and causes, actively looking for early warning signs and implementing contingency plans

Unit Mapping Information

Code and title current version	Code and title previous version	Comments	Equivalence status
BSBSMB407 Manage a small team Release 2	BSBSMB407 Manage a small	Updated to clarify intent	Equivalent unit

Code and title current version	Code and title previous version	Comments	Equivalence status
	team Release 1		

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10>

Assessment Requirements for BSBSMB407 Manage a small team

Modification History

Release	Comments
Release 2	This version released with BSB Business Services Training Package Version 2.0. Version created to clarify intent of unit
Release 1	This version first released with BSB Business Services Training Package Version 1.0.

Performance Evidence

Evidence of the ability to:

- use the business plan to:
 - determine staffing requirements
 - coordinate skill-gap training where required
 - develop human resource policies and procedures
- develop job descriptions and selection criteria
- determine induction processes
- implement staff development program
- adhere to legal requirements and codes of practice
- develop staff records system
- conduct ongoing performance measures
- communicate effectively with staff members
- develop contingency plans
- develop strategies to review team performance
- monitor and review staff.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- discuss all government legislative requirements relating to staffing the business operation

- explain work health and safety (WHS) responsibilities and procedures for managing hazards
- summarise relevant industry awards or enterprise agreements
- outline staff development pathways
- identify training course options for staff development
- summarise staff counselling, grievance and disciplinary procedures
- identify unfair dismissal legislation and procedures.

Assessment Conditions

Assessment must be conducted in a safe environment where evidence gathered demonstrates consistent performance of typical activities experienced in the Management and Leadership – Small and Micro Business field of work and include access to:

- business equipment and resources
- relevant legislation, regulations, standards and codes
- relevant workplace documentation and resources
- case studies or where possible, real situations
- interaction with others.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10>

BSBSTR502 Facilitate continuous improvement

Modification History

Release	Comments
Release 1	This version first released with BSB Business Services Training Package Version 7.0.

Application

This unit describes the skills and knowledge required to lead and manage continuous improvement systems and processes. Particular emphasis is on the development of systems and the analysis of information to monitor and adjust performance strategies, and to manage opportunities for further improvements.

The unit applies to individuals who take an active role in managing a continuous improvement process in order to achieve an organisation's objectives. At this level, work will normally be carried out using complex and diverse methods and procedures which require the exercise of considerable discretion and judgement, using a range of problem-solving and decision-making strategies.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Unit Sector

Critical Thinking and Problem Solving – Business Strategy

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Establish systems and processes	1.1 Identify current systems and processes that facilitate continuous improvement 1.2 Identify and define improvement needs and opportunities for the organisation 1.3 Develop decision-making processes to assist continuous improvement and communicate to relevant stakeholders 1.4 Develop strategies for continuous improvement and encourage

ELEMENT	PERFORMANCE CRITERIA
	team members to participate in decision-making processes 1.5 Develop knowledge management systems to capture team progress, insights and experiences from business activities 1.6 Develop new systems and processes that facilitate continuous improvement according to improvement needs and opportunities 1.7 Establish processes that confirm team members are informed about continuous improvement outcomes
2. Monitor and adjust performance strategies	2.1 Confirm relevant systems and processes meet organisation sustainability requirements 2.2 Confirm team progress, insights and experiences are captured and accessible using knowledge management systems 2.3 Coach individuals and teams to implement and support continuous improvement systems and processes 2.4 Identify and evaluate ways in which planning and operations could be improved 2.5 Make recommendations and communicate strategies to relevant stakeholders
3. Manage opportunities for further improvement	3.1 Evaluate outcomes and identify opportunities for improvement 3.2 Seek feedback from relevant stakeholders on systems and processes 3.3 Identify other areas for improvement and document feedback for future planning

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance but not explicit in the performance criteria.

SKILL	DESCRIPTION
Reading	- Identifies and extracts required information from a range of complex texts - Locates, interprets and analyses workplace documentation to gather information relating to continuous improvement
Writing	- Develops complex texts related to continuous improvement processes according to organisational requirements - Ensures the vocabulary, grammatical structures and conventions are required for the context and target audience
Oral	Presents information to a range of audiences using appropriate structure and language

SKILL	DESCRIPTION
communication	• Listens and comprehends information from a variety of spoken exchanges with clients, co-workers and other stakeholders • Confirms understanding through questioning and active listening
Initiative and enterprise	• Monitors adherence to organisational policies, procedures and protocols and considers own role in terms of its contribution to broader goals of the work environment • Identifies and uses appropriate conventions and protocols when communicating with colleagues and external stakeholders
Problem solving	• Uses analytical and lateral thinking to review current practices and develop ideas for improvement
Teamwork	• Collaborates with others to achieve joint outcomes, playing an active role in facilitating effective group interaction and influencing direction
Self-management	• Takes responsibility for developing, implementing and monitoring systems and processes to achieve organisational outcomes
Technology	• Reflects on the ways in which digital systems and tools are used, or could be used, to achieve work goals

Unit Mapping Information

Supersedes and is equivalent to BSBMGT516 Facilitate continuous improvement.

Supersedes but is not equivalent to BSBCUE501 Develop business continuity strategy.

Links

Companion Volume Implementation Guide is found on VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10>

Assessment Requirements for BSBSTR502 Facilitate continuous improvement

Modification History

Release	Comments
Release 1	This version first released with BSB Business Services Training Package Version 7.0.

Performance Evidence

The candidate must demonstrate the ability to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including evidence of the ability to:

- lead and manage continuous improvement systems and processes for at least one organisation or work area.

In the course of the above, the candidate must:

- address organisational sustainability requirements
- incorporate mentoring, coaching and other support to enable individuals to participate in continuous improvement processes
- capture progress, insights and experiences using established knowledge management systems
- encourage participation in decision making processes and ideas for continuous improvement.

Knowledge Evidence

The candidate must be able to demonstrate knowledge to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including knowledge of:

- systems and processes facilitating continuous improvement
- common decision-making processes
- organisational policies and procedures relating to digital systems, decision-making processes and continuous improvement systems
- business systems and requirements, including:
 - knowledge management
 - quality
 - sustainability
 - performance management.

Assessment Conditions

Skills in this unit must be demonstrated in a workplace or simulated environment where the conditions are typical of those in a working environment in this industry.

This includes access to:

- workplace documentation and resources relevant to performance evidence
- organisational policies and procedures relevant to performance evidence.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

Links

Companion Volume Implementation Guide is found on VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10>

BSBWHS201 Contribute to health and safety of self and others

Modification History

Release	Comments
Release 1	This version first released with BSB Business Services Training Package Version 1.0.

Application

This unit describes the skills and knowledge required to work in a manner that is healthy and safe in relation to self and others and to respond to emergency incidents. It covers following work health and safety (WHS) and emergency procedures and instructions, implementing WHS requirements and participating in WHS consultative processes.

It applies to individuals who require a basic knowledge of WHS to carry out work in a defined context under direct supervision or with some individual responsibility, in a range of industry and workplace contexts.

NOTE: The terms 'occupational health and safety' (OHS) and 'work health and safety' (WHS) are equivalent and generally either can be used in the workplace. In jurisdictions where the Model WHS Act has not been implemented RTOs are advised to contextualise the unit of competency by referring to the existing State/Territory OHS legislative requirements.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Unit Sector

Regulation, Licensing and Risk – Work Health and Safety

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Work safely	1.1 Follow provided safety procedures and instructions when

ELEMENT	PERFORMANCE CRITERIA
	working 1.2 Carry out pre start systems and equipment checks according to workplace procedures 1.3 Follow workplace procedures for responding to emergency incidents
2. Implement work safety requirements	2.1 Identify designated persons to whom queries and concerns about safety in the workplace should be directed 2.2 Identify existing and potential hazards in the workplace, report them to designated persons and record them according to workplace procedures 2.3 Identify and implement WHS procedures and work instructions 2.4 Identify and report emergency incidents and injuries to designated persons according to workplace procedures 2.5 Identify WHS duty holders and their duties for own work area
3. Participate in WHS consultative processes	3.1 Contribute to workplace meetings, inspections and other WHS consultative activities 3.2 Raise WHS issues with designated persons according to organisational procedures 3.3 Take actions to eliminate workplace hazards and reduce risks

Foundation Skills

This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.

Skill	Performance Criteria	Description
Reading	1.1, 1.2, 1.3, 2.1, 2.3, 2.4, 2.5	Identifies and interprets information in relation to WHS and emergency incidents
Writing	1.2, 2.2, 2.4, 3.2	Uses structures and language appropriate to audience and context in reports giving factual information
Oral Communication	2.2, 2.3, 2.4, 3.1, 3.2	- Uses structures and language appropriate to audience and context in reports, descriptions, opinions and explanations - Extracts meaning from reports,

		descriptions, opinions and explanations
Navigate the world of work	1.1, 1.2, 1.3, 2.1,2.2, 2.3, 2.4, 2.5, 3.1, 3.2, 3.3	• Takes responsibility for following WHS legal requirements • Follows protocols and procedures related to own role • Seeks assistance from others when WHS issues are beyond scope of immediate responsibilities
Get the work done	1.1, 1.2, 1.3, 2.2, 2.3, 2.4, 3.1, 3.3	• Plans, organises and implements routine tasks in order to optimise health and safety • Selects and implements actions from predetermined procedures

Unit Mapping Information

Code and title current version	Code and title previous version	Comments	Equivalence status
BSBWHS201 Contribute to health and safety of self and others	BSBWHS201A Contribute to health and safety of self and others	Updated to meet Standards for Training Packages Minor edits to clarify intent of performance criteria	Equivalent unit

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10>

Assessment Requirements for BSBWHS201 Contribute to health and safety of self and others

Modification History

Release	Comments
Release 1	This version first released with BSB Business Services Training Package Version 1.0.

Performance Evidence

Evidence of the ability to:

- follow all relevant procedures and instructions relating to work health and safety (WHS) and emergency incidents
- identify and report hazards to designated personnel
- contribute to WHS consultative processes.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain workplace safety procedures and instructions including:
 - checking systems and equipment
 - conducting routine work operations
 - requirements for personal protective equipment (PPE)
 - how to report incidents and injuries
- explain emergency procedures including those for fires and incidents
- define the meaning of commonly used hazard signs and safety symbols
- summarise the duty holder responsibilities, as specified in WHS Acts, regulations and codes of practice, of:
 - self and fellow workers
 - persons conducting businesses or undertakings (PCBUs)
 - officers
 - others in the workplace
- explain the difference between hazards and risks

- describe typical WHS hazards that may be present in the workplace, the harm they can cause and how this harm occurs
- outline the process of hazard identification and risk reduction.

Assessment Conditions

Assessment must be conducted in a safe environment where evidence gathered demonstrates consistent performance of typical activities experienced by individuals carrying out work health and safety duties in the workplace and include access to:

- relevant organisational policies, standard operating procedures and work instructions
- relevant Acts, regulations, codes of practice
- workplace tools, equipment and resources
- personal protective equipment appropriate to the role and work area.

Assessors must satisfy NVR/AQTF assessor requirements.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10>

BSBWHS307 Apply knowledge of WHS laws in the workplace

Modification History

Release	Comments
Release 1	This version first released with BSB Business Services Training Package Version 5.0.

Application

This unit describes the skills and knowledge required to understand work health and safety (WHS) laws, and comply with them in one's own workplace.

The unit applies to those who contribute to compliance with WHS laws as part of their WHS responsibilities, which are in addition to their main duties.

NOTES

1. The terms 'occupational health and safety' (OHS) and 'work health and safety' (WHS) are equivalent, and generally either can be used in the workplace. In jurisdictions where *model WHS laws* have not been implemented, registered training organisations (RTOs) are advised to contextualise this unit of competency by referring to existing WHS legislative requirements.

2. The *model WHS laws* include the model WHS Act, model WHS Regulations and model WHS Codes of Practice. See Safe Work Australia for further information.

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Unit Sector

Regulation, Licensing and Risk – Work Health and Safety

Elements and Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>

ELEMENTS	PERFORMANCE CRITERIA
1. Identify WHS legal and compliance framework as it applies to the workplace	1.1 Identify and access current standards and WHS laws relevant to the workplace, occupation and industry 1.2 Apply knowledge of relationship between WHS laws and related documentation to assist in identifying WHS legislative requirements in the workplace 1.3 Identify consequences of non-compliance with WHS laws and organisational WHS policies, procedures, processes and systems 1.4 Identify duty holders and their role in the workplace 1.5 Identify legal obligations and duties about who to consult with regarding training of workers and health and safety representatives
2. Contribute to WHS legislative compliance	2.1 Assist in monitoring workplace compliance with WHS laws according to organisational policies and procedures 2.2 Contribute to ensuring that workplace complies with WHS laws 2.3 Identify and report non-compliance with WHS laws to relevant stakeholders according to organisational policies and procedures 2.4 Identify limits of own expertise and legal duties, and access help and advice when required
3. Maintain current knowledge of WHS laws and publications	3.1 Identify and access sources to keep up to date with WHS laws and WHS-related publications within scope of own role 3.2 Communicate information about relevant legislative changes and publications to others according to organisational policies and procedures

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance but not explicit in the performance criteria.

Skill	Description
Learning	Identifies and evaluates information from sources to update knowledge

Skill	Description
Reading	Interprets a range of textual information to determine regulatory and procedural requirements, and associated necessary actions
Writing	Documents WHS information in a sequential manner using required format, correct grammar and industry-specific language
Oral communication	- Provides information and advice using language appropriate to audience and context - Uses listening and questioning to clarify and confirm understanding
Navigate the world of work	Follows policies, procedures and legislative requirements relevant to own role
Interact with others	Selects appropriate communication protocols and conventions to provide and seek information
Get the work done	- Plans, sequences and prioritises tasks and activities to support compliance with WHS legislative requirements - Uses main features and functions of technology to complete work tasks and access information

Unit Mapping Information

Supersedes and is equivalent to BSBWHS302 Apply knowledge of WHS legislation in the workplace.

Links

Companion Volume Implementation Guides are available from VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10>

Assessment Requirements for BSBWHS307 Apply knowledge of WHS laws in the workplace

Modification History

Release	Comments
Release 1	This version first released with BSB Business Services Training Package Version 5.0.

Performance Evidence

The candidate must demonstrate the ability to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, and to:

- identify and apply at least two different standards or work health and safety (WHS) laws relevant to own work role, workplace and industry.

During the above, the candidate must:

- communicate WHS information to others
- refer any identified non-compliances with WHS laws to responsible persons or authorities
- seek advice from relevant stakeholders if any non-compliance matters are identified that are outside own expertise and legal duties.
-

Knowledge Evidence

The candidate must demonstrate knowledge to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit. This includes knowledge of:

- WHS legislative duties of self and others, including limits of own expertise
- organisational WHS policies, procedures, processes and systems for:
 - monitoring workplace compliance with WHS laws
 - identifying and reporting non-compliance with WHS laws
 - communicating WHS-related information
- requirements of commonwealth and state/territory WHS laws, standards and guidance material, and publications relevant to own work role, workplace and industry
- obligations and duties relating to consultation regarding training of workers, and health and safety representatives, including who must be consulted
- consequences of non-compliance with WHS laws, related documentation and organisational WHS policies, procedures, processes and systems

- individuals and duty holders to access for advice and accountability about WHS compliance
- sources of information about compliance with legislation.

Assessment Conditions

Assessment must comply with WHS laws, and WHS legal responsibilities and duty of care required for this unit. It must be conducted in a safe environment where evidence gathered demonstrates consistent performance of typical activities undertaken by individuals carrying out WHS duties in the workplace, and must include access to:

- organisational policies, procedures and plans relating to compliance requirements specified in the performance evidence
- WHS laws, licensing requirements and standards relevant to the work of the unit
- guidance materials and alerts issued by the relevant WHS regulator
- workplace equipment and resources required for the performance evidence.

Assessors of this unit must satisfy the assessor requirements in applicable vocational education and training legislation, frameworks and/or standards.

Links

Companion Volume Implementation Guides are available from VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10>

BSBWHS308 Participate in WHS hazard identification, risk assessment and risk control processes

Modification History

Release	Comments
Release 1	This version first released with BSB Business Services Training Package Version 5.0.

Application

This unit describes the skills and knowledge required to participate in the processes of work health and safety (WHS) hazard identification, risk assessment and risk control. It includes participating in worker consultation and support to contribute to a healthy and safe workplace.

The unit applies to those who assist with identifying workplace hazards and assessing and controlling WHS risks as part of their WHS responsibilities, which are in addition to their main duties.

NOTES

1. The terms ‘occupational health and safety’ (OHS) and ‘work health and safety’ (WHS) are equivalent, and generally either can be used in the workplace. In jurisdictions where *model WHS laws* have not been implemented, registered training organisations (RTOs) are advised to contextualise this unit of competency by referring to existing WHS legislative requirements.
2. The *model WHS laws* include the model WHS Act, model WHS Regulations and model WHS Codes of Practice. See Safe Work Australia for further information.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Unit Sector

Regulation, Licensing and Risk – Work Health and Safety

Elements and Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA

ELEMENTS	PERFORMANCE CRITERIA
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Participate in WHS hazard identification in the workplace	1.1 Participate in selecting hazard identification methods for the workplace according to organisational policies and procedures 1.2 Use selected methods to identify, report and record hazards according to organisational policies and procedures, standards and WHS laws 1.3 Provide information and assistance to required personnel during hazard identification process
2. Participate in WHS risk assessment	2.1 Participate in selecting suitable risk assessment methods for the workplace according to organisational policies and procedures 2.2 Assess and record risks using selected methods according to organisational procedures, standards and WHS laws 2.3 Provide information and assistance to required personnel during risk assessment process
3. Contribute to developing and implementing WHS control measures	3.1 Obtain organisation records of the outcomes of hazard identifications and risk assessments, and use them to participate in developing risk control options 3.2 Identify duty holders according to WHS laws and organisational WHS policies, procedures, processes and systems 3.3 Participate in selecting risk control options using criteria agreed to by work team, and according to organisational policies, procedures, processes and systems 3.4 Identify and report factors impeding successful implementation of selected risk control options to determine potential control measures to be implemented 3.5 Review and document potential control measures for compliance with relevant WHS laws 3.6 Contribute to developing a risk control implementation plan according to the hierarchy of control measures 3.7 Provide written information to individuals and duty holders to facilitate implementation of reviewed control measures
4. Contribute to consultative arrangements for hazard	4.1 Assist engaging work team in hazard identification and risk assessment according to organisational WHS

ELEMENTS	PERFORMANCE CRITERIA
identification and risk assessment activities	consultation and participation policies, procedures and processes 4.2 Respond to issues raised according to organisational procedures and processes 4.3 Develop plan to encourage others to participate in hazard identification and risk assessment activities, according to organisational policies and procedures
5. Contribute to consultative arrangements for implementing control measures	5.1 Assist with implementing consultative processes that engage work team in developing and implementing control measures, according to organisational WHS consultation and participation policies, procedures and processes 5.2 Respond to issues raised according to organisational policies and procedures for issue resolution 5.3 Promote worker participation in arrangements for implementing control measures

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance but not explicit in the performance criteria.

Skill	Description
Reading	Interprets and identifies information from WHS laws, workplace policies, procedures and records
Writing	Uses structure and language appropriate to audience and context in plans, reports and general advice
Oral communication	- Presents information and assistance using appropriate industry-specific vocabulary - Uses listening and questioning to clarify and confirm understanding
Navigate the world of work	- Follows regulatory responsibilities, and organisational policies and procedures in relation to WHS responsibilities - Keeps up to date with changes to WHS laws, and organisational policies and procedures relevant to own role
Interact with others	- Identifies what to communicate and to whom in a range of contexts - Cooperates with others as part of WHS activities and contributes to specific activities requiring joint responsibility and accountability - Shares information and resources, offers assistance voluntarily and provides feedback when requested

Skill	Description
	Plays an active role in group discussions, paying attention to perspectives of others and encouraging participation
Get the work done	- Plans and implements tasks to achieve required outcomes - Uses decision-making processes, setting or clarifying goals, gathering information and identifying and evaluating choices against a set of criteria in the WHS risk-management process

Unit Mapping Information

Supersedes and is equivalent to BSBWHS303 Participate in WHS hazard identification, risk assessment and risk control.

Links

Companion Volume Implementation Guides are available from VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10>

Assessment Requirements for BSBWHS308 Participate in WHS hazard identification, risk assessment and risk control processes

Modification History

Release	Comments
Release 1	This version first released with BSB Business Services Training Package Version 5.0.

Performance Evidence

The candidate must demonstrate the ability to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit and, on at least two occasions, to:

- participate in selecting and using required methods to identify, report and record hazards
- assess and record risks for identified hazards
- promote and support worker consultation and participation in hazard identification and risk assessment
- participate in developing, selecting and implementing risk control options and plans for identified hazards.
-

Knowledge Evidence

The candidate must demonstrate knowledge to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit. This includes knowledge of:

- work health and safety (WHS) legislative requirements, regulations, codes of practice and standards relating to:
 - WHS hazard identification, risk assessment and risk control
 - WHS hazard communication, consultation and participation
 - identifying duty holders
 - recordkeeping
 - specific hazard identification, risk assessment and control methods
- internal and external sources of WHS information and data, and procedures for accessing them
- concept of hazards, risks and risk factors
- basic principles of incident causation and injury processes
- WHS organisational policies and procedures relating to identifying hazards, and assessing and controlling risks:

- WHS hazards that may be present in the workplace, the harm they can cause and how this harm occurs
- types of hazard and risk registers
- responding to WHS issues, including risk control options for different hazards and work situations, and suitable risk assessment methods
- workplace communication processes for reporting and recording, and plans for sharing information about hazard identification, risk assessment and risk control.
-

Assessment Conditions

Assessment must comply with WHS laws, and WHS legal responsibilities and duty of care required for this unit. It must be conducted in a safe environment where evidence gathered demonstrates consistent performance of typical activities undertaken by individuals carrying out WHS duties in the workplace, and must include access to:

- organisational policies, standard operating procedures and plans required for the performance evidence
- WHS laws relevant to hazard identification, risk assessment and risk control
- relevant WHS data files
- opportunities for interaction with others
- workplace equipment and resources required to demonstrate the performance evidence.

Assessors of this unit must satisfy the assessor requirements in applicable vocational education and training legislation, frameworks and/or standards.

Links

Companion Volume Implementation Guides are available from VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10>

BSBWHS309 Contribute effectively to WHS communication and consultation processes

Modification History

Release	Comments
Release 1	This version first released with BSB Business Services Training Package Version 5.0.

Application

This unit describes the skills and knowledge required to contribute to work health and safety (WHS) communication and consultation in the workplace. It involves communicating WHS information to required personnel, and taking appropriate follow-up action to assist in ensuring that communication and consultation processes are effective and conducive to others in the workplace who raise WHS issues.

The unit applies to those who contribute to WHS communication and consultation as part of their work health and safety responsibilities, which are in addition to their main duties.

NOTES

1. The terms ‘occupational health and safety’ (OHS) and ‘work health and safety’ (WHS) are equivalent, and generally either can be used in the workplace. In jurisdictions where *model WHS laws* have not been implemented, registered training organisations (RTOs) are advised to contextualise this unit of competency by referring to existing WHS legislative requirements.
2. The *model WHS laws* include the model WHS Act, model WHS Regulations and model WHS Codes of Practice. See Safe Work Australia for further information.

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Unit Sector

Regulation, Licensing and Risk – Work Health and Safety

Elements and Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA

ELEMENTS	PERFORMANCE CRITERIA
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Participate in establishing consultation processes	1.1 Contribute to selecting WHS consultation and communication methods aligned to organisational policies and procedures, and compliant with WHS legislative requirements 1.2 Identify and record key stakeholders according to WHS laws and related documentation 1.3 Research and collate information on organisational WHS obligations relating to communication and consultation with required personnel 1.4 Assist with any required revisions to consultation and communication methods according to organisational policies and procedures 1.5 Participate in consultation with required personnel to agree any proposed consultation and communication methods
2. Contribute to WHS consultation	2.1 Contribute to facilitating WHS consultation and participation processes according to WHS laws 2.2 Identify and report barriers to effective WHS consultation and participation processes to required personnel according to organisational policies and procedures 2.3 Make suggestions that could assist in removing identified barriers to effective WHS consultation and participation processes, according to organisational policies and procedures 2.4 Identify, record and communicate to others, the duties, rights and responsibilities of required personnel in the consultation process
3. Consult and communicate effectively with required personnel	3.1 Identify appropriate forms of communication for required individuals and/or parties 3.2 Convey WHS information to required personnel in plain language and according to organisational policies and procedures 3.3 Participate in confirming that required personnel understand WHS information, instructions and signs
4. Raise WHS issues with required personnel	4.1 Raise relevant WHS issues in meetings and support others to do so 4.2 Record and communicate WHS discussions and their outcomes according to organisational policies and procedures

ELEMENTS	PERFORMANCE CRITERIA
	4.3 Follow up meeting outcomes according to own job role, and organisational policies and procedures 4.4 Communicate WHS-related outcomes of meetings to required individuals and/or parties

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance but not explicit in the performance criteria.

Skill	Description
Reading	Interprets a range of textual information to determine regulatory and procedural requirements, and associated necessary actions
Writing	Records key information in a sequential manner using required format, correct grammar and industry-specific vocabulary
Oral Communication	- Presents information using language and non-verbal communication appropriate to audience and context - Uses questioning and listening techniques to obtain feedback from others and to resolve issues
Navigate the world of work	Follows policies, procedures and legislative requirements relevant to own role
Interact with others	- Selects and uses appropriate conventions and protocols when communicating with others in a range of work contexts - Uses appropriate interpersonal skills to promote contributions and encourage ideas from others
Get the work done	- Sequences and schedules activities, and assists with their implementation and communication - Identifies barriers to consultation and applies problem-solving processes to assist with determining possible solutions - Uses main features and functions of digital tools to access information and communicate effectively

Unit Mapping Information

Supersedes and is equivalent to BSBWHS304 Participate effectively in WHS communication and consultation processes.

Links

Companion Volume Implementation Guides are available from VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10>

Assessment Requirements for BSBWHS309 Contribute effectively to WHS communication and consultation processes

Modification History

Release	Comments
Release 1	This version first released with BSB Business Services Training Package Version 5.0.

Performance Evidence

The candidate must demonstrate the ability to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, and to:

- contribute to two different work health and safety (WHS) communication and consultation processes.

During the above, the candidate must:

- communicate WHS information to others
- raise WHS issues in meetings and follow up on outcomes
- take appropriate actions to assist with removing any barriers to communication and consultation processes identified during above processes
- support others to raise relevant WHS issues.
-

Knowledge Evidence

The candidate must demonstrate knowledge to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit. This includes knowledge of:

- purpose of organisational WHS policies, procedures, processes and systems
- organisational WHS obligations relating to communication and consultation
- commonwealth and state/territory WHS laws and publications relating to:
 - identifying and recording key stakeholders
 - WHS communication and consultation processes
- organisational policies and procedures relating to:
 - consultation and communication methods, and processes for revising them
 - addressing barriers to effective WHS consultation and participation processes, including barrier reporting protocols
 - recording and communicating WHS discussions

- elements of WHS communication and consultation:
 - potential barriers to WHS consultation and participation processes, and methods to overcome them
 - roles and responsibilities of WHS personnel
 - how the consultation process influences and is related to workplace information management procedures, processes and systems
 - methods to engage others with workplace procedures, and information sourcing and sharing.
-

Assessment Conditions

Assessment must comply with WHS laws, and WHS legal responsibilities and duty of care required for this unit. It must be conducted in a safe environment where evidence gathered demonstrates consistent performance of typical activities undertaken by individuals carrying out WHS duties in the workplace, and must include access to:

- organisational policies, standard operating procedures, plans and procedures with information about compliance requirements required to demonstrate the performance evidence
- required WHS laws and data files to contribute to WHS communication and consultation processes
- opportunities for interaction with others
- workplace equipment and resources required for the performance evidence.

Assessors of this unit must satisfy the assessor requirements in applicable vocational education and training legislation, frameworks and/or standards.

Links

Companion Volume Implementation Guides are available from VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10>

BSBWHS311 Assist with maintaining workplace safety

Modification History

Release	Comments
Release 1	This version first released with BSB Business Services Training Package Version 7.0.

Application

This unit describes the skills and knowledge required to assist with implementing and monitoring an organisation's work health and safety (WHS) policies, procedures and programs as part of a small work team.

The unit applies to individuals who have roles in assisting with maintaining workplace safety in an organisation. Individuals closely monitor aspects of work associated with the safe delivery of products and services, and they contribute to influencing safety in the workplace.

NOTES

1. The terms 'occupational health and safety' (OHS) and 'work health and safety' (WHS) are equivalent, and generally either can be used in the workplace. In jurisdictions where *model WHS laws* have not been implemented, registered training organisations (RTOs) are advised to contextualise this unit of competency by referring to existing WHS legislative requirements.

2. The *model WHS laws* include the model WHS Act, model WHS Regulations and model WHS Codes of Practice. See Safe Work Australia for further information.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Unit Sector

Regulation, Licensing and Risk – Work Health and Safety

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
<i>Elements describe the</i>	<i>Performance criteria describe the performance needed to</i>

ELEMENT	PERFORMANCE CRITERIA
<i>essential outcomes.</i>	<i>demonstrate achievement of the element.</i>
1. Assist with incorporating WHS policies and procedures into work team processes	1.1 Identify health and safety requirements of work team according to applicable WHS laws 1.2 Assist with explaining organisational WHS policies, procedures, programs and legislative requirements to required personnel 1.3 Assist with explaining hazard identification and risk assessment outcomes to required personnel
2. Contribute to consultative arrangements for managing WHS	2.1 Assist with implementing consultative processes designed to engage work team in managing WHS 2.2 Respond to WHS issues in a timely manner and according to organisational policies and procedures for issue resolution 2.3 Encourage others to participate in arrangements for managing WHS 2.4 Assist in engaging with required personnel to identify and implement improvements in response to WHS feedback
3. Contribute to organisational procedures for providing WHS training	3.1 Identify WHS training needs of the work team and report to relevant stakeholders 3.2 Identify strategies and opportunities for developing work team's WHS competence and report to relevant stakeholders 3.3 Provide assistance to work team members to support the effective development of their WHS competence
4. Participate in identifying hazards, and assessing and controlling risks for the work area	4.1 Identify hazards in the work area and report to relevant stakeholders according to organisational policies and procedures, and WHS legislative requirements 4.2 Assist with implementing processes designed to control risks using the hierarchy of control measures according to organisational procedures and WHS legislative requirements 4.3 Identify and document inadequacies in existing risk control measures according to organisational policies and procedures, the hierarchy of control measures and WHS legislative requirements 4.4 Report inadequacies in existing risk control measures to relevant stakeholders 4.5 Complete and maintain WHS incident records in the work area according to organisational procedures and WHS legislative requirements

Foundation Skills

This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.

Skill	Description
Reading	• Interprets WHS legislative and organisational documentation • Applies appropriate strategies to construct meaning from WHS legislative and organisational documentation
Writing	• Documents WHS information using required format and industry specific vocabulary
Oral communication	• Presents information using language and non-verbal communication appropriate to audience and context • Uses questioning and active listening to confirm understanding
Navigate the world of work	• Follows WHS policies, procedures and legislative requirements relevant to own role • Keeps up to date with changes to WHS laws relevant to own role
Interact with others	• Selects appropriate communication protocols and conventions to provide information to others • Collaborates with others to achieve joint outcomes • Plays an active role in facilitating effective group interaction, influencing direction and taking a leadership role on occasion • Provides feedback to others in forms with which they can engage and respond
Get the work done	• Sequences and schedules activities, monitors implementation and manages relevant communication • Initiates standard procedures when responding to issues raised through consultation • Uses feedback to participate in the identification and implementation of opportunities to improve arrangements for managing WHS issues

Unit Mapping Information

Supersedes and is equivalent to BSBWHS301 Maintain workplace safety.

Links

Companion Volume Implementation Guide is found on VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10>

Assessment Requirements for BSBWHS311 Assist with maintaining workplace safety

Modification History

Release	Comments
Release 1	This version first released with BSB Business Services Training Package Version 7.0.

Performance Evidence

The candidate must demonstrate the ability to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, and to:

- assist with implementing and monitoring at least three different organisational work health and safety (WHS) policies or procedures into a work team's processes.

During the above, the candidate must:

- assist with implementing and monitoring consultation about each policy or procedure according to legislative and organisational requirements
- identify opportunities to encourage work team to contribute to implementing improvements to each policy or procedure based on feedback received through consultation
- complete WHS documentation.

Knowledge Evidence

The candidate must demonstrate knowledge to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit. This includes knowledge of:

- characteristics and composition of the work team
- procedures related to the following:
 - identifying hazards
 - assessing and controlling risks to health and safety, including the hierarchy of control measures
- organisational WHS policies and procedures, including those relating to:
 - risk management
 - fire
 - emergencies
 - evacuation
 - incident investigation

- reporting
- relevant legislation, regulations and codes of practice from all levels of government that impact on business operations, including those relating to:
 - WHS and environmental issues
 - equal opportunity
 - industrial relations
 - anti-discrimination
- WHS aspects of other organisational systems and procedures.

Assessment Conditions

Assessment must comply with WHS laws, and WHS legal responsibilities and duty of care required for this unit. It must be conducted in a safe environment where evidence gathered demonstrates consistent performance of typical activities undertaken by individuals carrying out WHS duties in the workplace, and include access to:

- safety processes relevant to the area of work
- organisational policies and procedures, standard operating procedures and plans
- standards, WHS laws and licensing requirements
- opportunities for interaction with others
- workplace equipment and resources required for the performance evidence.

Assessors of this unit must satisfy the assessor requirements in applicable vocational education and training legislation, frameworks and/or standards.

Links

Companion Volume Implementation Guide is found on VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10>

BSBWHS401 Implement and monitor WHS policies, procedures and programs to meet legislative requirements

Modification History

Release	Comments
Release 1	This version first released with BSB Business Services Training Package release 1.0

Application

This unit describes the skills and knowledge required to implement and monitor an organisation's work health and safety (WHS) policies, procedures and programs in the relevant work area in order to meet legislative requirements.

It applies to individuals with supervisory responsibilities for implementing and monitoring the organisation's WHS policies, procedures and programs in a work area. These individuals have a broad knowledge of WHS policies and contribute well developed skills in creating solutions to unpredictable problems through analysis and evaluation of information from a variety of sources. They provide supervision and guidance to others and have limited responsibility for the output of others.

NOTE: The terms 'occupational health and safety' (OHS) and 'work health and safety' (WHS) are equivalent and generally either can be used in the workplace. In jurisdictions where the Model WHS Legislation has not been implemented RTOs are advised to contextualise the unit of competency by referring to the existing State/Territory OHS legislative requirements.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Unit Sector

Regulation, Licensing and Risk – Work Health and Safety

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
<i>Elements describe the</i>	<i>Performance criteria describe the performance needed to</i>

ELEMENT	PERFORMANCE CRITERIA
<i>essential outcomes.</i>	<i>demonstrate achievement of the element.</i>
1. Provide information to the work team about WHS policies and procedures	1.1 Accurately explain to the work team relevant provisions of WHS Acts, regulations and codes of practice 1.2 Provide information about the organisation's WHS policies, procedures and programs, and ensure it is readily accessible to, and understandable by the work team 1.3 Regularly provide and clearly explain to the work team information about identified hazards and the outcomes of risk assessment and control
2. Implement and monitor participation arrangements for managing WHS	2.1 Communicate to workplace parties the importance of effective consultation mechanisms in managing health and safety risks in the workplace 2.2 Apply consultation procedures to facilitate participation of the work team in managing work area hazards 2.3 Promptly deal with issues raised through consultation, according to organisational consultation procedures and WHS legislative and regulatory requirements 2.4 Promptly record and communicate to the work team the outcomes of consultation over WHS issues
3. Implement and monitor organisational procedures for providing WHS training	3.1 Identify WHS training needs according to organisational requirements and WHS legislative and regulatory requirements 3.2 Make arrangements to meet WHS training needs of team members in consultation with relevant individuals 3.3 Provide workplace learning opportunities and coaching and mentoring assistance to facilitate team and individual achievement of identified WHS training needs 3.4 Identify and report to management the costs associated with providing training for work team, for inclusion in financial and management plans
4. Implement and monitor organisational procedures and legal requirements for identifying hazards and assessing and controlling risks	4.1 Identify and report on hazards in work area according to WHS policies and procedures and WHS legislative and regulatory requirements 4.2 Promptly action team member hazard reports according to organisational procedures and WHS legislative and regulatory requirements 4.3 Implement procedures to control risks using the hierarchy of control, according to organisational and WHS legislative requirements

ELEMENT	PERFORMANCE CRITERIA
	4.4 Identify and report inadequacies in existing risk controls according to hierarchy of control and WHS legislative requirements 4.5 Monitor outcomes of reports on inadequacies, where appropriate, to ensure a prompt organisational response
5. Implement and monitor organisational procedures for maintaining WHS records for the team	5.1 Accurately complete and maintain WHS records of incidents of occupational injury and disease in work area, according to WHS policies, procedures and legislative requirements 5.2 Use aggregate information and data from work area records to identify hazards and monitor risk control procedures in work area

Foundation Skills

This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.

Skill	Performance Criteria	Description
Reading	1.1-1.3, 5.2	Interprets and analyses complex WHS legislative and organisational texts
Writing	1.1-1.3, 2.3, 2.4, 3.1, 3.2, 3.4, 4.1, 4.4, 5.1	- Documents WHS legislative and organisational information using structure, layout and language suitable for audience - Records WHS issues and actions taken according to reporting requirements - Prepares and maintains required records using appropriate structure and vocabulary
Oral communication	1.1-1.3, 2.1, 2.4, 3.2, 3.3, 4.1, 4.4	Provides WHS legislative and organisational information and advice using structure and language suitable for audience
Numeracy	3.4, 5.2	Extracts, interprets and comprehends mathematical information in relation to training costs and risk management data
Navigate the world of work	1.1,1.2, 2.3, 3.1, 4.1-4.5, 5.1	- Takes responsibility for adherence to legal and regulatory responsibilities and organisational policies and procedures in relation to WHS - Keeps up to date on changes to WHS legislation or regulations and organisational policies and procedures
Interact with	2.2, 3.2, 3.3	Selects and uses appropriate conventions and protocols to facilitate consultation or provide feedback

others		- Initiates and contributes to facilitating consultative role, responding, explaining, clarifying and expanding on ideas and information as required - Collaborates with others to achieve individual and team outcomes
Get the work done	2.2, 3.2, 3.3, 4.1-4.5, 5.1	- Uses combination of formal, logical planning and intuitive understanding of context to identify relevant information and risks, and identify and evaluate alternative strategies - Uses formal decision-making processes, setting or clarifying goals, gathering information and identifying and evaluating choices against a set of criteria - Recognises and takes responsibility for reporting WHS risk control inadequacies - Uses formal and informal processes to monitor implementations of WHS solutions and reflect on outcomes

Unit Mapping Information

Code and title current version	Code and title previous version	Comments	Equivalence status
BSBWHS401 Implement and monitor WHS policies, procedures and programs to meet legislative requirements	BSBWHS401A Implement and monitor WHS policies, procedures and programs to meet legislative requirements	Updated to meet Standards for Training Packages Minor edits to clarify intent of performance criteria	Equivalent unit

Links

Companion Volume implementation guides are found in VETNet - <https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10>

Assessment Requirements for BSBWHS401 Implement and monitor WHS policies, procedures and programs to meet legislative requirements

Modification History

Release	Comments
Release 1	This version first released with BSB Business Services Training Package Version 1.0.

Performance Evidence

Evidence of the ability to:

- explain clearly and accurately to work team the relevant work health and safety (WHS) information including:
 - WHS legislative and organisational requirements
 - identified hazards and outcomes of risk assessment and control
- ensure that the team has access to information about WHS policies, procedures and programs in appropriate structure and language
- implement and monitor procedures according to organisational and legislative WHS requirements including:
 - consultation and communications to enable team members to participate in managing WHS risks and hazards
 - identifying WHS training needs and providing learning opportunities, coaching and mentoring as appropriate to needs
 - identifying, reporting and taking action on WHS hazards and risks
 - identifying and reporting inadequacies in existing risk controls and monitoring outcomes to ensure a prompt organisational response
 - reporting on the cost of WHS training
 - keeping WHS records
 - analysing aggregate WHS data to identify hazards and monitor risk control procedures in work area.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- outline the legal responsibilities and duties of managers, supervisors, persons conducting businesses or undertakings (PCBUs) and workers in relation to WHS risk management in the workplace
- identify key provisions of relevant WHS Acts, regulations and codes of practice that apply to the business and outline how they apply in the work area
- explain organisational policies and procedures relating to hazard identification, risk management, fire, emergency and evacuation, incident investigation and reporting
- explain the importance of effective consultation mechanisms in managing health and safety risks in the workplace
- explain how the hierarchy of control applies in the work area.

Assessment Conditions

Assessment must be conducted in a safe environment where evidence gathered demonstrates consistent performance of typical activities experienced by individuals carrying out work health and safety duties in the workplace and include access to:

- an actual workplace or simulated environment
- workplace equipment and resources
- examples of documents relating to workplace safety, hazard identification and risk assessment
- interaction with others.

Assessors must satisfy NVR/AQTF assessor requirements.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10>

BSBWHS411 Implement and monitor WHS policies, procedures and programs

Modification History

Release	Comments
Release 1	This version first released with BSB Business Services Training Package Version 7.0.

Application

This unit describes the skills and knowledge required to implement and monitor an organisation's work health and safety (WHS) policies, procedures and programs in the relevant work area in order to meet legislative requirements.

The unit applies to those with supervisory responsibilities in a work area who have a broad knowledge of WHS policies and contribute well-developed skills in creating solutions to problems through analysis and evaluation of information from a variety of sources. They provide supervision and guidance to others and have limited responsibility for the output of others.

NOTES

1. The terms 'occupational health and safety' (OHS) and 'work health and safety' (WHS) are equivalent, and generally either can be used in the workplace. In jurisdictions where *model WHS laws* have not been implemented, registered training organisations (RTOs) are advised to contextualise this unit of competency by referring to existing WHS legislative requirements.
2. The *model WHS laws* include the model WHS Act, model WHS Regulations and model WHS Codes of Practice. See Safe Work Australia for further information.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Unit Sector

Regulation, Licensing and Risk – Work Health and Safety

Elements and Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Provide information to work team about WHS policies and procedures	1.1 Identify and communicate relevant provisions about WHS laws to work team 1.2 Provide information about organisation's WHS policies, procedures and programs, and ensure it is readily accessible to work team 1.3 Communicate information about identified hazards and outcomes of risk assessment and control to work team
2. Implement and monitor work team consultative arrangements for managing WHS	2.1 Communicate importance of consultation mechanisms in managing WHS risks to work team 2.2 Apply consultation mechanisms to facilitate work team participation in managing work area hazards, according to organisational policies and procedures 2.3 Contribute to managing issues raised through consultation mechanisms, according to organisational consultation procedures and WHS legislative requirements 2.4 Communicate outcomes of consultation about WHS issues to work team
3. Implement and monitor organisational procedures for providing WHS training to work team	3.1 Identify and document team WHS training needs according to organisational requirements and WHS laws 3.2 Make arrangements to meet WHS training needs of team members in consultation with relevant stakeholders 3.3 Provide workplace learning opportunities to facilitate team and individual achievement of identified WHS training needs
4. Implement and monitor organisational procedures and legal requirements for identifying hazards, and assessing and controlling risks	4.1 Identify and report on hazards in work area according to organisational policies and procedures, and WHS legislative requirements 4.2 Contribute to managing and implementing hazard reports according to organisational policies and procedures, and WHS legislative requirements 4.3 Implement procedures to control risks using the hierarchy of control measures according to organisational policies and procedures, and WHS legislative requirements 4.4 Identify and report inadequacies in existing risk controls according to the hierarchy of control measures, and WHS legislative requirements 4.5 Monitor outcomes of reports on inadequacies, as required, to ensure prompt organisational response

ELEMENTS	PERFORMANCE CRITERIA
5. Implement and monitor organisational procedures for maintaining WHS records	5.1 Complete and maintain WHS incident records of occupational injury and disease in work area according to organisational policies and procedures, and WHS legislative requirements 5.2 Use aggregate information and data from work area records to meet organisational recordkeeping requirements

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance but not explicit in the performance criteria.

Skill	Description
Reading	Interprets and analyses WHS laws and organisational texts
Writing	- Documents organisational WHS policies, procedures and programs according to WHS laws, using structure, layout and language suitable for audience - Records WHS issues and actions taken according to reporting requirements - Prepares and maintains required records using appropriate structure and vocabulary
Oral communication	- Provides WHS organisational information and advice using structure and language suitable for audience - Uses questioning and active listening to clarify understanding
Navigate the world of work	- Adheres to legal and regulatory responsibilities, and organisational policies and procedures in relation to own WHS role and responsibilities - Keeps up to date on changes to WHS laws, and related organisational policies and procedures relevant to own role
Interact with others	- Selects and uses appropriate conventions and protocols to facilitate consultation and provide feedback - Initiates and contributes to facilitating consultative role: responding, explaining, clarifying and expanding on ideas and information as required - Collaborates with others to achieve individual team member and team outcomes
Get the work done	- Uses combination of logical planning and intuitive understanding of context to identify relevant information and risks, and to identify and evaluate alternative strategies - Uses decision-making processes: sets and clarifies goals, gathers

Skill	Description
	information, and identifies and evaluates choices against a set of criteria • Takes responsibility for reporting WHS risk control inadequacies • Uses processes to monitor implementation of WHS organisational procedures

Unit Mapping Information

Supersedes and is equivalent to BSBWHS401 Implement and monitor WHS policies, procedures and programs to meet legislative requirements.

Links

Companion Volume Implementation Guide is found on VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10>

Assessment Requirements for BSBWHS411 Implement and monitor WHS policies, procedures and programs

Modification History

Release	Comments
Release 1	This version first released with BSB Business Services Training Package Version 7.0.

Performance Evidence

The candidate must demonstrate the ability to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, and to:

- implement and monitor the work health and safety (WHS) policies, procedures and programs for one work area in an organisation.

During the above, the candidate must:

- explain relevant WHS information clearly and accurately to work team
- provide work team with access to WHS policies, procedures and programs in appropriate structure and language
- implement and monitor procedures, according to WHS legislative and organisational requirements, for:
 - consultation on and communication about WHS hazards and risks
 - WHS training needs and learning opportunities
 - WHS records
 - using WHS aggregate data relating to hazards and risk control.

Knowledge Evidence

The candidate must demonstrate the knowledge to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit. This includes knowledge of:

- key provisions of commonwealth and state/territory WHS laws that apply to the business, and procedures for their application in the work area
- organisational policies and procedures for:
 - consulting during WHS issue management
 - identifying hazards and managing risks, including using aggregate information and work area data
 - incident response, investigation and reporting

- legal responsibilities and duties of managers, supervisors, persons conducting a business or undertaking (PCBUs) and workers in relation to WHS risk management in the workplace
- procedures for assessing implications of near misses in relation to incidents, injuries and illnesses in the work area
- effective consultation mechanisms in managing health and safety risks in the workplace
- features of effective workplace learning opportunities, including coaching and mentoring assistance that facilitates team and individual achievement of WHS training needs
- key principles and components of the hierarchy of control measures
- procedures for applying the hierarchy of control measures in own work area.

Assessment Conditions

Assessment must comply with WHS laws, legal responsibilities and duty of care required for this unit. It must be conducted in a safe environment where evidence gathered demonstrates consistent performance of typical activities undertaken by individuals carrying out WHS duties in the workplace, and must include access to:

- actual workplace or simulated environment
- workplace equipment and resources
- examples of documents about workplace safety, hazard identification and risk assessment
- WHS laws and organisational documentation required to demonstrate the performance evidence
- opportunities for interaction with others.

Assessors of this unit must satisfy the assessor requirements in applicable vocational education and training legislation, frameworks and/or standards.

Links

Companion Volume Implementation Guide is found on VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10>

BSBWHS412 Assist with workplace compliance with WHS laws

Modification History

Release	Comments
Release 1	This version first released with BSB Business Services Training Package Version 5.0.

Application

This unit describes the skills and knowledge required to assist with establishing and maintaining workplace compliance with work health and safety (WHS) laws. It includes identifying applicable WHS laws, duties, rights and obligations, and the necessary actions to ensure WHS compliance in the workplace.

It also includes assisting with providing advice about the legislative duties, rights and obligations of individuals and parties prescribed in WHS laws and those of WHS regulators.

The unit applies to those working in a broad range of WHS roles across all industries.

NOTES

1. The terms ‘occupational health and safety’ (OHS) and ‘work health and safety’ (WHS) are equivalent, and generally either can be used in the workplace. In jurisdictions where *model WHS laws* have not been implemented, registered training organisations (RTOs) are advised to contextualise this unit of competency by referring to existing WHS legislative requirements.
2. The *model WHS laws* include the model WHS Act, model WHS Regulations and model WHS Codes of Practice. See Safe Work Australia for further information.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Unit Sector

Regulation, Licensing and Risk – Work Health and Safety

Elements and Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA

ELEMENTS	PERFORMANCE CRITERIA
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Assist with identifying the legal framework for WHS in the workplace	1.1 Access current WHS laws and related documentation relevant to organisation's operations 1.2 Assist with analysing accessed information to determine legal requirements in the workplace 1.3 Assist with identifying and confirming duties, rights and obligations of individuals and/or parties as specified in WHS laws 1.4 Assist with seeking advice from legal advisers as required
2. Assist with providing advice about WHS compliance	2.1 Assist individuals and/or parties to locate information about their WHS duties, rights and obligations 2.2 Assist with providing advice to individuals and/or parties about their WHS duties, rights and obligations, within scope of own role 2.3 Assist with providing advice to individuals and/or parties about the functions and powers of the WHS regulator and workplace regulatory compliance matters
3. Assist with establishing WHS legislative compliance	3.1 Assist with assessing workplace compliance with relevant WHS laws 3.2 Assist with reporting on outcomes of compliance assessment 3.3 Assist with determining and documenting recommendations that address identified non-compliance 3.4 Assist with determining related WHS training needs of work team, and with providing the WHS training to meet legislative and organisational requirements
4. Assist with maintaining WHS legislative compliance	4.1 Assist with developing or modifying workplace policies, procedures, processes and systems that support compliance according to organisational policies and procedures, and WHS legislative requirements 4.2 Assist with communicating developed or modified workplace policies, procedures, processes and systems 4.3 Assist with monitoring implementation of developed or modified workplace policies, procedures, processes and systems to ensure legislative compliance

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance but not explicit in the performance criteria.

Skill	Description
Reading	Reviews and interprets at times complex WHS legislative and organisational texts
Writing	- Documents WHS advice using structure, layout and language suitable for audience - Drafts, documents, and updates policies, procedures and processes according to requirements and using appropriate vocabulary and register
Oral communication	- Uses structure and language suitable for audience to provide, seek and discuss WHS legislative information - Uses questioning and active listening to clarify understanding
Navigate the world of work	- Adheres to legal and regulatory responsibilities, and organisational policies and procedures in relation to own WHS role and responsibilities - Keeps up to date on changes to WHS laws, and related organisational policies and procedures relevant to own role
Interact with others	- Cooperates with others as part of WHS compliance activities, and contributes to specific activities requiring joint responsibility and accountability - Collaborates with others to achieve individual and team outcomes
Get the work done	- Uses combination of logical planning and intuitive understanding of context to identify relevant information and hazards, and to evaluate alternative strategies in relation to WHS compliance - Uses decision-making processes in relation to WHS compliance: sets and clarifies goals, gathers information, and identifies and evaluates choices against a set of criteria

Unit Mapping Information

Supersedes and is equivalent to BSBWHS402 Assist with compliance with WHS laws.

Links

Companion Volume Implementation Guides are available from VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10>

Assessment Requirements for BSBWHS412 Assist with workplace compliance with WHS laws

Modification History

Release	Comments
Release 1	This version first released with BSB Business Services Training Package Version 5.0.

Performance Evidence

The candidate must demonstrate the ability to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, and to:

- assist with establishing workplace compliance with work health and safety (WHS) laws in relation to at least two different compliance matters and within scope of own role.

During the above, the candidate must assist with:

- identifying current WHS legal requirements for the workplace
- providing advice about current WHS legal requirements for the workplace
- assessing and maintaining workplace compliance with WHS legislative requirements
- making recommendations for implementing workplace changes in order to achieve WHS legal compliance
- monitoring compliance with WHS laws according to organisational policies and procedures.
-

Knowledge Evidence

The candidate must demonstrate the knowledge to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit. This includes knowledge of:

- internal and external sources of WHS information, and procedures for accessing them
- duties, rights and obligations of work team as specified in WHS laws, and location of relevant information about WHS laws
- functions and powers of relevant WHS regulator and how they are exercised
- regulatory compliance matters, including objectives and principles underpinning WHS laws
- methods used for:
 - assessing and maintaining WHS compliance
 - determining training needs in relation to WHS compliance

- implementing changes to policies, procedures, processes and systems to achieve WHS compliance
- organisational policies and procedures for:
 - documenting compliance requirements
 - assessing WHS compliance obligations and processes to address non-compliance
 - recording and documenting compliance assessment.
 -

Assessment Conditions

Assessment must comply with WHS laws, legal responsibilities and duty of care required for this unit. It must be conducted in a safe environment where evidence gathered demonstrates consistent performance of typical activities undertaken by individuals carrying out WHS duties in the workplace, and must include access to:

- WHS laws and organisational documentation required to demonstrate the performance evidence
- reports from individuals and parties consulted about WHS compliance
- case studies and, where possible, real situations
- opportunities for interaction with others.

Assessors of this unit must satisfy the assessor requirements in applicable vocational education and training legislation, frameworks and/or standards.

Links

Companion Volume Implementation Guides are available from VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10>

BSBWHS413 Contribute to implementation and maintenance of WHS consultation and participation processes

Modification History

Release	Comments
Release 1	This version first released with BSB Business Services Training Package Version 5.0.

Application

This unit describes the skills and knowledge required to contribute to implementing and maintaining work health and safety (WHS) consultation and participation as prescribed in legislation.

It also covers contributing to communicating relevant information, identifying feedback opportunities, and improving consultation and participation.

The unit applies to those working in a broad range of WHS roles across all industries.

NOTES

1. The terms ‘occupational health and safety’ (OHS) and ‘work health and safety’ (WHS) are equivalent, and generally either can be used in the workplace. In jurisdictions where *model WHS laws* have not been implemented, registered training organisations (RTOs) are advised to contextualise this unit of competency by referring to existing WHS legislative requirements.
2. The *model WHS laws* include the model WHS Act, model WHS Regulations and model WHS Codes of Practice. See Safe Work Australia for further information.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Unit Sector

Regulation, Licensing and Risk – Work Health and Safety

Elements and Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA

ELEMENTS	PERFORMANCE CRITERIA
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Identify individuals and parties, and their roles and responsibilities for WHS consultation and participation	1.1 Apply knowledge of relevant parts of WHS laws, policies and procedures as they apply to WHS consultation and participation 1.2 Identify individuals with roles, duties, rights and responsibilities regarding WHS consultation and participation according to organisational policies and procedures 1.3 Identify own role, duties, rights and responsibilities regarding WHS consultation and participation as appropriate to work area 1.4 Communicate roles, duties, rights and responsibilities to individuals and/or parties according to organisational policies and procedures
2. Contribute to implementing WHS consultation and participation processes	2.1 Identify established organisational WHS consultation and participation processes 2.2 Identify required personnel to participate in WHS consultation 2.3 Contribute to setting up and implementing WHS consultation processes as appropriate to own role and work area 2.4 Create opportunities for participating individuals and/or parties to provide feedback on WHS consultation processes 2.5 Document consultation opportunities according to organisational policies and procedures 2.6 Promote and support participation of individuals and/or parties in WHS consultation processes as appropriate to own role and work area
3. Contribute to processes for communicating and sharing WHS information and data	3.1 Identify consultation and participation processes for communicating and sharing WHS information and data 3.2 Identify training requirements for individuals and/or parties necessary for effective WHS consultation and participation 3.3 Contribute to and participate in sharing WHS information and data as appropriate to own role and

ELEMENTS	PERFORMANCE CRITERIA
	work area 3.4 Create methods to ensure WHS information and data is accessible to required personnel in work area 3.5 Record and store WHS information and data according to organisational policies and procedures
4. Contribute to assessment of WHS consultation and participation feedback processes	4.1 Identify consultation and participation methods for gathering and documenting feedback on processes from individuals and/or parties 4.2 Contribute to assessing opportunities for individuals and/or parties to express their views during consultation and participation 4.3 Document outcomes from assessment of feedback processes and communicate outcomes to relevant stakeholders according to organisational policies and procedures
5. Contribute to improving WHS consultation and participation processes	5.1 Contribute to identifying and assessing barriers to, and opportunities for improving, implementation and effectiveness of WHS consultation and participation processes 5.2 Contribute to developing, implementing and evaluating measures to remove barriers and improve processes 5.3 Communicate improvements to required personnel according to organisational policies and procedures

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance but not explicit in the performance criteria.

Skill	Description
Reading	Reviews and interprets WHS legislative and organisational texts
Writing	- Uses structure, layout and language suitable for audience to draft and document consultation and participation processes - Records required WHS information using appropriate organisational formats
Oral	Uses structure and language suitable for audience to provide relevant

Skill	Description
communication	WHS organisational information • Uses questioning and active listening to identify and discuss feedback requirements, and barriers to and opportunities for improving WHS consultation processes
Navigate the world of work	• Adheres to legal and regulatory responsibilities in relation to own WHS role and responsibilities • Keeps up to date on changes to WHS laws and regulations relevant to own role
Interact with others	• Identifies what, with whom and how to communicate in the context of consultation and participation processes • Uses a range of strategies to establish a sense of connection with others • Cooperates with others as part of WHS consultation and participation processes, and contributes to specific activities requiring joint responsibility and accountability • Initiates and contributes to facilitating consultative process, responding, explaining, clarifying and expanding on ideas and information as required
Get the work done	• Applies processes when organising consultation processes, producing plans with logically sequenced steps, reflecting some awareness of time and resource constraints and the needs of others • Contributes to implementing actions according to plans, making slight adjustments as necessary and addressing unexpected issues • Uses decision-making processes: sets and clarifies goals, gathers information, and identifies and evaluates choices against a set of criteria • Uses familiar digital systems and tools to access, organise, analyse and present information

Unit Mapping Information

Supersedes and is equivalent to BSBWHS403 Contribute to implementing and maintaining WHS consultation and participation processes.

Links

Companion Volume Implementation Guides are available from VETNet - <https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10>

Assessment Requirements for BSBWHS413 Contribute to implementation and maintenance of WHS consultation and participation processes

Modification History

Release	Comments
Release 1	This version first released with BSB Business Services Training Package Version 5.0.

Performance Evidence

The candidate must demonstrate the ability to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, and to:

- on at least two occasions contribute to each of the following, as applicable to own role and work area:
 - implementing and maintaining work health and safety (WHS) consultation and participation to ensure that required personnel are encouraged to participate
 - communicating information and data about WHS consultation and participation processes
 - explaining to individuals and parties the legal roles, duties, rights and responsibilities of self and others regarding WHS consultation and participation processes
 - creating opportunities for feedback on consultation and participation processes
 - identifying barriers to, and opportunities for improving, effectiveness of WHS consultation and participation processes, and to implement and maintain improvement measures.
-

Knowledge Evidence

The candidate must demonstrate the knowledge to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit. This includes knowledge of:

- requirements under WHS laws for consultation and participation processes, training requirements, and the roles and responsibilities of individuals and parties required to participate
- essential components of WHS consultation processes
- organisational policies and procedures for:
 - identifying and communicating WHS consultation and participation information
 - documenting consultation barriers, opportunities and feedback

- storing WHS information and data
- internal and external sources of WHS information and data, and procedures for accessing them
- key principles, uses and components of the hierarchy of control measures that assist with implementing and maintaining WHS consultation and participation processes
- methods for obtaining feedback from individuals and/or parties on consultation and participation processes.
-

Assessment Conditions

Assessment must comply with WHS laws, legal responsibilities and duty of care required for this unit. It must be conducted in a safe environment where evidence gathered demonstrates consistent performance of typical activities undertaken by individuals carrying out WHS duties in the workplace, and must include access to:

- workplace equipment, technology, software and consumables required to access information about WHS laws
- WHS laws, organisational documentation, and personnel required to demonstrate the performance evidence
- case studies and, where possible, real situations
- opportunities for interaction with others.

Assessors of this unit must satisfy the assessor requirements in applicable vocational education and training legislation, frameworks and/or standards.

Links

Companion Volume Implementation Guides are available from VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10>

BSBWHS414 Contribute to WHS risk management

Modification History

Release	Comments
Release 1	This version first released with BSB Business Services Training Package Version 5.0.

Application

This unit describes the skills and knowledge required to contribute to WHS risk management, which includes the processes for identifying work health and safety (WHS) hazards and assessing and controlling the risk relating to those identified hazards.

It involves contributing to the development, implementation and evaluation of risk controls according to legislative and organisational requirements.

The unit applies to those working in a broad range of roles across all industries. WHS hazard identification and risk control processes are those defined in written workplace procedures.

NOTES

1. The terms ‘occupational health and safety’ (OHS) and ‘work health and safety’ (WHS) are equivalent, and generally either can be used in the workplace. In jurisdictions where *model WHS laws* have not been implemented, registered training organisations (RTOs) are advised to contextualise this unit of competency by referring to existing WHS legislative requirements.
2. The *model WHS laws* include the model WHS Act, model WHS Regulations and model WHS Codes of Practice. See Safe Work Australia for further information.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Unit Sector

Regulation, Licensing and Risk – Work Health and Safety

Elements and Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA

ELEMENTS	PERFORMANCE CRITERIA
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Access information and data used to identify hazards, and to assess and control risks	1.1 Access and review current WHS laws relevant to organisation's hazard identification and risk control processes 1.2 Access workplace sources of information and data to inform hazard identification, risk assessment and risk controls 1.3 Access external sources of information and data to inform hazard identification, risk assessment and risk controls 1.4 Analyse information and data and determine nature and scope of workplace hazards, risk assessment and risk controls 1.5 Confirm information and data with required stakeholders, seeking input from technical and other advisors as required
2. Contribute to identifying risk management requirements and compliance	2.1 Contribute to identifying and complying with requirements of organisational policies, procedures, processes and systems for hazard identification, risk assessment and risk controls 2.2 Contribute to identifying and complying with requirements of WHS laws and guidelines for hazard identification, risk assessment and risk controls 2.3 Identify duty holders, and their roles and responsibilities according to risk management requirements 2.4 Identify tools used by organisational in current hazard identification and risk control processes
3. Contribute to workplace hazard identification	3.1 Contribute to selecting hazard identification tools and techniques according to WHS laws, and risk management requirements 3.2 Use hazard identification tools and techniques to assist with identifying hazards according to risk management requirements 3.3 Contribute to documenting hazard identification processes and results according to risk management requirements 3.4 Apply knowledge of hazards to advise individuals and/or parties about workplace hazards and the harms they may

ELEMENTS	PERFORMANCE CRITERIA
	cause
4. Contribute to WHS risk assessment	4.1 Identify individuals and/or parties at risk of exposure to hazards and determine the nature, severity and likelihood of potential harm 4.2 Contribute to applying tools, techniques and processes to identified hazards to assess risk, according to risk management requirements 4.3 Contribute to documenting risk assessment results according to risk management requirements 4.4 Contribute to communicating risk assessment outcomes with workers, contract workers, managers and technical specialists according to risk management requirements
5. Contribute to developing and implementing risk controls	5.1 Contribute to selecting risk controls for identified hazards based on the risk assessment 5.2 Document agreed risk controls according to risk management requirements 5.3 Contribute to developing risk controls according to the hierarchy of control measures and WHS laws 5.4 Contribute to implementing risk controls and seek supervisory advice as required by the circumstances 5.5 Support communication of information on risk controls and actions to required individuals and/or parties
6. Contribute to evaluating effectiveness of risk controls	6.1 Identify requirements for ensuring ongoing effectiveness of risk controls 6.2 Contribute to identifying measures that enable evaluation of effectiveness of risk controls 6.3 Document plan for monitoring effectiveness of risk controls according to organisational policies and procedures 6.4 Present and effectively communicate plan to required stakeholders according to risk management requirements

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance but not explicit in the performance criteria.

Skill	Description
Reading	Locates, reviews and interprets WHS legislative and organisational texts and other external information and data
Writing	- Uses structure, layout and language suitable for audience to document WHS hazard identification and risk control processes - Uses appropriate organisational formats and industry-specific vocabulary to document hazards, risks, and risk controls
Oral communication	Uses structure and language suitable for audience to communicate information and contribute ideas about WHS hazard identification and risk control processes
Navigate the world of work	- Adheres to legal and regulatory responsibilities, and organisational policies and procedures in relation to WHS hazard identification and risk control processes - Keeps up to date with WHS laws, and related organisational policies and procedures relevant to own role - Uses appropriate technology in accessing, communicating, and recording information
Interact with others	- Identifies what, with whom and how to communicate in the context of advising about hazards, risks and risk controls - Cooperates with others as part of WHS hazard identification and risk control processes, and contributes to specific activities requiring joint responsibility and accountability - Collaborates with others to achieve individual and team outcomes - Interacts to develop relationships with operational personnel and consultative groups

Skill	Description
	Seeks information from others to understand work and work relationships as they relate to hazard management
Get the work done	- Applies processes to plan, sequence and prioritise tasks, showing awareness of time and resource constraints and the needs of others - Uses decision-making processes in hazard identification and risk control processes: sets and clarifies goals, gathers information, and identifies and evaluates choices against a set of criteria - Applies problem-solving processes, identifying and evaluating several options for action

Unit Mapping Information

Supersedes and is equivalent to BSBWHS404 Contribute to WHS hazard identification, risk assessment and risk control.

Links

Companion Volume Implementation Guides are available from VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10>

Assessment Requirements for BSBWHS414 Contribute to WHS risk management

Modification History

Release	Comments
Release 1	This version first released with BSB Business Services Training Package Version 5.0.

Performance Evidence

The candidate must demonstrate the ability to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, and to contribute to:

- identifying at least two different (WHS) hazards and controlling the risks associated with those hazards
- evaluating the effectiveness of the above risk controls.

During each of the above occasions, the candidate must:

- identify and interpret information and data about WHS requirements and apply them to the selection and application of techniques, tools and processes for hazard identification, risk assessment and risk control
- contribute to documenting processes
- communicate with required people about WHS requirements and compliance
- comply with WHS requirements for hazard identification, risk assessment, and risk control activities
- identify WHS duty holders and their duties.
-

Knowledge Evidence

The candidate must demonstrate the knowledge to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit. This includes knowledge of:

- internal and external sources of WHS information and data relating to the performance evidence, and procedures for accessing them
- WHS hazard identification, risk assessment and risk control processes specified in:
 - required WHS laws
 - organisational WHS policies, procedures, processes, and systems
- risk management requirements, including:
 - identifying duty holders and their roles and responsibilities

- selecting and using hazard identification tools and techniques
- undertaking, documenting and communicating risk assessments
- evaluating risk controls
- documenting and communicating risk control plan
- differences between hazards and risks in the workplace
- range of common workplace hazards, and the nature, severity and likelihood of those hazards
- risk assessment and controls that can eliminate or minimise risks.
-

Assessment Conditions

Assessment must comply with WHS laws, legal responsibilities and duty of care required for this unit. It must be conducted in a safe environment where evidence gathered demonstrates consistent performance of typical activities undertaken by individuals carrying out WHS duties in the workplace, and must include access to:

- workplace equipment, technology, software and consumables required to access information on WHS laws
- WHS laws, and organisational policies, procedures, processes and systems required to demonstrate the performance evidence
- case studies and, where possible, real situations
- opportunities for interaction with others.

Assessors of this unit must satisfy the assessor requirements in applicable vocational education and training legislation, frameworks and/or standards.

Links

Companion Volume Implementation Guides are available from VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10>

BSBWHS416 Contribute to workplace incident response

Modification History

Release	Comments
Release 1	This version first released with BSB Business Services Training Package Version 5.0.

Application

This unit describes the skills and knowledge required to assist with actions and activities performed in response to workplace incidents according to work health and safety (WHS) legislative and organisational requirements.

The unit applies to those who contribute to workplace incident responses by undertaking a varied range of activities in a structured and familiar work environment as defined in written procedures. It applies to people who work in a broad range of WHS roles across all industries.

NOTES

1. The terms ‘incident’ and ‘accident’ are equivalent. Specific state/territory legislation may use one or the other. In jurisdictions where *model WHS laws* have not been implemented, RTOs are advised to contextualise this unit of competency by referring to the existing state/territory OHS legislative requirements and industry-specific legislative variances.
2. The terms ‘occupational health and safety’ (OHS) and ‘work health and safety’ (WHS) are equivalent, and generally either can be used in the workplace. In jurisdictions where *model WHS laws* have not been implemented, registered training organisations (RTOs) are advised to contextualise this unit of competency by referring to existing WHS legislative requirements.
3. The *model WHS laws* include the model WHS Act, model WHS Regulations and model WHS Codes of Practice. See Safe Work Australia for further information.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Unit Sector

Regulation, Licensing and Risk – Work Health and Safety

Elements and Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Prepare to assist with actions and activities associated with incident response	1.1 Identify duty holders and WHS legislative requirements for incident response 1.2 Identify workplace policies, procedures and processes concerning incident response planning and reporting 1.3 Communicate requirements for responding to incident to required personnel within scope of own role and work area 1.4 Contribute to developing communication mechanisms to notify manager of incident
2. Assist with implementing response procedures during incident	2.1 Provide initial assistance to those involved in incident within scope of own role and expertise and according to organisational incident response policies and procedures 2.2 Assist with documenting incident according to workplace procedures and processes 2.3 Assist with meeting legislative requirements regarding incident, within scope of own role and expertise 2.4 Assist with reporting incident to external authorities, according to legislative requirements and workplace procedures and processes
3. Contribute to collecting WHS information about incident	3.1 Assist with obtaining information and data from those involved about actions and events leading up to, during and after an incident, using appropriate data collection techniques 3.2 Assist with identifying and accessing sources of additional information and data related to incident 3.3 Compile and enter information according to record-keeping requirements
4. Assist with incident investigation	4.1 Assist with applying required incident investigation processes 4.2 Use appropriate analysis techniques to interpret causes of incident and communicate with advisors

ELEMENTS	PERFORMANCE CRITERIA
	when participating in workplace investigations 4.3 Review incident reports according to organisational policies and procedures 4.4 Contact responsible persons and relevant authorities as outlined in WHS laws, and organisational policies and procedures 4.5 Contribute to communicating investigation outcomes to relevant stakeholders according to organisational policies and procedures
5. Contribute to developing and implementing recommended measures and actions arising from incident investigation	5.1 Contribute to developing incident investigation recommendations 5.2 Assist with obtaining approval of developed recommendations from required stakeholders according to organisational policies and procedures 5.3 Assist with communicating approved recommendations to required stakeholders according to organisational policies and procedures 5.4 Contribute to implementing recommended measures and actions arising from incident investigation within scope of own role and according to WHS legislative requirements

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance but not explicit in the performance criteria.

Skill	Description
Reading	- Locates, reviews and interprets WHS legislative texts - Analyses reports and other material about incidents to determine required course of action
Writing	- Completes workplace records, forms and documentation using correct format, spelling and grammar, and industry-specific terminology - Records information for reference using language appropriate to audience
Oral Communication	- Presents information and advice using structure and language suitable for audience - Uses questioning and listening techniques to obtain feedback from

Skill	Description
	others and confirm understanding
Navigate the world of work	• Adheres to legal and regulatory responsibilities, and organisational policies and procedures • Keeps up to date on changes to WHS laws, and related organisational policies and procedures relevant to own role
Interact with others	• Identifies what, with whom and how to communicate in the context of incident responses and investigations • Collaborates with others to achieve individual and team outcomes • Cooperates with others as part of incident investigations and contributes to specific activities requiring joint responsibility and accountability
Get the work done	• Applies processes to plan, sequence and prioritise tasks required for incident responses and investigations, showing awareness of time, resource constraints and needs of others • Uses features and functions of digital tools to complete work tasks and access information

Unit Mapping Information

Supersedes and is equivalent to BSBWHS406 Assist with responding to incidents.

Links

Companion Volume Implementation Guides are available from VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10>

Assessment Requirements for BSBWHS416 Contribute to workplace incident response

Modification History

Release	Comments
Release 1	This version first released with BSB Business Services Training Package Version 5.0.

Performance Evidence

The candidate must demonstrate the ability to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, and to:

- contribute to responding to at least two different workplace incidents according to work health and safety (WHS) legislative and organisational requirements.

During the above, the candidate must:

- identify duty holders relevant to incident response
- contribute to:
 - communicating WHS requirements clearly and accurately to individuals and/or parties involved
 - reporting each incident according to WHS legislative and organisational requirements
 - obtaining information about each incident using appropriate data-collection techniques
 - developing and contributing to implementing required actions in response to each incident
 - investigating incident
 - communicating and implementing recommendations from investigation.
-

Knowledge Evidence

The candidate must demonstrate the knowledge to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit. This includes knowledge of:

- WHS laws about investigating and reporting workplace incidents
- sources of internal and external WHS information and data relating to incidents, and procedures for accessing them
- organisational policies, procedures, processes and systems relevant to own role or work area that relate to incident response and investigation, including those for:

- recording information relating to workplace incident responses
- reporting information to external authorities
- implementing improvements to policies, procedures, processes and systems as a result of an incident
- communication strategies to facilitate engagement of individuals and/or parties in incident response
- roles and responsibilities of self and duty holders in responding to workplace incidents.
-

Assessment Conditions

Assessment must comply with WHS laws, legal responsibilities and duty of care required for this unit. It must be conducted in a safe environment where evidence gathered demonstrates consistent performance of typical activities undertaken by individuals carrying out WHS duties in the workplace, and must include access to:

- organisational policies, standard operating procedures, procedures and plans required to demonstrate the performance evidence
- WHS legislation, licensing requirements and standards required to demonstrate the performance evidence
- WHS data required to contribute to incident response
- case studies and, where possible, real situations
- workplace equipment and resources
- opportunities for interaction with others.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

Links

Companion Volume Implementation Guides are available from VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10>

BSBWHS431 Develop processes and procedures for controlling hazardous chemicals in the workplace

Modification History

Release	Comments
Release 1	This version first released with BSB Business Services Training Package Version 5.0.

Application

This unit describes the skills and knowledge required to develop processes and procedures for controlling hazardous chemicals in the workplace, and then monitoring their effectiveness. The unit requires the application of knowledge associated with work health and safety (WHS) legislation, and organisational policies and procedures relating to controlling hazardous chemicals.

The unit applies to those who work under supervision and use some discretion and judgement to respond to monitoring hazardous chemicals in the workplace. It applies to hazardous chemicals with the potential to harm human health, which may be solids, liquids or gases – pure substances or mixtures. When used in the workplace these substances often generate vapours, fumes, dusts and/or mists.

NOTES

1. The terms ‘occupational health and safety’ (OHS) and ‘work health and safety’ (WHS) are equivalent, and generally either can be used in the workplace. In jurisdictions where *model WHS laws* have not been implemented, registered training organisations (RTOs) are advised to contextualise this unit of competency by referring to existing WHS legislative requirements.
2. The *model WHS laws* include the model WHS Act, model WHS Regulations and model WHS Codes of Practice. See Safe Work Australia for further information.
3. For the purposes of this unit of competency ‘safe systems of work’ refers to a formal procedure that results from systematic examination of a task in order to identify all the hazards. It defines safe methods to ensure that hazards are eliminated or, where this is not possible, risks are minimised.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Unit Sector

Regulation, Licensing and Risk – Work Health and Safety

Elements and Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Prepare to develop processes and procedures to control hazardous chemicals in the workplace	1.1 Identify and source current WHS laws, and organisational policies and procedures relating to controlling hazardous chemicals 1.2 Identify hazardous chemicals used in, or created by, workplace 1.3 Identify workplace tasks involving hazardous chemicals 1.4 Use safety data sheets (SDSs) and other guidance to determine potential worker exposure to identified hazardous chemicals 1.5 Seek specialist advice during preparation phase, as required
2. Develop processes and procedures to control hazardous chemicals in the workplace	2.1 Assess risks associated with identified hazardous chemicals 2.2 Use information from workplace environmental monitoring to determine compliance with exposure standards, environmental requirements, storage specifications or associated risk management strategies 2.3 Develop safe systems of work that include suitable risk control measures, and processes and procedures for those systems 2.4 Seek and integrate feedback from required personnel about developed processes and procedures 2.5 Communicate and promote developed processes and procedures to required personnel
3. Monitor effectiveness of processes and procedures developed to control hazardous chemicals in the workplace	3.1 Review workplace implementation of control processes and procedures 3.2 Identify non-compliance with control processes and procedures 3.3 Implement training and development procedures and

ELEMENTS	PERFORMANCE CRITERIA
	protocols to address areas of identified non-compliance
4. Report on effectiveness of processes and procedures in controlling hazardous chemicals in the workplace	4.1 Provide feedback on outcomes of workplace monitoring to required personnel 4.2 Record outcomes of monitoring process and distribute to required personnel according to workplace policies and procedures

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance but not explicit in the performance criteria.

Skill	Description
Reading	Locates, interprets and analyses WHS legislative and workplace information about hazardous chemicals
Writing	Uses appropriate organisational formats and industry-specific vocabulary to document control processes and procedures
Oral communication	Uses structure and language suitable for audience to communicate information and contribute ideas about hazardous chemical control
Navigate the world of work	- Adheres to legal and regulatory responsibilities, and organisational policies and procedures in relation to hazardous chemicals - Keeps up to date on changes to WHS laws, and related organisational policies and procedures relevant to own role
Interact with others	Cooperates with others and contributes to specific activities requiring joint responsibility and accountability
Get the work	Uses decision-making and problem-solving processes in

Skill	Description
done	hazardous chemicals monitoring: sets and clarifies goals, gathers information and checks compliance • Uses processes to monitor outcomes of processes and procedures to control hazardous chemicals in the workplace

Unit Mapping Information

No equivalent unit. New unit.

Links

Companion Volume Implementation Guides are available from VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10>

Assessment Requirements for BSBWHS431 Develop processes and procedures for controlling hazardous chemicals in the workplace

Modification History

Release	Comments
Release 1	This version first released with BSB Business Services Training Package Version 5.0.

Performance Evidence

The candidate must demonstrate the ability to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, and to:

- on at least two different occasions, develop processes and procedures to control hazardous chemicals in the workplace.

During each of these occasions, the candidate must:

- identify hazardous chemicals in the workplace through inspections and consultation with required personnel
- monitor and report on implementation of control processes and procedures
- communicate requirements and compliance associated with hazardous chemicals in the workplace
- comply with work health and safety (WHS) requirements for hazardous chemical monitoring
- implement training and development opportunities to address non-compliance
- identify WHS duty holders and their duties, and seek specialist advice as required.
-

Knowledge Evidence

The candidate must demonstrate the knowledge to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit. This includes knowledge of:

- range of common workplace hazardous chemicals and the origin and nature of associated harm
- requirements for controlling hazardous chemicals as specified in:
 - relevant WHS laws, licences and permit conditions
 - organisational WHS policies, procedures, processes and systems

- documentation about the safe use, handling, processing, storage, transportation, and disposal of hazardous chemicals in the workplace, including safety data sheets (SDSs)
- risk control processes and procedures, including:
 - identifying hazards and assessing risks
 - responding to incidents involving hazardous chemicals
- organisational policies and procedures for:
 - accessing internal and external sources of WHS information and data
 - recording outcomes of monitoring process and distributing to required personnel according to workplace policies and procedures
- key features and components of controls for hazardous chemicals in the workplace, including:
 - workplace register for hazardous chemicals
 - labelling of hazardous chemicals
 - workplace signposting
 - current and complete SDSs for hazardous chemicals in the workplace
 - risk controls in line with the hierarchy of control measures
 - safe work practices that eliminate, or where this is not possible, minimise risks
- emerging issues about hazardous chemicals and identifying potential risks from exposure to hazardous chemicals
- hierarchy of control measures suited to identified hazardous chemicals
- training and development procedures and protocols.
-

Assessment Conditions

Assessment must comply with WHS laws, legal responsibilities and duty of care required for this unit. It must be conducted in a safe environment where evidence gathered demonstrates consistent performance of typical activities undertaken by individuals carrying out WHS duties in the workplace, and must include access to:

- workplace equipment and resources
- WHS laws, standards and guidelines required to demonstrate the performance evidence
- organisational policies, procedures, processes and systems required to demonstrate the performance evidence
- case studies and, where possible, real situations
- opportunities for interaction with others.

Assessors of this unit must satisfy the assessor requirements in applicable vocational education and training legislation, frameworks and/or standards.

Links

Companion Volume Implementation Guides are available from VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10>

BSBWHS504 Manage WHS risks

Modification History

Release	Comments
Release 1	This version first released with BSB Business Services Training Package Version 1.0.

Application

This unit describes the skills and knowledge required to conduct work health and safety (WHS) risk management processes.

It applies to individuals who manage WHS risks, based on the organisation's WHS management system (WHSMS), WHS information system (WHSIS) and risk-management approach (as covered in BSBWHS503 Contribute to the systematic management of WHS risk). These individuals will work in a range of WHS roles across all industries and apply a substantial knowledge base and well-developed skills in a wide variety of WHS contexts.

NOTE: The terms 'occupational health and safety' (OHS) and 'work health and safety' (WHS) are equivalent and generally either can be used in the workplace. In jurisdictions where the Model WHS Legislation has not been implemented RTOs are advised to contextualise the unit of competency by referring to the existing State/Territory OHS legislative requirements.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Unit Sector

Regulation, Licensing and Risk – Work Health and Safety

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1 Access information and	1.1 Identify sources of information and data

ELEMENT	PERFORMANCE CRITERIA
data on WHS hazards and risk management	1.2 Obtain information and data to determine the nature and scope of hazards, the range of harms they may cause, and how these harms are caused 1.3 Obtain information and data to determine techniques, tools and processes to assess risk associated with identified hazards, and identify risk control options
2 Prepare to manage WHS risks	2.1 Apply knowledge of the organisation's WHSMS and WHSIS to identify WHS risk management requirements 2.2 Apply knowledge of WHS legislation to identify duty holders and legislative requirements for WHS risk management
3 Develop and implement WHS risk-management processes	3.1 Apply techniques, tools and processes to identify hazards, assess associated risks and identify risk control options 3.2 Apply knowledge of hazards and risks to select appropriate risk controls 3.3 Develop and implement a risk control plan and evaluate risk controls 3.4 Carry out hazard identification and risk management according to organisational and legal requirements

Foundation Skills

This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.

Skill	Performance Criteria	Description
Reading	1.1, 1.2, 1.3	Organises, interprets evaluates and critiques ideas and information in relation to WHS risk management
Writing	3.1, 3.2, 3.3, 3.4	- Uses industry specific terminology and appropriate formats to draft and develop risk control plans and processes - Records results of risk-management processes according to organisational requirements
Navigate the world of work	2.1, 2.2, 3.4	Monitors adherence to legal, regulatory and organisational rights and responsibilities for self and others in relation to WHS risk management

Interact with others	3.1, 3.2, 3.3	Collaborates with others to achieve joint outcomes, playing an active role in facilitating effective group interaction and taking a leadership role when required
Get the work done	1.2, 1.3, 3.1, 3.2, 3.3	- Uses logical planning processes, and an increasingly intuitive understanding of context, to identify relevant information and risks, and to identify and evaluate strategies and resources for risk management planning - Sequences and schedules complex activities, monitors implementation, and manages relevant communication in relation to risk management planning - Uses systematic, analytical processes in complex, non-routine situations, setting goals, gathering relevant information, identifying and evaluating options against agreed criteria - Uses common digital systems and tools to locate and store information

Unit Mapping Information

Code and title current version	Code and title previous version	Comments	Equivalence status
BSBWHS504 Manage WHS risks	BSBWHS504A Manage WHS hazards and risks	Updated to meet Standards for Training Packages. Title change	Equivalent unit

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10>

Assessment Requirements for BSBWHS504 Manage WHS risks

Modification History

Release	Comments
Release 1	This version first released with BSB Business Services Training Package Version 1.0.

Performance Evidence

Evidence of the ability to:

- access information and data on hazards and how to manage associated risks
- identify duty holders and legislative requirements for work health and safety (WHS) risk management
- use the organisation's WHS management system (WHSMS) and WHS information system (WHSIS) to conduct the following risk management processes:
 - identify hazards and potential hazards
 - assess the associated risks
 - identify control options
 - select suitable options
 - develop and implement a risk control plan
 - evaluate risk controls
- carry out hazard identification and risk management.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- describe the basic principles of workplace incident, injury and disease causation
- explain the meanings of 'hazard' and 'risk' and how they differ
- identify formal and informal communication and consultation processes and key personnel related to communication
- describe how the characteristics and composition of the workforce impact on WHS risk and the management of WHS, including:
 - communication skills
 - cultural background and diversity

- gender
- labour market changes
- language, literacy and numeracy levels of the workforce
- structure and organisation of the workforce, including part-time, casual and contract workers; shift rosters and geographical location
- workers with specific needs and limitations
- workplace culture in relation to alcohol and other drug use
- identify internal and external sources of WHS information and data and how to access them
- explain the limitations of generic hazard identification and risk assessment checklists and risk ranking processes
- outline methods for providing evidence of compliance with WHS legislation
- describe the nature of workplace processes (work flow, planning and control) and hazards relevant to the workplace
- describe organisational culture as it impacts on the work team
- summarise organisational WHS policies, procedures, processes and systems
- list other functional areas that impact on the management of WHS
- outline the principles and practices of a systematic approach to managing WHS
- outline Commonwealth and state or territory WHS Acts, regulations, codes of practice, standards and guidance material and other publications relevant to the organisation
- outline risk management as a duty of persons conducting businesses or undertakings or officers under WHS legislation
- describe the roles and responsibilities of individuals and parties under WHS legislation
- outline standard industry controls for a range of hazards
- identify techniques, tools and processes for identifying health and safety hazards and assessing and controlling the associated risks, including:
 - hazard and risk checklists
 - hazard hunts
 - job safety analyses
 - manifests and registers, including for dangerous goods, hazardous chemicals and plant
 - safe work method statements
 - surveys using questionnaires, interviews and other survey techniques
 - workplace inspections and walk-throughs.

Assessment Conditions

Assessment must be conducted in a safe environment where evidence gathered demonstrates consistent performance of typical activities experienced by individuals carrying out work health and safety duties in the workplace and include access to:

- workplace policies and procedures
- office equipment and resources

- relevant Acts, regulations, codes of practice, standards and guidelines relating to risks found in the workplace
- case studies and, where possible, real situations.

Assessors must satisfy NVR/AQTF assessor requirements.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10>

BSBWHS513 Lead WHS risk management

Modification History

Release	Comments
Release 1	This version first released with BSB Business Services Training Package Version 5.0.

Application

This unit describes the skills and knowledge required to lead the management of work health and safety (WHS) risks in an organisation. The unit includes facilitating the identification of hazards and potential hazards, leading the assessment of associated risks, selecting and implementing suitable risk controls, and evaluating the overall effectiveness of the organisational WHS risk management process. It involves communicating with stakeholders throughout the process.

The unit applies to those in an organisation who provide specialised knowledge and guidance to a range of personnel when leading the management of WHS risks.

NOTES

1. The terms ‘occupational health and safety’ (OHS) and ‘work health and safety’ (WHS) are equivalent, and generally either can be used in the workplace. In jurisdictions where *model WHS laws* have not been implemented, registered training organisations (RTOs) are advised to contextualise this unit of competency by referring to existing WHS legislative requirements.

2. The *model WHS laws* include the model WHS Act, model WHS Regulations and model WHS Codes of Practice. See Safe Work Australia for further information.

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Unit Sector

Regulation, Licensing and Risk – Work Health and Safety

Elements and Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA

ELEMENTS	PERFORMANCE CRITERIA
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Facilitate identification of WHS risk management requirements	1.1 Identify and review internal and external sources of WHS information and data that apply to risk management processes 1.2 Identify legislative requirements for WHS risk management 1.3 Identify duty holders, individuals and/or parties to consult about and participate in risk management processes, according to organisational and legislative requirements 1.4 Identify and communicate roles and responsibilities of individuals and/or parties that impact on risk management 1.5 Identify organisation-specific factors that will impact on hazard identification, risk assessment and risk controls 1.6 Confirm that risk management scope is clearly defined according to organisational policies and procedures
2. Lead risk assessment	2.1 Lead hazard identification process according to organisational policies and procedures 2.2 Identify and document risk factors as they apply to identified hazards according to organisational policies and procedures 2.3 Apply knowledge of WHS laws, workplace WHS information and data, and identified hazards and risk factors to analyse and assess risk 2.4 Document risk assessment according to organisational policies and procedures, and legislative requirements 2.5 Communicate outcomes of risk assessment to required personnel according to organisational and legislative requirements
3. Lead risk control	3.1 Identify organisational risk control policies and procedures appropriate to identified hazards 3.2 Select suitable risk controls according to assessed level of risk, organisational WHS hazard and risk control policies and procedures, and WHS laws 3.3 Plan to implement selected risk controls according to organisation's WHS management system (WHSMS) and WHS information system (WHSIS) 3.4 Implement selected risk controls according to organisational policies and procedures

ELEMENTS	PERFORMANCE CRITERIA
	3.5 Document and communicate selected risk controls to required personnel, according to organisational and legislative requirements
4. Evaluate effectiveness of WHS risk management process	4.1 Establish nature and scope of evaluation process and key performance indicators 4.2 Review effectiveness of implemented risk management process according to organisation's WHSMS and legislative requirements 4.3 Modify risk management process as required in response to evaluation 4.4 Document risk management process according to WHSIS requirements 4.5 Communicate evaluation findings according to organisational requirements

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance but not explicit in the performance criteria.

Skill	Description
Reading	Organises, analyses and integrates information from a range of sources
Writing	Documents results of investigations using clear and comprehensible language and layout
Oral Communication	- Uses listening and questioning techniques to clarify understanding of others' views - Presents information with varying level of technical vocabulary to suit audience
Numeracy	Collates, interprets and compares mathematical and statistical information relevant to requirements
Navigate	Considers legal and regulatory

Skill	Description
the world of work	- responsibilities when implementing, monitoring or reviewing risk-management processes - Leads effective consultation and participation during all stages of WHS risk-management process
Interact with others	- Identifies and uses appropriate conventions and protocols when communicating with others - Plays a lead role in situations requiring effective collaboration skills, demonstrating the ability to guide discussions and outcomes
Get the work done	- Develops plans or processes to manage WHS risk management tasks, with an awareness of how they contribute to operational and strategic goals - Determines whether, and how, others should be involved, using consultative or collaborative processes as an integral part of the decision-making process - Applies problem-solving processes to determine solutions to WHS risk management issues - Uses analytical and lateral thinking to review practices and suggest improvements - Uses a range of digitally-based technology and applications to access, organise and share relevant information in effective ways

Unit Mapping Information

Supersedes and is equivalent to BSBWHS503 Contribute to the systematic management of WHS risk.

Links

Companion Volume Implementation Guides are available from VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10>

Assessment Requirements for BSBWHS513 Lead WHS risk management

Modification History

Release	Comments
Release 1	This version first released with BSB Business Services Training Package Version 5.0.

Performance Evidence

The candidate must demonstrate the ability to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, and to:

- plan, implement and evaluate a systematic process for managing work health and safety (WHS) risk in a work area.

During the above, the candidate must:

- identify, interpret and apply information from a range of sources, including organisational and legislative requirements
- review WHS risk-management process according to established scope and key performance indicators
- consult effectively with required stakeholders using appropriate interpersonal communication skills.
-

Knowledge Evidence

The candidate must demonstrate the knowledge to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit. This includes knowledge of:

- commonwealth and state/territory WHS laws relating to WHS risk management, including WHS Acts, regulations, codes of practice and standards
- WHS information and data that applies to WHS risk-management process, including:
 - organisational and duty holder legal requirements
 - organisational policies and procedures relating to identifying hazards, assessing risks and implementing risk controls
 - key components of the work health and safety management system (WHSMS)
- internal and external sources of WHS information and data, and procedures for accessing them

- organisational behaviour and culture in relation to WHS risk management activities and their impact on WHS and the work team, including organisation's risk appetite
- key components of effective consultation and participation strategies
- tools and techniques to:
 - identify health and safety hazards
 - assess risks, taking into account nature and impact of risk, and likelihood of risk arising
 - identify and select suitable risk controls
 - facilitate effective communication and consultation processes, and identify key personnel related to communication
- application and limitations of techniques and tools for identifying hazards, and analysing and assessing risks
- hierarchy of control measures:
 - its use in establishing level of risk
 - factors limiting effectiveness of types of controls
 - role and limitations of procedural controls
 - use of personal protective equipment
- other functional areas in the organisation that impact on the management of WHS-related risks
- impact of workforce characteristics and composition on WHS risk and its management, including:
 - cultural background/diversity
 - gender
 - labour market changes
 - levels of language, literacy and numeracy skills in the workforce
 - workforce structure and organisation, including part-time, casual and contract workers, shift rosters and geographical location
 - workers with specific support needs and limitations
 - workplace cultural attitudes towards alcohol and other drug use
- principles of decision-making.
-

Assessment Conditions

Assessment must comply with WHS laws, legal responsibilities and duty of care required for this unit. It must be conducted in a safe environment where evidence gathered demonstrates consistent performance of typical activities undertaken by individuals carrying out WHS duties in the workplace, and must include access to:

- workplace equipment and resources
- WHS laws, and organisational policies and procedures required to demonstrate the performance evidence
- case studies and, where possible, real situations
- opportunities for interaction with others.

Assessors of this unit must satisfy the assessor requirements in applicable vocational education and training legislation, frameworks and/or standards.

Links

Companion Volume Implementation Guides are available from VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10>

BSBWHS515 Lead initial response to and investigate WHS incidents

Modification History

Release	Comments
Release 1	This version first released with BSB Business Services Training Package Version 5.0.

Application

This unit describes the skills and knowledge required to lead the initial response to work health and safety (WHS) incidents. The unit also includes planning, conducting and reporting on investigations of WHS incidents that have resulted in, or have the potential to result in, injury or damage. This may include accessing specialist expertise.

The unit applies to those who work in a range of WHS roles across all industries, and apply a substantial knowledge base and well-developed skills in a wide variety of WHS contexts. It does not apply to those undertaking an investigation in order to provide legal advice or prepare for legal proceedings.

NOTES

1. The terms ‘occupational health and safety’ (OHS) and ‘work health and safety’ (WHS) are equivalent, and generally either can be used in the workplace. In jurisdictions where *model WHS laws* have not been implemented, registered training organisations (RTOs) are advised to contextualise this unit of competency by referring to existing WHS legislative requirements.

2. The *model WHS laws* include the model WHS Act, model WHS Regulations and model WHS Codes of Practice. See Safe Work Australia for further information.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Unit Sector

Regulation, Licensing and Risk – Work Health and Safety

Elements and Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Lead the initial response to incident	1.1 Identify required initial response to incident according to established organisational response plan 1.2 Implement initial response according to plan, and organisational and legislative requirements 1.3 Confirm sufficiency and suitability of implemented initial response 1.4 Consult individuals and/or parties according to organisational policies and procedures
2. Develop and resource an incident investigation plan	2.1 Identify duty holders according to WHS laws and workplace policies, procedures and systems 2.2 Define scope and purpose of investigation appropriate to nature and scope of incident 2.3 Identify, document and secure required human and other resources appropriate to nature and scope of incident, including expert advice as required 2.4 Ensure participation of, and consultation with, required stakeholders, and determine agreed processes for investigation 2.5 Identify, address and document potential barriers to investigation according to organisational requirements 2.6 Document incident investigation plan according to organisational and WHS legislative requirements
3. Collect incident information and data	3.1 Identify and access relevant and reliable sources of incident information and data according to organisational policies and protocols, suitable causation model and legislative requirements 3.2 Inspect incident site, equipment and other evidence according to investigation plan, organisational procedures and legislative requirements 3.3 Present collected information and data in required format
4. Lead an incident investigation that is not part of providing legal advice or preparing for legal	4.1 Brief investigation team on investigation requirements and incident causation model 4.2 Construct and document timeline of events leading up

ELEMENTS	PERFORMANCE CRITERIA
proceedings	to incident 4.3 Coordinate investigation of key events, conditions and/or circumstances that contributed to incident 4.4 Develop recommendations, interventions and practical measures for investigation report
5. Record and report WHS incident investigation	5.1 Document investigation evidence and basis for conclusions and recommendations 5.2 Prepare investigation report according to organisational procedures and WHS legislative requirements 5.3 Implement organisational and WHS legislative recordkeeping protocols and procedures in relation to investigation report 5.4 Communicate report to required individuals and/or parties according to organisational policies and procedures

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance but not explicit in the performance criteria.

Skill	Description
Reading	- Reviews and interprets WHS legislative texts relating to WHS incidents - Analyses reports and other material to determine required course of action
Writing	- Documents procedures, plans and outcomes using appropriate organisational formats and industry-specific terminology - Develops reports using structure, format and language appropriate for report purpose and audience
Oral communi	Uses appropriate language and non-verbal features to provide support, give instructions or

Skill	Description
Communication	- request information - Listens closely to extract main ideas and to evaluate initial responses for accuracy and validity
Numeracy	- Extracts and evaluates the numerical and graphical information embedded in sources of incident information and data - Performs calculations in relation to resource requirements, timelines and evaluation measures, and the impact and implications of incidents
Navigate the world of work	- Develops, implements or modifies workplace procedures applicable to investigation contexts - Keeps up to date on changes to WHS laws relevant to own role and responsibilities, and considers their implications when negotiating, planning and undertaking work
Interact with others	- Identifies and uses appropriate conventions and protocols when communicating with parties involved in various investigation stages - Collaborates with others to achieve joint outcomes, playing an active role in facilitating effective group interaction - Takes a leadership role in developing team understanding of investigation requirements
Get the work done	- Uses logical planning processes and understanding of context to: - identify relevant information and risks - identify and evaluate alternative strategies and resources for investigation processes - Sequences and schedules complex activities, monitors implementation and manages relevant

Skill	Description
	communication • Uses analytical processes to review plans and seeks input and advice from others before taking necessary action • Uses digital systems and tools for data collection and analysis, and communication and reporting

Unit Mapping Information

Supersedes and is equivalent to BSBWHS505 Investigate WHS incidents.

Links

Companion Volume Implementation Guides are available from VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10>

Assessment Requirements for BSBWHS515 Lead initial response to and investigate WHS incidents

Modification History

Release	Comments
Release 1	This version first released with BSB Business Services Training Package Version 5.0.

Performance Evidence

The candidate must demonstrate the ability to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, and to:

- lead the initial response to one work health and safety (WHS) incident that complies with legislative and organisational requirements
- prepare, record and communicate incident investigation report that addresses immediate and underlying causes of incident and recommends practical prevention measures, according to organisational and WHS legislative requirements.

During the above, the candidate must:

- systematically develop and document a plan to investigate the incident
- collect, use and document information and data relevant to incident investigation
- establish key events, conditions and/or circumstances that contributed to the incident
- identify actions required to respond to the incident, including any recommendations for changes to WHS arrangements.
-

Knowledge Evidence

The candidate must demonstrate the knowledge to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit. This includes knowledge of:

- WHS laws applicable to WHS incidents and their investigation
- organisational WHS policies, procedures, processes, systems, roles and responsibilities relating to responding to and investigating WHS incidents:
 - incident response plan that meets legislative and organisational requirements
 - protocols and procedures for investigation, including preserving incident site as required
 - protocols for maintaining objectivity, confidentiality, privacy and commercial requirements during investigation of WHS incident

- information and data collection procedures that ensure their validity, admissibility and accuracy
- due diligence and duty of care requirements when investigating WHS incidents
- required format for reporting incident investigations
- common industry-accepted causation models, and their use in informing data collection and analysis
- internal and external sources of WHS information and data relevant to WHS incident investigations
- key components of incident investigation plan, including:
 - duty holders, expert advisers and key stakeholders appropriate to incident
 - agreed timelines, objectives, responsibilities, roles, documentation, actions and outcomes
 - levels of accountability
 - protocols for ensuring privacy and sensitivity throughout investigation
- key components of investigation report, including:
 - identified incident root causes
 - recommended actions, interventions and practical measures arising from investigation
 - plans for implementing and evaluating recommendations
- techniques and tools for gathering information relating to incident investigation, including:
 - questioning and active listening
 - information collection
 - accurate note taking
- types and characteristics of WHS incidents and suitable incident response processes.
-

Assessment Conditions

Assessment must comply with WHS laws, legal responsibilities and duty of care required for this unit. It must be conducted in a safe environment where evidence gathered demonstrates consistent performance of typical activities undertaken by individuals carrying out WHS duties in the workplace, and must include access to:

- workplace equipment and resources
- WHS laws, and organisational policies and procedures required to demonstrate the performance evidence
- case studies and, where possible, real situations
- opportunities for interaction with others.

Assessors of this unit must satisfy the assessor requirements in applicable vocational education and training legislation, frameworks and/or standards.

Links

Companion Volume Implementation Guides are available from VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10>

BSBWHS520 Manage implementation of emergency procedures

Modification History

Release	Comments
Release 1	This version first released with BSB Business Services Training Package Version 5.0.

Application

This unit describes the skills and knowledge required to implement initial response procedures for emergencies. Its focus is on the implementation of procedures already developed for short-term emergency responses. It assumes that expert advice will be available in identifying potential emergencies and in formulating response plans.

The unit applies to those with supervisory responsibilities for managing work health and safety (WHS) in the workplace who contribute to the implementation of procedures for responding to emergencies. These people work in a range of WHS roles across all industries, and apply a substantial knowledge base and well-developed skills in a wide variety of WHS contexts.

NOTES

1. The terms ‘occupational health and safety’ (OHS) and ‘work health and safety’ (WHS) are equivalent, and generally either can be used in the workplace. In jurisdictions where *model WHS laws* have not been implemented, registered training organisations (RTOs) are advised to contextualise this unit of competency by referring to existing WHS legislative requirements.
2. The *model WHS laws* include the model WHS Act, model WHS Regulations and model WHS Codes of Practice. See Safe Work Australia for further information.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Unit Sector

Regulation, Licensing and Risk – Work Health and Safety

Elements and Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Identify potential emergencies	1.1 Apply knowledge of WHS hazards and relevant standards to identify possible causes of potential emergencies 1.2 Seek input from stakeholders in identifying potential emergencies 1.3 Identify and liaise with appropriate specialist advisers and emergency services and/or specialist response teams to identify possible causes of potential emergencies 1.4 Develop a risk register to identify potential emergencies and their possible causes
2. Identify options for initial response	2.1 Categorise major types of potential emergencies 2.2 Identify actions required to contain or limit potential emergencies 2.3 Identify actions required to limit impact of potential emergencies on personnel, property and the environment 2.4 Identify requirements for liaison with emergency services and/or specialist response teams 2.5 Prioritise initial response actions to be taken during emergencies
3. Plan initial response procedures	3.1 Identify resources available and required for initial response 3.2 Ensure that emergency equipment is checked for serviceability, accessibility, cleanliness and correct location 3.3 Document actions required for a range of major types of emergency, taking account of standards, current industry practice, specialist advice and input by emergency services and/or specialist response teams 3.4 Identify training needs and appropriate providers
4. Implement initial response procedures	4.1 Document and display actions for initial response 4.2 Outline own role in initial response 4.3 Follow required procedures according to WHS laws, and organisational policies and procedures
5. Review initial response procedures	5.1 Monitor initial response for effectiveness, efficiency and timeliness in consultation with stakeholders and, specialist advisers and agencies as required 5.2 Document results of response monitoring and promptly report to appropriate persons

ELEMENTS	PERFORMANCE CRITERIA
	5.3 Identify areas for organisational and personal improvement and make recommendations based on analysis of response
6. Manage post-emergency activities	6.1 Identify and support other personnel involved in second response phase 6.2 Facilitate debriefing processes

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance but not explicit in the performance criteria.

Skill	Description
Reading	• Interprets and critically analyses texts when planning emergency response procedures • Applies appropriate strategies to construct meaning from texts to assist in planning emergency response procedures
Writing	• Develops risk registers, reports and associated documentation according to organisational requirements, using appropriate vocabulary, grammatical structure and conventions
Oral communication	• Asks questions and actively listens to gather information about potential emergency situations • Provides information during or after emergency response situations using structure and language appropriate to audience and context
Navigate the world of work	• Contributes to broader goals in emergency response contexts • Identifies legal rights and responsibilities of self and others in relation to emergency response contexts • Keeps up to date on changes to WHS laws relevant to own role and responsibilities, and considers their implications in emergency response contexts
Interact with others	• Collaborates with others to achieve joint outcomes, playing an active role in facilitating effective group interaction • Takes a leadership role in supporting, consulting and liaising in emergency response contexts
Get the work done	• Formulates plans and monitors actions against stated goals, adjusting plans and resources to cope with contingencies • Uses decision-making processes: sets and clarifies goals, gathers information, and identifies and evaluates several choices to determine appropriate actions and responses • Applies problem-solving processes when identifying actions required

Skill	Description
	in emergencies and associated training needs, resolving issues in manageable parts, and identifying and evaluating options for action • Reflects on response outcomes and feedback from others in order to identify general principles and concepts that may be applicable in new emergency situations • Identifies the potential of new approaches to enhance work practices and outcomes

Unit Mapping Information

Supersedes and is equivalent to BSBWHS510 Contribute to implementing emergency procedures.

Links

Companion Volume Implementation Guides are available from VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10>

Assessment Requirements for BSBWHS520 Manage implementation of emergency procedures

Modification History

Release	Comments
Release 1	This version first released with BSB Business Services Training Package Version 5.0.

Performance Evidence

The candidate must demonstrate the ability to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, and to:

- manage the planning, implementation and review of initial response procedures for at least two different emergencies.

During the above, the candidate must:

- identify and prioritise causes and options for initial response to contain or limit potential emergencies and their impact
- liaise with specialist advisers, emergency services and/or specialist response teams as required.
-

Knowledge Evidence

The candidate must demonstrate the knowledge to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit. This includes knowledge of:

- commonwealth and state/territory work health and safety (WHS) legislation and how it applies to managing the implementation of initial response procedures
- organisational and workplace WHS policies and procedures relating to initial response, including:
 - identifying and reporting emergencies
 - categorising major types of potential emergencies
 - essential communication and actions in an emergency
 - reporting on response to emergency
- internal and external sources of WHS information and data, and procedures for accessing them
- organisational structure, roles and responsibilities of WHS personnel managing the implementation of initial response procedures

- workplace emergency response equipment, including:
 - emergency alerting systems
 - emergency protection systems
 - smoke alarms, fire alarms and fire extinguishers
 - required safety wear
 - security systems
- nature of work, work site and hazards that may result in an emergency situation
- hazards arising and precautions to be taken during emergency response
- information needs of emergency response personnel during reporting, arrival and response to an emergency
- principles and priorities of fire protection and emergency response applicable to performance evidence
- accepted industry practice when responding to workplace emergencies.
-

Assessment Conditions

Assessment must comply with WHS laws, legal responsibilities and duty of care required for this unit. It must be conducted in a safe environment where evidence gathered demonstrates consistent performance of typical activities undertaken by individuals carrying out WHS duties in the workplace, and must include access to:

- workplace equipment and resources
- WHS laws, and organisational policies and procedures required to demonstrate the performance evidence
- case studies and, where possible, real situations
- opportunities for interaction with others.

Assessors of this unit must satisfy the assessor requirements in applicable vocational education and training legislation, frameworks and/or standards.

Links

Companion Volume Implementation Guides are available from VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10>

BSBWHS521 Ensure a safe workplace for a work area

Modification History

Release	Comments
Release 1	This version first released with BSB Business Services Training Package Version 5.0.

Application

This unit describes the skills and knowledge required to establish, maintain and evaluate an organisation's work health and safety (WHS) policies, procedures and programs in a work area to ensure a safe workplace, according to WHS legislative requirements. It takes a systems approach and addresses compliance with relevant legislative requirements.

The unit applies to those working in a range of contexts who have, or are likely to have, responsibility for WHS as part of their broader management role. It is relevant for people with obligations under WHS laws, for example persons conducting a business or undertaking (PCBUs) or officers, as defined by WHS laws.

NOTES

1. The terms 'occupational health and safety' (OHS) and 'work health and safety' (WHS) are equivalent, and generally either can be used in the workplace. In jurisdictions where *model WHS laws* have not been implemented, registered training organisations (RTOs) are advised to contextualise this unit of competency by referring to existing WHS legislative requirements.

2. The *model WHS laws* include the model WHS Act, model WHS Regulations and model WHS Codes of Practice. See Safe Work Australia for further information.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Unit Sector

Regulation, Licensing and Risk – Work Health and Safety

Elements and Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA

ELEMENTS	PERFORMANCE CRITERIA
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Establish a WHS management system in a work area	1.1 Locate, adapt, adopt and communicate WHS policies that define the organisation's commitment to complying with WHS laws 1.2 Identify duty holders and define WHS responsibilities for all workplace personnel in the work area according to WHS laws, policies, procedures and programs 1.3 Identify and approve financial and human resources required by the WHS management system (WHSMS) according to organisational procedures
2. Establish and maintain effective and compliant consultative arrangements for managing WHS in a work area	2.1 Work with required personnel to set up and maintain consultative arrangements according to required WHS laws 2.2 Resolve issues raised through participation and consultation arrangements according to required WHS laws and organisational protocols 2.3 Provide information about consultation and participation outcomes to required personnel according to organisational policies and procedures
3. Establish and maintain procedures for effectively identifying hazards, and assessing and controlling risks in work area	3.1 Develop procedures for ongoing hazard identification, and assessment and control of associated risks 3.2 Include hazard identification at the planning, design and evaluation stages of any workplace change to ensure that new hazards are not created by proposed changes and existing hazards are controlled 3.3 Develop and maintain procedures for selecting and implementing risk controls according to the hierarchy of control measures and WHS legislative requirements 3.4 Identify inadequacies in existing risk controls according to the hierarchy of control measures and WHS legislative requirements, and promptly provide resources to enable implementation of new measures 3.5 Identify requirements for expert WHS advice, and request this advice as required, according to organisational procedures
4. Evaluate and maintain a work area WHS management system	4.1 Develop and provide a WHS induction and training program for required personnel in a work area as part of

ELEMENTS	PERFORMANCE CRITERIA
(WHSMS)	organisation's training program 4.2 Use a system for WHS recordkeeping to allow identification of patterns of occupational injury and disease in the organisation, and to maintain a record of WHS decisions made, including reasons for decisions 4.3 Measure and evaluate the WHSMS according to organisation's quality systems framework 4.4 Develop and implement improvements to WHSMS to achieve organisational WHS objectives according to organisational procedures 4.5 Ensure compliance with WHS legislative framework to achieve, as a minimum, WHS legal requirements

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance but not explicit in the performance criteria.

Skill	Description
Reading	Organises, evaluates and critiques ideas and information from WHS laws, policies, procedures and programs
Writing	- Produces WHS policies, procedures and programs using appropriate vocabulary, grammatical structure and conventions - Records WHS decisions according to organisational requirements
Oral communication	- Presents and seeks information from others using structure and language suitable for the audience - Provides information about WHS policies and procedures and on resolution of WHS issues, varying the level of technical vocabulary to suit the audience
Numeracy	Selects from, and applies, an expanding range of mathematical and problem-solving strategies in identifying financial and human resources required to support WHS requirements
Navigate the world of work	- Monitors adherence to legal and regulatory rights and responsibilities for self and others in relation to WHS - Develops, implements and reviews WHS-related policies, procedures and processes according to legislative and organisational requirements
Interact with others	Plays a lead role in situations requiring effective collaboration, demonstrating the ability to guide discussions and negotiate

Skill	Description
	agreeable outcomes • Provides feedback to others in forms they can understand and use
Get the work done	• Develops plans or processes to manage relatively complex WHS management tasks, with an awareness of how they contribute to operational and strategic goals • Uses systematic and analytical processes, setting goals, gathering relevant information, and identifying and evaluating options against agreed criteria • Considers whether, and how, others should be involved, using consultative or collaborative processes as an integral part of the decision-making process • Uses digital systems and tools to enter, store and retrieve relevant information

Unit Mapping Information

Supersedes and is equivalent to BSBWHS501 Ensure a safe workplace.

Links

Companion Volume Implementation Guides are available from VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10>

Assessment Requirements for BSBWHS521 Ensure a safe workplace for a work area

Modification History

Release	Comments
Release 1	This version first released with BSB Business Services Training Package Version 5.0.

Performance Evidence

The candidate must demonstrate the ability to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, and to:

- establish, implement, maintain and evaluate one work health and safety management system (WHSMS) for a work area of an organisation that complies with WHS laws, and organisational policies and procedures.

During the above, the candidate must:

- establish, implement, maintain and evaluate effective and compliant consultative arrangements for managing WHS, including:
 - identifying duty holders
 - identifying and approving required resources
 - developing and implementing a training program
- establish, implement, maintain and evaluate procedures for effectively identifying hazards, and assessing and controlling risks using the hierarchy of control measures.
-

Knowledge Evidence

The candidate must demonstrate the knowledge to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit. This includes knowledge of:

- details of relevant WHS laws relating to ensuring a safe workplace
- WHS organisational policies, procedures, programs and practices required for the performance evidence
- hazard identification and risk-management processes
- key principles, uses and components of the hierarchy of control measures and procedures for applying it in the workplace
- organisational and WHS legislative reporting requirements.
-

Assessment Conditions

Assessment must comply with WHS laws, legal responsibilities and duty of care required for this unit. It must be conducted in a safe environment where evidence gathered demonstrates consistent performance of typical activities undertaken by individuals carrying out WHS duties in the workplace, and must include access to:

- organisational WHS policies and procedures required to demonstrate the performance evidence
- WHS laws required to demonstrate the performance evidence
- case studies and, where possible, real situations
- opportunities for interaction with others.

Assessors of this unit must satisfy the assessor requirements in applicable vocational education and training legislation, frameworks and/or standards.

Links

Companion Volume Implementation Guides are available from VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10>

BSBWHS522 Manage WHS consultation and participation processes

Modification History

Release	Comments
Release 1	This version first released with BSB Business Services Training Package Version 5.0.

Application

This unit describes the skills and knowledge required to manage the identification, review, development, implementation and evaluation of consultation and participation processes as an integral part of managing work health and safety (WHS).

The unit applies to those responsible for facilitating consultation about and participation in WHS management and decision-making across the organisation. These people work in a range of WHS roles across all industries, and apply a substantial knowledge base and well-developed skills in a wide variety of WHS contexts.

NOTES

1. The terms ‘occupational health and safety’ (OHS) and ‘work health and safety’ (WHS) are equivalent, and generally either can be used in the workplace. In jurisdictions where *model WHS laws* have not been implemented, registered training organisations (RTOs) are advised to contextualise this unit of competency by referring to existing WHS legislative requirements.
2. The *model WHS laws* include the model WHS Act, model WHS Regulations and model WHS Codes of Practice. See Safe Work Australia for further information.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Unit Sector

Regulation, Licensing and Risk – Work Health and Safety

Elements and Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA

ELEMENTS	PERFORMANCE CRITERIA
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Identify requirements for WHS consultation and participation	1.1 Review WHS laws to identify duty holders and legal requirements for WHS consultation and participation processes 1.2 Review organisational policies, procedures, processes and systems to identify requirements and opportunities for WHS consultation and participation 1.3 Consult with required personnel according to organisational procedures to identify specific requirements for WHS consultation and participation
2. Review existing WHS consultation and participation processes	2.1 Review effectiveness of existing WHS consultation and participation processes, in consultation with required personnel 2.2 Identify inconsistencies between existing processes and identified requirements for WHS consultation and participation processes 2.3 Consult with required personnel to identify specific areas for improvement in WHS consultation and participation processes
3. Develop WHS consultation and participation processes	3.1 Identify factors that may impact on design of WHS consultation and participation processes 3.2 Design new or modify existing processes to achieve required improvements, in consultation with required personnel 3.3 Ensure improvements integrate with existing WHS and other systems and are appropriate to organisation 3.4 Plan how improvements will be implemented and identify resourcing requirements, roles and responsibilities, and training needs required for implementation 3.5 Develop action plans with allocated responsibilities and timelines 3.6 Determine priorities for implementation, in consultation with required personnel
4. Facilitate implementation of WHS consultation and participation arrangements	4.1 Clarify individual roles and responsibilities in WHS consultation and participation arrangements 4.2 Provide advice and support to required personnel

ELEMENTS	PERFORMANCE CRITERIA
	during implementation according to organisational procedures 4.3 Monitor and facilitate implementation, in consultation with required personnel 4.4 Recommend and facilitate changes to action plan as required according to organisational procedures
5. Monitor and evaluate WHS consultation and participation processes	5.1 Develop evaluation protocol, in consultation with required personnel 5.2 Develop and implement plan for collecting information 5.3 Analyse and evaluate information according to organisational policies and procedures 5.4 Make recommendations for improvement based on evaluation 5.5 Document action plan to address recommended improvements according to organisational policies and procedures 5.6 Communicate outcomes of monitoring and evaluation to required personnel according to organisational policies and procedures

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance but not explicit in the performance criteria.

Skill	Description
Reading	Organises, analyses and critiques ideas and information from a range of legal and organisational texts to identify WHS duty holders, and consultation and participation requirements
Writing	- Employs broad vocabulary and uses grammatical structure and conventions appropriate to text in writing reports, plans and protocols - Uses appropriate vocabulary and language to seek information from others
Oral communication	- Presents ideas and information choosing appropriate vocabulary for purpose and audience - Uses questioning and active listening to seek opinions or information and to clarify understanding

Skill	Description
Numeracy	• Uses required numeracy and problem-solving strategies and techniques in designing and using information collection and analysis processes
Navigate the world of work	• Adheres to legal and regulatory rights and responsibilities and monitors others' adherence in relation to WHS consultation and participation processes • Interprets operational policies and procedures to ensure that consultation and participation processes align with other work practices
Interact with others	• Plays a lead role in situations requiring effective collaboration • Provides feedback to others in forms they can understand and use
Get the work done	• Manages tasks with an awareness of how they contribute to operational and strategic goals • Uses systematic and analytical processes: sets goals, gathers relevant information, and identifies and evaluates options against agreed criteria • Considers whether, and how, others should be involved, using consultative or collaborative processes as an integral part of the decision-making process • Uses analytical processes to decide on a course of action, establishes criteria for deciding between options, and seeks input and advice from others before taking necessary action • Uses digital systems and tools for data collection and analysis and communication and reporting

Unit Mapping Information

Supersedes and is equivalent to BSBWHS502 Manage effective WHS consultation and participation processes.

Links

Companion Volume Implementation Guides are available from VETNet - <https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10>

Assessment Requirements for BSBWHS522 Manage WHS consultation and participation processes

Modification History

Release	Comments
Release 1	This version first released with BSB Business Services Training Package Version 5.0.

Performance Evidence

The candidate must demonstrate the ability to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, and to:

- manage effective work health and safety (WHS) consultation and participation processes in consultation with others for at least one WHS consultation and participation issue, including:
 - developing an action plan with positive performance indicators
 - identifying gaps and areas for improving processes
 - implementing, monitoring and reviewing processes.

During the above, the candidate must:

- implement legal and organisational requirements
- provide advice and support to others during implementation of process and recommend changes as required.
-

Knowledge Evidence

The candidate must demonstrate the knowledge to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit. This includes knowledge of:

- internal and external sources of WHS information and data, and procedures for accessing them
- communication networks, processes and formats required for consultation and participation processes
- commonwealth and state/territory WHS laws and guidance material, in particular the parts relating to:
 - duties of persons conducting a business or undertaking (PCBUs), officers, workers and inspectors
 - duty holders

- consultation, participation and representation
- discriminatory, coercive and misleading conduct
- workplace entry by WHS permit holders
- formal and informal communication and consultation processes, and key personnel related to communication
- impact of characteristics and composition of the workforce on WHS risk and WHS management, including:
 - communication skills
 - cultural background and diversity
 - gender
 - principles of coordination and cooperation
 - labour market changes
 - levels of language, literacy and numeracy skills in the workforce
 - structure and organisation of the workforce, including part-time, casual and contract workers, shift rosters and geographical location
 - workers with specific needs and limitations
- key roles and responsibilities of personnel, including agents of change in workplace management structure
- key features of organisational culture as it impacts on work team and consultation and participation processes
- relevant organisational WHS policies, procedures, processes and systems
- key features of the WHSMS and action plans as they apply to consultation and participation processes
- key design principles for planning and implementing consultation and participation processes
- key techniques for supporting and promoting consultation and participation processes
- key tools and techniques for evaluating plans and processes for consultation and participation.
-

Assessment Conditions

Assessment must comply with WHS laws, legal responsibilities and duty of care required for this unit. It must be conducted in a safe environment where evidence gathered demonstrates consistent performance of typical activities undertaken by individuals carrying out WHS duties in the workplace, and must include access to:

- reports from other parties consulted about design, implementation, management and review processes
- WHS laws, and organisational policies and procedures required to demonstrate the performance evidence
- case studies and, where possible, real situations
- opportunities for interaction with others.

Assessors of this unit must satisfy the assessor requirements in applicable vocational education and training legislation, frameworks and/or standards.

Links

Companion Volume Implementation Guides are available from VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10>

BSBWOR404 Develop work priorities

Modification History

Release	Comments
Release 2	This version first released with BSB Business Services Training Package Version 1.1. Version created to correct mapping table information
Release 1	This version first released with BSB Business Services Training Package Version 1.0.

Application

This unit describes the skills and knowledge required to monitor and obtain feedback on own work performance and access learning opportunities for professional development.

This unit applies to individuals who are required to design their own work schedules and work plans and to establish priorities for their work. They will typically hold some responsibilities for the work of others and have some autonomy in relation to their own role.

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Unit Sector

Industry Capability – Workplace Effectiveness

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Plan and complete own work schedule	1.1 Prepare workgroup plans which reflect consideration of resources, client needs and workgroup targets 1.2 Analyse and incorporate work objectives and priorities into personal schedules and responsibilities

ELEMENT	PERFORMANCE CRITERIA
	1.3 Identify factors affecting the achievement of work objectives and establish contingencies and incorporate them into work plans 1.4 Efficiently and effectively use business technology to manage and monitor planning completion and scheduling of tasks
2. Monitor own work performance	2.1 Identify and analyse personal performance through self-assessment and feedback from others on the achievement of work objectives 2.2 Seek and evaluate feedback on performance from colleagues and clients in the context of individual and group requirements 2.3 Routinely identify and report on variations in the quality of service and performance in accordance with organisational requirements
3. Co-ordinate professional development	3.1 Assess personal knowledge and skills against organisational benchmarks to determine development needs and priorities 3.2 Research and identify sources and plan for opportunities for improvement in consultation with colleagues 3.3 Use feedback to identify and develop ways to improve competence within available opportunities 3.4 Identify, access and complete professional development activities to assist career development 3.5 Store and maintain records and documents relating to achievements and assessments in accordance with organisational requirements

Foundation Skills

This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.

Skill	Performance Criteria	Description
Learning	3.1, 3.2, 3.3, 3.4	Develops strategies to reflect on own performance, obtain feedback, and plan and source professional development opportunities
Reading	1.2, 2.1, 2.3, 3.1, 3.5	Recognises and interprets textual information from relevant sources to understand organisation's policies and practices

Writing	1.1, 1.3, 2.2, 2.3, 3.2, 3.5	Prepares written reports and workplace documentation that communicate complex information clearly and effectively
Oral Communication	2.2, 2.3, 3.2	- Provides or seeks information using language suitable to audience and context - Employs listening and questioning techniques to confirm understanding
Numeracy	1.1, 1.2, 1.3	Interprets numerical information related to budgets and timeframes
Navigate the world of work	1.2, 2.1, 2.3, 3.1, 3.5	Identifies and understands roles and responsibilities in relation to organisational objectives, policies and procedures
Interact with others	2.2, 2.3, 3.2	- Selects and uses appropriate practices when communicating with internal and external stakeholders to seek or share information - Establishes and builds rapport and relationships with others to foster a culture of trust and honesty in communications
Get the work done	1.1-1.4, 2.3, 3.1, 3.2, 3.4, 3.5	- Plans, organises and implements tasks to meet organisational requirements - Systematically gathers and analyses information and evaluates options in order to anticipate potential problems and develop contingency plans - Uses the main features and functions of digital technologies and tools to complete work tasks efficiently and effectively

Unit Mapping Information

Code and title current version	Code and title previous version	Comments	Equivalence status
BSBWOR404 Develop work priorities	BSBWOR404B Develop work priorities	Updated to meet Standards for Training Packages	Equivalent unit

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10>

Assessment Requirements for BSBWOR404 Develop work priorities

Modification History

Release	Comments
Release 2	This version first released with BSB Business Services Training Package Version 1.1. Version created to correct mapping table information
Release 1	This version first released with BSB Business Services Training Package Version 1.0.

Performance Evidence

Evidence of the ability to:

- prepare and communicate own work plan
- schedule work objectives and tasks to support the achievement of the workgroup goals
- review own work performance against workgroup objectives through self-assessment and seeking and acting on feedback from clients and colleagues
- plan and access learning opportunities to extend personal work competencies.

Note: if a specific volume or frequency is not stated, then evidence must be provided at least once.

Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain how business technology applications can be used to schedule tasks and plan work
- explain techniques to prepare personal plans and establish priorities
- identify methods to identify and prioritise personal learning needs
- outline a range of professional development options
- explain methods to elicit, analyse and interpret feedback
- provide a detailed explanation of methods that can be used to evaluate own performance.

Assessment Conditions

Assessment must be conducted in a safe environment where evidence gathered demonstrates consistent performance of typical activities experienced in the industry capability - workplace effectiveness field of work and include access to:

- workplace documentation including policies and procedures, and benchmarks for work group productivity and performance
- workplace equipment and resources
- case studies and, where possible, real situations
- interaction with others.

Assessors must satisfy NVR/AQTF assessor requirements.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10>

BSBWRT401 Write complex documents

Modification History

Release	Comments
Release 1	This version first released with BSB Business Services Training Package Version 1.0.

Application

This unit describes the skills and knowledge required to plan documents, draft text, prepare final text and produce documents of some complexity.

It applies to individuals who work in a range of business environments and are skilled in the creation of reports, information and general promotion documents that are more complex than basic correspondence, memos or forms and that require review and analysis of a range of information sources.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Unit Sector

Communication – Writing

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1 Plan documents	1.1 Determine the purposes of documents 1.2 Choose appropriate formats for documents 1.3 Establish means of communication 1.4 Determine requirements of documents 1.5 Determine categories and logical sequences of data, information and knowledge to achieve document objectives

ELEMENT	PERFORMANCE CRITERIA
	1.6 Develop overview of structure and content of documents
2 Draft text	2.1 Review and organise available data, information and knowledge according to proposed structure and content 2.2 Ensure data, information and knowledge is aggregated, interpreted and summarised to prepare text that satisfies document purposes and objectives 2.3 Include graphics as appropriate 2.4 Identify gaps in required data and information, and collect additional material from relevant enterprise personnel 2.5 Draft text according to document requirements and genre 2.6 Use language appropriate to the audience
3 Prepare final text	3.1 Review draft text to ensure document objectives are achieved and requirements are met 3.2 Check grammar, spelling and style for accuracy and punctuation 3.3 Ensure draft text is approved by relevant enterprise personnel 3.4 Incorporate revisions in final copy
4 Produce document	4.1 Choose basic design elements for documents appropriate to audience and purpose 4.2 Use word processing software to apply basic design elements to text 4.3 Check documents to ensure all requirements are met

Foundation Skills

This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.

Skill	Performance Criteria	Description
Reading	1.1, 1.2, 2.1, 2.2, 2.4, 3.1, 3.2, 4.3	- Interprets information to identify requirements and prepares material suitable to target audience and environment - Proofreads texts for accuracy
Writing	1.6, 2.2, 2.3, 2.5,	Creates documents for a specific audience using cohesive and well-structured language to convey

	2.6, 3.2, 3.4, 4.1	detailed and accurate information Ensures vocabulary, layout and grammatical arrangement achieves meaning and intent of document
Oral Communication	1.1, 1.4, 2.4, 3.3	Obtains information or clarifies requirements by asking questions and listening
Navigate the world of work	1.4, 4.3	Adheres to organisational policies and procedures related to document production
Interact with others	1.1, 1.4, 1.5, 2.4, 3.3	Follows accepted communication practices and protocols when seeking advice about documents from colleagues, supervisors and managers
Get the work done	1.1-1.6, 2.1-2.5, 3.3, 4.1-4.2	- Plans, organises and implements tasks required to produce documents - Makes decisions based on standard procedures, using more formal decision making processes where required - Uses the main features and functions of digital tools to complete work tasks

Unit Mapping Information

Code and title current version	Code and title previous version	Comments	Equivalence status
BSBWRT401 Write complex documents	BSBWRT401A Write complex documents	Updated to meet Standards for Training Packages	Equivalent unit

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10>

Assessment Requirements for BSBWRT401 Write complex documents

Modification History

Release	Comments
Release 1	This version first released with BSB Business Services Training Package Version 1.0.

Performance Evidence

Evidence of the ability to:

- plan, draft and finalise complex documents that require review and analysis of a range of information sources
- use business technology to apply formatting, and incorporate graphics
- edit the draft text to ensure accuracy and clarity of information, obtain feedback on the draft and revise the draft
- apply the enterprise style guide/house style.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- identify the enterprise style guide/house style
- outline formatting styles and their impact on formatting, readability and appearance of documents
- explain rules and conventions for written English, as defined by general and specialist sources.

Assessment Conditions

Assessment must be conducted in a safe environment where evidence gathered demonstrates consistent performance of typical activities experienced in the communication – writing field of work and include access to:

- office equipment and resources
- organisational policies and procedures
- organisational style guides.

Assessors must satisfy NVR/AQTF assessor requirements.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10>

BSBWRT411 Write complex documents

Modification History

Release	Comments
Release 1	This version first released with BSB Business Services Training Package Version 7.0.

Application

This unit describes the skills and knowledge required to plan, draft and finalise complex documents.

The unit applies to individuals who work in a range of business environments and are skilled in the creation of documents that are more complex than basic correspondence, memos and/or forms and that require review and analysis of a range of information sources.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Unit Sector

Social Competence – Written Communication

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Plan complex document	1.1 Determine audience, purpose and requirements of document according to organisation policies and procedures 1.2 Determine required format, style and structure for document 1.3 Establish method of communication 1.4 Develop content overview of document 1.5 Determine categories and logical sequence of information according to proposed structure, content and document requirements
2. Draft complex document	2.1 Confirm information is cohesive and satisfies document purpose and requirements 2.2 Develop draft document to communicate data, information and

ELEMENT	PERFORMANCE CRITERIA
	knowledge according to organisational policies and procedures 2.3 Identify gaps in required data, information and knowledge, and collect additional material from relevant sources, if required 2.4 Draft text according to document purposes and requirements
3. Finalise complex document	3.1 Review draft text and confirm document purpose and requirements are met 3.2 Check grammar, spelling and style for accuracy and punctuation 3.3 Confirm draft text is approved by relevant organisation personnel 3.4 Review and incorporate any amendments in final copy 3.5 Apply basic design elements for document appropriate to audience and purpose 3.6 Check document and confirm all requirements are met

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance but not explicit in the performance criteria.

SKILL	DESCRIPTION
Reading	- Interprets a variety of text to determine and confirm task requirements - Proofreads document checking for grammar, spelling, structure, and suitability of style and format for audience
Oral Communication	Uses listening and questioning skills to seek additional information or confirmation of task completion
Self-management	- Follows accepted communication practices and protocols when seeking information or feedback from others - Takes responsibility for planning, sequencing and prioritising tasks to achieve required outcomes
Technology	Uses the main features and functions of digital tools to complete work tasks

Unit Mapping Information

Supersedes and is equivalent to BSBWRT401 Write complex documents.

Links

Companion Volume Implementation Guide is found on VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10>

Assessment Requirements for BSBWRT411 Write complex documents

Modification History

Release	Comments
Release 1	This version first released with BSB Business Services Training Package Version 7.0.

Performance Evidence

The candidate must demonstrate the ability to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including evidence of the ability to:

- plan, draft and finalise three different complex documents that convey the required information in a format suitable for the intended audience and purpose according to organisational policies and procedures for document production.

In the course of the above, the candidate must:

- review and analyse a range of information sources
- use business technology to apply formatting and incorporate graphics
- apply organisation style guide/house style.

Knowledge Evidence

The candidate must be able to demonstrate knowledge to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including knowledge of:

- organisation style guide/house style
- format and its impact on readability, cohesion and appearance of document
- categories and logical sequences of information
- rules and conventions for written English
- key features of word processing software
- key features of written communication methods, including:
 - general emails
 - procedures
 - business letters
 - meeting agendas
- organisational policies and procedures relating to written communication
- process for checking:
 - suitability of document for audience, purpose, format, and structure

- grammar, spelling and style for accuracy and punctuation
- key text elements including basic design elements.

Assessment Conditions

Skills in this unit must be demonstrated in a workplace or simulated environment where the conditions are typical of those in a working environment in this industry.

This includes access to:

- office equipment and resources
- organisational policies and procedures
- organisational style guides.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

Links

Companion Volume Implementation Guide is found on VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10>

BSBXBD403 Analyse big data

Modification History

Release	Comments
Release 1	This version first released with BSB Business Services Training Package 6.0.

Application

This unit describes the skills and knowledge required to analyse transactional and non-transactional big data in order to provide insights that are used in an organisation. It involves identifying trends and relationships within big data, and establishing data acceptability. It also involves forming recommendations based on the analysis, and reporting on analysis findings.

It applies to those who work in a broad range of industries and job roles using big data analysis techniques in their day-to-day work.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Unit Sector

Data Literacy – Data Literacy

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Determine purpose and scope of big data analysis	1.1 Determine organisational requirements for big data analysis 1.2 Identify internal and external sources of big data to be analysed according to organisational policies and procedures and legislative requirements 1.3 Establish and confirm parameters to be applied in analysis according to organisational policies and procedures
2. Analyse initial	2.1 Categorise and prepare captured big data for analysis

ELEMENT	PERFORMANCE CRITERIA
trends and relationships in captured big data	2.2 Extract and transform structured and unstructured big data in preparation for data analysis 2.3 Analyse big data and derive insights into trends using required tools and dashboards
3. Finalise big data analysis	3.1 Conduct statistical analysis to confirm accuracy of big data analysis 3.2 Isolate and remove identified incorrect results 3.3 Develop report on key outcomes from analysis 3.4 Store analytics results, associated report and supporting evidence according to organisational policies and procedures, and legislative requirements

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance but not explicit in the performance criteria.

Skill	Description
Learning	Modifies behaviour following exposure to new information
Numeracy	- Uses mathematical and statistical concepts required to analyse big data - Completes at times complex calculations and records numerical data
Reading	Identifies and interprets information from sources to complete work
Writing	Uses clear, specific and industry-related terminology to represent outcomes of big data analysis in reports
Planning and organising	Efficiently and logically sequences the stages of big data analysis
Technology	- Uses appropriate technology platforms to analyse big data - Basic programming to conduct big data analysis

Unit Mapping Information

No equivalent unit. New unit.

Links

Companion Volume Implementation Guide is found on VETNet: -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2>

Assessment Requirements for BSBXBD403 Analyse big data

Modification History

Release	Comments
Release 1	This version first released with BSB Business Services Training Package 6.0.

Performance Evidence

The candidate must demonstrate the ability to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including evidence of the ability to:

- analyse trends and relationships in two different sets of big data: one transactional and one non-transactional
- report on the results and insights from each analysis
- store analytics results from each of the two big data sets according to organisational policies and procedures.

Knowledge Evidence

The candidate must be able to demonstrate knowledge to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including knowledge of:

- purpose and benefits to organisation of big data analysis
- legislative requirements relating to analysing big data, including data protection and privacy laws and regulations
- organisational policies and procedures relating to analysing big data, including for:
 - identifying big data sources
 - establishing and confirming categories to be applied in analysis
 - analysing data to identify business insights
 - integrating big data sources, including structured, semi-structured, and unstructured
 - combining external big data sources, such as social media, with in-house big data
 - reporting on analysis of big data, including the use of suitable reporting and business intelligence (BI) tools
- industry protocols and procedures required to write basic queries to search combined big data
- required analytical techniques and tools to analyse transactional and non-transactional big data, including:
 - data mining
 - ad hoc queries

- operational and real-time business intelligence
- text analysis
- statistical concepts relating to big data analytics
- relationship between raw big data and big datasets
- common models and tools to analyse big data, including features and functions of Excel software for advanced analytics of external big data
- sources of uncertainty within big data
- classification categories of analytics, including text, audio/video, web and network
- role of technology and automation tools in performing big data analytics.

Assessment Conditions

Skills must be assessed in a workplace or simulated environment where conditions are typical of a work environment that uses big data.

Access is required to:

- information and telecommunications equipment required to analyse big data
- big data sets to be analysed
- industry standards, organisational procedures, and legislative requirements required to demonstrate the performance evidence.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

Links

Companion Volume Implementation Guide is found on VETNet: -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2>

BSBXBD404 Use big data for operational decision making

Modification History

Release	Comments
Release 1	This version first released with BSB Business Services Training Package 6.0.

Application

This unit describes the skills and knowledge required to analyse, interpret and apply insights from big data when making operational decisions. It involves applying skills in decision making and techniques for using big data in day-to-day work.

It applies to those who work in leadership and management positions, including in their own small business, in a broad range of industries who use big data analytics to drive their operational decision making.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Unit Sector

Data Literacy – Data Literacy

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Identify business requirements relating to big data	1.1 Scope and confirm operational decision-making requirements 1.2 Identify opportunities for use of big data in business decision making 1.3 Confirm nature and scope of report requirements
2. Interpret big data sources and summaries	2.1 Access required big data sources and summaries according to organisational policies and procedures and legislative requirements 2.2 Apply insight analysis and descriptive statistics that support operational decision making 2.3 Use findings to identify insights that relate to identified operational decision-making requirements

ELEMENT	PERFORMANCE CRITERIA
3. Make operational decision based on big data analysis	3.1 Draft report on data analytics, applying identified insights to operational decision-making requirements 3.2 Seek input and integrate feedback from required stakeholders according to organisational policies and procedures 3.3 Finalise and distribute recommendations to required personnel according to organisational and legislative requirements

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance but not explicit in the performance criteria.

Skill	Description
Learning	Modifies behaviour following exposure to new information
Numeracy	- Uses mathematical concepts and statistics required to use big data for operational decision-making - Completes at times complex calculations and records numerical data
Oral communication	Asks open and closed probing questions and actively listens when seeking input and feedback
Reading	Identifies and interprets information from relevant sources to complete work
Writing	Uses clear, specific and industry-related terminology to represent outcomes of big data analysis in reports
Planning and organising	Efficiently and logically sequences big data analytics to draw out insights and trends
Technology	Uses appropriate technology platforms when using big data

Unit Mapping Information

No equivalent unit. New unit.

Links

Companion Volume Implementation Guide is found on VETNet: -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2>

Assessment Requirements for BSBXBD404 Use big data for operational decision making

Modification History

Release	Comments
Release 1	This version first released with BSB Business Services Training Package 6.0.

Performance Evidence

The candidate must demonstrate the ability to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including evidence of the ability to:

- interpret and use a big data set as the basis for two different operational decisions in work area.

Knowledge Evidence

The candidate must be able to demonstrate knowledge to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including knowledge of:

- legislative requirements relating to accessing and using sources and summaries of big data and big data sets, including data protection and privacy laws and regulations
- organisational policies and procedures relating to using big data, including for:
 - scoping and confirming operational decision-making requirements
 - accessing big data sources and summaries
 - combining external big data sources, such as social media, with in-house big data sets
 - integrating big data and analytics into operational workflow
 - reporting on use of big data in relation to operational decisions described in performance evidence
 - seeking input and feedback from required stakeholders
 - distributing report on big data analytics
- operational decision-making requirements relating to use of big data, including timelines
- procedures for data-driven decision making, including what-if analysis scenarios and tools for optimisation and simulations
- techniques for presenting big data analytics:
 - charts
 - heat maps
 - scatterplots
 - dashboards

- statistical tools
- key programming protocols and techniques required to use big data for operational decision making
- domain knowledge of business processes required to demonstrate the performance evidence.

Assessment Conditions

Skills must be assessed in a workplace or simulated environment where conditions are typical of a work environment that uses big data.

Access is required to:

- information and telecommunications equipment required to analyse and use big data sets
- big data sources and summaries suited to business requirement in performance evidence
- industry standards, organisational procedures, and legislative requirements required to demonstrate the performance evidence.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

Links

Companion Volume Implementation Guide is found on VETNet: -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2>

BSBXCM401 Apply communication strategies in the workplace

Modification History

Release	Comments
Release 2	This version released with BSB Business Services Training Package Version 7.0. Version created to clarify knowledge evidence
Release 1	This version first released with BSB Business Services Training Package Version 4.0.

Application

This unit describes the skills and knowledge required to facilitate and apply communication strategies in the workplace within any industry.

This unit has a specific focus on the communication skills required for supervisor level workers with responsibility for other workers.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Unit Sector

Cross Sector Skill

Elements and Performance Criteria

Elements	Performance Criteria
Elements describe the essential outcomes.	Performance criteria describe the performance needed to demonstrate achievement of the element.
1. Prepare for communication	1.1 Identify work activities requiring communication 1.2 Establish communication requirements for identified work activities 1.3 Identify communication roles for self and others to complete activity

Elements	Performance Criteria
	1.4 Seek assistance or clarification regarding communication objectives as required 1.5 Select appropriate method of communicating information internally and externally based on organisational requirements
2. Use communication strategies to provide work instruction	2.1 Use appropriate presentation methods to communicate information or instruction based on the requirements of audience 2.2 Use appropriate method of communication to communicate information or instruction based on the requirements of audience 2.3 Negotiate expected work requirements with others and clarify that instructions have been understood
3. Facilitate workplace communication	3.1 Use interpersonal skills to build relationships with team members and clients and facilitate respectful interaction 3.2 Facilitate respectful communication amongst others, considering the needs of those from diverse backgrounds 3.3 Use problem solving and decision making skills to resolve any communication challenges 3.4 Obtain confirmation on outcomes of communication challenges to ensure issues have been resolved
4. Monitor and support team communication	4.1 Ensure all communication is consistent with legislative and organisational requirements 4.2 Provide performance feedback and additional support to others when required 4.3 Seek feedback and assistance from others to improve own communication techniques 4.4 Collate and report any important information and unresolved issues to relevant superiors

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance but not explicit in the performance criteria.

Skill	Description

Skill	Description
Writing	Develops written texts using appropriate grammar, spelling and punctuation in relevant organisational formats
Navigate the world of work	Understands responsibilities and complies with legislative, regulatory and organisational requirements
Get the work done	- Uses problem-solving skills to identify and analyse issues or barriers, consider options and develop responses and opportunities for improvement - Uses digital technology to find, record or communicate basic information

Unit Mapping Information

No equivalent unit. New unit.

Links

Companion Volume Implementation Guide is found on VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10>

Companion Volume Implementation Guide is found on VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10>

Assessment Requirements for BSBXCM401 Apply communication strategies in the workplace

Modification History

Release	Comments
Release 2	This version released with BSB Business Services Training Package Version 7.0. Version created to clarify knowledge evidence
Release 1	This version first released with BSB Business Services Training Package Version 4.0.

Performance Evidence

The candidate must demonstrate the ability to complete the tasks outlined in the elements, performance criteria, and foundation skills of this unit, including evidence of the ability to:

- identify the communication requirements for a work activity and assign roles to others to fulfil those requirements
- select appropriate communication method for relevant audience and according to organisational requirements
- articulate to others their roles in fulfilling the communication requirements and negotiate roles in response to feedback
- present and convey information to others in a way that they can understand and demonstrate that the needs of all recipients, including those from diverse backgrounds have been considered
- demonstrate problem solving techniques to negotiate and resolve communication challenges
- evaluate the communication process and identify areas for improvement, reporting to relevant supervisors as required.

Knowledge Evidence

The candidate must be able to demonstrate knowledge to complete the tasks outlined in the elements and performance criteria of this unit. This includes knowledge of:

- legislative requirements relevant to workplace communication
- organisational requirements relevant to workplace communication (including digital form):
 - policies and protocols
 - codes of conduct

- organisational reputation and culture
- techniques to resolve communication challenges
- methods and techniques to participate in workplace discussions, including active listening, questioning and providing feedback
- key principles of cross-cultural communication and communication with individuals with special needs or disabilities
- presentation methods to present and convey workplace information or instructions:
 - formal presentation using visual aids and prompts
 - informal team meeting or instructional briefing
 - written work instruction for a process or procedure
- communication methods suited to audience and workplace requirement:
 - verbal means: telephones, mobiles, video conference
 - written means: emails, SMS, social media
- communication challenges relevant to performance evidence:
 - conflicts with clients or team members
 - potential risks or safety hazards
 - unethical or inappropriate communication
 - use of visual prompts and presentations
 - communication that falls outside of workplace policy
- key relevant features of:
 - different communication styles
 - different communication methods
 - cross cultural communication techniques.

Assessment Conditions

Mandatory conditions for assessment include:

- A safe working or simulated environment

Assessors of this unit must satisfy the assessor requirements in applicable vocational education and training legislation, frameworks and/or standards.

Links

Companion Volume Implementation Guide is found on VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10>

Companion Volume Implementation Guide is found on VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10>

BSBXTW401 Lead and facilitate a team

Modification History

Release	Comments
Release 2	This version released with BSB Business Services Training Package Version 7.0. Version created to clarify knowledge evidence
Release 1	This version first released with BSB Business Services Training Package Version 4.0.

Application

This unit describes the skills and knowledge required to effectively lead and facilitate a team in a workplace within any industry.

This unit has a specific focus on the teamwork skills required for team leader or supervisor level (depending on organisational structure) workers with responsibility for others or teams.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Unit Sector

Cross Sector Skill

Elements and Performance Criteria

Elements	Performance Criteria
Elements describe the essential outcomes.	Performance criteria describe the performance needed to demonstrate achievement of the element.
1. Plan team outcomes	1.1 Identify common objectives of workplace team, responsibilities and required outcome(s) 1.2 Use performance plans to establish expected outcomes, goals, and behaviours for individual team members in accordance with team objective and relevant policies

	1.3 Select appropriate strategies to ensure team members are accountable for their roles and responsibilities 1.4 Plan for contingencies that could impact the team
2. Coordinate team and individuals	2.1 Communicate common team objectives and responsibilities to team members 2.2 Allocate tasks to team members based on staff expertise or development potential and provide appropriate instructions 2.3 Facilitate open and respectful communication and collaboration between team members, considering the needs of those from diverse backgrounds 2.4 Identify opportunities for cross collaboration amongst external and internal teams and individuals
3. Support team	3.1 Provide coaching to staff to enhance workplace culture 3.2 Support individuals according to organisational requirements to work towards common team goals 3.3 Facilitate team to identify, brainstorm, report and resolve task related issues and inefficiencies 3.4 Use problem solving skills to deal with any team, task or individual challenges
4. Monitor team performance	4.1 Measure team member performance against agreed work plans 4.2 Provide timely and constructive performance feedback to team members according to expected organisational standards 4.3 Identify specific learning and development opportunities to improve team and individual performance and behaviours 4.4 Implement action plans to address individual and team training needs

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance but not explicit in the performance criteria.

Skill	Description
Interact with others	• Uses appropriate communication practices when communicating with team members and facilitating activities • Establishes and builds relationships and rapport with team members to foster a positive team environment • Recognises the perspectives of team members and diversity of

Skill	Description
	opinion, and manages conflict as required
Navigate the world of work	Understands and explains ethical and legal, regulatory and organisational responsibilities to team
Get the work done	Plans, organises and implements work activities in line with organisational policies and procedures

Unit Mapping Information

No equivalent unit. New unit.

Links

Companion Volume Implementation Guide is found on VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10>

Companion Volume Implementation Guide is found on VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10>

Assessment Requirements for BSBXTW401 Lead and facilitate a team

Modification History

Release	Comments
Release 2	This version released with BSB Business Services Training Package Version 7.0. Version created to clarify knowledge evidence
Release 1	This version first released with BSB Business Services Training Package Version 4.0.

Performance Evidence

The candidate must demonstrate the ability to complete the tasks outlined in the elements, performance criteria, and foundation skills of this unit, including on at least one occasion, evidence of the ability to:

- assign tasks to team members with appropriate instruction and considering any required contingencies
- provide feedback and assistance to team members
- collate feedback on individual and team performance
- identify and implement development opportunities for others
- manage conflicts and challenges according to organisational requirements.
-

Knowledge Evidence

The candidate must be able to demonstrate knowledge to complete the tasks outlined in the elements and performance criteria of this unit. This includes knowledge of:

- organisational requirements relevant to workplace teams:
 - workplace policies
 - codes of conduct
 - organisational reputation and culture
- legislative requirements relevant to the workplace
- facilitation techniques to encourage team cohesion and effectiveness
- mentoring and coaching techniques to support team members
- strategies for conflict resolution and negotiation
- different methods and styles of communication

- key principles of cross-cultural communication and communication with individuals with special needs or disabilities
- professional behaviours to role model as a leader
- typical workplace contingencies that can impact teams:
 - unplanned leave or absence of workers
 - re-allocation of work tasks
 - succession planning for important team roles
- teamwork challenges relevant to performance evidence:
 - difficulties performing tasks
 - conflicts with clients or team members
 - potential risks or safety hazards
 - unethical or inappropriate behaviour.

Assessment Conditions

Mandatory conditions for assessment include:

- A safe working or simulated environment

Assessors of this unit must satisfy the assessor requirements in applicable vocational education and training legislation, frameworks and/or standards.

Links

Companion Volume Implementation Guide is found on VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10>

Companion Volume Implementation Guide is found on VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=11ef6853-ceed-4ba7-9d87-4da407e23c10>

CHCCOM003 Develop workplace communication strategies

Modification History

Release	Comments
Release 2	This version was released in <i>CHC Community Services Training Package release 3.0</i> . Amended modification history and mapping. Equivalent outcome.
Release 1	This version was released in <i>CHC Community Services Training Package release 2.0</i> and meets the requirements of the 2012 Standards for Training Packages. New Unit. Also refer to CHCCOM004.

Application

This unit describes the skills and knowledge required to develop communication protocols for a team or business unit.

This unit applies to workers responsible for overseeing the communication of organisation-specific information to a range of internal and external stakeholders.

The skills in this unit must be applied in accordance with Commonwealth and State/Territory legislation, Australian/New Zealand standards and industry codes of practice.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
<i>Elements define the essential outcomes</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element</i>
1. Develop communication strategies	1.1 Identify internal and external information needs 1.2 Identify competing or conflicting interests 1.3 Develop a range of communication strategies to meet organisation needs and goals 1.4 Develop a communication plan

ELEMENT**PERFORMANCE CRITERIA**

Elements define the essential outcomes

Performance criteria describe the performance needed to demonstrate achievement of the element

2. Establish communication protocols

2.1 Identify processes for adapting communication strategies to suit a range of contexts

2.2 Develop processes and protocols in line with communication strategies

2.3 Prepare information and resources to support the implementation of communication protocols

3. Promote the use of communication strategies

3.1 Present information to staff regarding communication strategies, protocols and organisation standards

3.2 Model effective oral and written communication and provide mentoring and/or coaching to staff

3.3 Maintain work-related networks and relationships to meet organisation objectives

4. Review communication practices

4.1 Obtain feedback from others to assess communication outcomes

4.2 Record lessons learnt and identify opportunities for continuous improvement

Foundation Skills

The Foundation Skills describe those required skills (language, literacy, numeracy and employment skills) that are essential to performance.

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Unit Mapping Information

No equivalent unit.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=5e0c25cc-3d9d-4b43-80d3-bd22cc4f1e53>

Assessment Requirements for CHCCOM003 Develop workplace communication strategies

Modification History

Release	Comments
Release 2	This version was released in <i>CHC Community Services Training Package release 3.0</i> . Amended modification history and mapping. Equivalent outcome.
Release 1	This version was released in <i>CHC Community Services Training Package release 2.0</i> and meets the requirements of the 2012 Standards for Training Packages. New Unit. Also refer to CHCCOM004.

Performance Evidence

The candidate must show evidence of the ability to complete tasks outlined in elements and performance criteria of this unit, manage tasks and manage contingencies in the context of the job role. There must be demonstrated evidence that the candidate has:

- developed and presented 1 new communication strategy and associated protocols for a business unit or team
- developed and implemented 1 strategy for using digital media to provide information and promote organisation to clients

Knowledge Evidence

The candidate must be able to demonstrate essential knowledge required to effectively complete tasks outlined in elements and performance criteria of this unit, manage the task and manage contingencies in the context of the work role. This includes knowledge of:

- political, economic, social and technological factors
- competitors
- stakeholders
- organisational business and strategic plans
- SWOT analysis (strengths, weaknesses, opportunities and threats)
- legal and ethical considerations relating to communication:
 - privacy, confidentiality and disclosure
 - discrimination

- duty of care
- mandatory reporting
- informed consent
- organisation communication channels, including:
 - special communication needs of personnel
 - organisation processes and hierarchy
 - official communication channels
 - existing organisation protocols and etiquette for communication
 - possible communication barriers, restraints, difficulties
- a range of different communication strategies and plans including crisis communication plans
- financial implications including budgeting and return on investment
- mentoring and coaching principles and practices
- traditional media
- digital media including types, etiquette and marketing
- evaluation processes

Assessment Conditions

Skills must have been demonstrated in the workplace or in a simulated environment that reflects workplace conditions. The following conditions must be met for this unit:

- use of suitable facilities, equipment and resources, including use of real workplace policies and procedures
- modelling typical workplace conditions, including:
 - interactions with clients and co-workers from a range of diverse backgrounds
 - presentations to groups of at least 3 people
 - typical workplace reporting processes
 - use of presentation media

Assessors must satisfy the Standards for Registered Training Organisations (RTOs) 2015/AQTF mandatory competency requirements for assessors.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=5e0c25cc-3d9d-4b43-80d3-bd22cc4f1e53>

CPCCBC4051A Supervise asbestos removal

Modification History

New to CPC08

Unit Descriptor

This unit of competency specifies the outcomes required to supervise the removal process for friable and non-friable asbestos containing material (ACM). The unit includes planning for and supervising the removal process, including preparing the work area and the work site, using safe and compliant removal practices, maintaining safety procedures, and supervising the decontamination and removal processes.

Ensuring compliance with the asbestos removal control plan (ARCP) is central to the effective performance of the role. This includes ensuring and documenting that required air monitoring and other testing and certification processes are conducted by licensed asbestos assessors according to legislation.

Application of the Unit

Site location for work may be either domestic or commercial, and may be a demolition site, a new work site or an existing structure being renovated, extended, restored or maintained. Project sites may be construction sites and may also include ships, soils and fences.

Licensing/Regulatory Information

Occupational licenses are required nationally.

Work must be completed according to relevant legislation, the Code of Practice for the Safe Removal of Asbestos, industry guidelines, customer and organisational requirements, including work health and safety (WHS) policies and procedures.

Regulatory mechanisms apply to this unit. This unit is required for all supervisors of the ACM removal process. Candidates are advised to check for regulatory requirements.

Pre-Requisites

CPCCOHS1001A Work safely in the construction industry

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.

Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1	Plan for asbestos removal.	1.1	Work instructions, other required <i>information</i> and the client's brief are obtained, clarified, confirmed and applied for planning purposes.
		1.2	Asbestos register, if available, is obtained and reviewed to inform planning.
		1.3	Work site is inspected to confirm requirements and inform the planning process.
		1.4	Scope of job is identified and initial <i>preparations</i> are conducted according to workplace requirements.
		1.5	Staffing levels required for completion of job are confirmed.
		1.6	Required quantity of <i>materials</i> is calculated according to job specifications and <i>quality requirements</i> .
		1.7	<i>Safety</i> requirements and data from asbestos register, project construction safety emergency plan, safe work methods statement (SWMS) for a construction site, and other information sources are identified to prepare for a safe and compliant removal process.
		1.8	<i>Plant, tools, equipment</i> and <i>personal protective equipment</i> (PPE) to carry out the job are identified, sourced and steps taken to ensure their serviceability.
		1.9	<i>Environmental requirements</i> are identified for the job according to environmental plans and regulatory obligations, including preparations for a clearance

- inspection by a licensed asbestos assessor.
- 1.10 Processes required to meet health-monitoring and air-monitoring requirements are identified and planned with the licensed asbestos assessor and within limits of own responsibility.
 - 1.11 Occupants, neighbours and other affected parties are notified according to legislation and the code of practice and within limits of own responsibility.
 - 1.12 Proper identification and handling of **asbestos containing materials** are planned and implemented according to legislative and regulatory requirements.
 - 1.13 ARCP is developed within limits of own responsibility.
 - 1.14 Required documentation is prepared and steps are taken to ensure authorisation according to legislative and company requirements.
 - 1.15 Arrangements and work schedules are organised so that **compliant supervision** of the asbestos removal job is undertaken.
- 2 Prepare site for removal.
- 2.1 Workers' certificates of competency for the type of removal required are sighted by the supervisor and records are kept on site.
 - 2.2 Team members are provided with instructions for the safe and compliant conduct of the job according to the ARCP.
 - 2.3 Steps are taken to ensure the signage and barricades to delineate the work area from the **work site** are erected according to legislative requirements.
 - 2.4 Notification documents for the job, copy of asbestos removal licence, and training documents are secured and steps taken to retain them on site.
 - 2.5 Daily air-monitoring readings are posted on the work site according to legislative requirements.
 - 2.6 Team members are provided with PPE and its proper usage and fit are checked.
 - 2.7 Steps are taken to ensure all equipment is installed and

- checked for serviceability according to legislation and manufacturer specifications for use.
- 2.8 Final safety checks are made of the site, including ensuring that **utilities** are deactivated and secured prior to commencing work.
- 3 Supervise testing, compliance and documentation in consultation with the licensed asbestos assessor and the asbestos removalist.
- 3.1 Communication is undertaken with the licensed asbestos assessor to ensure compliance with legislative requirements for air monitoring.
- 3.2 **Testing** of equipment and work site is supervised to ensure compliance with legislative requirements.
- 3.3 In consultation with the licensed asbestos assessor and the asbestos removalist ensure that corrective action is taken, as required, should initial test results not conform to legislative requirements.
- 3.4 On advice from the licensed asbestos assessor, steps are put in place to ensure removal does not occur until air-monitoring checks have been undertaken and documented according to legislative requirements.
- 3.5 Required **documentation** is completed and forwarded to authorities according to legislative and workplace requirements.
- 4 Oversee removal and decontamination processes.
- 4.1 Set-up and daily checking of equipment are supervised to ensure safety, efficiency and compliance with legislative requirements.
- 4.2 Removal of asbestos from the structure is supervised using **safe work methods** and according to the ARCP, regulatory requirements and codes of practice.
- 4.3 Steps are taken to ensure asbestos is contained and placed in double-lined bins or 'double-bagged' according to regulatory requirements.
- 4.4 Bags are sealed, labelled and removed from work area to designated work site area according to the ARCP.
- 4.5 Arrangements are made with removal firms and bin suppliers to ensure the timely and appropriate removal of ACM from the site, and waste facility dumping

- receipts are received as evidence of compliance.
- 4.6 Supervision is provided of the facilities and processes to ensure the compliant decontamination of team members and the work area and work site.
 - 4.7 Clearance inspection, including air monitoring as required, is conducted of work area, work site and equipment to ensure job is completed according to legislative and workplace requirements.
 - 4.8 Site is secured according to legislative requirements until clearance inspection and air-monitoring results have been approved and clearance certificate has been received.
 - 4.9 Incidents are identified and reported according to company and legislative requirements.
- 5 Supervise and support team members.
- 5.1 ***Appropriate training*** on site is provided to asbestos removal team workers to ensure safe and compliant operations of the job site, including use of the ARCP, company's WHS policies, and site safety plan.
 - 5.2 Work is scheduled to ensure the timely and efficient completion of the job and operation of the team.
 - 5.3 Processes are put in place to encourage open communication with team members regarding safety and the appropriateness of work practices.
 - 5.4 Constructive feedback is provided to team members regarding work performance to improve efficiency and safe work practices.
 - 5.5 Steps are taken to build and reinforce a workplace culture that supports quality, compliant operations and safety.
 - 5.6 Team performance is managed according to company and legislative requirements.

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication, and appropriate level of language skills, to:
 - determine requirements
 - prepare documentation (including ARCP) that is accurate, clear and complete
 - enable clear and direct communication, using questioning to identify and confirm requirements, share information, listen and understand
 - follow and give instructions
 - liaise with related professionals, including occupational hygienists, assessors and testing authorities
 - reduce potential for conflict, particularly in relation to liaison with concerned neighbours, by providing clear information that gives reassurance about the process being undertaken
 - read and interpret:
 - documentation from a variety of sources
 - drawings and specifications
 - use language and concepts appropriate to cultural differences
- coaching and mentoring skills to strengthen workplace culture and manage the performance of a team
- initiative and enterprise skills to:
 - evaluate own actions and make judgements about performance and necessary improvements
 - identify and report faults in tools, equipment and materials
- planning and organising skills to:
 - plan and set out work
 - set up the decontamination process
- teamwork skills to:
 - coordinate own work and supervise the work of others
 - relate to people from a range of cultural and ethnic backgrounds and with varying physical and mental abilities
- self-management skills to:
 - set up the asbestos removal area according to safe work methods
 - apply general WHS requirements for work in the construction industry, including applying safe work methods for the removal of friable and non-friable asbestos
 - respond effectively to timelines, deadlines and complex work requirements
 - follow correct decontamination procedures
 - use, fit and maintain PPE, decontamination equipment, hand and power tools safely

Required knowledge

- range of materials manufactured using asbestos, type and characteristics of asbestos used in each material, and usual applications associated with the material
- methods and purpose for assessing hazards relating to friable ACM, together with an understanding of:
 - health effects caused by exposure to ACM and requirement for safe handling and removal
 - health impacts on the community and requirement for safe handling and disposal
- requirements of current legislation and standards relating to asbestos safety, and the preparation of an ARCP and related documentation
- rationale for, and principles underpinning, the ARCP and related legislation
- air-monitoring procedures and testing requirements, including for interpretation of results
- general WHS procedures for construction work
- health hazards associated with friable ACM, such as:
 - weathering
 - wear and tear
 - application of tools and equipment
 - accidental damage
- licensing requirements for the use of specific equipment, such as excavators
- safe work methods for the removal of friable and non-friable asbestos
- hazards associated with using enclosures and removing friable and non-friable asbestos
- general construction terminology
- handling requirements of differing types of asbestos materials
- work site and work area procedures for the safe removal of friable and non-friable asbestos
- job safety analysis (JSA) and SWMS, if required for construction
- safety data sheets (SDS)
- materials storage and hazardous waste management in relation to asbestos products
- method of operation, and cleaning, use and maintenance requirements of equipment
- plans, drawings and specifications, asbestos registers and register amendments
- quality requirements relating to supervising asbestos removal
- risk assessment processes and contingency planning relating to supervising asbestos removal
- techniques associated with containing and removing asbestos, including:
 - use of large and small-scale enclosures for different sites
 - use of negative pressure exhaust units
 - encapsulation methods
 - use of decontamination units
- types, characteristics, uses and limitations of plant and equipment involved in enclosing and removing asbestos

- workplace and equipment safety requirements
- application of the documentation for notification and re-notification
- duties and obligations of the supervisory role, including:
 - implementing the ARCP with control monitoring and clearance inspections as required for Class A removal
 - using the certified WHS management system and emergency plan as required

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	This unit of competency could be assessed in the workplace or a close simulation of the workplace environment, providing that simulated or project-based assessment techniques fully replicate workplace conditions, materials, activities, responsibilities and procedures.
Critical aspects for assessment and evidence required to demonstrate competency in this unit	A person should demonstrate the ability to: • obtain and apply work instructions for the safe and correct removal of asbestos • plan for the safe and correct removal of asbestos, including: • analysing all documentation, such as the asbestos register • scoping and resourcing the work • work with and supervise the removal team to ensure the safe and correct removal of ACM • supervise and coordinate as required the testing process in strict compliance with legislation and code of practice • supervise decontamination process for workers, equipment and work site to ensure strict compliance with legislation and code of practice • complete documentation that supports the removal process within limits of own responsibility • demonstrate team supervision for the safe and compliant removal of ACM.
Context of and specific resources for assessment	This unit is to be assessed using standard and authorised work practices, safety requirements and environmental constraints. Assessment of essential underpinning knowledge will usually be conducted in an off-site context. Assessment is to comply with relevant regulatory or Australian

	standards' requirements. Resource implications for assessment include: • an induction procedure and requirement • realistic tasks or simulated tasks covering the mandatory task requirements • relevant specifications and work instructions • tools and equipment appropriate to applying safe work practices • support materials appropriate to activity • workplace instructions relating to safe work practices and addressing hazards and emergencies • research resources, including industry-related systems information • safety data sheets. Reasonable adjustments for people with disabilities must be made to assessment processes where required. This could include access to modified equipment and other physical resources, and the provision of appropriate assessment support.
Method of assessment	Assessment methods must: • satisfy the endorsed Assessment Guidelines of the Construction, Plumbing and Services Training Package • include direct observation of tasks in real or simulated work conditions, with questioning to confirm the ability to consistently identify and correctly interpret the essential underpinning knowledge required for practical application • reinforce the integration of employability skills with workplace tasks and job roles • confirm that competency is verified and able to be transferred to other circumstances and environments. Validity and sufficiency of evidence requires that: • competency will need to be demonstrated over a period of time reflecting the scope of the role and the practical requirements of the workplace • where the assessment is part of a structured learning experience the evidence collected must relate to a number of performances assessed at different points in time and separated by further learning and practice, with a decision on competency only taken at the point when the assessor has complete confidence in the person's demonstrated ability and applied knowledge • all assessment that is part of a structured learning experience must include a combination of direct, indirect and supplementary evidence.

	Assessment processes and techniques should as far as is practical take into account the language, literacy and numeracy capacity of the candidate in relation to the competency being assessed. Supplementary evidence of competency may be obtained from relevant authenticated documentation from third parties, such as existing supervisors, team leaders or specialist training staff.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Information to ensure the safe and correct completion of the job may include:	• assessor's control air-monitoring report • company policies and procedures • JSA and SWMS for construction as required • operating manuals (WHS management systems) and specifications for materials and equipment • asbestos register • diagrams or sketches • instructions issued by authorised organisational or external personnel • manufacturer specifications and instructions, where specified and SDS • regulatory and legislative requirements for enclosing and removing friable and non-friable asbestos • relevant Australian standards and codes • safe work procedures relating to enclosing and removing asbestos • signage • memos, verbal and written instructions, and diagrams • work bulletins, work schedules, plans and specifications.
Preparations at the commencement of the job may include:	• preparing and implementing the ARCP • assessing conditions and hazards • determining work requirements, and safety plans and policies • consulting with local authorities (councils) and local waste management and transport authorities to determine requirements • identifying equipment defects

	- identifying and preparing for containing and removing asbestos from a work site according to ARCP - inspecting work site - conducting work site inductions.
Materials must be relevant to the type of asbestos removed and may include:	- acrylic paint to seal ACM - approved and branded or labelled plastic bags - duct tape - foam infill spray - gaffer tape - plastic sheeting - polyvinyl alcohol (PVA) adhesive as spray / spray tack glue - rags or other material wipes - heavy-duty polythene bags (200 µm minimum thickness) 200 µm unused (not recycled) plastic sheeting or drop sheet - drums or bins in good condition with well-fitting lids and labelled with required warning sign - signs - timber frames, nails, aluminium poles and other materials required for enclosures.
Quality requirements may include:	- internal company quality policy and standards - manufacturer specifications - relevant regulations, including Australian standards - workplace operations and procedures.
Safety procedures are to be according to state and territory legislation and regulations and project safety plan and may relate to:	- conduct of work site induction - emergency procedures, including extinguishing fires, and evacuation - handling activities that may require the assistance of others or the use of manual or mechanical lifting devices where size, weight or other issues, such as a disability, are a factor - hazard control - hazardous materials and substances - organisational first aid requirements - PPE prescribed under legislation, regulations and workplace policies and practices - safe operating procedures according to SWMS, including the conduct of operational risk assessment and treatments associated with: - deactivating or securing utilities, including electrical, air conditioning and water services - earth leakage boxes - falling objects - lighting

	• plant movement • power cables, including overhead service trays, cables and conduits • restricted access barriers • surrounding structures • traffic control • trip hazards • work site visitors and the public • working at heights • working in confined spaces • working in proximity to others • use of firefighting equipment • use of tools and equipment • workplace environmental requirements and safety.
Plant, tools and equipment must be relevant to the job (whether for the removal of friable or non-friable ACM), may require separate licensing for use, and may include:	• high efficiency particulate air (HEPA) vacuum cleaners to comply with AS3544-1988 and AS4260-1997 as amended from time to time • pipelines • anchorage points for enclosures • atomiser water bottles and hand pressure sprayer • barricades • barricade tape, including para-webbing or fencing • bars (crow and pinch) • bolt cutters • buckets • cold chisels • enclosure equipment for large-scale asbestos removal work • excavators • mini-enclosures for small-scale asbestos removal work • glove bag or wrap and cut equipment • negative air pressure enclosures or bubbles • negative pressure exhaust units • PVA adhesive as spray / spray tack glue • scaffolds • scrapers • shovels and spades • signs • smoke generators • staple guns • decontamination unit and remote decontamination units if required for large-scale removal • decontamination facilities for non-friable asbestos removal

	• drills (manual and low-speed only) • enclosures for large-scale asbestos removal work • flame retardant polythene • hammers • hand drills • hardboard / corex • hoses and spray fittings • ladders to comply with construction regulations.
Personal protective equipment will be specified to the requirements of the job and may include:	• protective clothing, such as: • disposable coveralls with fitted hood and cuffs • safety footwear (pull-on, not lace-up) • disposable or protective gloves • determining the respiratory protection class appropriate to the type of asbestos to be removed, which may be P1, P2 or P3, or using full-face, powered, air purifying particulate respirator fitted with class P3 filter cartridge • correct face fitting and use of respiratory protective equipment • spare sets of PPE • general WHS requirements, including first aid kit locations.
Environmental requirements must fully reflect legislation and the Code of Practice for the Safe Removal of Asbestos, including:	• clean-up management • dust and noise management • sedimentation control • vibration management • waste management, including the safe disposal of ACMs, including waste water from decontamination unit (DCU).

Asbestos containing materials (both friable and non-friable) may include: Note: - Non-friable asbestos is also known as bonded asbestos - ACM notionally listed as non-friable may become friable due to weathering or damage	- acoustic plaster soundproofing - adhesives and glues - asbestos cement - asbestos cement moulded guttering - asbestos cement sheets - asbestos tiles - bitumastic felts and materials - cable bandages - compressed asbestos cement panels - floor vinyl covering - gaskets - millboard - mortar - pipe lagging - electrical meter boxes and related devices - woven textiles, ropes, tapes and braids - decorative coatings - resinous backing board - sealant mastic - sprayed on fireproofing, soundproofing and thermal insulation - tape - thermal insulation.
Compliant supervision entails being:	- on site at all time for the removal of friable asbestos - accessible for the removal of non-friable asbestos.
Work site may include:	- residential, commercial, industrial and public buildings - plant, equipment and fire boards (e.g. friction plant and gaskets) - demolition sites - fences - soil - ships and other forms of transport.
Utilities may include:	- air conditioning - electricity - water services.
Testing procedures:	- must: - conform to legislative requirements - be conducted by a licensed asbestos assessor - may include: - air monitoring - analysis of materials to determine presence and type of ACM

	• smoke tests for leaks in the enclosure.
Documentation may include:	• air-monitoring results • asbestos register • notification of asbestos removal work to the regulator as required • asbestos removal control plan • WHS management system • JSA and SWMS for construction • implementation and development of emergency plan • health-monitoring program • leak test results • clearance inspections and certificates • training certificates.
Safe work methods may include:	• compliant set-up of the asbestos work area, including set-up of negative air, lighting, water and emergency supplies • placing adequate signage around work site • fire and emergency system requirements • enclosure of the asbestos removal area and the plant, equipment and fixtures remaining in the area • testing of the asbestos work area by a licensed asbestos assessor • procedures for entering and leaving the asbestos work area • safe techniques for removing friable and non-friable asbestos • packaging, sealing and removing contaminated plant, tools and equipment • cleaning and decontaminating the asbestos work area • decontaminating and demobilising the work site • final decontamination of personnel • disposing of asbestos waste.
Appropriate training for team members may include:	• conducting on-site training, either one-on-one or small group sessions • recording the mandatory unit of competency for workers for licensed asbestos removal work • providing briefings and explaining the content of induction manuals.

Unit Sector(s)

Construction

Custom Content Section

Not applicable.

CPCCCM1015 Carry out measurements and calculations

Modification History

Release 1.

Supersedes and equivalent to CPCCCM1015A Carry out measurements and calculations.

The unit of competency was updated to the Standards for Training Packages 2012.

This version first released with CPC Construction, Plumbing and Services Training Package Version 4.0.

Application

This unit specifies the skills and knowledge required to carry out measurements and perform simple calculations to determine task and material requirements for a construction industry task.

It includes carrying out measurements to calculate material quantities.

It applies to workers in the construction industry. It involves working under supervision in a team environment.

No licensing, legislative, or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Nil

Unit Sector

Construction

Elements and Performance Criteria

Elements describe the essential outcomes.	Performance criteria describe what needs to be done to demonstrate achievement of the element.
1. Obtain measurements.	1.1 Select and apply method of obtaining measurements required to meet construction task requirements. 1.2 Select measuring and calculating equipment, check for serviceability and rectify or report any faults. 1.3 Obtain and record linear measurements using a rule, tape or other measuring equipment accurate to 1 mm.

2. Perform calculations.	2.1 Determine appropriate calculation factors, and select correct formula and method for achieving required result. 2.2 Calculate, confirm and record material quantities using appropriate factors. 2.3 Calculate, confirm and record areas and volumes using appropriate factors.

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Unit Mapping Information

Supersedes and is equivalent to CPCCCM1015A Carry out measurements and calculations.

Links

Companion volumes to this training package are available at the VETNet website - <https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=7e15fa6a-68b8-4097-b099-030a5569b1ad>

Assessment Requirements for CPCCCM1015 Carry out measurements and calculations

Modification History

Release 1.

Supersedes and equivalent to CPCCCM1015A Carry out measurements and calculations.

The unit of competency was updated to the Standards for Training Packages 2012.

This version first released with CPC Construction, Plumbing and Services Training Package Version 4.0.

Performance Evidence

To demonstrate competency in this unit, a person must carry out measurements and calculations for three different construction projects, including those required for:

- calculating:
 - perimeter
 - circumference
 - area
 - volume
 - ratio
 - percentage
- converting metres to millimetres and millimetres to metres.

In doing this, the person must meet the performance criteria for this unit.

Knowledge Evidence

To be competent in this unit, a person must demonstrate knowledge of:

- construction industry requirements for carrying out measurements and calculations
- uses and applications of measuring and calculating equipment in the construction industry, including:
 - laser equipment
 - rulers
 - tape measures
 - trundle wheels
 - electronic calculators
 - computer-based and online calculators
- formulae and methods for calculating:
 - perimeter

- circumference
- area
- volume
- ratio
- percentage
- formulae and methods for conversion of metres to millimetres and millimetres to metres.

Assessment Conditions

Assessors must satisfy the requirements for assessors contained in the Standards for Registered Training Organisations.

Assessment of performance must be undertaken in the workplace or in a simulated workplace environment. Tasks are to be performed to the level of proficiency and within the time limits expected in a workplace.

Assessors are responsible for ensuring that the person demonstrating competency has access to:

- specifications for calculations for construction industry projects
- measuring and calculating equipment currently used in industry.

Links

Companion volumes to this training package are available at the VETNet website - <https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=7e15fa6a-68b8-4097-b099-030a5569b1ad>

CPCCCM2004A Handle construction materials

Modification History

Not Applicable

Unit Descriptor

Unit descriptor This unit of competency specifies the outcomes required to safely manually handle, store and apply environmental management principles associated with construction materials and components. It includes preparing material for mechanical handling.

Application of the Unit

Application of the unit This unit of competency supports achievement of skills and knowledge to identify commonly used construction materials and safely handle and store them manually or in preparation for mechanical handling, which includes working with others and as a member of a team.

Licensing/Regulatory Information

Not Applicable

Pre-Requisites

Prerequisite units

CPCCOHS2001A	Apply OHS requirements, policies and procedures in the construction industry

Employability Skills Information

Employability skills This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.

Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Plan and prepare.	1.1. Work instructions and operational details are obtained, confirmed and applied from relevant <i>information</i> for <i>planning and preparation</i>. 1.2. <i>Safety (OHS)</i> requirements are followed in accordance with safety plans and policies. 1.3. Signage and barricade requirements are identified and implemented. 1.4. <i>Tools and equipment</i> selected to carry out tasks are consistent with job requirements, checked for serviceability, and any faults are rectified or reported prior to commencement. 1.5. Material quantity requirements are calculated in accordance with plans and specifications. 1.6. <i>Materials</i> appropriate to the work application are identified, obtained, prepared, safely handled and located ready for use. 1.7. <i>Environmental requirements</i> are identified for the project in accordance with environmental plans and <i>statutory and regulatory authority</i> obligations, and are applied.
2. Manually handle, sort, stack and store construction	2.1. Construction materials are moved to specified location applying safe <i>manual handling</i> techniques. 2.2. Construction materials and components in

ELEMENT	PERFORMANCE CRITERIA
materials.	accordance with job specifications are sorted to suit material type and size, and stacked for ease of identification and retrieval for task sequence and job location. 2.3. Construction materials and components are protected against physical and water damage and stored clear of access ways, for ease of identification, retrieval and distribution. 2.4. Signage and barricades are erected to isolate, protect and secure stored materials from workplace traffic or access. 2.5. Procedures are applied to ensure no cross-contamination of materials. 2.6. Hazardous materials are identified and separated. 2.7. Non-toxic materials are carried using correct handling procedures. 2.8. Dust suppression procedures are used to minimise health risk to work personnel and others. 2.9. Protection of material is provided in accordance with specific material needs.
3. Prepare for mechanical handling of materials.	3.1. Construction materials and components are stacked/banded for mechanical handling in accordance with the type of material, plant and equipment to be used. 3.2. Construction materials and components are loaded, unloaded, moved or located at specified locations.
4. Clean up.	4.1. Work area is cleared and materials disposed of, reused or recycled in accordance with legislation, regulations, codes of practice and job specification. 4.2. Tools and equipment are cleaned, checked, maintained and stored in accordance with manufacturer recommendations and standard work practices.

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

REQUIRED SKILLS AND KNOWLEDGE

Required skills

Required skills for this unit are:

- communication skills to:
 - enable clear and direct communication, using questioning to identify and confirm requirements, share information, listen and understand
 - read and interpret:
 - documentation from a variety of sources
 - drawings and specifications
 - use language and concepts appropriate to cultural differences
 - use and interpret non-verbal communication, such as hand signals
- identifying and accurately reporting to appropriate personnel any faults in tools, equipment or materials
- numeracy skills to apply measurements and make calculations
- organisational skills, including the ability to plan and set out work
- teamwork skills to work with others to action tasks and relate to people from a range of cultural and ethnic backgrounds and with varying physical and mental abilities
- technological skills to:
 - use a range of mobile technology, such as two-way radio and mobile phones
 - voice and hand signals to access and understand site-specific instructions.

Required knowledge

Required knowledge for this unit is:

- carpentry materials
- carpentry materials handling techniques
- construction terminology
- hazardous materials
- job safety analysis (JSA) and safe work method statements
- material safety data sheets (MSDS)
- material sizes
- materials storage and environmentally friendly waste management
- plans, specifications and drawings
- processes for the calculation of material requirements
- quality requirements
- types, characteristics, uses and limitations of tools and equipment
- workplace and equipment safety requirements.

Evidence Guide

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment

This unit of competency could be assessed in the workplace or a close simulation of the workplace environment, provided that simulated or project-based assessment techniques fully replicate construction workplace conditions, materials, activities, responsibilities and procedures.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

A person who demonstrates competency in this unit must be able to provide evidence of the ability to:

- locate, interpret and apply relevant information, standards and specifications
- comply with site safety plan and OHS legislation, regulations and codes of practice applicable to workplace operations
- comply with organisational policies and procedures, including quality requirements
- safely and effectively use tools, plant and equipment
- communicate and work effectively and safely with others
- safely handle, sort and stack varying lengths of timber, providing quick access and use
- safely move and stack a given quantity of sheet material
- safely handle other building and construction components and materials for one construction project.

Context of and specific resources for assessment

This competency is to be assessed using standard and authorised work practices, safety requirements and environmental constraints.

Assessment of essential underpinning knowledge will usually be conducted in an off-site context.

Assessment is to comply with relevant regulatory or Australian standards' requirements.

Resource implications for assessment include:

EVIDENCE GUIDE

- an induction procedure and requirement
- realistic tasks or simulated tasks covering the mandatory task requirements
- relevant specifications and work instructions
- tools and equipment appropriate to applying safe work practices
- support materials appropriate to activity
- workplace instructions relating to safe work practices and addressing hazards and emergencies
- material safety data sheets
- research resources, including industry related systems information.

Reasonable adjustments for people with disabilities must be made to assessment processes where required. This could include access to modified equipment and other physical resources, and the provision of appropriate assessment support.

Method of assessment

Assessment methods must:

- satisfy the endorsed Assessment Guidelines of the Construction, Plumbing and Services Training Package
- include direct observation of tasks in real or simulated work conditions, with questioning to confirm the ability to consistently identify and correctly interpret the essential underpinning knowledge required for practical application
- reinforce the integration of employability skills with workplace tasks and job roles
- confirm that competency is verified and able to be transferred to other circumstances and environments.

Validity and sufficiency of evidence requires that:

- competency will need to be demonstrated over a period of time reflecting the scope of the role and the practical requirements of the workplace
- where the assessment is part of a structured learning experience the evidence collected must relate to a number of performances assessed at different points in time and

EVIDENCE GUIDE

separated by further learning and practice, with a decision on competency only taken at the point when the assessor has complete confidence in the person's demonstrated ability and applied knowledge

- all assessment that is part of a structured learning experience must include a combination of direct, indirect and supplementary evidence.

Assessment processes and techniques should as far as is practical take into account the language, literacy and numeracy capacity of the candidate in relation to the competency being assessed.

Supplementary evidence of competency may be obtained from relevant authenticated documentation from third parties, such as existing supervisors, team leaders or specialist training staff.

Range Statement

RANGE STATEMENT

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Information includes:

- diagrams or sketches
- instructions issued by authorised organisational or external personnel
- manufacturer specifications and instructions where specified
- memos
- MSDS
- organisation work specifications and requirements
- plans and specifications
- regulatory and legislative requirements

RANGE STATEMENT

Planning and preparation include:

Safety (OHS) is to be in accordance with legislation, regulations, codes of practice, organisational safety policies and procedures, and project safety plan and may include:

- pertaining to handling construction materials
- relevant Australian standards
- safe work procedures related to handling construction materials
- signage
- verbal or written and graphical instructions
- work bulletins
- work schedules.
- work site inspection
- equipment defect identification
- assessment of conditions and hazards
- determination of work requirements.
- emergency procedures, including extinguishing fires, organisational first aid requirements and evacuation
- handling of materials
- hazard control
- hazardous materials and substances
- safe operating procedures, including the conduct of operational risk assessment and treatments associated with:
 - earth leakage boxes
 - lighting
 - power cables, including overhead service trays, cables and conduits
 - restricted access barriers
 - surrounding structures
 - traffic control
 - trip hazards
 - work site visitors and the public
 - working at heights
 - working in confined spaces
 - working in proximity to others
 - working with dangerous materials
- organisational first aid
- personal protective clothing and equipment prescribed under legislation, regulations and workplace policies and practices
- use of firefighting equipment
- use of tools and equipment

RANGE STATEMENT

Tools and equipment include:

- workplace environment and safety.
- banders
- hammers
- pallets
- pinch bars
- scaffolding
- tin snips
- wheelbarrows.

Materials:

- include:
 - timber, reconstituted timber products and other building and sheet materials applicable to building and construction, bricks, bagged materials, sand, soil and aggregates
- may include:
 - building elements such as roof trusses, lining materials, flooring materials, prefabricated elements, boxed, drummed and tinned materials, concrete masonry units, joinery units, floor and wall tiles, roofing tiles, steel sections/components, insulation and glass.

Environmental requirements include:

- clean-up management
- noise and dust
- vibration
- waste management.

Statutory and regulatory authorities include:

- federal, state and local authorities administering applicable Acts, regulations and codes of practice.

Manual handling includes:

- carrying materials using correct shifting techniques
- control of waste
- using pallets.

Preparing for ***manual handling*** includes:

- forklifts
- pallet jacks
- trucks.

Hazardous materials include:

- solvents, glues, coatings and inflammable materials
- non-toxic materials, including general building and construction materials.

RANGE STATEMENT

- Handling procedures*** include:
- MSDS, calculation of quantities, stacking and storing of materials
 - handling activities may require assistance of others where size or weight is a factor.
- Dust suppression procedures*** include:
- keeping dust in the air to a minimum.
- Protection of material*** includes:
- correct handling and stacking techniques without damaging the material
 - protecting with covers.

Unit Sector(s)

Unit sector Construction

Co-requisite units

Co-requisite units Nil

Functional area

Functional area

CPCCCM3005 Calculate costs of construction work

Modification History

Release 1.

This version first released with CPC Construction, Plumbing and Services Training Package Version 2.

Revised unit of competency. Replaces superseded equivalent unit CPCCCM2003B Calculate and cost construction work.

Application

This unit of competency specifies the outcomes required to estimate materials, overheads, labour and time requirements and establish costs for the provision of products and services for construction work.

The unit supports tradespersons and those in independent construction job roles to cost a construction project or part of a construction project. It applies to construction work on residential and commercial sites.

No licensing, legislative, regulatory, or certification requirements apply to this unit of competency at the time of endorsement.

Pre-requisite Unit

Nil

Competency Field

Common

Unit Sector

Construction

Elements and Performance Criteria

Elements describe the Performance criteria describe the performance needed to

- essential outcomes. demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the range of conditions.
1. Gather information.
 - 1.1. Job requirements are determined through discussion with customer or from information supplied.
 - 1.2. ***Plans and specifications*** are accessed and site is inspected to confirm requirements.
 - 1.3. Details of products and services to be provided are developed and checked for availability and fitness for purpose.
 - 1.4. Delivery point and methods of transportation are determined where necessary.
 - 1.5. Details of job tasks are accurately recorded and checked according to workplace procedures.
 - 1.6. Information about material, labour and overhead costs is obtained and checked to be current and accurate.
 2. Estimate materials, labour and time.
 - 2.1. Work, including preparatory tasks, is planned and sequenced to cover all necessary activity.
 - 2.2. ***Types and quantities of materials*** required for work are estimated based on availability, fitness for purpose, and current costs.
 - 2.3. Labour requirements to perform work tasks and complete the job are estimated.
 - 2.4. Time requirements to perform work tasks are accurately estimated and checked with appropriate personnel.
 3. Calculate costs.
 - 3.1. Totals of individual materials, ***labour and overhead costs*** are calculated according to workplace procedures and statutory requirements.
 - 3.2. ***Other project-specific costs*** are identified and calculated according to workplace procedures.
 - 3.3. Total work cost is calculated, including mark-up percentages set by appropriate personnel.

- 3.4. Final cost for work is calculated by applying profit margin according to workplace procedures, and is checked for accuracy.
4. Document and verify details.
 - 4.1. Details of costs and charges are clearly and accurately documented according to workplace procedures.
 - 4.2. Costs, calculations or other details are verified according to workplace procedures and current costing data.
 - 4.3. Costing estimate and materials take-off are prepared for quote.
 - 4.4. **Costing documents** are accurately completed for future reference according to workplace procedures.

Foundation Skills

This section describes the language, literacy, numeracy and employment skills essential to performance in this unit but not explicit in the performance criteria.

Skill	Performance feature
Learning skills to:	draw on experience of estimating labour time requirements and material costs, and apply knowledge to new jobs to be costed.
Oral communication skills to:	- confirm requirements with customer - use listening and questioning to clarify any issues.
Reading skills to:	read and interpret material specifications, job safety analyses (JSA) and Australian standards relevant to work to be undertaken.
Writing skills to:	produce accurate and legible written costing information.

- Technology skills to:
- find and interpret information relevant to current costings for materials and labour using simple internet searches
 - use estimating and costing templates and software.

Range of Conditions

This section specifies work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included. Bold italicised wording, if used in the performance criteria, is detailed below.

- Plans and specifications*** must include three or more of the following:
- building codes
 - conceptual and preliminary sketches or drawings
 - environmental requirements relating to the acquisition, use and disposal of materials
 - project brief and scope of works, including relevant project plans and detailed project requirements
 - quotation conditions and terms of contract
 - relevant Australian standards and industry standards.

- Types and quantities of materials*** must include five or more of the following:
- aluminium
 - brick and blockwork
 - cement, sand, aggregates and bonding agents
 - claddings
 - decorative finishes
 - doors, windows and trims
 - fillers
 - fixings and fastenings
 - glazing
 - hardware
 - medium density fibreboard (MDF) or alternative substrate panelling
 - paint
 - prefinished boards and laminates
 - solid surfaces
 - steel
 - tiles
 - timber.

Labour costs must include:

- estimation of time for manufacture, delivery, installation or application
- personal protective equipment (PPE)
- wages and on-costs for different types of construction workers.

Overhead costs must include:

- administration
- insurance
- transport
- use of communication technology.

Other project-specific costs must include at least two of the following:

- plant and equipment hire
- project-related signs
- site facilities
- statutory fees and charges
- transport and delivery charges
- waste removal fees.

Costing documents must include three of the following:

- costing spreadsheets
- job sheets
- labour time allocation
- materials lists and estimates
- quotation templates
- take-off sheets.

Unit Mapping Information

CPCCCM2003B Calculate and cost construction work

Links

Companion Volume implementation guides are found in VETNet - <https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=7e15fa6a-68b8-4097-b099-030a5569b1ad>

Assessment Requirements for CPCCCM3005 Calculate costs of construction work

Modification History

Release 1.

This version first released with CPC Construction, Plumbing and Services Training Package Version 2.

Revised unit of competency. Replaces superseded equivalent unit CPCCCM2003B Calculate and cost construction work

Performance Evidence

A person demonstrating competency in this unit must satisfy all of the elements, performance criteria and foundation skills of this unit. The person must also cost three different construction jobs, where the costing includes:

- estimating quantities of material required
- determining the types and amount of labour required to complete the work
- estimating time required to complete the work
- estimating overheads associated with the work
- totalling all costs and applying profit margin to establish a client quote.

In doing the above work, the person must:

- locate, interpret and apply information, standards and specifications relevant to estimating and costing work
- calculate final cost for the work and prepare a written quotation for each of the work requirements.

Knowledge Evidence

A person demonstrating competency in this unit must demonstrate knowledge of:

- accuracy and detail required in costing estimates for construction work
- construction terminology used in plans and specifications for construction work
- contents and impact of job safety analyses (JSA) and safe work method statements (SWMS) on costing construction work
- environmental and sustainability requirements relevant to the costing being determined
- procedures for applying the Goods and Services Tax (GST) to costings

- procedures for determining wages and overhead costs relevant to a quotation for construction work
- international system of units (SI) of measurements relevant to the construction industry
- process of estimating and costing construction work
- quality requirements of construction projects and their impact on time required for completion
- relevant statutory and authority requirements related to estimating and costing construction work
- sources of information on material requirements and processes for calculating them
- standards applicable to the work being costed, such as Australian standards and those in the National Construction Code
- terms and content of relevant contract documentation to inform estimate.

Assessment Conditions

Suitable assessment of performance requires:

- equipment:
 - calculator
 - computer with internet access
- specifications:
 - plans and specifications for the work to be undertaken
 - costing information
- relationship with client:
 - consultation with client is required.

Assessor requirements

As a minimum, assessors must satisfy the assessor requirements in the Standards for Registered Training Organisations (RTOs) current at the time of assessment.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=7e15fa6a-68b8-4097-b099-030a5569b1ad>

CPCCDE3014 Remove non-friable asbestos

Modification History

- Release 2 This version first released with CPC Construction, Plumbing and Services Training Package Release 5.1.
Rectified pre-requisite unit.
- Release 1 This version first released with CPC Construction, Plumbing and Services Training Package Release 5.0.
Supersedes and is equivalent to CPCCDE3014A Remove non-friable asbestos.
Updated to meet the Standards for Training Packages 2012.

Application

This unit of competency specifies the outcomes required to remove non-friable asbestos containing material (ACM).

It includes preparing, containing and removing non-friable ACM, and knowledge of decontamination and disposal requirements.

Site location can be a real workplace or simulated environment that may include domestic or commercial premises, a demolition site, a new worksite or an existing structure being renovated, extended, restored or maintained.

Project sites for removal of non-friable asbestos include construction sites, ships and soils.

The model work health and safety (WHS) regulations and the Code of Practice: How to safely remove asbestos (2018) requires workers to hold certification for the class of licensed asbestos removal work they will be undertaking. Completion of this unit of competency is certification to undertake non-friable (Class B) removal work.

Occupational licenses are required nationally. This unit is required for all ACM removal workers engaged in the removal of more than ten square metres of non-friable ACM.

Candidates are advised to consult with the relevant state and territory regulatory authorities to confirm specific jurisdictional licensing requirements to remove non-friable ACM.

Pre-requisite Unit

CPCCWHS1001 Prepare to work safely in the construction industry

Unit Sector

Demolition

Elements and Performance Criteria

Elements describe the essential outcomes.

Performance criteria describe what needs to be done to demonstrate achievement of the element.

1 Prepare for asbestos removal.	1.1 Obtain work instructions and participate in review of asbestos removal control plan (ARCP) and safe work method statements (SWMS).
	1.2 Gather safety requirements and data from an on-site assessment and asbestos register where available.
	1.3 Use information sources to ensure the ARCP and SWMS are site-specific for the removal of asbestos materials.
	1.4 Select tools, equipment and personal protective equipment (PPE) consistent with job requirements to carry out tasks, check for serviceability, and rectify or report faults prior to commencement.
	1.5 Notify regulator, occupants, neighbours and other affected parties according to legislation and within limits of own responsibility and code of practice.
	1.6 Contribute to the preparation and use of an emergency plan, within limits of own responsibility and according to legislative and company requirements.
	1.7 Contribute to processes required to undertake air monitoring and to meet health monitoring requirements in line with level of authority and responsibility and regulatory requirements.
2 Prepare asbestos removal site.	2.1 Identify location of non-friable asbestos materials and confirm with supervisor location of site boundaries.
	2.2 Implement signage and barricade requirements to delineate the asbestos removal site according to ARCP.
	2.3 Prepare and place materials and equipment required for removal of ACM from site.
3 Set up asbestos work area.	3.1 Designate boundaries of asbestos work area according to ARCP requirements.
	3.2 Set up decontamination according to ARCP.

	3.3	Set up asbestos waste storage and waste transit route according to ARCP.
	3.4	Undertake processes to ensure the safety of the site, including deactivating or securing utilities where necessary prior to commencing work.
4 Remove non-friable asbestos.	4.1	Fit-check respiratory protective equipment (RPE) and fit PPE.
	4.2	Wet down or spray work area with particle binder.
	4.3	Carry out asbestos removal ensuring airborne asbestos fibres are kept to a minimum (i.e. appropriate tools, wet removal, minimise breakage, good handling techniques).
	4.4	Contain, wrap or otherwise seal the wet asbestos, place into removal bags or bins, seal and label according to ARCP.
5 Carry out decontamination process.	5.1	Carry out decontamination of the work area and tools according to ARCP.
	5.2	Carry out personal decontamination according to ARCP.
6 Clean up work area.	6.1	Remove asbestos waste materials and equipment from the area according to ARCP.
	6.2	Store tools, plant and equipment according to manufacturer recommendations and regulatory requirements to ensure site is ready for clearance inspection.
	6.3	Take steps to ensure clearance inspection requirements are met, within the limits of own responsibility and to ensure clearance certificate is gained from a competent person or licensed asbestos assessor.
7 Complete regulatory processes	7.1	Ensure clearance inspection is undertaken prior to removing signage, plant and equipment.

- 7.2 Contribute to the preparation and use of documentation for regulatory notification processes, within limits of own responsibility and according to legislative and company requirements.
- 7.3 Provide stakeholders with clearance inspection certificate prior to reoccupation, as required.

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Unit Mapping Information

Supersedes and is equivalent to CPCCDE3014A Remove non-friable asbestos.

Links

Companion volumes to this training package are available at the VETNet website - <https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=7e15fa6a-68b8-4097-b099-030a5569b1ad>

Assessment Requirements for CPCCE3014 Remove non-friable asbestos

Modification History

- Release 2 This version first released with CPC Construction, Plumbing and Services Training Package Release 5.1.
Rectified pre-requisite unit.
- Release 1 This version first released with CPC Construction, Plumbing and Services Training Package Release 5.0.
Supersedes and is equivalent to CPCCE3014A Remove non-friable asbestos.
Updated to meet the Standards for Training Packages 2012.

Performance Evidence

To demonstrate competency in this unit, a candidate must undertake two separate non-friable asbestos removal and disposal tasks.

This must include:

- planning and preparing for removal of non-friable asbestos
- preparing non-friable asbestos removal site and removal area
- isolating non-friable removal area
- carrying out non-friable asbestos removal process
- carrying out non-friable asbestos decontamination process
- cleaning up removal work area after removal of non-friable asbestos.

In doing this, the candidate must meet the performance criteria for this unit.

Knowledge Evidence

To be competent in this unit, a candidate must demonstrate knowledge of:

- the compliance requirements of the relevant Australian Standards, Building Code of Australia (BCA), model codes of practice, environmental and work health and safety (WHS) legislation
- range of materials manufactured using asbestos, the type of asbestos used in each material, and the usual applications associated with the material, together with an understanding of:
 - health effects caused by exposure to non-friable asbestos containing material (ACM) and requirements for safe handling and removal
 - health impacts on the community and requirements for safe handling and disposal

- hazards, including health hazards, associated with non-friable ACM and circumstances that may change the nature of ACM from non-friable to friable
- safe work methods for the removal of non-friable asbestos
- requirements of current legislation and standards
- handling requirements of differing types of asbestos materials
- work area procedures
- risk assessment processes and contingency planning, job safety analysis (JSA), safety data sheets (SDS), asbestos registers and register amendments and safe work method statements (SWMS) related to removal of non-friable asbestos
- materials storage and hazardous waste management
- method of operation, and cleaning, use and maintenance requirements of equipment
- techniques associated with removing asbestos
- types, characteristics, uses and limitations of plant and equipment involved in enclosing and removing asbestos
- workplace and equipment safety requirements, including other associated hazard areas
- purpose and application of documentation for notification; and use of asbestos removal control plan (ARCP) and clearance inspections.
-

Assessment Conditions

Assessors must satisfy the requirements for assessors contained in the Standards for Registered Training Organisations.

Assessment of performance must be undertaken in the workplace or in a simulated workplace environment.

Assessors are responsible for ensuring that the candidate demonstrating competency has access to:

- worksite/s and specifications for removal of non-friable asbestos
- appropriate documents, materials, tools, equipment and personal protective equipment (PPE) currently approved for use in industry, as per codes of practice, Australian Standards, requirements of legislation, regulations and requirements of workplace policies and as required by state, territory and Commonwealth regulators.

Links

Companion volumes to this training package are available at the VETNet website - <https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=7e15fa6a-68b8-4097-b099-030a5569b1ad>

CPCCDE3014A Remove non-friable asbestos

Modification History

New to CPC08

Replaces unit CPCCDE3012A Encapsulate and remove asbestos

Not equivalent

Unit Descriptor

This unit of competency specifies the outcomes required to remove non-friable asbestos containing material (ACM). The unit includes preparing, containing and removing non-friable ACM, and includes knowledge of decontamination and disposal requirements.

Application of the Unit

Site location for work may be either domestic or commercial, and may be a demolition site, a new work site or an existing structure being renovated, extended, restored or maintained. Project sites may be construction sites and may also include ships, soils in relation to the non-friable asbestos removal process, and fences.

Licensing/Regulatory Information

Occupational licenses are required nationally.

Work must be completed according to relevant legislative, industry, customer and organisational requirements, including work health and safety (WHS) policies and procedures.

Regulatory mechanisms apply to this unit. This unit is required for all ACM removal workers engaged in the removal of non-friable ACM. Candidates are advised to check for regulatory requirements.

Pre-Requisites

CPCCOHS1001A Work safely in the construction industry

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.

Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1	Prepare for asbestos removal.	1.1	Work instructions and asbestos removal control plan (ARCP) are obtained and confirmed for preparation purposes.
		1.2	<i>Safety requirements</i> and data gathered from an on-site assessment, an asbestos register where available, and other information sources are used to prepare for a safe and compliant removal process.
		1.3	<i>Tools, equipment</i> and <i>personal protective equipment</i> (PPE) consistent with job requirements are selected to carry out tasks and checked for serviceability; and faults are rectified or reported prior to commencement.
		1.4	ARCP is accessed according to legislative and company requirements, and understood.
2	Prepare asbestos removal area and removal site.	2.1	<i>Non-friable asbestos containing materials</i> to be removed are identified, referring to the asbestos register or following clarification by an approved competent person as required and according to <i>workplace procedures</i> .
		2.2	Signage and barricade requirements are identified and implemented to delineate the work area.
		2.3	Decontamination procedure is tested according to workplace procedures.
		2.4	Materials and equipment required for removal of ACM

- from **project sites** are identified, checked and prepared for operation.
- 2.5 Processes are undertaken to ensure the safety of the site, including deactivating or securing **utilities** where necessary prior to commencing work.
- 3 Isolate removal site.
- 3.1 **Requirements to isolate the removal site** safely are identified from the ARCP, and implemented according to legislative and company requirements.
- 3.2 Boundaries of asbestos removal site are designated according to ARCP requirements.
- 3.3 Occupants, neighbours and other affected parties are notified according to legislation and within limits of own responsibility and the code of practice.
- 4 Carry out asbestos removal process.
- 4.1 **Asbestos is removed** from work area and work site as specified by the supervisor and in the appropriate manner, ensuring the safe use of tools and according to ARCP, legislative and regulatory requirements, and codes of practice.
- 4.2 Removed **asbestos is contained**, wrapped or otherwise sealed, and placed into removal bags or bins, sealed, labelled and, where loaded into a truck, the tray or skip is lined prior to removal of ACM from site according to regulatory requirements and company standards.
- 5 Carry out decontamination process.
- 5.1 Decontamination of the work area and tools is carried out according to workplace procedures, ARCP and regulatory requirements.
- 5.2 **Decontamination of asbestos removal workers is carried out** according to workplace procedures, ARCP and regulatory requirements.
- 5.3 Asbestos removal and decontamination equipment is removed from the area according to ARCP and regulatory requirements.

6	Clean up work site.	6.1	Work area is cleared and materials disposed of according to legislation, regulations, codes of practice and job specification.
		6.2	Plant, tools and equipment are cleaned, decontaminated, checked, maintained, removed from the work area, and stored according to manufacturer recommendations and regulatory requirements.
7	Contribute to and use documentation in line with regulatory requirements.	7.1	Contribution is made within limits of own responsibility to the preparation and use of documentation for regulatory notification processes according to legislative and company requirements.
		7.2	Steps are taken within limits of own responsibility to ensure clearance inspection requirements are met and clearance certificate is gained from a competent person or licensed asbestos assessor.
		7.3	Contribution is made within limits of own responsibility to the preparation and use of an emergency plan according to legislative and company requirements.

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication and appropriate level of language skills to:
 - determine requirements
 - enable clear and direct communication, using questioning to identify and confirm requirements, share information, listen and understand
 - follow instructions
 - read and apply:
 - documentation from a variety of sources
 - drawings and specifications
 - use language and concepts appropriate to cultural differences

- initiative and enterprise skills to:
 - evaluate own actions and make judgements about performance and necessary improvements
 - identify and report faults in tools, equipment and materials to appropriate personnel
- planning and organising skills to:
 - set out work
 - recognise procedures, follow instructions and contribute to workplace responsibilities, such as current environmental and safety systems and the ARCP
- teamwork skills to:
 - coordinate own work with others to action tasks
 - relate to people from a range of cultural and ethnic backgrounds and with varying physical and mental abilities
- self-management skills to:
 - work independently and in teams to read and interpret relevant documentation and to prepare for non-friable asbestos removal tasks according to the recommended safe work method and ARCP
 - set up the asbestos removal area and removal site according to the safe work method and ARCP
 - check, fit and use PPE, and hand and power tools safely
 - apply general WHS procedures for construction work, including:
 - identifying, avoiding and eliminating electrical hazards
 - working safely at heights and in confined spaces
 - applying safe work practices to the use of tools appropriate to ACM removal
 - handling hazardous materials safely
 - applying safe work methods for the removal of non-friable asbestos
- follow correct cleaning, decontamination and disposal procedures

Required knowledge

- range of materials manufactured using asbestos, the type of asbestos used in each material, and the usual applications associated with the material, together with an understanding of:
 - health effects caused by exposure to ACM and requirement for safe handling and removal
 - health impacts on the community and requirement for safe handling and disposal
- general WHS procedures for construction work as required, including identifying and mitigating risks
- health hazards associated with friable ACM and circumstances that may change the nature of ACM from non-friable to friable, such as:
 - weathering
 - wear and tear
 - application of tools and equipment
 - accidental damage

- licensing requirements for the use of specific equipment, such as excavators
- safe work methods for the removal of non-friable asbestos
- requirements of current legislation and standards relating to asbestos safety, and the decontamination, transport and disposal of asbestos waste
- general construction terminology
- handling requirements of differing types of asbestos materials
- hazards associated with removal processes
- work area procedures
- job safety analysis (JSA) and safe work method statements (SWMS) if required for construction
- safety data sheets (SDS)
- materials storage and hazardous waste management
- method of operation, and cleaning, use and maintenance requirements of equipment
- plans, drawings and specifications, asbestos registers and register amendments
- quality requirements relating to the removal of non-friable asbestos
- risk assessment processes and contingency planning relating to the removal of non-friable asbestos
- techniques associated with enclosing and removing asbestos
- types, characteristics, uses and limitations of plant and equipment involved in enclosing and removing asbestos
- workplace and equipment safety requirements
- purpose and application of documentation for notification; and use of ARCP and clearance inspections

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	This unit of competency could be assessed in the workplace or a close simulation of the workplace environment, providing that simulated or project-based assessment techniques fully replicate workplace conditions, materials, activities, responsibilities and procedures.
Critical aspects for assessment and evidence required to demonstrate competency in this unit	A person should demonstrate the ability to: • obtain and apply work instructions for the safe and correct removal of non-friable asbestos • set up the work area and test equipment for use in the removal process of non-friable asbestos • isolate the site prior to removal, complying with regulatory requirements

	- remove non-friable asbestos safely and comply with regulatory requirements - contain the ACM and ensure its handling and disposal are safe and comply with requirements - decontaminate self, work equipment, and the work site safely and correctly - complete documentation that supports the removal process within limits of own responsibility.
Context of and specific resources for assessment	This unit is to be assessed using standard and authorised work practices, safety requirements and environmental constraints. Assessment of essential underpinning knowledge will usually be conducted in an off-site context. Assessment is to comply with relevant regulatory or Australian standards' requirements. Resource implications for assessment include: - an induction procedure and requirement - realistic tasks or simulated tasks covering the mandatory task requirements - relevant specifications and work instructions - tools and equipment appropriate to applying safe work practices - support materials appropriate to activity - workplace instructions relating to safe work practices and addressing hazards and emergencies - research resources, including industry-related systems information - safety data sheets. Reasonable adjustments for people with disabilities must be made to assessment processes where required. This could include access to modified equipment and other physical resources, and the provision of appropriate assessment support.
Method of assessment	Assessment methods must: - satisfy the endorsed Assessment Guidelines of the Construction, Plumbing and Services Training Package - include direct observation of tasks in real or simulated work conditions, with questioning to confirm the ability to consistently identify and correctly interpret the essential underpinning knowledge required for practical application - reinforce the integration of employability skills with workplace tasks and job roles - confirm that competency is verified and able to be transferred to other circumstances and environments.

	Validity and sufficiency of evidence requires that: • competency will need to be demonstrated over a period of time reflecting the scope of the role and the practical requirements of the workplace • where the assessment is part of a structured learning experience the evidence collected must relate to a number of performances assessed at different points in time and separated by further learning and practice, with a decision on competency only taken at the point when the assessor has complete confidence in the person's demonstrated ability and applied knowledge • all assessment that is part of a structured learning experience must include a combination of direct, indirect and supplementary evidence. Assessment processes and techniques should as far as is practical take into account the language, literacy and numeracy capacity of the candidate in relation to the competency being assessed. Supplementary evidence of competency may be obtained from relevant authenticated documentation from third parties, such as existing supervisors, team leaders or specialist training staff.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

<i>Safety requirements</i> will be specified from a range of sources that include:	• asbestos removal control plan • company policies and procedures, including: • accessing toilets and other amenities • managing work hours to minimise risk from tiredness • working in heat and avoiding heat stress • JSA • legislation and regulations, including the Code of Practice for the Safe Removal of Asbestos • operating manuals and specifications for materials and equipment • SWMS • asbestos register.

Tools and equipment may require separate licensing for use and may include:	• high efficiency particulate air (HEPA) vacuum cleaners to comply with AS3544-1988 and AS4260-1997 as amended from time to time • atomiser and water spray bottles (not pressurised) • hoses and spray fittings • barricades, including tape, para-webbing and fencing • bars (crow and pinch) • bolt cutters • buckets • cold chisels • excavators • hand drills (manual and low-speed only) • fire extinguishers • hammers • hand tools (full kit) • ladders conforming to construction regulations • scaffolds • scrapers • shovels and spades • staple guns.
Personal protective equipment will be specified to the requirements of the job and must include:	• protective clothing, such as: • disposable coveralls with fitted hood and cuffs • safety footwear (pull-on, not lace-up) • protective eyewear • disposable or protective gloves • correct face fitting and use of respiratory protective equipment (RPE) • respiratory protection required for the job, including class P1 and P2 face masks • spare sets of PPE.
Materials may include:	• approved and branded plastic bags, including heavy-duty polythene bags (200 µm minimum thickness) • duct tape • foam infill spray • acrylic paint to seal ACM • polyvinyl alcohol (PVA) adhesive as spray to seal ACM • rags or other material wipes (used once) • signs • 200 µm unused (not recycled) plastic sheeting or drop sheet.
Non-friable asbestos containing materials	• asbestos cement • asbestos cement moulded guttering • asbestos cement sheets

may include: Note: - Non-friable asbestos is also known as bonded asbestos - ACM notionally listed as non-friable may become friable due to weathering or damage	- asbestos tiles - bitumastic felts and materials - adhesives and glues - compressed asbestos cement panels - floor vinyl covering - mortar - resinous backing board - sealant mastic - tape.
Workplace procedures may include:	- environmental requirements, such as: - clean-up management - dust and noise management - notification to occupants, neighbours and other affected parties - sedimentation control - vibration management - waste management, including the safe disposal of ACM - quality requirements, such as: - internal company quality policy and standards - manufacturer specifications - relevant regulations, including Australian standards - workplace operations and procedures.
Project sites may include:	- residential, commercial, industrial and public buildings - plant, equipment and fire boards (e.g. friction plant and gaskets) - demolition sites - electricity supply authority or work site - fences - ships and other forms of transport - sites for new building development.
Utilities may include:	- air conditioning - electricity - water services.
Requirements to isolate the removal site:	- will reflect the nature of the site - must comply with legislative requirements and the ARCP - may include: - using barriers - using signage - ensuring occupants are aware of the need to stay away

	from the removal site ensuring isolation has occurred by a licensed electrician and that this is documented.
Asbestos is removed in a manner that complies with legislative and company requirements, and may include:	- wet method (most preferred): - saturate material by gently spraying with water and surfactant mixture (PVA in water ratio of 5:1) - remove materials in sections with the minimum amount of cutting and separation and using hand tools as appropriate - place removed sections in appropriate containers or packaging - Note: The application of the wet asbestos removal method requires the disconnection of the building's power supply and use of a temporary power source fitted with earth leakage and residual current device (RCD) - dry method (least preferred): - to be used only where conditions prohibit use of the wet spray method, i.e. in the vicinity of electrical conductors - fully encapsulate the work area with plastic sheeting - use air respirators appropriate to the job - ensure removal methods minimise the production of airborne material, for example the use of asbestos vacuum cleaners for shadow vacuuming (Note: domestic vacuum cleaners even fitted with a HEPA filter are unsuitable) - place removed material immediately in appropriate containers and dampen with sprayed mist.
Asbestos is contained and sealed using a range of techniques, including:	- double-bagging - using heavy-duty polythene bags (200 µm minimum thickness) labelled with an appropriate warning - using drums or bins in good condition with well-fitting lids labelled with appropriate warning signage or labels. Note: If too large for a bin or bag, a skip or vehicle tray may be used provided it is double-lined with heavy-duty thick plastic sheeting. When ACMs are loaded on a truck tray, the ACMs must be wetted down and then fully wrapped and sealed with a layer of 200 µm sheeting or bagged. Labelling must occur.
Decontamination of asbestos removal workers is carried out:	using a range of techniques, including: 'buddy' vacuuming - decontamination unit for large non-friable removals in certain circumstances - wet wiping.
Documentation may	air-monitoring results, where necessary

include:	• asbestos register • notification to regulator of asbestos removal work • clearance certificates • asbestos removal control plans • procedures for the WHS management system and the emergency plan • equipment test reports • health-monitoring program • RPE face fits • competency training certificates.

Unit Sector(s)

Construction

CPCCDE4008 Supervise asbestos removal

Modification History

Release 1 This version first released with CPC Construction, Plumbing and Services Training Package Release 5.0.

Supersedes and is equivalent to CPCCBC4051A Supervise asbestos removal.
Updated to meet the Standards for Training Packages 2012.

Application

This unit of competency specifies the outcomes required to supervise the removal process for friable and non-friable asbestos containing material (ACM). The unit includes planning for and supervising the removal process, including preparing the work area and the worksite, using safe and compliant removal practices, maintaining safety procedures, and supervising the decontamination and removal processes.

Ensuring compliance with the asbestos removal control plan (ARCP) is central to the effective performance of the role. This includes ensuring and documenting that required air monitoring and other testing and certification processes are conducted by licensed asbestos assessors according to legislation.

Site locations include domestic, commercial, demolition and construction, ships, soils and fences.

Occupational licenses are required nationally. Work must be completed according to relevant legislation, the Code of Practice for the Safe Removal of Asbestos, industry guidelines, customer and organisational requirements, including work health and safety (WHS) policies and procedures, and regulatory requirements.

This unit is required for all supervisors of the ACM removal process. Candidates wishing to supervise friable ACM removal must complete CPCCDE3015 Remove friable asbestos. Candidates wishing to supervise non-friable ACM removal must complete CPCCDE3014 Remove non-friable asbestos.

Candidates are advised to check for regulatory requirements relating to relevant industry experience for licensing purposes.

Pre-requisite Unit

CPCCDE3014 Remove non-friable asbestos

CPCCDE3015 Remove friable asbestos

Unit Sector

Demolition.

Elements and Performance Criteria

Elements describe the essential outcomes.

Performance criteria describe what needs to be done to demonstrate achievement of the element.

1 Plan supervision of asbestos removal.	1.1 Obtain and interpret work instructions, client's brief, asbestos register, if available, and relevant information to ensure a compliant removal process.
	1.2 Develop asbestos removal control plan (ARCP) and safe work method statements (SWMS).
	1.3 Inspect worksite to identify scope of job and conduct initial preparations according to ARCP and SWMS.
	1.4 Identify and notify regulator and all parties affected by removal of ACM.
	1.5 Confirm staffing and competency requirements for the job.
	1.6 Confirm health monitoring of workers is being undertaken.
	1.7 Calculate quantity of ACM to be removed and materials and equipment required for the job.
	1.8 Identify licensed asbestos disposal facility for transport and disposal of asbestos according to environmental regulatory obligations and record in ARCP.
	1.9 Prepare and plan for air monitoring and a clearance inspection by a licensed asbestos assessor (friable) or competent person (non-friable).
	1.10 Identify, source and ensure serviceability of plant, tools, equipment and personal protective equipment (PPE).
	1.11 Plan work schedules to ensure compliant supervision of the asbestos removal job.
2 Oversee the	2.1 Maintain required on-site records.

preparation for asbestos removal.	2.2	Induct workers and provide the ARCP for safe and compliant operation of the job.
	2.3	Ensure PPE for workers is provided and stored on site.
	2.4	Ensure signage and barricades are erected to delineate the asbestos work area from the worksite in accordance with the ARCP.
	2.5	Manage the serviceability checks for equipment and tools conforming with manufacturer specifications for use.
	2.6	Ensure that utilities are deactivated and secured, and relevant persons are notified prior to commencing work.
	2.7	Identify asbestos waste storage and waste transit route according to site-specific ARCP.
3 Supervise compliant testing.	3.1	Communicate with the licensed asbestos assessor to ensure compliance with legislative requirements for air monitoring and enclosure integrity.
	3.2	Check conformity of air monitoring test result in consultation with licensed asbestos assessor and apply relevant action in accordance with regulatory requirements.
	3.3	Notify health and safety regulator if air monitoring levels are above 0.02 fibres/millilitre.
	3.4	Post daily air monitoring readings on the worksite according to legislative requirements.
4 Supervise removal and decontamination processes.	4.1	Manage ongoing serviceability checks for equipment and tools conforming with manufacturer specifications for use.
	4.2	Supervise removal of asbestos according to the ARCP and SWMS.
	4.3	Organise removal of ACM waste from site according to environmental regulatory obligations and ARCP.
	4.4	Supervise facilities and processes to ensure compliant decontamination of workers, work area and worksite,

including plant, tools and equipment.

- 4.5 Secure site until clearance inspection is undertaken and clearance certificate has been received.
- 4.6 Upon receiving clearance certificate ensure decontaminated plant, tools and equipment are removed from the work area.
- 4.7 Supervise the dismantling of enclosures and relevant equipment (friable) and clean up.

Foundation Skills

This section describes the language, literacy, numeracy and employment skills essential to performance in this unit but not explicit in the performance criteria:

- technology skills to:
 - use communication tools and devices to communicate and collaborate effectively with others
 - use equipment and programs to access, extract information and develop relevant documentation.

Unit Mapping Information

Supersedes and is equivalent to CPCCBC4051A Supervise asbestos removal.

Links

Companion volumes to this training package are available at the VETNet website - <https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=7e15fa6a-68b8-4097-b099-030a5569b1ad>

Assessment Requirements for CPCCE4008 Supervise asbestos removal

Modification History

- Release 1 This version first released with CPC Construction, Plumbing and Services Training Package Release 5.0.
- Supersedes and is equivalent to CPCBC4051A Supervise asbestos removal.
Updated to meet the Standards for Training Packages 2012.

Performance Evidence

To demonstrate competency, a candidate must meet the performance criteria of this unit by supervising two different asbestos removal occasions.

In doing so, the candidate must:

- adhere to the asbestos removal control plan (ARCP), regulatory and environmental legislation.

Knowledge Evidence

To be competent in this unit, a candidate must demonstrate knowledge of:

- the compliance requirements of the relevant Australian Standards, Building Code of Australia (BCA), model codes of practice, environmental and work health and safety (WHS) legislation
- relevant government building legislation, codes and standards
- rationale for, and principles underpinning, the ARCP and related legislation
- implementing the ARCP with control monitoring, clearance inspections and certifications
- using the certified work health and safety (WHS) management system and emergency plan
- hazards relating to friable ACM
- processes, procedures and techniques of asbestos removal
- workplace safety requirement
- plans, drawings and specifications, asbestos registers and documentation relating to asbestos removal
- organisation's quality assurance requirements
- environmental requirements and sustainability principles
- duties and obligations of the supervisory role
- contingency planning
- locations of friable and non-friable asbestos.

Assessment Conditions

Assessors must meet the requirements for assessors contained in the Standards for Registered Training Organisations.

Assessment of performance must be undertaken in the workplace or simulated workplace environment.

Candidates must be provided with:

- access to a worksite or simulated work environment
- relevant government building legislation, codes and standards
- environmental requirements and sustainability principles
- organisational policies and procedures
- project plans and specifications
- appropriate documents, materials, tools, equipment and personal protective equipment (PPE) currently approved for use in industry, as per codes of practice, Australian Standards, requirements of legislation, regulations and requirements of workplace policies and procedures as required by Commonwealth, state and territory regulators.

Links

Companion volumes to this training package are available at the VETNet website - <https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=7e15fa6a-68b8-4097-b099-030a5569b1ad>

CPCCLDG3001A Licence to perform dogging

Modification History

Not Applicable

Unit Descriptor

Unit descriptor This unit specifies the outcomes required to perform slinging techniques, including the selection and inspection of lifting gear and/or the directing of the crane operator in the movement of the load when the load is out of view of the crane/ operator for licensing purposes.

Application of the Unit

Application of the unit This unit covers the scope of work to demonstrate competency in the application of slinging techniques, selection and inspection of lifting gear and/or the directing of the crane/ operator in the movement of the load.

This unit is based upon the National Standard for Licensing Persons Performing High Risk Work.

This unit in its current form meets state and territory licensing requirements. Any alteration will result in a unit which is not acceptable to regulators for the purpose of licensing.

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units Nil

Employability Skills Information

Employability skills This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.

Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Plan job.	1.1. <i>Site information</i> is obtained and related to the task. 1.2. <i>Hazard</i> s and potential hazards associated with the slinging and directing of loads are identified. 1.3. <i>Hazard control measures</i> consistent with <i>appropriate standards</i> are identified to ensure the safety of personnel and equipment. 1.4. The weight, dimensions and centre of gravity of the load are identified and assessed. 1.5. Suitable lifting/slinging points on the load are identified. 1.6. Appropriate <i>lifting equipment</i> needs are assessed. 1.7. Appropriate <i>communication methods</i> are assessed with <i>crane/</i> operators and other <i>appropriate personnel</i>. 1.8. Manufacturer's specifications/information is obtained for special loads where necessary.
2. Select and inspect equipment.	2.1. Lifting equipment appropriate to the task is selected. 2.2. Lifting equipment is inspected for serviceability. 2.3. Damaged or excessively worn lifting equipment is identified, labelled and rejected.

ELEMENT	PERFORMANCE CRITERIA
	2.4. Appropriate communication methods for the crane/operator and appropriate personnel are selected. 2.5. Appropriate communication equipment is selected and its serviceability is checked. 2.6. Appropriate personal protective equipment (PPE) is selected and checked.
3. Prepare site and equipment.	3.1. Hazard prevention/control measures are applied consistent with appropriate standards to ensure the safety of personnel and equipment. 3.2. Appropriate slinging method is selected. 3.3. Lifting equipment is prepared and assembled where appropriate. 3.4. Load destination is prepared.
4. Perform task.	4.1. Lifting equipment is attached and secured to the lifting hook using appropriate techniques. 4.2. Lifting hook is positioned over the load centre of gravity. 4.3. Lifting equipment is attached and secured to the load in an appropriate manner. 4.4. Tag line is attached and secured where appropriate. 4.5. Test lift is conducted to ensure security of load. 4.6. Load is moved maintaining stability and control at all times. 4.7. Appropriate communication methods and communication signals are applied to safely coordinate the load movement both within sight and out-of-sight of crane operator. 4.8. The load is landed to ensure that it is stable and secure from movement. 4.9. Lifting equipment is removed or disconnected from load and prepared for next task or storage.
5. Shut down job and clean up.	5.1. Unserviceable lifting equipment inspected and rejected. 5.2. Defective equipment is isolated and tagged. 5.3. Lifting equipment is stored in accordance with procedures and appropriate standards. 5.4. Hazard prevention/control measures are removed where appropriate. 5.5. Excess materials from the work area are removed (where applicable).

ELEMENT**PERFORMANCE CRITERIA**

5.6. Defects are reported and recorded according to procedures and appropriate action is taken.

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

Required skills for this unit are:

- communication techniques in the workplace including whistles, hand signals and use of fixed channel two-way radios
- communication skills at a level sufficient to communicate with other site personnel
- calculate rated capacity of lifting equipment
- apply different methods for making temporary connections to loads using fibre and synthetic ropes
- ability to interpret rated capacity and working load limit tags
- hazard identification and control
- slinging techniques
- selection and inspection of lifting equipment
- directing crane operators in the moving of loads in a safe manner, using a slewing crane
- inspection and care of a wide range of lifting equipment to appropriate Australian Standards and/or manufacturer's specifications.

Required knowledge

Required knowledge for this unit is:

- appropriate mathematical procedures for estimation and measurement of loads
- basic knowledge of types of cranes and their functions
- Commonwealth, state or territory OHS legislation, standards and codes of practice relevant to the full range of techniques for undertaking dogging activities
- load stability and safety factors in line with manufacturer's specifications
- types of lifting equipment and slinging techniques for use, and their limitations and performance in a wide range of conditions (including but not limited to slings, beams, accessories, clamps, work-boxes, bins and pallets)
- understanding of the hierarchy of control.

Evidence Guide

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment

Successful assessment of this unit meets the competency requirement of the National Standard for licensing Persons Performing High Risk Work.

State/Territory OHS regulators have mandated the use of Assessment Instruments and Instructions for Assessment of this unit which have been endorsed by the national body responsible for OHS matters.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

A person who demonstrates competency in this unit must be able to provide evidence of the ability to:

- comply with Commonwealth, state or territory OHS legislation, standards relevant to safe dogging and crane operations.
- communicate and work safely with others in the work area.
- apply Hazard prevention and control measures consistent with appropriate standards.
- apply to move loads in conjunction with cranes including, the reading of tags, slinging, loading, directing and landing loads with a slewing mobile crane with a telescopic boom and a winch, in and out of sight of the crane/operator, moving four loads of varying shapes, sizes and weights.
- use fibre and/or synthetic rope as tag lines, and connecting to loads using clove hitch, rolling hitch, bowline and single sheetbend.
- conduct pre and post operational checks of the lifting equipment.
- Assessment of the safe and effective application of knowledge and skill to workplace tasks (performance) must be undertaken using the national OHS endorsed Assessment Instrument
- Assessment of performance must be

Context of and specific resources for assessment

EVIDENCE GUIDE

undertaken either in the workplace or in a realistically simulated workplace setting

- Assessors must ensure that the assessment in the workplace is organised through a workplace supervisor to ensure that all the required equipment and materials and a suitable working area is made available to suit the assessment and the workplace
- Assessment must occur under standard and authorised work practices, safety requirements and environmental constraints
- Assessment is to comply with the requirements of any relevant Standards or operating procedures for dogging activities
- Applicants must have access to:
 - personal protective equipment (PPE) for the purpose of the performance assessment.
 - four different loads as prescribed in the endorsed assessment instrument
 - lifting and associated equipment
 - suitable slewing crane
 - communication equipment (eg. fixed channel, two-way radios) as applicable.

Method of assessment

Assessment must be conducted using the national OHS endorsed Assessment Instrument. This Instrument provides instruction on the application of the assessment.

Assessment may be in conjunction with the assessment of other units of competency.

The use of '**simulators**' in the assessment of this unit of competency is **not acceptable**.

Assessment methods must confirm consistency and accuracy of performance together with application of underpinning knowledge.

Assessment must confirm a reasonable inference that competency is not only able to be satisfied under the particular circumstance, but is able to be transferred to other circumstances.

Guidance information for assessment

Further information about endorsed Assessment Instruments may be obtained from state/territory OHS regulators.

Range Statement

RANGE STATEMENT

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Site information may include but not be limited to

- local conditions such as access and egress
- work method statements.

Hazards may include but not limited to:

- ground stability (eg. ground condition, recently filled trenches, slopes)
- overhead hazards (e.g. power lines, service pipes, trees, buildings, etc)
- insufficient lighting
- traffic (e.g. pedestrians, vehicles, plant)
- weather (e.g. wind, lightning, storms)
- other specific hazards (e.g. trip hazards, heights, radio interference, etc).

Hazard prevention/control measures

The systematic process of eliminating or reducing the risk to personnel and property through the application of controls.

It includes the application of the hierarchy of controls, including:

1. elimination.
2. substitution.
3. isolation.
4. engineered control measures.
5. safe work practices.
6. personal protective equipment.

Appropriate standard s may include:

- codes of practice
- legislation
- Australian Standards
- manufacturer's specifications
- industry standards.

RANGE STATEMENT

Lifting Equipment may include but not limited to:

- fibre ropes
- wire ropes
- chain
- wire and synthetic slings
- shackles
- eyebolts
- beam clamps
- plate clamps
- spreader beams
- lifting beams
- pallet forks and cages
- concrete kibbles
- personnel boxes.

Communication Methods may include but are not limited to:

- written instructions
- signage,
- hand signals
- listening
- questioning to confirm understanding
- appropriate worksite protocol.

Cranes may include but not limited to:

- tower cranes (including self erecting)
- portal boom cranes
- vehicle loading cranes
- slewing mobile cranes
- non-slewing cranes
- derrick cranes.

Appropriate personnel may include but are not limited to:

- supervisors
- colleagues
- managers who are authorised to take responsibility for the workplace or operations.

Communication Equipment may include but not limited to:

- fixed channel two-way radios
- whistles
- bells.

Personal protective equipment (PPE) may include but not limited to:

- hard hat
- safety boots
- gloves
- high visibility clothing
- reflective vest
- relevant breathing, hearing, sight, skin and sun protection.

Load destination may include but

- ground

RANGE STATEMENT

not limited to:

- loading platforms
- suspended floors
- vehicles.

Communication signals may include but not limited to:

- stop - hand
- stop - whistle
- hoist up - hand
- hoist up - whistle
- hoist down - hand
- hoist down - whistle
- luff boom down - hand
- luff boom down - whistle
- luff boom up - hand
- luff boom up - whistle
- telescope out - hand
- telescope out - whistle
- telescope in - hand
- telescope in - whistle
- slew left - hand
- slew left - whistle
- slew right - hand
- slew right - whistle.

Defective Equipment may include but not limited to:

- excessive wear
- damage
- stretched
- broken wires
- cut/damaged fibres.

Unit Sector(s)

Unit sector

Construction

Co-requisite units

Co-requisite units

Nil

Co-requisite units Nil

Functional area

Functional area

CPCCOM1015 Carry out measurements and calculations

Modification History

- Release 2 This version first released with CPC Construction, Plumbing and Services Training Package Release 5.1.
Rectified to reflect endorsed version.
- Release 1 This version first released with CPC Construction, Plumbing and Services Training Package Release 5.0.
Supersedes and is equivalent to CPCCCM1015 Carry out measurements and calculations. Updated to reflect current industry terminology, tools and equipment.

Application

This unit of competency specifies the skills and knowledge required to undertake basic measurements and calculations to determine task and material requirements in a construction work environment.

A person working at this level would be expected to complete tasks assigned to them, under supervision.

Completion of the general construction induction training program specified by the model Code of Practice for Construction Work is required for any person who is to carry out construction work. Achievement of *CPCCWHS1001 Prepare to work safely in the construction industry* meets this requirement.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Nil.

Unit Sector

Common

Elements and Performance Criteria

Elements describe the essential outcomes.

Performance criteria describe what needs to be done to demonstrate achievement of the element.

1	Obtain measurements.	1.1	Select most appropriate equipment and method for obtaining the measurement.
		1.2	Use a ruler or tape to obtain linear measurements accurate to 1 mm.
2	Perform basic calculations.	2.1	Take basic measurements and calculate quantities of materials in a construction environment, using basic formulae for each of: weight, area, volume, perimeter, circumference, ratio and percentage.
		2.2	Convert measurements in metres to millimetres and measurements in millimetres to metres.
		2.3	Check calculations for accuracy and record calculation workings and results.

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Unit Mapping Information

Supersedes and is equivalent to CPCCCM1015 Carry out measurements and calculations.

Links

Companion volumes to this training package are available at the VETNet website - <https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=7e15fa6a-68b8-4097-b099-030a5569b1ad>

Assessment Requirements for CPCCOM1015 Carry out measurements and calculations

Modification History

- Release 2 This version first released with CPC Construction, Plumbing and Services Training Package Release 5.1.
Rectified to reflect endorsed version.
- Release 1 This version first released with CPC Construction, Plumbing and Services Training Package Release 5.0.
Supersedes and is equivalent to CPCCCM1015 Carry out measurements and calculations. Updated to reflect current industry terminology, tools and equipment.

Performance Evidence

To demonstrate competency, a candidate must satisfy all the elements, performance criteria and foundation skills of this unit by:

- taking basic measurements and performing basic calculations to determine quantities of materials for construction work using each of the following:
 - weight
 - area
 - volume
 - perimeter
 - circumference
 - ratio
 - percentage
- demonstrating converting measurements in metres to millimetres and measurements in millimetres to metres.

All work must be performed to the standard required in the workplace.

Knowledge Evidence

To be competent in this unit, a candidate must demonstrate knowledge of:

- types of equipment required for planning and performing basic measurements and calculations and their characteristics, uses and limitations, including:
 - rulers
 - tape measures

- digital measuring and calculating devices
- methods of calculating the area and volume of the following in a construction environment:
 - rectangles
 - squares
 - circles
 - triangles
 - trapeziums
 - cubes
 - cylinders.
 -

Assessment Conditions

Assessors must meet the requirements for assessors contained in the Standards for Registered Training Organisations.

This unit must be assessed in the workplace or a close simulation using realistic workplace conditions, materials, activities, responsibilities, procedures, safety requirements and environmental considerations.

Links

Companion volumes to this training package are available at the VETNet website - <https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=7e15fa6a-68b8-4097-b099-030a5569b1ad>

CPCPPS5024 Conduct a water audit and identify water-saving initiatives

Modification History

- Release 1 This version first released with CPC Construction, Plumbing and Services Training Package Release 5.0.
- Supersedes and is equivalent to CPCPPS5024A Conduct a water audit and identify water-saving initiatives. Updated to meet the Standards for Training Packages 2012.

Application

This unit specifies the skills and knowledge required to conduct water audits in residential buildings with a minimum of 50 units; commercial buildings with a minimum of 20 floors, including a commercial laundry for hospital or nursing home.

This unit also specifies the skills and knowledge required to propose types of water-saving devices that are appropriate where water use reductions are possible.

The role involves interaction with builders, suppliers, clients and relevant planning authorities and requires a sound understanding of applicable legislation, standards and codes.

This unit applies to experienced people such as hydraulic design consultants or persons in a supervisory capacity in relation to plumbing services on a new or existing site.

In some jurisdictions, this unit of competency may form part of accreditation, licensing, legislative, regulatory or certification requirements.

Pre-requisite Unit

Nil.

Unit Sector

Plumbing and Fire Services

Elements and Performance Criteria

Elements describe the essential outcomes.

Performance criteria describe what needs to be done to demonstrate achievement of the element.

1 Calculate water use.	1.1 Establish scope of work for conducting water audits.

- 1.2 Identify requirements from relevant Australian Standards, codes, plans, specifications, manufacturer requirements and client brief.
 - 1.3 Apply sustainability principles and concepts throughout water audit process.
 - 1.4 Specify types of flow and pressure-measuring devices including their location and use.
 - 1.5 Conduct flow and pressure tests and measure flows at outlets.
 - 1.6 Compare actual water use to ideal use and calculate the difference.
- 2 Identify excessive water and energy use.
 - 2.1 Implement leak identification processes considering safety of system users or building occupants.
 - 2.2 Measure and evaluate flows against relevant standards and user requirements.
 - 2.3 Evaluate suitability of existing fixtures and fittings against new technology.
 - 2.4 Identify and compare water use times against optimal timing.
 - 2.5 Identify and analyse existing inefficient system conditions.
 - 2.6 Conduct pressure test and identify and compare consequences of high and low pressures to industry standards.
 - 2.7 Evaluate energy saving associated with reduction in water use.
- 3 Evaluate methods to conserve water and energy.
 - 3.1 Identify flow restrictors, sensors, pressure-limiting devices and automatic systems for a range of applications.
 - 3.2 Evaluate alternative processes and practices for optimum water and energy savings.

- 3.3 Evaluate alternative fixtures and fittings for optimum water and energy savings.
 - 3.4 Apply rainwater harvesting techniques and processes.
 - 3.5 Design recycling and re-use processes.
 - 3.6 Design water metering strategies to monitor and problem solve water saving systems.
- 4 Report findings.
 - 4.1 Conduct a cost-benefit analysis including the investment return period.
 - 4.2 Prepare water and energy audit report.
 - 4.3 Identify and report resulting environmental benefits and water and energy savings.

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Unit Mapping Information

Supersedes and is equivalent to CPCPPS5024A Conduct a water audit and identify water-saving initiatives.

Links

Companion volumes to this training package are available at the VETNet website - <https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=7e15fa6a-68b8-4097-b099-030a5569b1ad>

Assessment Requirements for CPCPPS5024 Conduct a water audit and identify water-saving initiatives

Modification History

- Release 1 This version first released with CPC Construction, Plumbing and Services Training Package Release 5.0.
- Supersedes and is equivalent to CPCPPS5024A Conduct a water audit and identify water-saving initiatives. Updated to meet the Standards for Training Packages 2012.

Performance Evidence

To demonstrate competency, a candidate must meet the performance criteria for this unit by:

- conducting a water audit, identifying water-saving initiatives for the following building types:
 - a minimum 50-unit residential building
 - a minimum 20 floor commercial office building incorporating a minimum of one toilet block per floor
 - a commercial laundry in a hospital or nursing home
- documenting and reporting on an audit report for each of the above building types.

Knowledge Evidence

To be competent in this unit, a person must demonstrate knowledge of:

- hazards associated with devices and systems used in the hydraulic sector
- installation methods used in hydraulic systems
- nature of materials and effect of their performance in a variety of conditions
- preparation and interpretation of plans and specifications
- requirements of Commonwealth, state or territory regulatory authorities, relevant Australian Standards and codes, manufacturer specifications, National Construction Code (NCC) and other relevant codes, standards and operating procedures
- terminology and definitions used in hydraulic design
- variety of applications of technology principles in design of water and energy-efficient usage systems for all classes of building
- work health and safety (WHS) requirements, including relevant statutory regulations, codes and standards
- performance requirements including maintenance of flow, velocity, pressure and discharge requirements of the client, using relevant Australian Standards, NCC or other relevant codes and standards

- alternative processes and practices for water saving
- rainwater harvesting which must include collection, storage and distribution of rainwater, including the use of tanks and dams
- water and energy audit reports.

Assessment Conditions

Assessors must meet the requirements for assessors contained in the Standards for Registered Training Organisations.

This unit must be assessed in the workplace or a close simulation using realistic workplace conditions, materials, activities, responsibilities, procedures, safety requirements and environmental considerations.

Links

Companion volumes to this training package are available at the VETNet website -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=7e15fa6a-68b8-4097-b099-030a5569b1ad>

CPCPPS5024A Conduct a water audit and identify water-saving initiatives

Modification History

Changes to unit descriptor, application, performance criteria, required skills and knowledge, range statement and critical aspects

Not equivalent to CPCPPS5004A

Unit Descriptor

This unit of competency specifies the outcomes required to identify wasted water and leaks in pipework and fixtures and, where water use reduction is possible, types of water-saving devices that are appropriate. The unit also requires the preparation of a report that reflects this assessment.

Application of the Unit

This unit of competency supports the development of skills and knowledge required to conduct water and energy audits and recommend water-saving initiatives in relation to plumbing services and construction hydraulics.

Application of the unit is relevant to multi-storey residential, commercial and industrial buildings with or without connection to reticulated water supply.

Licensing/Regulatory Information

In some jurisdictions, this unit of competency may form part of accreditation, licensing, legislative, regulatory or certification requirements.

Pre-Requisites

Nil

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit	Performance criteria describe the required performance needed to demonstrate achievement of the element. Where <i>bold italicised</i> text is used, further information is detailed

of competency.

in the required skills and knowledge and/or the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1	Calculate water use.	1.1 <i>Scope of work</i> for conducting water audits is established. 1.2 <i>Client requirements</i> are identified from relevant Australian standards, codes, plans, specifications and client brief. 1.3 <i>Types of flow and pressure-measuring devices</i>, and their use and location are specified. 1.4 <i>Flow and pressure tests</i> are conducted and flows at outlets are measured. 1.5 Actual water use is compared to ideal use, and the difference is calculated. 1.6 <i>Statutory and regulatory requirements</i> for the use of water are interpreted and applied. 1.7 <i>Manufacturer requirements</i> and trade and technical manuals are interpreted. 1.8 <i>Desktop study</i> is conducted and <i>performance requirements</i> are established.
2	Identify excessive water and energy use.	2.1 <i>Leak identification processes</i> are implemented, considering safety of system users or building occupants. 2.2 Flows are measured and evaluated against relevant standards and user requirements. 2.3 Suitability of existing fixtures and fittings is evaluated against new technology. 2.4 Water use times are identified and compared to optimal timing.

- 2.5 Existing inefficient system conditions, such as dead legs, are identified and analysed.
 - 2.6 Pressure test is conducted and consequences of high and low pressures are identified and compared to industry standards.
 - 2.7 Energy saving associated with reduction in water use is evaluated.
- 3 Evaluate methods to conserve water and energy.**
- 3.1 Flow restrictors, **sensors** and pressure-limiting devices are identified for a range of applications.
 - 3.2 **Automatic systems** are identified for a range of applications.
 - 3.3 **Alternative processes and practices** are evaluated for optimum water and energy savings.
 - 3.4 **Alternative fixtures and fittings** are evaluated for optimum water and energy savings.
 - 3.5 **Rainwater harvesting** techniques and processes are applied.
 - 3.6 **Recycling and re-use processes** are designed.
 - 3.7 **Sustainability principles and concepts** are applied throughout water audit process.
- 4 Report findings.**
- 4.1 **Cost-benefit analysis** is conducted, including the investment return period.
 - 4.2 **Water and energy audit report** is prepared.
 - 4.3 Resultant environmental benefits and water and energy savings are identified and reported.

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to:
 - communicate with others to ensure safe and effective work practices
 - confirm job specifications and client requirements
 - enable clear and direct communication, using questioning to identify and confirm requirements, share information, listen and understand
 - use language and concepts appropriate to cultural differences
 - use and interpret non-verbal communication, such as hand signals
- literacy skills to:
 - prepare a water and energy audit report
 - read and interpret:
 - plans, specifications, drawings and design briefs
 - standards and manufacturer requirements and manuals
 - statutory and regulatory requirements
- initiative and enterprise skills to:
 - comply with WHS and organisational quality procedures and processes
 - develop creative and responsive approaches to conserving water and energy
- numeracy skills to apply measurements and calculations
- planning and organising skills to:
 - research, collect, organise and understand information relating to water use
 - take initiative and make decisions
- problem-solving skills to:
 - analyse requirements
 - carry out tests
 - consider options
 - recommend appropriate water and energy saving measures
- teamwork skills to work with others to action tasks and relate to people from a range of cultural and ethnic backgrounds and with varying physical and mental abilities
- technical skills to:
 - accurately apply design principles relating to hydraulic systems, design concepts, measurements and calculations
 - apply and interpret documentation from a wide range of sources, including legislation, standards, drawings and specifications
- technology skills to:
 - access and understand site-specific instructions in a variety of media
 - use mobile communication technology

Required knowledge

- hazards associated with devices and systems used in the hydraulic sector

- installation methods used in hydraulic systems
- nature of materials and effect of their performance in a variety of conditions
- preparation and interpretation of plans and specifications
- requirements of commonwealth, state or territory regulatory authorities, relevant Australian standards and codes, manufacturer specifications, National Construction Code (NCC) and other relevant codes, standards and operating procedures
- terminology and definitions used in hydraulic design
- variety of applications of technology principles in design of water and energy-efficient usage systems for all classes of building
- work health and safety (WHS) requirements, including relevant statutory regulations, codes and standards

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment

This unit of competency could be assessed in the workplace or a close simulation of the workplace environment providing that simulated or project-based assessment techniques fully replicate plumbing and services workplace conditions, materials, activities, responsibilities and procedures.

It could be assessed on its own or as part of an integrated assessment activity involving audit of water and energy use in at least two different types of building and the preparation of comprehensive reports.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

A person who demonstrates competency in this unit must be able to, as a minimum, provide evidence of the ability to:

- conduct a water audit and identify water saving initiatives for a:
 - 50 unit residential building
 - 20 floor commercial office building
 - a commercial laundry
- including:
 - applying sustainability principles and concepts throughout the audit and identifying water-saving initiatives

- conducting pressure and flow measurements
- interpreting and applying statutory and local government requirements for the use of water
- reporting water wasting practices and processes, including leaks
- specifying sensors and automatic systems for a range of applications
- recommending recycling and re-use processes
- preparing a water and energy audit report
- conducting a cost-benefit analysis, including investment return period
- identifying and reporting on environmental benefits and water savings
- applying sustainability principles and concepts throughout the water audit and identify water-saving initiatives
- communicating with others to ensure safe and effective work site operations.

Context of and specific resources for assessment

This competency is to be assessed using standard and authorised work practices, safety requirements and environmental constraints.

Assessment of essential underpinning knowledge will usually be conducted in an off-site context.

Assessment is to comply with relevant regulatory or Australian standards' requirements.

Resource implications for assessment include:

- an induction procedure and requirement
- realistic tasks or simulated tasks covering the minimum task requirements
- relevant specifications and work instructions, including design brief drawings, specifications, codes, design concepts and construction schedules
- tools and equipment appropriate to applying safe work practices, including computers, software and calculators
- workplace instructions relating to safe working practices and addressing hazards and emergencies
- material safety data sheets
- research resources, including industry-related

systems information.

Reasonable adjustments for people with disabilities must be made to assessment processes where required. This could include access to modified equipment and other physical resources, and the provision of appropriate assessment support.

Method of assessment

Assessment methods must:

- satisfy the endorsed Assessment Guidelines of the Construction, Plumbing and Services Training Package
- include direct observation of tasks in real or simulated work conditions, with questioning to confirm the ability to consistently identify and correctly interpret the essential underpinning knowledge required for practical application
- reinforce the integration of employability skills with workplace tasks and job roles
- confirm that competency is verified and able to be transferred to other circumstances and environments.

Validity and sufficiency of evidence requires that:

- competency will need to be demonstrated over a period of time reflecting the scope of the role and the practical requirements of the workplace
- where the assessment is part of a structured learning experience the evidence collected must relate to a number of performances assessed at different points in time and separated by further learning and practice, with a decision on competency only taken at the point when the assessor has complete confidence in the person's demonstrated ability and applied knowledge
- all assessment that is part of a structured learning experience must include a combination of direct, indirect and supplementary evidence.

Assessment processes and techniques should as far as is practical take into account the language, literacy and numeracy capacity of the candidate in relation to the competency being assessed.

Supplementary evidence of competency may be obtained from relevant authenticated documentation from third parties, such as existing supervisors, team

leaders or specialist training staff.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. ***Bold italicised*** wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Scope of work must include:

- compiling reports
- identifying:
 - procedures, practices and products to reduce water and energy consumption
 - wasted water
 - water-saving initiatives
- producing a cost-benefit analysis.

Client requirements must include:

- compliance with regulatory requirements
- more efficient use of water resources
- reduction in water and energy costs
- maintaining satisfactory system performance.

Types of flow and pressure-measuring devices include:

- applications, which may include:
 - domestic cold and heated water supply
 - cooling towers
 - industrial processes
 - irrigation
 - mechanical
 - sanitation
 - trade waste
- measuring methods, which may include:
 - direct
 - electronic
 - hand-held
 - indirect
 - in-line
 - mechanical.

Flow and pressure tests may include:

- interpretation of flow and pressure tests conducted by a contractor
- on-site measurement of flow (l/s), velocity (m/s) and pressure (kPa).

Statutory and regulatory requirements may include:

- Acts, regulations and commonwealth, state or territory, and local government regulations
- National Construction Code
- other relevant Australian standards and codes.

Manufacturer requirements must include:

- flow and pressure requirements.

Desktop study includes:

- comparison of range of suitable materials and system choices available to enable cost-effective choices to be made without compromising integrity of project
- research and evaluation of water-saving products, processes and procedures currently available.

Performance requirements must include:

- maintenance of flow, velocity, pressure and discharge requirements of the client, using relevant Australian standards, National Construction Code, or other relevant codes and standards.

Leak identification processes may include:

- electronic leak detection
- listening devices
- measuring equipment
- cameras.

Sensors may include:

- pressure switches
- flow switches
- high and low level
- moisture.

Automatic systems may include:

- electronic and mechanical timer
- pressure-activated
- user-activated.

Alternative processes and practices may include:

- change in personal water habits
- change in timing
- discontinuation of a process
- irrigation before sunrise and after sunset
- lower water pressures
- modifying a process
- modifying wash-down cleaning procedures and order of operation
- rainwater harvesting and usage
- running dishwashers and washing machines with full loads
- testing pipe systems with air instead of water
- using water-efficient appliances and fixtures
- waste water collection and reuse.

Alternative fixtures and fittings may include:

- drip systems
- irrigation systems
- low-energy and water-use appliances, such as:
 - air cooling towers
 - dishwashers
 - dual flush low volume toilet flushing systems
 - tapware
 - waterless and sensor control urinals
 - washing machines
- low-flow shower roses
- outlet-flow control devices
- pressure control devices.

Rainwater harvesting must include:

- collection, storage and distribution of rainwater, including the use of tanks and dams.

Recycling and re-use processes may include:

- black water treatment and reuse options
- industrial processes
- grey water treatment and reuse options
- recovery of test water, such as fire.

Sustainability principles and

- cover the current and future social, economic and environmental use of resources

concepts:

- may include:
 - efficient energy usage/capital outlay comparison
 - selecting water efficient appliances and fixtures
 - using alternative water supplies
 - consideration of the Green Building Council of Australia rating scheme.

Cost-benefit analysis compares:

- installation, set-up and running costs against the capital investment to determine the cost recovery period
- the range of suitable materials and system choices available to enable cost-effective choices to be made without compromising integrity of project.

Water and energy audit report is a comprehensive report written to industry standards that includes:

- client brief
- analysis
- results
- methodology
- conclusions
- recommendations.

Unit Sector(s)

Functional area

Unit sector Plumbing and services

Custom Content Section

Not applicable.

CPPHES4006 Assess household water use and efficiency improvements

Modification History

Release 1 This version first released with CPC Property Services Training Package Release 5.0.

Supersedes and equivalent to CPPHSA4003A Assess household water use.
Updated to meet the Standards for Training Packages.

Application

This unit specifies the skills and knowledge required to source and analyse information on household water use and to advise on ways to improve water efficiency and conservation in the home.

This unit is for individuals who work independently as home sustainability assessors using specialised knowledge to complete household water assessments. It involves completing routine and non-routine tasks and dealing with predictable and sometimes unpredictable problems.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

None.

Unit Sector

Home Sustainability.

Elements and Performance Criteria

Elements describe the essential outcomes.

Performance criteria describe what needs to be done to demonstrate achievement of the element.

1 Plan and organise water use assessment.

1.1 Consult with client to clarify purpose of water use assessment and respond to questions and concerns.

1.2 Confirm assessment requirements in line with client needs, water authorities, legislation, regulations, standards, codes and government incentive programs for

- water efficiency.
- 1.3 Plan water use assessment in consultation with client and according to work health and safety (WHS) requirements.
 - 1.4 Prepare documentation required to conduct energy use assessment.
 - 1.5 Confirm that required tools and equipment are available and in working order.
- 2 Compile information on household water use and costs.
- 2.1 Gather information from client to identify main systems and sources of water use including relevant water collection and reuse systems.
 - 2.2 Access and interpret water bills and seasonal usage.
 - 2.3 Carry out measurements and observations during on-site inspection to safely confirm main sources, systems and water usage.
 - 2.4 Gather information on household occupant behaviours and preferences that impact water use.
 - 2.5 Record gathered information using suitable data collection tool.
- 3 Analyse data on household water use and conservation.
- 3.1 Identify key features of household water use and calculate costs and greenhouse gas emissions.
 - 3.2 Reconcile calculated water use with water bill data.
 - 3.3 Identify cost effective measures and behavioural opportunities for improving water efficiency.
 - 3.4 Identify government rebates and other assistance programs for improving household water efficiency.
 - 3.5 Estimate water, emissions and cost savings to be gained by implementing measures for improving water efficiency.
- 4 Assess feasibility of
- 4.1 Identify regulatory and local government requirements

using water collection and reuse measures on the property.		for water harvesting and wastewater use.
	4.2	Source technical information on water harvesting, diversion and wastewater use technologies and evaluate suitability for the residential property in line with jurisdictional regulations.
	4.3	Calculate volume of potential water harvesting opportunity.
	4.4	Identify government rebates and other assistance programs for installing water harvesting and greywater use technologies.
	4.5	Estimate return on investment for the installation of water harvesting and greywater use technologies.
	4.6	Identify advantages and disadvantages of using property for water harvesting and greywater use technologies.
5 Report findings of household water use assessment.	5.1	Collate results, recommendations and supporting evidence of water use assessment.
	5.2	Document options, potential savings and prioritise recommendations for water efficiency measures.
	5.3	Explain report and indicative costs, potential savings and improvements in household water efficiency to client.
	5.4	Advise client of applicable regulatory or local government requirements impacting findings of household water use assessment.

Foundation Skills

As well as the foundation skills explicit in the performance criteria of this unit, candidates require:

- oral communication skills to use language and terminology suitable to the audience
- numeracy skills to apply mathematical concepts in calculating and comparing costs and water use
- reading skills to interpret data from water meters and the outputs of water measuring tools.

Unit Mapping Information

Supersedes and equivalent to CPPHSA4003A Assess household water use.

Links

Companion volumes to this training package are available at the VETNet website -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=6f3f9672-30e8-4835-b348-205dfcf13d9b>

Assessment Requirements for CPPHES4006 Assess household water use and efficiency improvements

Modification History

Release 1 This version first released with CPC Property Services Training Package Release 5.0.

Supersedes and equivalent to CPPHSA4003A Assess household water use.
Updated to meet the Standards for Training Packages.

Performance Evidence

To demonstrate competency, a candidate must meet the performance criteria of this unit by safely conducting water use assessments and identifying efficiency improvements for three different households.

Knowledge Evidence

To be competent in this unit, a candidate must demonstrate knowledge of:

- alternative water harvesting, diversion and waste water (greywater, purple-water and blackwater) use technologies
- characteristics of external residential water services:
 - domestic irrigation and reticulation systems
 - evaporative coolers
 - greywater systems
 - recycled systems
 - swimming pools and spas
- characteristics of internal residential water services:
 - age
 - average daily use
 - capacity
 - condition
 - flow rate
 - leaks and drips
 - suitability for size of household
 - water efficiency rating
 - water saving features
- household water sources and water saving features
- impact of occupant behaviours on water consumption

- key requirements of relevant codes, standards, regulations and government incentive programs for water efficiency
- major indoor and outdoor services, systems, appliances, fittings contributing to household water use
- regulatory and jurisdictional requirements for water harvesting, recycled and greywater reuse
- relationship between greenhouse gas emissions and household water use
- safe work requirements for on-site assessments of household water use and potential hazards:
 - biological hazards associated with blackwater, purple-water and greywater
 - confined spaces
 - electricity
 - faulty appliances and electrocution
 - hazardous substances
 - types of personal protective equipment (PPE) to be used
- sources of data on domestic water use and costs:
 - water bills:
 - units of measurement and tariffs
 - water meters:
 - conventional and smart
- water efficiency and labelling standards (WELS) and strategies for improving household water efficiency
- water efficient gardening practices.

Assessment Conditions

Assessors must meet the requirements for assessors contained in the Standards for Registered Training Organisations.

This unit must be assessed in the workplace or a close simulation using realistic workplace conditions, materials, activities, responsibilities, procedures, safety requirements and environmental considerations.

Candidates must have access to:

- residential buildings to allow achievement of the performance evidence
- codes, standards, legislation and government programs relevant to water efficiency
- major internal and external residential water services, systems, appliances and fittings
- technical information on:
 - wastewater (blackwater, purple-water and greywater) use technologies
 - water services, systems, appliances and fittings
 - water harvesting diversions
- PPE and water measurement and data collection tools and documentation.

Links

Companion volumes to this training package are available at the VETNet website -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=6f3f9672-30e8-4835-b348-205dfcf13d9b>

CPPHSA4003A Assess household water use

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit of competency specifies the outcomes required to collect and analyse information on household water use and provide advice on ways to improve water efficiency and conservation in the home. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	This unit of competency supports the work of home sustainability assessors engaged in assessing household water use and providing advice on ways to improve water efficiency and conservation in the home.

Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Not Applicable

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Plan and organise the assessment.	1.1 <i>Need for assessing water use</i> in a <i>residential building</i> is clarified with <i>client</i>. 1.2 <i>Effective communication strategies</i> are employed to assist in establishing rapport with client and in responding to client questions and concerns. 1.3 Assessment is planned in line with <i>commonwealth, state or territory, and local government legislation and regulations, and industry ethical and conduct standards</i>. 1.4 <i>Issues</i> relating to state and territory legislation and regulations and industry ethical and conduct standards are identified and clarified with client. 1.5 Plan is established for the assessment in line with enterprise practice and client requirements. 1.6 Potential <i>hazards</i> are identified to ensure risks are suitably managed. 1.7 Assessment activities are planned to ensure they do not compromise the health and safety of self and others. 1.8 <i>Assessment documentation</i> is prepared in a manner consistent with enterprise practice. 1.9 <i>Tools, equipment and other requirements</i> for the assessment are identified and arrangements are made to ensure their availability on day of assessment. 1.10 Client is advised of <i>information that should be obtained prior to assessment</i> and <i>details of assessment</i> are confirmed. 1.11 Authority to proceed is obtained from client prior to commencement and reconfirmed as appropriate during the assessment.

ELEMENT	PERFORMANCE CRITERIA
Gather data on household water use and costs.	2.1 Information to be gathered on household water use and costs is confirmed. 2.2 Information on household water use and costs is collated. 2.3 Information on internal water services is gathered from resident, and from measurements and observations made during inspection of the residence. 2.4 Information on external water services is gathered from resident, and from measurements and observations made during inspection of the residence. 2.5 Information on behaviour and preferences of household members that impact on water use is gathered from resident, and from observations made during inspection of the residence. 2.6 Information is verified for accuracy and recorded using the relevant data collection tool.
Analyse data on household water use, costs and emissions.	3.1 Information is analysed to identify key characteristics of household water use, costs and emissions. 3.2 Government rebates and other assistance programs related to improving efficiency of household water use are identified. 3.3 Options for improving efficiency of water use and reducing costs and emissions are evaluated. 3.4 Cost of options for improving household water efficiency is estimated in line with enterprise procedures. 3.5 Estimated water, emissions and cost savings generated from improving household water efficiency are estimated in line with enterprise procedures.
Assess opportunities for rainwater harvesting, greywater use and other water conservation measures on the property.	4.1 Sources of technical advice on incorporating rainwater harvesting, greywater technologies and other water conservation measures in residential buildings are identified. 4.2 Advantages and disadvantages of rainwater harvesting, greywater technologies and other water conservation measures are identified. 4.3 Rainwater harvesting, greywater technologies and other water conservation measures suitable for use in residential buildings are identified.

ELEMENT	PERFORMANCE CRITERIA
	4.4 Government rebates and other assistance programs for incorporating rainwater harvesting, greywater technologies and other water conservation measures in residential buildings are identified. 4.5 Opportunities for rainwater harvesting, greywater technologies and other water conservation measures are evaluated. 4.6 Estimates of cost of installing rainwater harvesting, greywater technologies and other water conservation measures are produced and associated impact on household water efficiency and costs is determined in line with enterprise procedures.
Report outcomes of water use assessment.	5.1 Results and recommendations, along with supporting evidence, are collated and documented in line with enterprise and client requirements. 5.2 Estimated cost of proposed recommendations, associated reductions in household water costs and emissions, and improvements in household water efficiency are documented in line with enterprise procedures. 5.3 Results and recommendations, including estimated costs and improvements in household water efficiency, are explained to client in line with enterprise, legislative and client requirements.

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- communication skills to interact with clients from diverse social, economic and cultural backgrounds
- decision-making and problem-solving skills to make recommendations based on analysis of household water use
- literacy skills to:
 - complete standard forms
 - generate business correspondence

REQUIRED SKILLS AND KNOWLEDGE

- interpret water accounts
- prepare reports
- read and interpret a variety of texts, including legislation, regulations, and codes of conduct and ethical standards
- numeracy and data analysis skills to:
 - extract and interpret data from water accounts and interpret water plans and tariff structures
 - read, calculate and interpret water meter data
- planning, organising and scheduling skills to undertake work-related tasks, such as collecting data required for assessing household water use and costs
- research skills to identify and locate documents, reports and information on key matters associated with water use, such as:
 - ratings of appliances
 - water consumption of appliances
 - use of rainwater harvesting, greywater technologies and other water conservation measures
- technology skills to enter data and use the functions of water use calculators and general purpose software packages
- time-management skills to complete assessment tasks in a time and cost efficient manner

Required knowledge

- commonwealth, state or territory, and local government legislation and regulations impacting on household water use and management related to:
 - anti-discrimination and equal employment opportunity
 - consumer protection, fair trading and trade practices
 - employment and industrial relations
 - environment protection
 - health
 - household rainwater harvesting, greywater use and other water conservation and restriction measures
 - occupational health and safety (OHS)
 - privacy
 - water restrictions
- government rebates and other assistance programs related to improving water efficiency in residential buildings
- greenhouse gas emissions:
 - relationship between water use and greenhouse gas emissions
 - ways of reducing greenhouse gas emissions through improving water efficiency
- household internal and external water services

REQUIRED SKILLS AND KNOWLEDGE

- household water use:
 - trends in household water consumption and factors impacting on those trends
 - sustainable domestic water use
 - units of measurement
 - water bills
 - water consumption
 - water restrictions
 - water tariffs
- impact of attitudes, behaviour and preferences of household members on water use
- options for improving efficiency of household water use:
 - behaviour change
 - internal and external water services
 - leak detection
 - water efficient gardening practices
- rainwater harvesting, greywater technologies and other water conservation measures:
 - criteria for assessing feasibility
 - rebates and other forms of financial support
 - system risks
 - types and features of systems
- sources of information on water measuring tools:
 - types
 - uses
- sources of data on domestic water use and cost:
 - water bills
 - water meters
- water efficiency and labelling standards (WELS)

Evidence Guide

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of	This unit of competency could be assessed by conducting an

assessment	assessment of water use in a residence that involves collecting and analysing information on household water use and providing advice on ways to improve water efficiency.
Critical aspects for assessment and evidence required to demonstrate competency in this unit	A person who demonstrates competency in this unit must be able to provide evidence of the required skills and knowledge specified in this unit. In particular, the person should demonstrate the ability to: • collect and analyse information on household water use and on ways to improve water efficiency in the home • assess opportunities for incorporating rainwater harvesting, greywater technologies and other water conservation measures in a residential building • comply with OHS requirements when conducting household water assessment • apply knowledge of: • trends in household water use and costs • ways of gathering information on household water use and costs • ways to improve household water efficiency.
Context of and specific resources for assessment	Assessment of essential underpinning knowledge may be conducted in an off-site context and is to comply with relevant regulatory and Australian standards' requirements. Resource implications for assessment include: • data collection tools • relevant codes, standards and government regulations • access to residential buildings for conducting an assessment of water use • technology suitable for generating reports • technical reference library with current publications on: • Australian climatic zones • greywater technologies and other water conservation measures • manufacturers' product information on domestic appliances • rainwater harvesting • water rating schemes for appliances • water use and measurement.
Method of assessment	Assessment methods must: • satisfy the endorsed Assessment Guidelines of the CPP07 Property Services Training Package

	- include direct observation of tasks in real or simulated work conditions, with questioning to confirm the ability to consistently identify and correctly interpret the essential underpinning knowledge required for practical application - reinforce the integration of employability skills with workplace tasks and job roles - confirm that competency is verified and able to be transferred to other circumstances and environments.
Guidance information for assessment	This unit could be assessed on its own or in combination with other units relevant to the job function, for example: - CPPHSA4001A Assess household energy use - CPPHSA4002A Assess household waste generation and management - CPPHSA4004A Assess thermal performance of existing residences using non-rating tools and techniques. Reasonable adjustments for people with disabilities must be made to assessment processes where required. This could include access to modified equipment and other physical resources, and the provision of appropriate assessment support. Assessment processes and techniques should, as far as is practical, take into account the language, literacy and numeracy capacity of the candidate in relation to the competency being assessed.

Range Statement

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
<i>Need for assessing water use</i> may include assessment for:	- determining water profile - opportunities for reducing water use and improving water efficiency - legislative, regulatory and compliance purposes - providing building design advice.

Residential building refers to:	any building categorised as Class 1, 2, 4 and 10a of the Building Code of Australia or in accordance with jurisdictional requirements.
Client may include:	- builder - community organisation - construction manager - government agency - house owner - landlord - property developer - property manager - real estate agent - tenant - water authority.
Effective communication strategies may include:	- active listening - being non-judgemental - exploring problems - expressing an individual perspective - providing sufficient time for questions and responses - providing summarising and reflective responses in conflict situations - using appropriate words, behaviour and posture - using clarifying, summarising questions - using clear and concise language - using culturally appropriate communication - using plain English - using verbal and non-verbal communication.
Commonwealth, state or territory, and local government legislation and regulations, and industry ethical and conduct standards may include:	- environment protection - ethical behaviour - fair trading and consumer protection: - confidentiality - conflict of interest - duty of care - non-discriminatory practices - privacy - residential tenancies - OHS - water and water management - water use assessment: - accreditation - assessment procedures

	• certification • documentation.
Issues may include:	• basis for need to conduct water use assessment • information required by assessor from client • information that assessor is required to document • objectives of assessment.
Hazards may include:	• appliances: • electrocution • faults • biological waste: • black water • greywater • confined spaces • electricity • harassment, bullying and/or violence involving co-workers or customers • hazardous substances: • allergens • asbestos • chemicals • fibres • fumes • insulation • heat: • burns • scalds • manual handling: • carrying • lifting • pulling • pushing • machinery, including powered and non-powered equipment • skin penetrating injuries: • knives • sharps • syringes • work environment: • access • animals

	• dust • floor surfaces • lighting • noise • pollen • temperature • trips and falls • working alone • working at heights • ventilation.
Assessment documentation may include:	• building details • building plans and specifications • checklists • client details • company promotional materials • contact details • existing water bills • photographic evidence • risk assessment • site details • water meter readings.
Tools, equipment and other requirements may include:	• bucket • calculator • clipboard • clock • compass • digital camera • flow meter • ladder • personal protective equipment (PPE): • dust masks • eye protection • headwear • gloves • overalls • safety shoes and work boots • tape measure • thermometer • timer • torch.

Information that should be obtained prior to assessment may include:	• appliances: • age • capacity • number • type • household members: • number • age • water accounts: • billing history • plans • tariffs • water reduction, reuse and recycling strategies currently in place: • greywater collection and use • water tanks • other water conservation strategies.
Details of assessment may include:	• address of residence • assessor name and contact details • cost of assessment • date and time of assessment • duration of assessment.
Information may include:	• age, type and operation of appliances • behaviour and preferences of household members that impact on water use • water costs • water use • water services: • internal water services • external water services.
Information on household water use and costs may be gathered through:	• analysis of water meter readings: • conventional meters • smart meters • analysis of accounts to show daily, seasonal and trend data on water use and cost • analysis of costs of different water plans and tariff structures.
Information on internal water services may include:	• characteristics of internal water services: • age • average daily use

	• capacity • condition • flow rate • greywater collection and use • leaks and drips • maintenance costs of system • number • suitability for size of household • water efficiency rating • water saving features • water use • number and type of internal water services: • baths • clothes washing machines • combination washer/dryer machines • dishwashers • hot water circulators • showers • spas • tap equipment • toilets.
Information on external water services may include:	• characteristics of external water services: • age • average daily use • condition • flow rate • greywater collection and use • leaks and drips • maintenance costs of system • number • pipe • placement • suitability for size of household • water saving features • water use • number and type of external water services: • domestic irrigation and reticulation systems • evaporative coolers • greywater systems

	• spas • swimming pools • taps and hoses.
<i>Information on behaviour and preferences of household members that impact on water use</i> may relate to:	• attitudes of other household members not participating in the assessment process • attitudes to reducing, reusing and recycling water • resident perception of water consumption • gardening practices • inefficient water use: • car washing • washing of external surfaces • medical conditions of household • setting, programming and using timers and other controls • showering times • use of appliances • use of evaporative cooling systems • use of hot water • use of pools and spas.
<i>Data collection tools</i> may include:	• checklists and forms • graphs • questionnaires • self-assessment forms • software programs • water use calculators.
<i>Characteristics of household water use, costs and emissions</i> may include:	• comparison of water use and costs with similar households • components of internal and external water use • daily water use and costs • occupant behaviour • seasonal variation in water use and costs • total water consumption and cost • trends in water consumption and costs over time.
<i>Options for improving efficiency of water use and reducing costs and emissions</i> may include:	• behaviour and preferences of household members that impact on water use: • efficient use of appliances • knowledge of leak detection techniques • knowledge of WELS ratings • limit inefficient water use: • car washing • washing of external surfaces

	• reduce showering time • use of appliances • use of hot water • use of settings, programming, timers and other controls on appliances and irrigation systems • external water services: • domestic irrigation and reticulation systems: • check for drips and leaks • check for correct placement of system • check timing and duration of use • undertake regular maintenance • use gardening practices that reduce water usage • use recycled water • use timers and control devices • use substrata (under the mulch) drip irrigation • evaporative coolers: • check for drips and leaks • check size of appliances relative to household requirements, as appropriate • maintain appliances • reduce dumping/bleed-off rates • reduce water supply pressure • reset thermostats and timers, where applicable • use discharge water on lawns and grass areas • spas and spa pools: • check for drips and leaks • keep spa or spa pool water in correct condition to avoid emptying polluted water • never over-fill a spa pool • use backwash minimisation system • use spa pool cover • swimming pools: • check for drips and leaks • ensure pool has suitable overhanging pavers or decking to keep splash-out to a minimum • install shade sails and wind covers to minimise evaporation • keep pool water in correct condition to avoid emptying polluted water • never over-fill a pool

	• use backwash minimisation system • use pool cover • water tank to collect rainfall to top up pool as needed • taps and hoses: • check for drips and leaks • install pressure valves • fit flow restrictors • internal water services: • appliances: • check for drips and leaks • check size of appliances relative to household requirements, as appropriate • check WELS ratings • consider necessity of having multiple appliances • maintain appliances • replace with appliances that have different cycles • replace with water efficient appliances • set timers, where applicable • use appropriate program settings • use in compliance with manufacturer instructions • use with full loads • showers, check for: • drips and leaks • flow cut-off valves • flow restrictors • low-flow shower heads • shower timers • smart metering of shower use • WELS rating • tap equipment, check for: • drips and leaks • flow regulators • tap aerators • valves • WELS rating • toilets, check for: • drips and leaks • dual and reduced flush systems • water saving and displacement devices for single

	flush toilets • WELS rating • water efficient gardening practices: • drought tolerant planting • mulching • replacing lawns • lawn alternatives • composts and manures on soil • rainwater and greywater • water efficient irrigation systems • water efficient watering practices • weeding.
Evaluation takes into account:	• availability of rebates and other assistance programs • behaviour and preferences of householders • cost • ownership of building • practicality • type of building.
Sources of technical advice on incorporating rainwater harvesting, greywater technologies and other water conservation measures in residential buildings may include:	• architects • building designers • colleagues • consultants • gardeners • government agencies • professional associations • research bodies • supervisors • suppliers of domestic greywater, water harvesting and water conservation technologies • water utilities.
Advantages and disadvantages of rainwater harvesting, greywater technologies and other water conservation measures may include:	• advantages: • availability of financial incentives • higher resale value • isolation for building owners from future water price increases • pre-empt future legislative restrictions or penalties, which may force expensive retrofits to inefficient buildings • reduce total net monthly cost of living • value of building relative to similar conventional building should water costs increase

	- disadvantages: - effort required to understand, apply and qualify for rebates - initial cost - overcapitalising on older buildings.
Evaluations are based on:	- climate - cost - location - physical features and ownership of building - practicality - type - user behaviour and preferences.

Unit Sector(s)

Unit sector	Home sustainability assessment.

Competency field

Competency field	

CPPSIS4022 Store and retrieve spatial data

Modification History

Release 1.

Replaces superseded equivalent CPPSIS4022A Store and retrieve spatial data.

This version first released with CPP Property Services Training Package Version 3.

Application

This unit of competency specifies the outcomes required to store and retrieve spatial data, including digital and hard copy storage. The unit covers locating, storing, and backing up data according to organisational procedures.

The unit supports those who work in support positions in a surveying or spatial information services team in surveying, town planning, cartography, mapping and geographic information systems (GIS).

No licensing, legislative, regulatory, or certification requirements apply to this unit of competency at the time of endorsement.

Pre-requisite Unit

Nil

Unit Sector

Surveying and spatial information services

Elements and Performance Criteria

Elements describe the essential outcomes.

Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the range of conditions.

1. Prepare spatial data for storage.	1.1. Task requirements are identified and clarified with <i>appropriate persons</i> .

	1.2.	Method of spatial data storage and distribution is selected to ensure access to current data and to comply with organisational requirements.
	1.3.	Data index is created to assist in retrieval and storage according to organisational requirements.
	1.4.	Data is stored and recorded according to organisational requirements.
2.	Access and retrieve spatial data.	2.1. Required spatial data is located and retrieved according to organisational procedures. 2.2. Spatial data is analysed and translated into required format according to task requirements.
3.	Manage spatial data security.	3.1. Data security and backup measures are applied to manage risk according to organisational risk management plan and procedures. 3.2. Problems with data security, storage or retrieval are identified and reported according to organisational procedures.

Foundation Skills

This section describes the language, literacy, numeracy and employment skills essential to performance in this unit but not explicit in the performance criteria.

Skill	Performance feature
Numeracy skills to:	apply basic measurements and computations to accurately mark and record observations and position.
Reading skills to:	interpret graphical information obtained from global navigation satellite system (GNSS), GIS or other software.
Writing skills to:	- record digital data - write routine reports detailing problems with data storage or retrieval.

- Technology skills to:
- use a range of software applications to access and store data
 - use querying commands to obtain information from a database.
- Problem-solving skills to:
- identify storage solutions appropriate to different types of spatial data
 - identify contingency procedures in the event of unforeseen risk to data security.

Range of Conditions

This section specifies work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included. Bold italicised wording, if used in the performance criteria, is detailed below.

- Appropriate persons*** must include at least one of the following:
- client
 - colleague
 - qualified surveyor
 - supervisor or line manager
 - spatial data provider.

Unit Mapping Information

CPPSIS4022A Store and retrieve spatial data

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=6f3f9672-30e8-4835-b348-205dfcf13d9b>

Assessment Requirements for CPPSIS4022 Store and retrieve spatial data

Modification History

Release 1.

Replaces superseded equivalent CPPSIS4022A Store and retrieve spatial data.

This version first released with CPP Property Services Training Package Version 3.

Performance Evidence

A person demonstrating competency in this unit must satisfy the requirements of the elements, performance criteria, foundation skills and range of conditions of this unit. The person must also store and retrieve digital and hard copy spatial data for three different projects.

While storing and retrieving the above spatial data, the person must:

- follow organisational procedures to apply data security and backup measures
- comply with administrative and legal requirements for storing and retrieving spatial data, including data privacy and information copyright
- comply with organisational requirements for recording data and completing documentation, and when using the equipment specified in the assessment conditions
- create a workable indexing system
- develop and implement risk management plan, including strategies to protect spatial data
- translate spatial data downloaded from global navigation satellite system (GNSS), geographic information system (GIS), and other relevant software applications.

Knowledge Evidence

A person demonstrating competency in this unit must demonstrate knowledge of:

- key features of spatial reference systems
- methods for downloading data from GNSS, GIS and other relevant software applications
- organisational procedures for storing and retrieving digital and hard copy spatial data, including data privacy and information copyright
- spatial data classification and indexing systems
- spatial data querying techniques.

Assessment Conditions

The following must be present and available to learners during assessment activities:

- equipment:
 - data retrieval equipment
 - computer with software appropriate for spatial data storage and retrieval
 - hard copy and digital data storage media
- specifications:
 - organisational policies, procedures and documentation relating to:
 - work health and safety
 - data privacy and information copyright
- physical conditions:
 - access to equipped work station
- relationships with team members and supervisor:
 - working in a team.

Timeframe:

- as specified by task and organisational requirements.

Assessor requirements

As a minimum, assessors must satisfy the assessor requirements in the Standards for Registered Training Organisations (RTOs) current at the time of assessment.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=6f3f9672-30e8-4835-b348-205dfcf13d9b>

CPPSIS5032 Capture new spatial data

Modification History

Release 1.

Replaces superseded equivalent CPPSIS5032A Capture new spatial data.

This version first released with CPP Property Services Training Package Version 3.

Application

This unit of competency specifies the outcomes required to capture new spatial data to meet client specifications using a variety of data capture methodologies. The unit covers analysing project specifications, as well as organisational, administrative and legal requirements, to coordinate human resources, equipment and supplies. The unit also covers setting up and using specialist surveying equipment and technologies to capture and manipulate spatial data, including entities, attributes, topological features and metadata; and checking and validating the integrity and accuracy of results. In addition, the unit covers performing the operational maintenance of equipment to ensure its sound working order, and identifying faults and organising repairs as required. The unit requires the ability to use project management techniques to schedule, monitor and report on project activities, and supervisory skills to designate work and provide guidance to staff.

The unit supports those who work in a lead role in a surveying or spatial information services team in areas such as surveying, cartography, town planning, mapping or geographic information systems (GIS).

No licensing, legislative, regulatory, or certification requirements apply to this unit of competency at the time of endorsement.

Pre-requisite Unit

Nil

Unit Sector

Surveying and spatial information services

Elements and Performance Criteria

Elements describe the essential outcomes.

Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the range of conditions.

1. Prepare for data collection.	1.1. Project and client specifications, organisational requirements, and available resources are identified and key activities and timeline scheduled accordingly. 1.2. <i>Administrative and legal requirements</i> for data collection are complied with and recorded according to organisational requirements. 1.3. <i>Appropriate persons</i> are informed about the project according to organisational requirements. 1.4. Equipment, supplies and technologies are selected according to project specifications. 1.5. Designated responsibilities are communicated to staff to ensure understanding of work tasks according to organisational requirements.
2. Gather spatial data.	2.1. Equipment is set up and operated according to manufacturer specifications and organisational requirements. 2.2. Entities are related to a reference system, and data and attributes are collected according to project specifications. 2.3. <i>Metadata</i> is documented according to industry-accepted standards and organisational requirements. 2.4. Discrepancies between specifications and actual activities are identified, recorded and reported. 2.5. Guidance is given to staff assisting in the data collection process as required and according to organisational requirements.
3. Maintain	3.1. <i>Operational maintenance</i> of equipment is undertaken according to manufacturer specifications and

equipment.	organisational requirements.
- 3.2. Contingencies that may affect equipment use are identified and reported.
 - 3.3. Unsafe or faulty equipment is identified, and reported and referred for repair according to organisational requirements.
 - 3.4. Tools and equipment are stored safely according to manufacturer specifications and organisational requirements.
4. Finalise collection process.
 - 4.1. Attributes and topological structures are added to spatial data according to project specifications.
 - 4.2. Data is recorded correctly and documentation completed according to project specifications and organisational requirements.
 - 4.3. Data integrity and accuracy are checked and validated according to project specifications.
 - 4.4. Data and documentation are stored according to organisational requirements.

Foundation Skills

This section describes the language, literacy, numeracy and employment skills essential to performance in this unit but not explicit in the performance criteria.

Skill	Performance feature
Planning and organising skills to:	prioritise activities to meet contractual requirements.
Numeracy skills to:	- apply budget constraints to project specifications - conduct precise measurements and computations relating to length, angle, elevation, area and volume.
Oral communication	- ask questions to clarify client requirements - explain procedures to staff.

skills to:

- Reading skills to:
- interpret technical information detailed in manufacturer specifications and legislation.
- Writing skills to:
- record technical information in organisational documentation.
- Technology skills to:
- calibrate specialised surveying equipment
 - use equipment software to manipulate spatial data.
- Problem-solving skills to:
- apply contingency measures in the event of adverse weather or equipment failure.

Range of Conditions

This section specifies work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included. Bold italicised wording, if used in the performance criteria, is detailed below.

- Administrative and legal requirements*** must include at least one of the following:
- Indigenous considerations
 - licensing arrangements
 - relevant state, territory and federal legislation and regulations relating to data access, use and storage, including data privacy and information copyright
 - royalty obligations
 - title search processes.

- Appropriate persons*** must include at least two of the following:
- administrative staff
 - colleague
 - contractor
 - field survey staff
 - land occupier
 - land owner
 - manager
 - technician.

Metadata must include at least four of the following:

- availability
- conditions of use
- coordinate system
- currency
- custodian
- data accuracy
- data description
- date of acquisition
- licence
- quality
- source
- spatial data acquisition methodologies
- version control.

Operational maintenance must include at least three of the following:

- adjusting
- calibrating
- cleaning
- lubricating
- maintaining battery
- tightening
- undertaking simple repairs.

Unit Mapping Information

CPPSIS5032A Capture new spatial data

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=6f3f9672-30e8-4835-b348-205dfcf13d9b>

Assessment Requirements for CPPSIS5032 Capture new spatial data

Modification History

Release 1.

Replaces superseded equivalent CPPSIS5032A Capture new spatial data.

This version first released with CPP Property Services Training Package Version 3.

Performance Evidence

A person demonstrating competency in this unit must satisfy the requirements of the elements, performance criteria, foundation skills and range of conditions of this unit. The person must also capture new spatial data that meets client specifications for two different projects, with each project using two of the following pieces of equipment:

- data logger or other mobile computing device
- global navigation satellite system (GNSS)
- laser scanner
- level
- sonar
- total station
- unmanned aerial vehicle.

While capturing the above new spatial data, the person must:

- coordinate technical and human resources to undertake scheduled work activities, designate work and provide guidance to staff
- accurately record metadata
- apply contingency measures and risk management strategies to ensure data is collected safely and within project timeframes
- comply with legal, administrative and organisational requirements for:
 - communicating with clients
 - copyright
 - recording and reporting information, and completing documentation
 - using, maintaining and storing tools and equipment
 - working safely and using personal protective equipment (PPE) when collecting data and operating equipment
- apply industry-accepted methods for assessing the validity and integrity of spatial data
- conduct operational maintenance on equipment to ensure good working order

- exercise accuracy and precision when collecting and recording spatial data using two of the following data capture methodologies:
 - aerial
 - conversion or translation from existing information, including hard copy or digital
 - data logging, including GNSS
 - photogrammetry
 - remote sensing
 - scanning
 - sonar
- manage and manipulate spatial data, including entities and attributes and topological structures, using surveying technologies
- plan and organise equipment and supplies required to capture spatial data
- set up, calibrate and use surveying equipment
- use two of the following tools to assist in capturing new spatial data:
 - compass
 - clinometer
 - digital imagery
 - distance measuring wheel
 - tape
 - ultra-high frequency radio.

Knowledge Evidence

A person demonstrating competency in this unit must demonstrate knowledge of:

- legal requirements for accessing and storing spatial data, including copyright
- methods for conducting operational maintenance on surveying equipment
- methods for validating the integrity of spatial data
- organisational policies and procedures relating to:
 - budget and resource constraints
 - client service and communication
 - completing records and documentation
 - using and maintaining equipment
 - work health and safety
- principles of risk management relating to data capture operations
- purpose and uses of various data capture technologies and equipment
- spatial data capture methodologies
- spatial data formats and structures
- key features of spatial reference systems
- supervisory processes required to delegate work tasks and communicate with staff.

Assessment Conditions

The following must be present and available to learners during assessment activities:

- equipment and tools:
 - as specified in the performance and knowledge evidence
 - PPE
- specifications:
 - organisational policies and procedures relating to:
 - work health and safety
 - data privacy and information copyright
- relationships with team members and supervisor:
 - working in a team.

Timeframe:

- as specified by client and project requirements.

Assessor requirements

As a minimum, assessors must satisfy the assessor requirements in the Standards for Registered Training Organisations (RTOs) current at the time of assessment.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=6f3f9672-30e8-4835-b348-205dfcf13d9b>

CPPSIS5040 Interpret and collate spatial data

Modification History

Release 1.

Replaces superseded equivalent CPPSIS5040A Collate and interpret spatial data.

This version first released with CPP Property Services Training Package Version 3.

Application

This unit of competency specifies the outcomes required to interpret and collate spatial data to meet project deliverables and client requirements. The unit covers accessing, querying and interpreting spatial data from various sources to test and determine its relevance and compatibility for meeting project requirements. It also covers collating spatial data and facilitating links with other functional areas within the organisation as part of the broader knowledge management system. The unit requires the ability to use various technologies and software applications, including geographic information system (GIS) software to access, manipulate, archive, retrieve and validate spatial data. It also requires the ability to complete records and documentation.

The unit supports those who work in a lead role in a surveying or spatial information services team in areas such as surveying, cartography, town planning, mapping and GIS.

No licensing, legislative, regulatory, or certification requirements apply to this unit of competency at the time of endorsement.

Pre-requisite Unit

Nil

Unit Sector

Surveying and spatial information services

Elements and Performance Criteria

Elements describe the essential outcomes.

Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the range of

conditions.

1. Access spatial data.
 - 1.1. Project spatial data requirements and constraints, and client requirements, are identified and documented in consultation with ***appropriate persons***.
 - 1.2. Spatial datasets are retrieved from data storage and other relevant sources and new data is captured according to project and organisational requirements.
 - 1.3. Data is manipulated into appropriate format to meet project requirements.
2. Query and interpret spatial data.
 - 2.1. Data is queried and interpreted using appropriate equipment and software application according to project requirements.
 - 2.2. Data is verified for integrity and relevance using industry-accepted statistical tests and methods according to project requirements.
 - 2.3. Irregularities are identified and resolved, and results recorded and documented according to organisational requirements.
3. Collate spatial data.
 - 3.1. Spatial data is collated according to organisational requirements.
 - 3.2. Most appropriate format and database for spatial data are selected according to organisational requirements.
4. Validate spatial data.
 - 4.1. Tools for testing validity of information and data are identified, accessed and used according to organisational requirements.
 - 4.2. Problems with collated data are identified and resolved to ensure quality and usability according to organisational requirements.
 - 4.3. Spatial data is archived and records and documentation are completed according to organisational requirements.

Foundation Skills

This section describes the language, literacy, numeracy and employment skills essential to performance in this unit but not explicit in the performance criteria.

Skill	Performance feature
Learning skills to:	• source spatial data appropriate to client needs.
Numeracy skills to:	• interpret and analyse statistics.
Oral communication skills to:	• ask questions to clarify client data requirements.
Reading skills to:	• analyse detailed technical descriptions of spatial data and its qualifiers.
Technology skills to:	• use a computer and software to manipulate spatial data.
Problem-solving skills to:	• apply contingency measures to resolve identified errors • verify authenticity of data against specifications.

Range of Conditions

This section specifies work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included. Bold italicised wording, if used in the performance criteria, is detailed below.

<i>Appropriate persons</i> must include at least two of the following:	• client • end user • manager • qualified surveyor • spatial data provider • supplier.

Unit Mapping Information

CPPSIS5040A Collate and interpret spatial data

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=6f3f9672-30e8-4835-b348-205dfcf13d9b>

Assessment Requirements for CPPSIS5040 Interpret and collate spatial data

Modification History

Release 1.

Replaces superseded equivalent CPPSIS5040A Collate and interpret spatial data.

This version first released with CPP Property Services Training Package Version 3.

Performance Evidence

A person demonstrating competency in this unit must satisfy the requirements of the elements, performance criteria, foundation skills and range of conditions of this unit. The person must also interpret and collate spatial data that meets client requirements for two different projects.

While interpreting and collating the above spatial data, the person must:

- establish project and client requirements for new spatial data
- acquire spatial data from a range of industry-accepted sources
- comply with organisational requirements for:
 - communicating with clients and spatial data providers
 - completing documentation
 - facilitating information and knowledge management processes
 - working safely when using screen-based equipment
- comply with legal requirements relating to client service provision, and accessing and managing spatial data
- exercise precision when retrieving, managing, manipulating and archiving spatial data
- manipulate and analyse geographic information system (GIS) data using GIS software
- query and interpret spatial data using databases
- use industry-accepted methods for assessing validity and integrity of spatial data and resolving errors
- use one of the following statistical tests and methods to verify relevance of data:
 - broad analytical studies to determine estimates of risk
 - making comparisons using basic tests of significance
 - mean, standard deviation, regression analysis and percentage change.

Knowledge Evidence

A person demonstrating competency in this unit must demonstrate knowledge of:

- industry-accepted sources of spatial data, including photogrammetry, remote sensing, terrestrial survey and hydrography
- key features of coordinate reference systems
- GIS software, including ArcInfo, GenaMap and MapInfo
- industry-accepted standards and methods for assessing, verifying and validating spatial datasets and dataset sources
- legal requirements for accessing, storing, retrieving and archiving digital and hard copy spatial data, including data privacy and information copyright
- line instructions and programming for geographical information systems data
- organisational requirements relating to:
 - work health and safety
 - client service
 - information and knowledge management
 - completing documentation
- purpose and use of metadata, including:
 - availability
 - conditions of use
 - coordinate system
 - currency
 - custodian
 - data accuracy
 - data description
 - date of acquisition
 - licence
 - quality
 - source
 - spatial data acquisition methodologies
 - version control
- types of spatial data storage technologies
- key features of spatial reference systems
- statistical tests and methods used to verify relevance of spatial data
- techniques for manipulating datasets using:
 - command lines
 - general query language, such as structured query language (SQL)
 - programming language
 - scripts
- techniques for operating, querying and browsing spatial databases.

Assessment Conditions

The following must be present and available to learners during assessment activities:

- equipment:
 - computer with software appropriate for spatial data management and electronic communication
 - printer
- specifications:
 - organisational policies and procedures relating to:
 - work health and safety
 - data privacy and information copyright
- physical conditions:
 - access to equipped work station
- relationships with team members and supervisor:
 - working in a team.

Timeframe:

- as specified by client and project requirements.

Assessor requirements

As a minimum, assessors must satisfy the assessor requirements in the Standards for Registered Training Organisations (RTOs) current at the time of assessment.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=6f3f9672-30e8-4835-b348-205dfcf13d9b>

CPPSSI4022 Store and retrieve spatial data

Modification History

Release 1 This version first released with CPP Property Services Training Package Release 12.0.

This unit supersedes and is equivalent to CPPSIS4022 Store and retrieve spatial data.

Application

This unit specifies the skills and knowledge required to store and retrieve spatial data. It includes storing, accessing and backing up data according to organisational procedures.

This unit is suitable for entry-level technicians who use a broad range of cognitive, technical and communication skills to select and apply a range of methods, tools, materials and information to complete routine and non-routine activities and provide solutions to a variety of predictable and sometimes unpredictable problems.

Surveying and spatial information skills are applied in a range of industry contexts including town planning, civil construction, mining, engineering, health, agriculture and defence.

All work must be carried out to comply with workplace procedures, in accordance with relevant state/territory regulations that govern surveying work, as well as work health and safety (WHS) legislation and regulations that apply to the workplace.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Nil.

Unit Sector

Surveying and Spatial Information Services

Elements and Performance Criteria

Elements describe the essential outcomes.

Performance criteria describe what needs to be done to demonstrate achievement of the element.

1 Prepare for spatial data storage.	1.1 Identify and clarify task requirements with appropriate persons.

	1.2	Identify the file naming conventions of an existing spatial data catalogue.
	1.3	Select method of spatial data storage and distribution to enable access to current data and to comply with organisational requirements.
	1.4	Locate required spatial data according to organisational procedures.
2 Access and retrieve spatial data.	2.1	Retrieve data to geographic information system (GIS) and convert into required format according to task requirements.
	2.2	Use attribute and spatial queries to select features from spatial data.
	2.3	Save data according to organisational requirements.
3 Manage spatial data security.	3.1	Store data according to enterprise guidelines and administrative and legal requirements for storage and retrieval of spatial data, including data and information privacy and/or licensing.
	3.2	Apply data security and backup measures according to organisational risk management plan and procedures.
	3.3	Identify and report problems with data security, storage or retrieval according to organisational procedures.

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Unit Mapping Information

Supersedes and is equivalent to CPPSIS4022 Store and retrieve spatial data.

Links

Companion volumes to this training package are available at the VETNet website -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=6f3f9672-30e8-4835-b348-205dfcf13d9b>

Assessment Requirements for CPPSSI4022 Store and retrieve spatial data

Modification History

Release 1 This version first released with CPP Property Services Training Package Release 12.0.

This unit supersedes and is equivalent to CPPSIS4022 Store and retrieve spatial data.

Performance Evidence

To demonstrate competency a candidate must meet the elements and performance criteria of this unit by storing and retrieving spatial data for two different projects.

Knowledge Evidence

To be competent in this unit a candidate must demonstrate knowledge of:

- key features of geographic and projected spatial reference systems and Australian Height Datum
- methods for translating data between global navigation satellite system (GNSS), geographic information system (GIS) and other relevant software application
- spatial data querying techniques
- data risk management strategies.

Assessment Conditions

Assessors must satisfy the requirements for assessors contained in the Standards for Registered Training Organisations.

Competency is to be assessed in the workplace or a simulated environment that accurately reflects performance in a real workplace setting where these skills and knowledge would be performed.

Candidates must have access to:

- computer with software appropriate for spatial data storage and retrieval
- digital data storage media
- organisational procedures and documentation relating to work health and safety (WHS), data and information privacy and/or licensing.

Links

Companion volumes to this training package are available at the VETNet website -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=6f3f9672-30e8-4835-b348-205dfcf13d9b>

CPPSSI5032 Capture new spatial data

Modification History

Release 1 This version first released with CPP Property Services Training Package Release 12.0.

This unit supersedes and is equivalent to CPPSIS5032 Capture new spatial data.

Application

This unit specifies the skills and knowledge required to capture new spatial data to meet client specifications using a variety of data capture methodologies. It includes setting up and using specialist equipment and technologies to capture and manipulate spatial data including attributes, topological features and metadata and checking and validating the integrity and accuracy of results.

This unit is suitable for skilled surveying technicians and skilled spatial information system (SIS) technicians who use a broad range of cognitive, technical and communication skills to select and apply methods and technologies to analyse information and provide solutions to sometimes complex surveying/spatial information problems.

Surveying and spatial information skills are applied in a range of industry contexts, including town planning, civil construction, mining, engineering, health, agriculture and defence.

All work must be carried out to comply with workplace procedures, in accordance with relevant state/territory regulations that govern surveying work, as well as work health and safety (WHS) legislation and regulations that apply to the workplace.

Cadastral surveying must be undertaken under the supervision of a registered surveyor. Users must check with the relevant regulatory state/territory authority before delivery.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Nil.

Unit Sector

Surveying and Spatial Information Services

Elements and Performance Criteria

Elements describe the Performance criteria describe what needs to be done to

essential outcomes.	demonstrate achievement of the element.
1 Prepare for data collection.	1.1 Review project and client specifications and schedule key activities and timelines according to organisational requirements. 1.2 Review and comply with administrative and legislative requirements for data collection according to organisational requirements. 1.3 Select equipment and technologies required to capture spatial data according to project specifications. 1.4 Implement safe work practices when operating equipment and collecting data according to organisational requirements.
2 Gather spatial data.	2.1 Set up and operate equipment and technologies according to manufacturer specifications. 2.2 Collect data and attributes and relate data to a reference system according to project specifications. 2.3 Manage and manipulate spatial data, including attributes and topological structures, using relevant technologies. 2.4 Apply industry-accepted methods for assessing the validity and integrity of spatial data. 2.5 Identify, record and report discrepancies between specifications and collected data. 2.6 Document metadata according to industry-accepted standards and organisational requirements.
3 Finalise collection process.	3.1 Record data correctly and complete documentation according to project specifications and organisational requirements. 3.2 Check and validate data integrity and accuracy according to project specifications. 3.3 Store data and documentation according to organisational and licensing requirements.

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Unit Mapping Information

Supersedes and is equivalent to CPPSIS5032 Capture new spatial data.

Links

Companion volumes to this training package are available at the VETNet website -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=6f3f9672-30e8-4835-b348-205dfcf13d9b>

Assessment Requirements for CPPSSI5032 Capture new spatial data

Modification History

Release 1 This version first released with CPP Property Services Training Package Release 12.0.

This unit supersedes and is equivalent to CPPSIS5032 Capture new spatial data.

Performance Evidence

To demonstrate competency a candidate must meet the elements and performance criteria of this unit by capturing new spatial data that accurately and precisely collects and records spatial data that meets client specifications for two different projects. Each project must:

- use two of the following pieces of equipment:
 - data logger or other mobile computing device
 - global navigation satellite system (GNSS)
 - laser scanner
 - digital level
 - sonar
 - total station
 - unmanned aerial vehicle (UAV)
- use two of the following data capture methodologies:
 - conversion or translation from existing information, including hard copy or digital
 - data logging, including GNSS
 - photogrammetry
 - remote sensing
 - laser scanning
 - sonar
 - tacheometry.

Knowledge Evidence

To be competent in this unit a candidate must demonstrate knowledge of:

- purpose and uses of data capture technologies and equipment
- methods for validating the integrity of spatial data
- methods for manipulating spatial data using software

- legislative requirements for accessing and storing spatial data, including data privacy, copyright and licensing.

Assessment Conditions

Assessors must satisfy the requirements for assessors contained in the Standards for Registered Training Organisations.

Competency is to be assessed in the workplace or a simulated environment that accurately reflects performance in a real workplace setting where these skills and knowledge would be performed.

Candidates must have access to:

- computer with software appropriate for spatial data management
- organisational procedures relating to data privacy, copyright and licensing.

Links

Companion volumes to this training package are available at the VETNet website - <https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=6f3f9672-30e8-4835-b348-205dfcf13d9b>

CPPSSI5040 Source, collate and interpret spatial data

Modification History

Release 1 This version first released with CPP Property Services Training Package Release 12.0.

This unit supersedes and is equivalent to CPPSIS5040 Interpret and collate spatial data.

Application

This unit specifies the skills and knowledge required to source, interpret and collate spatial data to meet task requirements. The unit includes accessing, querying and interpreting spatial data from various sources to test and determine its relevance and compatibility with task requirements. It also includes the use of geographic information system (GIS) software.

This unit is suitable for skilled surveying technicians and skilled spatial information system (SIS) technicians who use a broad range of cognitive, technical and communication skills to select and apply methods and technologies to analyse information and provide solutions to sometimes complex surveying/spatial information problems.

Surveying and spatial information skills are applied in a range of industry contexts, including town planning, civil construction, mining, engineering, health, agriculture and defence.

All work must be carried out to comply with workplace procedures, in accordance with relevant state/territory regulations that govern surveying, work as well as work health and safety (WHS) legislation and regulations that apply to the workplace.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Nil.

Unit Sector

Surveying and Spatial Information Services

Elements and Performance Criteria

Elements describe the essential outcomes.

Performance criteria describe what needs to be done to demonstrate achievement of the element.

1 Source spatial data.	1.1	Clarify spatial data requirements for task in consultation with appropriate persons.
	1.2	Comply with legislative and organisational requirements for accessing and manipulating spatial data according to data privacy, copyright and licensing.
	1.3	Retrieve spatial datasets from data storage and other relevant sources according to task and organisational requirements.
2 Collate spatial data.		
	2.1	Select appropriate format and data storage option for spatial data according to task and organisational requirements.
	2.2	Translate data into appropriate format for storage and collate to meet project requirements.
3 Interpret spatial data.		
	3.1	Verify data for integrity and relevance according to task requirements.
	3.2	Query data using software application according to task requirements.
	3.3	Seek and analyse feedback to identify improvements and adjust to meet task requirements.
	3.4	Identify and resolve irregularities in the data using industry-accepted methods.
4 Document and present results.		
	4.1	Record the results of the querying process to meet task requirements.
	4.2	Present the spatial data in a map or summary table.
	4.3	Store spatial data and complete documentation according to organisational requirements.

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Unit Mapping Information

Supersedes and is equivalent to CPPSIS5040 Interpret and collate spatial data.

Links

Companion volumes to this training package are available at the VETNet website -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=6f3f9672-30e8-4835-b348-205dfcf13d9b>

Assessment Requirements for CPPSSI5040 Source, collate and interpret spatial data

Modification History

Release 1 This version first released with CPP Property Services Training Package Release 12.0.

This unit supersedes and is equivalent to CPPSIS5040 Interpret and collate spatial data.

Performance Evidence

To demonstrate competency a candidate must meet the elements and performance criteria of this unit by interpreting and collating spatial data that meets task requirements for two different projects. For each project the candidate must:

- source data from different suppliers
- focus on a different theme, such as social, economic, health or environmental
- document and present the summarised data to meet the task requirements.

Knowledge Evidence

To be competent in this unit a candidate must demonstrate knowledge of:

- industry-accepted sources of spatial data
- key features of coordinate reference systems
- industry-accepted standards and methods for assessing and verifying spatial datasets and dataset sources
- legislative requirements for accessing, storing and archiving digital spatial data, including data privacy, copyright and licensing
- purpose and use of metadata
- types of spatial data storage technologies
- techniques for querying databases.

Assessment Conditions

Assessors must satisfy the requirements for assessors contained in the Standards for Registered Training Organisations.

Competency is to be assessed in the workplace or a simulated environment that accurately reflects performance in a real workplace setting where these skills and knowledge would be performed.

Candidates must have access to:

- computer with appropriate software
- organisational policies and procedures relating to data privacy, copyright and licensing.

Links

Companion volumes to this training package are available at the VETNet website -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=6f3f9672-30e8-4835-b348-205dfcf13d9b>

FSKDIG003 Use digital technology for non-routine workplace tasks

Modification History

Release	Comments
Release 1	This version first released with FSK Foundation Skills Training Package Version 2.0.

Application

This unit describes the skills and knowledge required to use digital technology to undertake non-routine workplace tasks, such as, operating machinery with computerised settings, entering text into a scanning device, collecting data to construct tables, graphs and charts in a spreadsheet, and measuring, recording and interpreting data using digital equipment.

An individual performing these tasks works independently and uses familiar support resources as needed.

This unit applies to individuals who use, or are preparing to use, digital skills to complete workplace activities. This includes existing workers and individuals preparing for employment through vocational education and training. This unit should be integrated and contextualised with vocational training to support achievement of vocational competency.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Unit Sector

Digital Technology

Elements and Performance Criteria

Element	Performance Criteria
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Prepare to use digital technology for non-routine task	1.1 Identify nature and scope of non-routine workplace task that requires the use of digital technology 1.2 Identify purpose of task and set the required outcome 1.3 Select and organise appropriate digital technology required for

Element	Performance Criteria
	task 1.4 Locate and interpret routine workplace information and terminology associated with technology, and relevant safety procedures
2. Perform non-routine workplace task using digital technology	2.1 Interpret and follow routine information and instructions from a range of sources to access and use digital technology required for task 2.2 Apply knowledge or skills to adapt instructions to suit changes or requirements in the workplace 2.3 Comply with workplace procedures and security protocols relevant to using digital technology in completing task
3. Finalise task	3.1 Determine and complete shut down or reset of technology in accordance with workplace procedures 3.2 Review performance against required outcomes 3.3 Evaluate and plan ways to improve performance

Foundation Skills

This section describes language, literacy, numeracy and employment skills that are essential to performance but not explicit in the performance criteria.

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Mapping Information

Supersedes and is equivalent to FSKDIG03 Use digital technology for routine workplace tasks.

Links

Companion Volume Implementation Guide is found on VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=f572fe10-a855-4986-9295-3852c771f178>

Assessment Requirements for FSKDIG003 Use digital technology for non-routine workplace tasks

Modification History

Release	Comments
Release 1	This version first released with FSK Foundation Skills Training Package Version 2.0.

Performance Evidence

The candidate must demonstrate the ability to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including evidence of the ability to:

- use digital technology to complete at least three non-routine workplace tasks with different required outcomes and in accordance with workplace procedures.

During the above, the candidate must demonstrate use of the main features and functions of selected digital technology and application of security protocols.

Knowledge Evidence

The candidate must be able to demonstrate knowledge to complete the tasks outlined in the elements and performance criteria of this unit, including knowledge of:

- outcomes of relevant non-routine workplace tasks using digital technology
- types of digital technology – software and hardware – commonly used in the workplace, their purposes and their uses
- legislation or policies relevant to the use of workplace technology
- workplace procedures for safely accessing and using digital technology
- techniques to synthesise relevant information and instructions from various sources
- relevant ethical and security practices applicable to use of digital technology for non-routine workplace tasks
- conventions of online etiquette
- strategies to review and improve performance.
-

Assessment Conditions

Competency is to be assessed in the workplace, a workplace simulated environment or a vocational training context.

Skills must be demonstrated using non-routine tasks that reflect those typically found in a workplace.

The following resources are to be made available:

- digital technology required to complete the performance evidence
- workplace procedures required to complete the performance evidence
- own familiar support resources.

Assessors must:

- satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards, and
- have sound knowledge of the ACSF, and
- have demonstrable expertise, knowledge and skills in the vocational contextualisation and assessment of digital technology, and
- have completed the following or equivalent:
 - TAESS00009 Address Foundation Skills in Vocational Practice Skill Set; or
 - a higher level education qualification, such as:
 - TAE80113 Graduate Diploma of Adult Language, Literacy and Numeracy Practice (and its equivalent TAE70111); or
 - Bachelor of Education, Graduate Certificate or Graduate Diploma of Education, or higher. This may include qualifications relating to TESOL, adult education or vocational education.

Links

Companion Volume Implementation Guide is found on VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=f572fe10-a855-4986-9295-3852c771f178>

FSKDIG03 Use digital technology for routine workplace tasks

Modification History

Release	Comments
Release 1	This streamlined version first released with <i>FSK Foundation Skills Training Package version 1.0</i> .

Application

This unit describes the skills and knowledge required to use digital technology to undertake routine workplace tasks.

The unit applies to individuals at Australian Core Skills Framework (ACSF) level 3 who need to undertake a vocational training pathway or workplace tasks.

This unit is designed for integration and contextualisation with vocational units to support achievement of vocational competency.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Unit Sector

Digital Technology

Elements and Performance Criteria

Element	Performance Criteria
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Prepare to use digital technology	1.1 Identify routine workplace tasks 1.2 Identify appropriate digital technology for the task 1.3 Interpret routine workplace information and terminology
2. Complete routine	2.1 Interpret routine information from a range of sources to access

Element	Performance Criteria
workplace task	and use digital technology 2.2 Follow workplace procedures to perform a task using technology 2.3 Review performance

Foundation Skills

This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.

Skill	Performance Criteria	Description
Learning		Takes responsibility for organising digital technology for the task
Oral Communication		Discusses tasks with supervisor, manager or mentor

Mapping Information

Not applicable

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=f572fe10-a855-4986-9295-3852c771f178>

Assessment Requirements for FSKDIG03 Use digital technology for routine workplace tasks

Modification History

Release	Comments
Release 1	This streamlined version first released with <i>FSK Foundation Skills Training Package version 1.0</i> .

Performance Evidence

Evidence of the ability to:

- identify and use digital technology appropriate to the task
- complete routine workplace tasks.

Evidence must be collected using tasks typically found in the workplace.

Note: Where a specific volume and/or frequency is not specified, evidence must be provided at least once.

Knowledge Evidence

Evidence of the following knowledge must be demonstrated:

- procedures for accessing and using digital technology.

Assessment Conditions

Assessment texts and tasks reflect those typically found in the workplace.

Individuals can access own familiar support resources.

Culturally appropriate processes and techniques suited to the language, literacy and numeracy capacity of individuals and the work being performed must be used.

Reasonable adjustments can be made to ensure equity in assessment for people with disabilities.

Assessors must satisfy NVR/AQTF assessor requirements, have sound knowledge of the ACSF and have demonstrable expertise in the vocational contextualisation and assessment of digital technology.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=f572fe10-a855-4986-9295-3852c771f178>

FSKNUM021 Apply an expanding range of arithmetical calculations for work

Modification History

Release	Comments
Release 1	This version first released with FSK Foundation Skills Training Package Version 2.0.

Application

This unit describes the skills and knowledge to extract and evaluate mathematical information and undertake a range of arithmetical calculations, including with a range of rational numbers, including positive and negative numbers, powers and roots. It includes extracting and interpreting mathematical information, applying mathematical problem solving processes to complete workplace tasks, and communicating workplace mathematical information.

An individual performing these tasks works independently and uses support from a range of established resources.

This unit applies to individuals who use, or are preparing to use, numeracy skills to complete workplace activities. This includes existing workers and individuals preparing for employment through vocational education and training. This unit should be integrated and contextualised with vocational training to support achievement of vocational competency.

This unit is aligned to, but does not fully address, the Australian Core Skills Framework (ACSF) numeracy core skill indicators .09, .10 and .11 at level 4 in the workplace and employment domain of communication.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Unit Sector

Numeracy

Elements and Performance Criteria

Element	Performance Criteria
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>

Element	Performance Criteria
1. Extract and interpret a range of mathematical information	1.1 Extract a range of mathematical information embedded in workplace tasks and texts 1.2 Interpret a range of mathematical information embedded in workplace tasks and texts
2. Apply and use mathematical calculations involving multiple steps to complete workplace task	2.1 Select and use a range of mathematical problem solving strategies to undertake workplace task 2.2 Estimate outcome of calculations related to fractions, decimals, percentages, simple powers, common roots and positive and negative numbers to complete workplace task 2.3 Perform calculations with fractions, decimals, percentages, simple powers, common roots and positive and negative numbers to complete workplace task 2.4 Check and reflect on mathematical problem solving processes and outcomes in relation to initial estimates and the workplace context
3. Communicate workplace mathematical information	3.1 Use formal, informal and some specialised mathematical representation to document and communicate workplace calculation processes, results and implications 3.2 Use formal, informal and some specialised language to discuss and explain workplace calculation processes, results and implications

Foundation Skills

This section describes language, literacy, numeracy and employment skills that are essential to performance but not explicit in the performance criteria.

Skill	Description
Technology	• Uses a scientific calculator

Mapping Information

Supersedes and is equivalent to FSKNUM21 Apply an expanding range of mathematical calculations for work.

Links

Companion Volume Implementation Guide is found on VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=f572fe10-a855-4986-9295-3852c771f178>

Assessment Requirements for FSKNUM021 Apply an expanding range of arithmetical calculations for work

Modification History

Release	Comments
Release 1	This version first released with FSK Foundation Skills Training Package Version 2.0.

Performance Evidence

The candidate must demonstrate the ability to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including evidence of the ability to:

- perform multi-step mathematical problem solving processes to complete a complex workplace task including:
 - performing multi-step calculations with relevant positive and negative numbers using the four operations, including:
 - fractions, decimals and percentages
 - powers and roots
 - positive and negative numbers
 - making estimations to check problem solving outcomes of above calculations and determine appropriate accuracy required for task
 - evaluating mathematical processes used and outcomes obtained, and evaluating implications for workplace task.

In the course of the above the candidate must demonstrate use of relevant technology, such as calculators or spreadsheets.

Knowledge Evidence

The candidate must be able to demonstrate knowledge to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including knowledge of:

- problem solving processes to solve workplace mathematical problems
- equivalent value of fractions, decimals and percentages
- powers and roots, and the relationship between powers and roots
- workplace application of negative numbers
- order of operations and use of brackets and parentheses
- estimation and assessment processes
- implications of calculations and results for workplace tasks

- specialised, formal and informal mathematical written and oral language and symbolism relevant to workplace calculations
- relevant technology, such as calculators or spreadsheets.
-

Assessment Conditions

Competency is to be assessed in the workplace, a workplace simulated environment or a vocational training context.

Assistive technologies can be utilised to assist with oral and written communication.

Skills must be demonstrated using complex texts and tasks that reflect those typically found in a workplace.

The following resources are to be made available:

- a calculator
- own familiar support resources.

Assessors must:

- satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards, and
- have sound knowledge of the ACSF and performance features of the ACSF level being assessed, and
- have demonstrable expertise, knowledge and skills in the vocational contextualisation and assessment of the core skill, numeracy, and
- have completed the following or equivalent:
 - TAESS00009 Address Foundation Skills in Vocational Practice Skill Set; or
 - a higher level education qualification, such as:
 - TAE80113 Graduate Diploma of Adult Language, Literacy and Numeracy Practice (and its equivalent TAE70111); or
 - Bachelor of Education, Graduate Certificate or Graduate Diploma of Education, or higher. This may include qualifications relating to TESOL, adult education or vocational education.

Links

Companion Volume Implementation Guide is found on VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=f572fe10-a855-4986-9295-3852c771f178>

FSKNUM027 Collect, organise and interpret statistical data for work

Modification History

Release	Comments
Release 1	This version first released with FSK Foundation Skills Training Package Version 2.0.

Application

This unit describes the skills and knowledge required to collect and organise data, present the data graphically, summarise the data, and interpret a range of statistical data for work. It includes extracting and interpreting statistical information, undertaking statistical investigations, and communicating results.

An individual performing these tasks works independently and uses support from a range of established resources.

This unit applies to individuals who use, or are preparing to use, numeracy skills to complete workplace activities. This includes existing workers and individuals preparing for employment through vocational education and training. This unit should be integrated and contextualised with vocational training to support achievement of vocational competency.

This unit is aligned to, but does not fully address, the Australian Core Skills Framework (ACSF) numeracy core skill indicators .09, .10 and .11 at level 4 in the workplace and employment domain of communication.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Unit Sector

Numeracy

Elements and Performance Criteria

Element	Performance Criteria
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Extract and interpret	1.1 Identify workplace issue requiring investigation and describe

Element	Performance Criteria
statistical data	specifications and sources of data collection, including being aware of audience of data and purpose of collection 1.2 Extract relevant statistical data from spreadsheets or other sources of raw workplace data required to support analysis 1.3 Identify and interpret key features of complex graphs and charts
2. Undertake statistical investigation using discrete data	2.1 Select mathematical and problem solving strategies to undertake workplace task 2.2 Describe an expected result of data collection, analysis and results 2.3 Select method to collect workplace data, and collect relevant data sample 2.4 Collect, order and collate data into a table or spreadsheet 2.5 Represent statistical data in appropriate graphical formats for analysis 2.6 Calculate simple summary statistics for collected data and interpret data and summaries, and finalise results 2.7 Check and reflect on data interpretation and outcomes and appropriateness of outcome to workplace task
3. Communicate information from statistical investigation	3.1 Use formal, informal and some specialised written mathematical representation to document, interpret and communicate statistical processes, results and implications 3.2 Use formal, informal and some specialised mathematical language to discuss and explain statistical processes, results and implications

Foundation Skills

This section describes language, literacy, numeracy and employment skills that are essential to performance but not explicit in the performance criteria.

Skill	Description
Technology	Uses a scientific calculator to calculate summary statistics and a spreadsheet to display data

Mapping Information

Supersedes and is equivalent to FSKNUM27 Collect, organise and interpret statistical data for work.

Links

Companion Volume Implementation Guide is found on VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=f572fe10-a855-4986-9295-3852c771f178>

Assessment Requirements for FSKNUM027 Collect, organise and interpret statistical data for work

Modification History

Release	Comments
Release 1	This version first released with FSK Foundation Skills Training Package Version 2.0.

Performance Evidence

The candidate must demonstrate the ability to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including evidence of the ability to:

- extract and interpret statistical information from a complex table and spreadsheet and routine graph and chart embedded in workplace texts and tasks
- perform a multi-step mathematical problem solving process with statistical data, including:
 - collecting, representing, summarising and interpreting statistical data to meet a workplace purpose
 - illustrating data using workplace appropriate methods
 - calculating summary statistics and interpreting results, including:
 - measures of central tendency (mean, median and mode)
 - simple measures of spread (range).

Knowledge Evidence

The candidate must be able to demonstrate knowledge to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including knowledge of:

- types of statistical information
- common workplace issues that can be investigated through data collection
- purpose and application of data analysis to workplace tasks
- range of data collection methods
- difference between discrete and continuous data
- types, features and uses of different graphs
- strategies to effectively illustrate data
- measures of central tendency (mean, median and mode)
- simple measures of spread (e.g., range)

- purpose and use of relevant technology such as scientific or CAS calculator, spreadsheets or graphing software
- estimation and assessment processes
- implications of calculations and results for workplace tasks.
-

Assessment Conditions

Competency is to be assessed in the workplace, a workplace simulated environment or a vocational training context.

Assistive technologies can be utilised to assist with oral and written communication.

Skills must be demonstrated independently using complex texts and tasks that reflect those typically found in a workplace.

The following resources are to be made available:

- a scientific calculator
- data utilised in the performance evidence
- own familiar support resources.

Assessors must:

- satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards, and
- have sound knowledge of the ACSF and performance features of the ACSF level being assessed, and
- have demonstrable expertise, knowledge and skills in the vocational contextualisation and assessment of the core skill, numeracy, and
- have completed the following or equivalent:
 - TAESS00009 Address Foundation Skills in Vocational Practice Skill Set; or
 - a higher level education qualification, such as:
 - TAE80113 Graduate Diploma of Adult Language, Literacy and Numeracy Practice (and its equivalent TAE70111); or
 - Bachelor of Education, Graduate Certificate or Graduate Diploma of Education, or higher. This may include qualifications relating to TESOL, adult education or vocational education.
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Links

Companion Volume Implementation Guide is found on VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=f572fe10-a855-4986-9295-3852c771f178>

FSKNUM21 Apply an expanding range of mathematical calculations for work

Modification History

Release	Comments
Release 1	This streamlined version first released with <i>FSK Foundation Skills Training Package version 1.0</i> .

Application

This unit describes the skills and knowledge to extract and evaluate mathematical information and make a range of calculations including positive and negative numbers, rates and ratios, and powers and roots.

This unit applies to individuals who need numeracy skills at Australian Core Skills Framework (ACSF) level 4 to undertake a vocational training pathway or workplace tasks.

This unit is designed for integration and contextualisation with vocational units to support achievement of vocational competency.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Unit Sector

Numeracy

Elements and Performance Criteria

Element	Performance Criteria
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Extract and interpret mathematical information	1.1 Extract mathematical information embedded in a range of workplace tasks and texts 1.2 Interpret and comprehend mathematical information

Element	Performance Criteria
2. Undertake mathematical calculations involving multiple steps	2.1 Select from and use a range of mathematical and problem solving processes 2.2 Flexibly use different forms of fractions, decimals and percentages 2.3 Calculate with positive and negative numbers 2.4 Express numbers as powers and roots and use in calculations 2.5 Calculate using routine formulas
3. Check and communicate results	3.1 Use estimation and assessment processes to check outcome 3.2 Use mathematical language to discuss and explain the processes, results and implications of the task

Foundation Skills

This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.

Skill	Performance Criteria	Description
Writing		Records steps of calculation and result, uses symbolism appropriate to task
Technology		Uses a scientific calculator

Mapping Information

Not applicable

Links

Companion Volume implementation guides are found in VETNet - <https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=f572fe10-a855-4986-9295-3852c771f178>

Assessment Requirements for FSKNUM21 Apply an expanding range of mathematical calculations for work

Modification History

Release	Comments
Release 1	This streamlined version first released with <i>FSK Foundation Skills Training Package version 1.0</i> .

Performance Evidence

Evidence of the ability to:

- extract, interpret and use mathematical information
- perform calculations involving fractions, decimals, percentages, positive and negative numbers, basic powers and roots and routine formulas
- perform multi-step calculations
- apply calculations to workplace contexts and tasks.

Note: Where a specific volume and/or frequency is not specified, evidence must be provided at least once

Knowledge Evidence

Evidence of the following knowledge must be demonstrated:

- equivalent value of fractions, decimals and percentages
- relationship between powers and roots
- workplace application of negative numbers
- order of operations and use of brackets and parentheses.

Assessment Conditions

Assessment texts and tasks reflect those typically found in the workplace.

Individuals can access a range of established support resources.

Culturally appropriate processes and techniques suited to the language, literacy and numeracy capacity of individuals and the work being performed must be used.

Reasonable adjustments can be made to ensure equity in assessment for people with disabilities.

Assessors must satisfy NVR/AQTF assessor requirements, have a sound knowledge of the ACSF and have demonstrable expertise in the vocational contextualisation and assessment of the core skill - numeracy.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=f572fe10-a855-4986-9295-3852c771f178>

FSKNUM27 Collect, organise and interpret statistical data for work

Modification History

Release	Comments
Release 1	This streamlined version first released with <i>FSK Foundation Skills Training Package version 1.0</i> .

Application

This unit describes the skills and knowledge to collect, organise, illustrate, summarise and interpret a range of statistical data for work.

This unit applies to individuals who need numeracy skills at Australian Core Skills Framework (ACSF) level 4 to undertake a vocational training pathway or workplace tasks.

This unit is designed for integration and contextualisation with vocational units to support achievement of vocational competency.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Unit Sector

Numeracy

Elements and Performance Criteria

Element	Performance Criteria
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Prepare to undertake a work related statistical investigation	1.1 Identify workplace issue requiring investigation 1.2 Determine audience 1.3 Identify data to be collected

Element	Performance Criteria
	1.4 Select a method to collect data
2. Undertake statistical investigation using discrete data	2.1 Collect and organise appropriate statistical data 2.2 Illustrate data in appropriate formats 2.3 Compare effectiveness of different types of graphs 2.4 Calculate the summary statistics for collected data 2.5 Interpret the results
3. Extract and interpret information from statistical investigation	3.1 Check that the data meets the expected results and content 3.2 Extract and interpret information from the results including tables, graphs and summary statistics 3.3 Use mathematical language and symbols to report results of investigation

Foundation Skills

This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.

Skill	Performance Criteria	Description
Technology		Uses a scientific calculator to calculate summary statistics and a spreadsheet to display data

Mapping Information

Not applicable

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=f572fe10-a855-4986-9295-3852c771f178>

Assessment Requirements for FSKNUM27 Collect, organise and interpret statistical data for work

Modification History

Release	Comments
Release 1	This streamlined version first released with <i>FSK Foundation Skills Training Package version 1.0</i> .

Performance Evidence

Evidence of the ability to:

- use one or two methods to collect data
- calculate summary statistics and interpreting results
- illustrate data using workplace appropriate methods
- interpret information in tables, and graphs.

Note: Where a specific volume and/or frequency is not specified, evidence must be provided at least once.

Knowledge Evidence

Evidence of the following knowledge must be demonstrated:

- methods of data collection
- difference between discrete and continuous data
- types of graphs.

Assessment Conditions

Assessment texts and tasks reflect those typically found in the workplace.

Individuals can access a range of established support resources.

Culturally appropriate processes and techniques suited to the language, literacy and numeracy capacity of individuals and the work being performed must be used.

Reasonable adjustments can be made to ensure equity in assessment for people with disabilities.

Assessors must satisfy NVR/AQTF assessor requirements, have a sound knowledge of the ACSF and have demonstrable expertise in the vocational contextualisation and assessment of the core skill - numeracy.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=f572fe10-a855-4986-9295-3852c771f178>

FWPCOT2239 Trim and cut felled trees

Modification History

Release	Comments
Release 2	This version released with FWP Forest and Wood Products Training Package Version 3.0.
Release 1	This version released with FWP Forest and Wood Products Training Package Version 2.0.

Application

This unit describes the outcomes required to trim and cut felled trees with a chainsaw and to complete operator maintenance. It applies to situations where the production of timber is not the primary focus of the activity.

The unit applies to a forestry worker, chainsaw operator, forest harvester, harvesting technician and arboriculture worker.

Licensing, legislative, regulatory, or certification requirements apply to this unit in some states & territories at the time of publication, and may differ according to jurisdiction.

Pre-requisite Unit

Nil

Unit Sector

Common Technical

Elements and Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the range of conditions.</i>
1. Prepare for trimming and cutting	1.1 Review work order and where required check with appropriate personnel. 1.2 Select appropriate personal protective and other equipment and

ELEMENTS	PERFORMANCE CRITERIA
	check for operational effectiveness. 1.3 Plan trimming and cutting activities in line with work order and environmental conditions.
2. Visually assess felled trees	2.1 Assess tree location and stability for conditions likely to affect safety of trimming and cutting activities 2.2 Visually assess tree for defects and identify stresses within tree. 2.3 Mark trees too dangerous to cut safely and refer to appropriate personnel.
3. Plan cutting	3.1 Move or stabilise tree for safe cutting in line with site procedures. 3.2 Select cutting pattern to optimise time and manageable removal of sections. 3.3 Identify options for utilisation of product. 3.4 Plan cutting sequence to maintain control of cut sections and minimise cutting problems 3.5 Select cutting positions considering tree stresses. 3.6 Clear debris from work area to allow safe access and prevent saw damage and personal injury.
4. Use chainsaw to trim and cut trees	4.1 Monitor location and movement of other personnel and modify work to ensure safety 4.2 Establish and maintain communication to ensure safety 4.3 Secure tree section on each side of planned cut; evaluate and control potential movement. 4.4 Operate chainsaw to cut tree and limbs and adjust cutting technique in response to movement and condition of tree and limbs 4.5 Prepare cut sections for removal from the site.
5. Complete equipment maintenance	5.1 Follow organisational safety procedures to lock out equipment. 5.2 Check chain for bluntness or damage. 5.3 Remove, sharpen, adjust and replace chain and other components in line with manufacturer's recommendations. 5.4 Record and report trimming and cutting records, equipment faults and maintenance requirements to appropriate personnel.

Foundation Skills

This section describes those core and employment skills that are essential to performance and are not explicit in the performance criteria.

Numeracy skills to:	- plan time-efficient cutting patterns and sequences - complete routine calculations and report on size, length and diameter of cut trees.
Oral communication skills to:	ask open and closed probe questions and actively listen to clarify contents of work plans
Reading skills to:	- interpret: - workplace health and safety and other organisational procedures - work orders - manufacturers' maintenance recommendations.
Writing skills to:	complete accurate basic records for tree trimming and cutting process, equipment faults and maintenance requirements.
Planning and organising skills to:	efficiently and logically sequence the stages of preparation for and cutting of trees using work order to guide activities.

Unit Mapping Information

Code and title current version	Code and title previous version	Comments	Equivalence status
FWPCOT2239 Trim and cut felled trees Release 2	FWPCOT2239 Trim and cut felled trees Release 1	Minor typographical errors corrected	Equivalent unit

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=0d96fe23-5747-4c01-9d6f-3509ff8d3d47>

Assessment Requirements for FWPCOT2239 Trim and cut felled trees

Modification History

Release	Comments
Release 2	This version released with FWP Forest and Wood Products Training Package Version 3.0.
Release 1	This version released with FWP Forest and Wood Products Training Package Version 2.0.

Performance Evidence

A person demonstrating competency in this unit must satisfy all of the elements, performance criteria and foundation skills of this unit. If a specific volume or frequency is not stated below, then evidence must be provided that the following requirements have been performed on at least one occasion:

- safely and efficiently use a chainsaw to complete these activities:
 - trim and cut hardwood or softwood trees
 - delimb trees
 - trim branches
 - trim burls and other small growths
- use these cutting techniques:
 - bridging cuts
 - swinging cuts
 - side bind cuts
 - boring
 - wedge cut
 - ripping cuts
- trim and cut trees in these environmental conditions:
 - dry weather condition
 - wet weather condition
 - low and moderate wind speeds
- complete the following maintenance on a chainsaw:
 - sharpening
 - refuelling
 - inspection, identification and replacement of bar, chain, drive sprockets

- bar oil checks and top up
- air filter, check, clean and replacement
- cleaning of saw body, air intake vents and cooling fans
- fitting spare chain and tension chain.

Knowledge Evidence

A person competent in this unit must be able to demonstrate knowledge of:

- environmental protection measures including:
 - action to limit the impact of noise, wind speed and direction, fallen trees, ground slope, ground hazards and obstacles, general forest lean
 - action to limit the impact to ground growth, canopy, density of trees
 - action to limit the impact on flora, fauna and habitat
 - soil and water protection
 - cleaning plant, tools and equipment
 - disposing of, recycling and reusing timber and other waste
- key features of these varying environmental conditions and effects on tree cutting and trimming activities:
 - ground growth
 - ground hazards and obstacles
 - ground slope
 - wet and adverse weather conditions
 - wind speed and direction
- typical tree defects and how they affect tree cutting activities:
 - splits
 - falling damage
 - fire damage
 - insect infestation
 - pipe
 - shake
 - twist
 - knots and resin pockets
- typical tree stresses and how they affect tree cutting activities
 - tension (fibres being stretched)
 - compression (fibres being squashed)
 - neutral fibres
- range of chainsaw cutting techniques:
 - bridging cuts
 - swinging cuts
 - side bind cuts

- delimbing
- boring
- wedge cut
- ripping cuts
- cutting patterns used to optimise time and recovery of product from trees
- cutting sequences used to maintain control of cut sections and minimise cutting problems
- purpose, features, operation and basic non-specialist repair and maintenance: of chainsaws
- methods for assessing chain condition
- organisational procedures specific to tree trimming and cutting activities:
 - workplace health and safety with particular emphasis on equipment lock out and use of personal protective equipment
 - communication reporting lines
 - recording and reporting tree cutting outcomes, equipment faults and maintenance requirements.

Assessment Conditions

The following resources must be made available:

- chainsaws
- chainsaw fuel and oil containers
- support tools (hammer, wedges, logging tape, cant hook or breaking bar)
- maintenance tools and equipment for chainsaws
- personal protective equipment suitable for cutting trees and maintaining chainsaws
- manufacturers' instructions for use and maintenance of equipment
- work order with specific instructions for tree cutting activities
- template reports for recording tree cutting outcomes, equipment faults and maintenance requirements
- organisational procedures for tree trimming and cutting activities.

Competency is to be assessed in the workplace or a simulated environment that accurately reflects performance in a real workplace setting.

Assessor requirements

Assessors must:

- hold the appropriate assessor competency standards as outlined in regulations; and
- be able to demonstrate vocational competencies at least to the level being assessed; and
- be able to demonstrate how they are continuing to develop their VET knowledge and skills as well as maintaining their industry currency and assessor competence.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=0d96fe23-5747-4c01-9d6f-3509ff8d3d47>

LGAWORK501A Prepare preliminary design for operational works

Modification History

LGAWORK501A Release 2: Layout adjusted.

LGAWORK501A Release 1: Primary release.

Unit Descriptor

This unit covers preparing works related to preliminary design for community consultation and council approval.

Application of the Unit

This unit supports the attainment of skills and knowledge required for competent workplace performance in councils of all sizes. Knowledge of the legislation and regulations within which councils must operate is essential. The unique nature of councils, as a tier of government directed by elected members and reflecting the needs of local communities, must be appropriately reflected.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a Unit of Competency

Performance criteria describe the required performance needed to demonstrate achievement of the element. Where ***bold italicised*** text is used, further information is detailed in the Range Statement. Assessment of performance is to be consistent with the Evidence Guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1 Establish design criteria	1.1 Project objectives are defined so that the preliminary design can address required outcomes. 1.2 Regulations and restrictions on design are identified to ensure design meets relevant standards and codes. 1.3 The physical dimensions of the project are specified to enable the design to proceed. 1.4 An appropriate level of design detail is established to enable a preliminary design to be prepared.
2 Prepare alternative concepts	2.1 Similar projects are examined to build on existing knowledge and improve efficiency. 2.2 Feasible concept layouts and supporting statements are prepared that satisfy design objectives within design parameters. 2.3 Alternative concepts are prepared with supporting statements. 2.4 Indicative cost estimates are prepared.
3 Conduct a safety design audit	3.1 Agents or authorities relevant to the design are identified. 3.2 A safety design audit is conducted. 3.3 Safety design audit feedback is incorporated into the preliminary design.
4 Obtain project approvals	4.1 Relevant utilities that are to be affected, or whose assistance is required, are notified. 4.2 Necessary approvals and permits from relevant authorities are obtained.
5 Finalise public consultation and prepare report to council	5.1 An accurate preliminary design report is prepared. 5.2 Consultation opportunities are provided for interested parties to view plan. 5.3 Public feedback is reported in accordance with statutory and legislative requirements. 5.4 Modifications are made to incorporate amendments, and design criteria are adjusted accordingly. 5.5 Final concept plan is submitted to council.

Required Skills and Knowledge

This describes the essential skills and knowledge and their level, required for this unit

Required Skills

- preparing preliminary design to meet specifications
- interpreting relevant government legislation and council policies
- presenting material to council and customers
- computer application of design aid
- interpreting plans, maps, level sheets and specifications
- chart reading
- financial estimations and alternate concepts

Required Knowledge

- relevant government authorities and council procedures and policies
- relevant legislation, codes of practice and standards
- contractual and legal requirements
- environmental management strategy
- design standards

Evidence Guide

Overview of assessment requirements	A person who demonstrates competency in this unit will be able to perform the outcomes described in the Elements to the required performance level detailed in the Performance Criteria. The knowledge and skill requirements described in the Range Statement must also be demonstrated. For example, knowledge of the legislative framework and safe work practices that underpin the performance of the unit must be demonstrated.
Critical aspects of evidence to be considered	Australian design standards are applied. Review of environmental factors for maintenance and construction projects is conducted. Safety design audit is undertaken.
Context of assessment	May be assessed through: • on the job • simulated workplace environment • written assignment • short-answer test • oral questioning • observation • or any combination of the above
Relationship to other	To enable holistic assessment this unit may be assessed with

units(prerequisite or co-requisite units)	other units that form part of the job role.
Method of assessment	The following assessment methods are suggested: • observation of the learner performing a range of workplace tasks over sufficient time to demonstrate handling of a range of contingencies • written and/or oral questioning to assess knowledge and understanding • completion of workplace documentation • third-party reports from experienced practitioners • completion of self-paced learning materials including personal reflection and feedback from trainer, coach or supervisor
Evidence required for demonstration of consistent performance	Evidence will need to be gathered over time across a range of variables.
Resource implications	In accordance with a range of variable requirements.

Range Statement

The Range Statement relates to the Unit of Competency as a whole. It allows for different work environments and situations that may affect performance. ***Bold italicised*** wording in the Performance Criteria is detailed below.

<i>Alternative concepts</i> may include:	• visuals • environment • design • style • cost
<i>Cost estimates</i> may include:	• review of existing project costs • industry journals • contractor quotes • cost assessors • estimating and quantity surveying firms • data services
<i>Agents or authorities</i> may include:	• service providers (gas, water, electricity, utilities and communications) • environment protection authorities • planning bodies • state road authorities

- Design** may include:
- community organisations
 - erosion and sediment control plan references
 - Australian design standards

Unit Sector(s)

Operational Works

LGAWORK502A Prepare detailed works project documentation

Modification History

LGAWORK502A Release 2: Layout adjusted.

LGAWORK502A Release 1: Primary release.

Unit Descriptor

This unit covers preparing relevant project documentation including specifications, key invoices and estimates.

Application of the Unit

This unit supports the attainment of skills and knowledge required for competent workplace performance in councils of all sizes. Knowledge of the legislation and regulations within which councils must operate is essential. The unique nature of councils, as a tier of government directed by elected members and reflecting the needs of local communities, must be appropriately reflected.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a Unit of Competency

Performance criteria describe the required performance needed to demonstrate achievement of the element. Where ***bold italicised*** text is used, further information is detailed in the Range Statement. Assessment of performance is to be consistent with the Evidence Guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1 Prepare design program	1.1 Design elements are listed to determine the scope and purpose of the design. 1.2 Time constraints and financial limitations are identified. 1.3 Appropriate technical, physical and human resources are assigned to the project. 1.4 Complementary works are identified to enable an efficient design program to be prepared.
2 Undertake design and prepare working drawings	2.1 Available information is reviewed and specifications are identified. 2.2 <i>Design manuals</i> are used to ensure the design complies with all statutory and <i>council requirements</i>. 2.3 Working drawings that comply with the design brief are prepared and recorded.
3 Prepare work specifications	3.1 Complete and detailed works specifications are prepared at a level consistent with council and relevant standards. 3.2 Quality assurance methods are applied to the preparation of works specifications. 3.3 Works specifications are prepared that <i>complement</i> working drawings. 3.4 Works specifications provide detail on methods, standards, materials, products and contractors as applicable.
4 Prepare detailed estimate	4.1 Detail drawings are utilised to prepare an accurate bill of quantities. 4.2 Competitive rates for provision of materials and services are obtained. 4.3 Primary cost items are specified and costed. 4.4 An estimate for <i>contingencies</i> is made within prepared estimates. 4.5 The cost of project support resources is included in detailed <i>estimates</i>.

Required Skills and Knowledge

This describes the essential skills and knowledge and their level, required for this unit

Required Skills

- interpreting relevant acts, regulations, codes, policies, procedures and standards

- interpreting engineering design criteria
- engineering drafting
- calculating weight, volume, ratio and quantity

Required Knowledge

- federal and state government acts
- local government regulations
- design standards and specifications
- drawing standards and specifications
- interpretation and analysis of resources costing

Evidence Guide

Overview of assessment requirements	A person who demonstrates competency in this unit will be able to perform the outcomes described in the Elements to the required performance level detailed in the Performance Criteria. The knowledge and skill requirements described in the Range Statement must also be demonstrated. For example, knowledge of the legislative framework and safe work practices that underpin the performance of the unit must be demonstrated.
Critical aspects of evidence to be considered	A range of design criteria is included. Drawings are undertaken to meet established standards. Works specifications are prepared. Estimates are detailed and include contingencies.
Context of assessment	May be assessed through: • on the job • simulated workplace environment • written assignment • short-answer test • oral questioning • observation • or any combination of the above
Relationship to other units(prerequisite or co-requisite units)	To enable holistic assessment this unit may be assessed with other units that form part of the job role.
Method of assessment	The following assessment methods are suggested: • observation of the learner performing a range of workplace tasks over sufficient time to demonstrate handling of a

	range of contingencies • written and/or oral questioning to assess knowledge and understanding • completion of workplace documentation • third-party reports from experienced practitioners • completion of self-paced learning materials including personal reflection and feedback from trainer, coach or supervisor
Evidence required for demonstration of consistent performance	Evidence will need to be gathered over time across a range of variables.
Resource implications	In accordance with a range of variable requirements.

Range Statement

The Range Statement relates to the Unit of Competency as a whole. It allows for different work environments and situations that may affect performance. ***Bold italicised*** wording in the Performance Criteria is detailed below.

<i>Design manuals</i> may include:	• building regulations • Australian standards • state road authority • design manuals • Austroad design manuals • reference texts • council or authority standards • quality assurance manuals • water and sewerage authority and design or industry standards
<i>Council requirements</i> may include:	• works specifications • design procedures
<i>Complementary works</i> may include:	• other works that can be carried out effectively and cost efficiently whilst resources are available
<i>Contingencies</i> may include:	• weather conditions • industrial relations • latent conditions • additional supervision • variation in materials cost and availability
<i>Estimates</i> may include:	• day labour • contract labour

Unit Sector(s)

Operational Works

LGAWORK503A Undertake project investigation

Modification History

LGAWORK503A Release 2: Layout adjusted.

LGAWORK503A Release 1: Primary release.

Unit Descriptor

This unit covers undertaking the research of a works project to determine scope and relevant stakeholders.

Application of the Unit

This unit supports the attainment of skills and knowledge required for competent workplace performance in councils of all sizes. Knowledge of the legislation and regulations within which councils must operate is essential. The unique nature of councils, as a tier of government directed by elected members and reflecting the needs of local communities, must be appropriately reflected.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a Unit of Competency

Performance criteria describe the required performance needed to demonstrate achievement of the element. Where ***bold italicised*** text is used, further information is detailed in the Range Statement. Assessment of performance is to be consistent with the Evidence Guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1 Determine parameters of project	1.1 Preliminary scope of project is confirmed and reviewed to ensure parameters meet current <i>requirements</i> . 1.2 Detailed design parameters are specified to enable a complete design brief to be prepared.
2 Obtain information on existing conditions	2.1 <i>Surveys</i> of existing conditions are undertaken that are relevant to the proposed works and that impact on the design parameters. 2.2 Liaison with <i>relevant statutory authorities</i> and <i>affected parties</i> is undertaken to ensure works can be coordinated. 2.3 The impact of works on existing assets and the environment is assessed through liaison with relevant and affected parties.
3 Prepare existing conditions plan	3.1 An accurate, existing conditions plan is prepared from all collated data to enable a detailed design to proceed. 3.2 An existing conditions plan is produced within regulatory and accepted <i>drafting standards</i> .

Required Skills and Knowledge

This describes the essential skills and knowledge and their level, required for this unit

Required Skills

- interpersonal communication techniques
- time management
- risk management
- high level negotiation skills
- presenting plans
- collating data
- research expertise

Required Knowledge

- assets network
- design and drafting principles
- related government bodies
- contractual requirements
- acts, regulations, standards and codes of practice
- council budget cycle

Evidence Guide

Overview of assessment requirements	A person who demonstrates competency in this unit will be able to perform the outcomes described in the Elements to the required performance level detailed in the Performance Criteria. The knowledge and skill requirements described in the Range Statement must also be demonstrated. For example, knowledge of the legislative framework and safe work practices that underpin the performance of the unit must be demonstrated.
Critical aspects of evidence to be considered	Liaison with council and other customers is undertaken. Design parameters are identified. Impact of project on assets and environment is identified.
Context of assessment	May be assessed through: • on the job • simulated workplace environment • written assignment • short-answer test • oral questioning • observation • or any combination of the above
Relationship to other units (prerequisite or co-requisite units)	To enable holistic assessment this unit may be assessed with other units that form part of the job role.
Method of assessment	The following assessment methods are suggested: • observation of the learner performing a range of workplace tasks over sufficient time to demonstrate handling of a range of contingencies • written and/or oral questioning to assess knowledge and understanding • completion of workplace documentation • third-party reports from experienced practitioners • completion of self-paced learning materials including personal reflection and feedback from trainer, coach or supervisor
Evidence required for demonstration of consistent performance	Evidence will need to be gathered over time across a range of variables.
Resource implications	In accordance with a range of variable requirements.

Range Statement

The Range Statement relates to the Unit of Competency as a whole. It allows for different work environments and situations that may affect performance. ***Bold italicised*** wording in the Performance Criteria is detailed below.

Requirements may include:

- budget
- project scope
- facilities
- regulations
- user group needs
- life cycle costing
- environment management

Surveys may include:

- traffic counts
- topographical survey
- features survey
- historical review
- title boundaries
- local knowledge
- levels survey
- cross-sectional
- people opinion survey
- detailing and locating services such as gas, water, electricity and telecommunications

Drafting standards may include:

- Australian standards code for building and engineering AS1100 - technical drawing
- council requirements
- council policies and standards

Affected parties may include:

- business
- community groups
- residents

Relevant authorities may include:

- roads and traffic authorities
- gas
- electricity
- other utilities

Unit Sector(s)

Operational Works

MSL904002 Perform standard calibrations

Modification History

Release	Comments
Release 1	This version was released in <i>MSL Laboratory Operations Training Package Release 2.0</i>. Supersedes and equivalent to MSL904001 Perform standard calibrations. Foundation skills information added. Range of conditions removed. Assessment requirements amended. Equivalent outcome.

Application

This unit of competency describes the skills and knowledge to calibrate test and measurement equipment in accordance with standard calibration procedures and documented test methods. These procedures/methods specify all associated reference standards, materials, equipment and methods to be used and the required parameters or quantities and ranges to be tested, including the criteria for rejection or approval.

This unit applies to laboratory and calibration technicians who carry out tests and/or calibrations using standard calibration methods in first, second and third party laboratories, and laboratories where testing and/or calibration forms part of inspection or product certification. Personnel are not permitted to deviate from explicit instructions in any manner, modify the procedure, nor substitute alternative equipment. They work under limited supervision and results of their work are interpreted and checked by the laboratory supervisor, quality inspector or designated signatory.

No licensing or certification requirements exist at the time of publication. However, regulations and/or external accreditation requirements for laboratory operations exist, so local requirements should be checked. Relevant legislation, industry standards and codes of practice within Australia must also be applied.

Pre-requisite Unit

Nil

Competency Field

Calibration

Elements and Performance Criteria

Elements describe the essential outcomes.

Performance criteria describe the performance needed to demonstrate achievement of the element.

1 Prepare items for calibration	1.1 Select the authorised calibration procedure in accordance with workplace procedures 1.2 Identify hazards and use appropriate personal protective equipment (PPE), safety equipment and procedures 1.3 Confirm all measuring equipment meets the laboratory's specification requirements and complies fully with the calibration procedure 1.4 Assemble and set up specified reference standards and associated equipment prior to testing 1.5 Verify performance of reference standards and measuring equipment prior to use and adjust or calibrate as necessary 1.6 Identify and minimise potential sources of measurement error
2 Perform calibration	2.1 Perform individual tests without variance according to the documented procedure to ensure repeatability of measurement 2.2 Confirm readings are the result of a valid measurement and record data as required (as-found or before adjustment) 2.3 Adjust device under test to bring readings within specification and record data (as-left or after adjustment) where required 2.4 Analyse resulting test data to detect trends or inconsistencies that would significantly affect the accuracy or validity of test results 2.5 Seek appropriate advice when interpretation of results is outside authorised scope of approval
3 Document results	3.1 Estimate and document uncertainty of measurement in accordance with workplace procedures, where required

Elements describe the essential outcomes.	Performance criteria describe the performance needed to demonstrate achievement of the element.
	3.2 Document compliance/non-compliance with test requirements and/or specifications
	3.3 Record the results of each test/calibration accurately, unambiguously and objectively
	3.4 Ensure confidentiality of workplace information in accordance with workplace procedures
4 Finalise calibration	4.1 Prepare and issue a final report on the job/item detailing testing carried out, traceability, statement of compliance and relevant information
	4.2 Report any non-compliance and verify next course of action with supervisor
	4.3 Attach calibration labels, equipment stickers, quality control tags and tamper resistant seals as required in accordance with workplace procedures
	4.4 Store test equipment/measurement standards and results in accordance with workplace procedures

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance.

- Numeracy skills to:
 - perform calculations to give results in appropriate accuracy, precision and units
 - use statistical analysis (means, ranges and standard deviations) and estimation of uncertainty of measurement.

Other foundation skills essential to performance are explicit in the performance criteria of this unit.

Unit Mapping Information

Equivalent to MSL904001 Perform standard calibrations, Release 1.

Links

MSL Laboratory Operations Companion Volume Implementation Guide is available from VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=5c63a03b-4a6b-4ae5-9560-1e3c5f462baa>

Assessment Requirements for MSL904002 Perform standard calibrations

Modification History

Release	Comments
Release 1	This version was released in <i>MSL Laboratory Operations Training Package Release 2.0</i>. Supersedes and equivalent to MSL904001 Perform standard calibrations. Foundation skills information added. Range of conditions removed. Assessment requirements amended. Equivalent outcome.

Performance Evidence

There must be evidence the candidate has completed the tasks outlined in the elements and performance criteria of this unit, and:

- safely and accurately calibrated a minimum of 3 different items of test and/or measurement equipment from the following list:
 - balance
 - thermometer
 - thermocouple
 - pH meter
 - refractive index meter
 - viscosity meter
 - flow meter (including digital)
 - volumetric dispenser including auto-pipette (POVAs)
 - volumetric glass (once for life time)
 - spectrophotometer
 - incubator/oven/fridge
 - digestion block
 - biological safety cabinet
 - fume cupboard.

Calibrations must be carried out in accordance with standard calibration procedures and documented test methods.

Knowledge Evidence

There must be evidence the candidate has knowledge of:

- purpose of metrology and calibration, including common terminology, concepts, principles, procedures and applications
- National Association of Testing Authority's (NATA) and National Measurement Institute's (NMI) role in the measurement and testing system in Australia and registration/licensing requirements
- requirements for the competence of testing and calibration laboratories (e.g. AS ISO/IEC 17025) as they affect job role and responsibilities
- Australian and international standards and codes covering requirements for the competence of testing and calibration laboratories
- standards imposed by regulatory and licensing bodies
- statistical analysis of quality control data, mean, median, mode, ranges and standard deviations
- hierarchy and appropriate selection of reference materials and instruments
- commonly used reference materials and working standards
- test equipment relevant to job role
- workplace procedures for:
 - non-conformance/non-compliance
 - equipment operation
 - calibration
 - troubleshooting for equipment and test methods
 - recording and reporting
 - handling, transport, storage and operation of reference and working standards
 - test methods and calibration (validated and authorised)
- different fields in which calibration work is conducted
- workplace and/or legal traceability requirements
- legal, ethical and work health and safety (WHS) requirements specific to the work task.

Assessment Conditions

Skills must have been demonstrated in the workplace or in a simulated environment that reflects workplace conditions and contingencies. The following conditions must be met for this unit:

- use of suitable facilities, equipment and resources, including:
 - specialised calibration/test equipment, reference standards and laboratory facilities
 - calibration methods, procedures and equipment specifications
 - workplace quality manual and procedures.

Assessors must satisfy the NVR/AQTF mandatory competency requirements for assessors.

Links

MSL Laboratory Operations Companion Volume Implementation Guide is available from VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=5c63a03b-4a6b-4ae5-9560-1e3c5f462baa>

MSL922001 Record and present data

Modification History

Release	Comments
Release 2	Unit codes updated in Assessment conditions. Equivalent outcome.
Release 1	This version was released in <i>MSL Laboratory Operations Training Package Release 1.0</i>. Supersedes and is equivalent to MSL922001A Record and present data

Application

This unit of competency covers the ability to record and store data, perform simple calculations of scientific quantities and present information in tables and graphs. The unit of competency requires personnel to solve predictable problems using clear information or known solutions. Where alternatives exist, they are limited or apparent.

This unit of competency is applicable to production operators, field assistants and laboratory assistants working in all industry sectors.

While no specific licensing or certification requirements apply to this unit at the time of publication, laboratory operations are governed by relevant legislation, regulations and/or external accreditation requirements. Local requirements should be checked.

Pre-requisite Unit

Nil

Competency Field

Data

Unit Sector

Elements and Performance Criteria

Elements describe the Performance criteria describe the performance needed to

essential outcomes.

demonstrate achievement of the element.

1	Record and check data	1.1	Enter data into laboratory information system or record sheets as directed
		1.2	Check data to identify transcription errors or atypical entries
		1.3	Rectify errors in data using workplace procedures
2	Calculate simple scientific quantities	2.1	Calculate simple scientific quantities using given formulae and data
		2.2	Ensure calculated quantities are consistent with estimations and expectations
		2.3	Report all calculated quantities with appropriate precision and units
3	Present data	3.1	Present data accurately in tables, charts and graphs using given formats and scales
		3.2	Recognise and report obvious features and trends in data
4	Store and retrieve data	4.1	File and store data in accordance with workplace procedures
		4.2	Maintain workplace confidentiality standards

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance.

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

This field allows for different work environments and conditions that may affect performance.

Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included.

Standards, codes, procedures and/or workplace requirements

Standards, codes, procedures and/or enterprise requirements include the latest version of one or more of:

- relevant Australian and international standards, such as the international system of units (SI) and its application
- national measurement regulations and guidelines

Data

Data includes:

- worksheets, spreadsheets or databases linked to information management systems
- results of observations, tests and measurements, or surveys
- graphs, tables and control charts
- semi quantitative observations expressed on a scale e.g. 1 to 4 or + to ++++

Work health and safety (WHS) and environmental management requirements

WHS and environmental management requirements include:

- complying with WHS and environmental management requirements at all times, which may be imposed through state/territory or federal legislation. These requirements must not be compromised at any time
- applying standard precautions relating to the potentially hazardous nature of samples
- accessing and applying current industry understanding of infection control issued by the National Health and Medical Research Council (NHMRC) and State and Territory Departments of Health, where relevant

Unit Mapping Information

Release 1. Supersedes and is equivalent to MSL922001A Record and present data

Links

MSL Laboratory Operations Companion Volume Implementation Guide is available from VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=5c63a03b-4a6b-4ae5-9560-1e3c5f462baa>

Assessment Requirements for MSL922001 Record and present data

Modification History

Release	Comments
Release 2	Unit codes updated in Assessment conditions. Equivalent outcome.
Release 1	This version was released in <i>MSL Laboratory Operations Training Package Release 1.0</i>. Supersedes and is equivalent to MSL922001A Record and present data

Performance Evidence

Evidence of competence in this unit must satisfy all of the requirements of the elements and performance criteria, and include demonstration of:

- accurately coding, checking, recording and storing data in the required format
- performing simple calculations involving scientific quantities, with or without a calculator or computer software. The following must be performed:
 - decimals, fractions, ratios, proportions and percentages
 - unit conversion, multiples and submultiples
 - use of significant figures, rounding off, estimation and approximation
 - substitution of data in formulae
 - conversions between SI units
 - performing at least five (5) of the following calculations:
 - perimeters
 - angles
 - areas (m²) and volumes (mL, L, m³) of regular shapes (e.g. packaging and moulds)
 - average mass, mass %, density, specific gravity, moisture, relative and absolute humidity
 - ratios, such as mass to mass, mass to volume and volume to volume percentages
 - industry specific ratios, such as g/cm², kg/m²
 - concentration (e.g. g/100mL, mg/L, mg/L)
 - dilution
 - statistical values, such as mean, median, mode and standard deviation
 - average count, colonies per swab surface and cell counts (live and dead/total)
 - process variables, such as pressure, velocity and flow rates

- % content of moisture, ash, fat, protein, alcohol, sulphur dioxide and trace metals, such as calcium or zinc
- food properties, such as % concentration (dry), friability, bitterness, brix, free amino nitrogen, diastatic power, calorific content and yeast viability
- preparing and interpreting straightforward tables, graphs and charts of data
- recognising obvious features and trends in data, including:
 - maximum and minimum values
 - spread of data
 - increasing/decreasing data, rate of change
 - outliers, data beyond control limits or normal range
- presenting accurate results in the required format
- maintaining the confidentiality of data in accordance with workplace and regulatory requirements.

Knowledge Evidence

Must provide evidence that demonstrates knowledge of:

- concepts of metrology, including:
 - that all measurements are estimates
 - repeated measurements belong to a sample of the measured parameter
 - repeatability, precision, accuracy and significant figures
- the international system of units (SI)
- scientific and technical terminology relevant to job role
- procedures for coding, entering, storing, retrieving and communicating data
- procedures for verifying data and rectifying mistakes
- procedures for maintaining and filing records, and security of data

work health and safety (WHS) and environment requirements.

Assessment Conditions

- Judgement of competence must be based on holistic assessment of the evidence. Assessment methods must confirm consistency of performance over time, rather than a single assessment event.
- This unit of competency is to be assessed in the workplace or a simulated workplace environment, and assessment evidence must be relevant to the particular workplace context. A simulated workplace environment must reflect realistic operational workplace conditions that cover all aspects of workplace performance, including the environment, task skills, task management skills, contingency management skills and job role environment skills.
- Foundation skills are integral to competent performance of the unit and should not be assessed separately.
- Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

- Knowledge evidence may be collected concurrently with performance evidence or through an independent process, such as workbooks, written assessments or interviews (provided a record is kept in either case).
- This unit may be assessed with technical units, such as:
 - MSL973013 Perform basic tests
 - MSL973014 Prepare working solutions
 - MSL973019 Perform microscopic examination
- Holistic assessment methods include:
 - review of data worksheets, calculations, graphs and tables prepared by the candidate
 - review of records transcribed, maintained or stored by the candidate
 - feedback from supervisors and peers
 - observation of the candidate as they record data and perform calculations
 - questions to assess understanding of relevant procedures and trends in data.
- Access is required to instruments, equipment, materials, workplace documentation, procedures and specifications associated with this unit, including, but not limited to:
 - data sets and records
 - computer and relevant software or laboratory information system
 - relevant workplace procedures.
- Assessors must satisfy the assessor competency requirements that are in place at the time of the assessment as set by the VET regulator.
- The assessor must demonstrate both technical competence and currency.
- Technical competence can be demonstrated through:
 - relevant VET or other qualification/Statement of Attainment AND/OR
 - relevant workplace experience.
- Currency can be demonstrated through:
 - performing the competency being assessed as part of current employment OR
 - having consulted with a laboratory about performing the competency being assessed within the last twelve months.

Links

MSL Laboratory Operations Companion Volume Implementation Guide is available from VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=5c63a03b-4a6b-4ae5-9560-1e3c5f462baa>

MSL924003 Process and interpret data

Modification History

Release	Comments
Release 1	This version was released in <i>MSL Laboratory Operations Training Package Release 2.0</i>. Supersedes and equivalent to MSL924001 Process and interpret data. Changes to performance criteria. Range of conditions removed. Assessment requirements amended.

Application

This unit of competency describes the skills and knowledge to retrieve data, evaluate formulae and perform scientific calculations, present and interpret information in tables and graphs and keep accurate records. The unit requires personnel to solve problems of limited complexity where the information may be less obvious, but not contradictory, and can be determined by direct reasoning.

This unit of competency applies to laboratory assistants, field/laboratory technicians and instrument operators in all industry sectors.

No licensing or certification requirements exist at the time of publication. However, regulations and/or external accreditation requirements for laboratory operations exist, so local requirements should be checked. Relevant legislation, industry standards and codes of practice within Australia must also be applied.

Pre-requisite Unit

Nil

Competency Field

Data

Elements and Performance Criteria

Elements describe the essential outcomes.

Performance criteria describe the performance needed to demonstrate achievement of the element.

Elements describe the essential outcomes.		Performance criteria describe the performance needed to demonstrate achievement of the element.	
1	Retrieve and check data	1.1	Store and retrieve data using appropriate files and/or application software
		1.2	Verify the quality of data using workplace procedures
		1.3	Rectify errors in data using workplace procedures
2	Calculate scientific quantities	2.1	Calculate statistical values for given data
		2.2	Calculate scientific quantities using given formulae and data and estimate uncertainties
		2.3	Ensure calculated quantities are consistent with estimations and expectations
		2.4	Report all calculated quantities using the appropriate units and correct number of significant figures
3	Present data	3.1	Present data in clearly labelled tables, charts and graphs
		3.2	Graph data using appropriate scales to span the range of data or display trends
		3.3	Report all data using the appropriate units and number of significant figures
4	Interpret data	4.1	Interpret significant features of tables, charts and graphs, including gradients, intercepts, maximum and minimum values, and limit lines
		4.2	Recognise and report trends in data
5	Keep accurate records	5.1	Transcribe information accurately
		5.2	Verify the accuracy of records following workplace procedures

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance.

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Unit Mapping Information

Equivalent to MSL924001 Process and interpret data, Release 1.

Links

MSL Laboratory Operations Companion Volume Implementation Guide is available from VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=5c63a03b-4a6b-4ae5-9560-1e3c5f462baa>

Assessment Requirements for MSL924003 Process and interpret data

Modification History

Release	Comments
Release 1	This version was released in <i>MSL Laboratory Operations Training Package Release 2.0</i>. Supersedes and equivalent to MSL924001 Process and interpret data. Changes to performance criteria. Range of conditions removed. Assessment requirements amended.

Performance Evidence

There must be evidence the candidate has completed the tasks outlined in the elements and performance criteria of this unit, and:

- processed and interpreted different data sets
- calculated scientific and statistical quantities with or without a calculator or computer software, including the following items:
 - converting units involving multiples and submultiples
 - scientific notation, significant figures, round off, estimate and approximate
 - transposing and evaluating formulae
 - fractions, decimals, proportions and percentages
 - mean
 - median
 - mode
 - standard deviation
- performed at least 5 of the following calculations:
 - perimeters and angles
 - percentage and absolute uncertainties in measurements and test results
 - areas (m²) and volumes (mL, L, m³) of regular shapes, such as packaging
 - dose (mg), average mass, mass percentage, density, specific gravity, moisture, relative and absolute humidity, viscosity and permeability
 - ratios, such as mass to mass, mass to volume and volume to volume percentages
 - concentration, such as molarity, g/100mL, mg/L, mg/L, ppm, ppb, dilution mL/L
 - average count, colonies per swab surface and cell counts, such as live and dead/total
 - process variables, such as pressure, gauge pressure, velocity and flow rates

- food properties, such as % concentration (dry), friability, bitterness, brix, free amino nitrogen, diastatic power, calorific content and yeast viability, % content of moisture, ash, fat, protein, alcohol, sulphur dioxide and trace metals, such as calcium or zinc
- mechanical properties, such as stress, strain, moduli and force
- presenting accurate results in the required format (significant figures, uncertainty units)
- prepared and presented data in the at least 5 of the following formats:
 - tables
 - graphs
 - line graphs
 - histograms
 - pie charts, bar charts and control charts
 - semi-quantitative observations expressed on a scale: 1 to 4 or + to ++++
- recognised and interpreted significant points, anomalies and trends in data.

Knowledge Evidence

- There must be evidence the candidate has knowledge of:
- concepts of metrology, including:
 - that all measurements are estimates
 - repeatability, precision, accuracy and significant figures
 - sources of error, and uncertainty associated with measurement steps
 - traceability
- the international system of units (SI)
- scientific and technical terminology relevant to job role
- workplace procedures for:
 - coding, entering, storing, retrieving and communicating data
 - verifying data and rectifying mistakes
 - maintaining and filing records, and maintaining security of data
- legal, ethical and work health and safety (WHS) requirements specific to the work task.

Assessment Conditions

Skills must have been demonstrated in the workplace or in a simulated environment that reflects workplace conditions and contingencies. The following conditions must be met for this unit:

- use of suitable facilities, equipment and resources, including:
 - data sets and records
 - a calculator
 - spreadsheets, computer software, databases and statistical packages
 - computer and relevant software or laboratory information system
 - relevant workplace procedures.

Assessors must satisfy the NVR/AQTF mandatory competency requirements for assessors.

Links

MSL Laboratory Operations Companion Volume Implementation Guide is available from VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=5c63a03b-4a6b-4ae5-9560-1e3c5f462baa>

MSL936004 Conduct an internal audit of the quality system

Modification History

Release	Comments
Release 1	This version was released in <i>MSL Laboratory Operations Training Package Release 2.0</i>. Supersedes and equivalent to MSL936002 Conduct an internal audit of the quality system. Foundation skill information added. Range of conditions removed. Assessment requirements amended.

Application

This unit of competency describes the skills and knowledge to prepare for, conduct and document an internal audit of aspects of the laboratory's quality system. It also covers the implementation of the identified corrective action and opportunities for improvement and the monitoring of their effectiveness.

This unit applies to senior technical officers and laboratory supervisors working in all industry sectors. These people play a key role in the audit team due to their knowledge of the quality system and their broad technical expertise and specialised knowledge of procedures and technology. This unit of competency requires a thorough examination of various aspects of the quality system.

No licensing or certification requirements exist at the time of publication. However, regulations and/or external accreditation requirements for laboratory operations exist, so local requirements should be checked. Relevant legislation, industry standards and codes of practice within Australia must also be applied.

Pre-requisite Unit

Nil

Competency Field

Quality

Elements and Performance Criteria

Elements describe the essential outcomes.

Performance criteria describe the performance needed to demonstrate achievement of the element.

1	Prepare for internal audit	1.1 Analyse brief to determine the scope and detailed requirements of the planned audit
		1.2 Identify procedures and/or the work area to be audited, and collect relevant information and documentation
		1.3 Brief relevant personnel and allocate roles and responsibilities
		1.4 Develop a detailed audit plan in consultation with relevant personnel
		1.5 Develop a checklist to identify conformance and non-conformance
2	Conduct audit	2.1 Identify the components and elements of the quality system and work area to be audited
		2.2 Collaborate with relevant personnel to maximise continuous improvement and ownership of the audit process
		2.3 Collect sufficient evidence to identify non-conforming aspects of the quality system
		2.4 Analyse evidence to identify suitable corrective actions
3	Report findings	3.1 Document findings from the audit process in the required format
		3.2 Present recommendations for corrective actions
		3.3 Provide strategies for the implementation of the corrective actions
4	Complete corrective actions	4.1 Develop and implement an action plan to improve the quality system
		4.2 Consult with relevant personnel regarding the necessary

Elements describe the essential outcomes.

Performance criteria describe the performance needed to demonstrate achievement of the element.

strategies to improve the quality system

4.3 Evaluate and report the effectiveness of the corrective action after an agreed time interval

4.4 Ensure that relevant certification is maintained

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance.

- Oral communication skills to:
 - encourage suggestions and feedback from team members to develop improved work practices or processes
 - interact effectively with supervisors, managers, laboratory and/or production personnel before, during and after the audit.

Other foundation skills essential to performance are explicit in the performance criteria of this unit.

Unit Mapping Information

Equivalent to MSL936002 Conduct an internal audit of the quality system, Release 1.

Links

MSL Laboratory Operations Companion Volume Implementation Guide is available from VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=5c63a03b-4a6b-4ae5-9560-1e3c5f462baa>

Assessment Requirements for MSL936004 Conduct an internal audit of the quality system

Modification History

Release	Comments
Release 1	This version was released in <i>MSL Laboratory Operations Training Package Release 2.0</i>. Supersedes and equivalent to MSL936002 Conduct an internal audit of the quality system. Foundation skill information added. Range of conditions removed. Assessment requirements amended.

Performance Evidence

There must be evidence the candidate has completed the tasks outlined in the elements and performance criteria of this unit, and:

- effectively prepared for, conducted and documented at least 1 internal audit of at least 1 aspect of the laboratory's quality system in accordance with workplace procedures.

Knowledge Evidence

There must be evidence the candidate has knowledge of:

- workplace quality system, plans and documentation and relevant national and international quality standards and protocols that apply in work area
- workplace organisational structure, delegations and responsibilities, and information management systems
- importance of identifying, reporting and addressing non-conformance
- laboratory's business goals and key performance indicators (KPIs)
- continuous improvement principles and techniques:
 - run charts, control charts, histograms and scattergrams to present quality control data
 - plan, do, check, act (PDCA)
 - Ishikawa fishbone diagrams; cause and effect diagrams; logic tree; similarity/difference analysis; Pareto charts and analysis; force field/strengths, weaknesses, opportunities, threats (SWOT) analysis
 - process capability
- registration/licensing and/or National Association of Testing Authorities (NATA) accreditation requirements
- problem-solving techniques to identify causes and options to remedy problems
- elements and components of a quality system:

- responsibilities of personnel within quality system
- contract review
- purchasing
- design control
- process control, control of customer-supplied product, product identification and traceability
- inspection and testing, control of inspection, measuring and test equipment, and inspection and test status
- statistical analysis, internal quality audits, and corrective and preventative action
- control of documents, data and quality records
- control of non-conforming product
- handling, storage, packaging, preservation and delivery
- training
- servicing.

Assessment Conditions

Skills must have been demonstrated in the workplace or in a simulated environment that reflects workplace conditions and contingencies. The following conditions must be met for this unit:

- use of suitable facilities, equipment and resources, including:
 - documentation, including audit documents, workplace quality manual, and quality (certification or registration) requirements
 - safety procedures, SOPs and work instructions
- modelling of industry operating conditions, including:
 - interactions with managers and laboratory operations personnel.

Links

MSL Laboratory Operations Companion Volume Implementation Guide is available from VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=5c63a03b-4a6b-4ae5-9560-1e3c5f462baa>

MSL976005 Evaluate and select appropriate test methods and/or procedures

Modification History

Release	Comments
Release 1	This version was released in <i>MSL Laboratory Operations Training Package Release 2.0</i>. Supersedes and equivalent to MSL976003 Evaluate and select appropriate test methods and/or procedures. Range of conditions removed. Assessment requirements amended.

Application

This unit of competency describes the skills and knowledge to evaluate and select test methods and/or procedures that are relevant to the current and evolving scope of the laboratory's operations. Selection of test methods and/or procedures may involve the appraisal of new and emerging technologies and may inform decision making about possible extension of the laboratory's scope. Alternatively, it may relate to existing testing requirements, 'one-off' tests, client's special requirements or new tests required to satisfy new legislative, accreditation, licensing or regulatory requirements.

This unit applies to senior technical officers, technical specialists and laboratory supervisors working in all industry sectors. They are required to demonstrate wide ranging, highly specialised technical skills. They are expected to execute sound judgement in the selection of appropriate methodology under the broad guidance of scientists/medical staff/engineers. All operations must comply with relevant standards, appropriate procedures and/or workplace requirements.

No licensing or certification requirements exist at the time of publication. However, regulations and/or external accreditation requirements for laboratory operations exist, so local requirements should be checked. Relevant legislation, industry standards and codes of practice within Australia must also be applied.

Pre-requisite Unit

Nil

Competency Field

Testing

Elements and Performance Criteria

Elements describe the essential outcomes.

Performance criteria describe the performance needed to demonstrate achievement of the element.

1	Determine sample characteristics and testing requirements	1.1	Confirm drivers for evaluation and selection of test methods and/or procedures
		1.2	Examine sample documentation and/or consult with sample supplier to determine nature of samples
		1.3	Identify sample characteristics which may affect testing requirements
		1.4	Determine testing requirements and their compatibility with existing standard operating procedures (SOPs)
2	Evaluate possible test methods and/or procedures	2.1	Identify appropriate standards, reference materials, test methods and/or procedures which may be applicable
		2.2	Assess suitability of available standards, reference materials, test methods and/or procedures against testing requirements
		2.3	Identify environmental and work health and safety (WHS) risks
		2.4	Identify the need for specific equipment, instrumentation and/or specialised facilities
		2.5	Estimate materials, personnel and possible training requirements
3	Recommend appropriate test methods and/or procedures	3.1	Select appropriate test methodology consistent with testing requirements and resource availability
		3.2	Identify any changes to SOPs required prior to implementation of selected method and/or procedure
		3.3	Recommend selected method and/or procedure to appropriate personnel and seek authorisation to proceed

Elements describe the essential outcomes.

Performance criteria describe the performance needed to demonstrate achievement of the element.

4	Confirm and document selected methods and/or procedures	4.1	Obtain standards and/or reference materials for the method and/or procedure
		4.2	Conduct tests to verify the performance of the method and/or procedure, standards and reference materials
		4.3	Analyse the measurements and estimate uncertainties
		4.4	Determine if legal traceability is required and develop appropriate chain of custody procedures
		4.5	Document all safety, sample preparation, testing, data handling and reporting procedures
		4.6	Submit all documentation to appropriate personnel for review and approval

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance.

- Learning skills to appraise new and emerging technologies relevant to scope of laboratory operations and/or job role
- Numeracy skills to use method performance measures, such as accuracy, precision, uncertainty, linearity, selectivity, range, limit of detection and matrix characteristics in method selection.

Other foundation skills essential to performance are explicit in the performance criteria of this unit.

Unit Mapping Information

Release 1. Supersedes and is equivalent to MSL976003 Evaluate and select appropriate test methods and/or procedures.

Links

Training Package Companion Volumes -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=5c63a03b-4a6b-4ae5-9560-1e3c5f462baa>

Assessment Requirements for MSL976005 Evaluate and select appropriate test methods and/or procedures

Modification History

Release	Comments
Release 1	This version was released in <i>MSL Laboratory Operations Training Package Release 2.0</i>. Supersedes and equivalent to MSL976003 Evaluate and select appropriate test methods and/or procedures. Range of conditions removed. Assessment requirements amended.

Performance Evidence

There must be evidence the candidate has completed the tasks outlined in the elements and performance criteria of this unit, and:

- evaluated and selected test methods and procedures for at least 2 different items or laboratory processes.

Knowledge Evidence

There must be evidence the candidate has knowledge of:

- principles, concepts and workplace and regulatory requirements related to method selection
- regulatory and licensing requirements related to selected test methods
- scientific and technical principles underpinning test method and their application to selection of testing methods for different materials
- calculation steps for data analysis and estimation of uncertainties for selected test methods
- significance of normal, physiological or reference ranges
- common types of tests and procedures:
 - routine
 - infrequent and 'one-off'
 - quantitative or qualitative
 - identification or quantification of biological, chemical or physical activity
 - gross characteristics of a sample, including in vitro and in vivo
 - detection of chemical, physical or biological characteristics, features, markers or responses
- drivers for the evaluation and selection of test methods and procedures
- factors that typically influence method evaluation and selection:

- quantity and nature of sample available for testing
- levels of detection required
- type of matrix, possible contaminants and resulting interference
- safety
- availability of suitable equipment, instruments and availability of trained staff
- cost
- selectivity of method, range, accuracy, precision and acceptable uncertainty
- whether it is appropriate/ethical to perform the test
- balancing customer, workplace and/or regulatory/licensing requirements
- workplace and/or legal traceability requirements
- awareness of environmental sustainability issues as they relate to the work task
- legal, ethical and work health and safety (WHS) requirements specific to the work task.

Assessment Conditions

Skills must have been demonstrated in the workplace or in a simulated environment that reflects workplace conditions and contingencies. The following conditions must be met for this unit:

- use of suitable facilities, equipment and resources, including:
 - a standard laboratory equipped with appropriate equipment, analytical instruments and reagents, SOPs and test methods
 - Australian and international regulatory standards relevant to scope of laboratory operations.

Assessors must satisfy the NVR/AQTF mandatory competency requirements for assessors.

Links

Training Package Companion Volumes -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=5c63a03b-4a6b-4ae5-9560-1e3c5f462baa>

MSMWHHS216 Operate breathing apparatus

Modification History

Release 1. Supersedes and is equivalent to MSAPMOHS216A Operate breathing apparatus

Application

This unit of competency covers the skills and knowledge required to operate and maintain breathing apparatus and equipment in an irrespirable atmosphere, as defined by the Australian Standard AS/NZS 1715:2009 Selection, use and maintenance of respiratory protective equipment.

This unit of competency applies to operators who are required to wear breathing apparatus because they are working:

- in a confined space
- with hazardous gases/vapours
- in an oxygen deficient atmosphere
- in other situations requiring the wearing of breathing apparatus.

Operators may also be required to wear breathing apparatus in emergency situations, however, this is not the prime focus of this unit.

This unit of competency applies to an individual working alone or as part of a team or group and working in liaison with other shift team members and the control room operator, as appropriate.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Nil

Competency Field

Work health and safety

Unit Sector

Elements and Performance Criteria

Elements describe the essential outcomes

Performance criteria describe the performance needed to demonstrate achievement of the element

1	Conduct pre-donning checks and tests on breathing apparatus	1.1	Inspect breathing apparatus for immediate use in accordance with procedures
		1.2	Report/record faulty or damaged equipment in accordance with procedures
2	Operate breathing apparatus	2.1	Identify, monitor and control hazards in accordance with the procedures
		2.2	Establish and maintain communication with appropriate personnel throughout the activity
		2.3	Use breathing apparatus for the required activities in accordance with procedures
		2.4	Monitor remaining working time available and return to a respirable atmosphere as required
		2.5	Implement entrapment procedures in accordance with procedures
		2.6	Maintain personal safety at all times
3	Conclude operations in accordance with procedures	3.1	Close down breathing apparatus set
		3.2	Remove breathing apparatus set
		3.3	Undertake after-use cleaning and maintenance of breathing apparatus
		3.4	Make equipment ready for operational use

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance.

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

This field allows for different work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included.

Regulatory framework The latest version of all legislation, regulations, industry codes of practice and Australian/international standards, or the version specified by the local regulatory authority, must be used, and include one or more of the following:

- legislative requirements, including work health and safety (WHS)
- industry codes of practice and guidelines
- environmental regulations and guidelines
- Australian and other standards
- licence and certification requirements:
- *AS/NZS 1715:2009 Selection, use and maintenance of respiratory protective equipment* or its authorised replacement

Procedures All operations must be performed in accordance with relevant procedures.

Procedures are written, verbal, visual, computer-based or in some other form, and include one or more of the following:

- emergency procedures
- work instructions
- standard operating procedures (SOPs)
- safe work method statements (SWMS)
- temporary instructions
- any similar instructions provided for the smooth running of the plant

Breathing apparatus Breathing apparatus includes one or more of open circuit:

- self-contained breathing apparatus (SCBA)
- airline equipment
- other similar breathing apparatus

It does not cover the use of rebreather (closed circuit) apparatus.

Hazards

Hazards include one or more of the following:

- entrapment
- failure to maintain a face seal
- exhaustion of air supply
- heated atmospheres
- asphyxiating atmosphere (oxygen deficient)
- (non-skin absorption) toxic or poisonous atmosphere
- smoke or suspended particles/fibres in atmosphere
- malfunction of equipment
- disorientation in smoke, darkness or confinement
- fire and explosion
- dust or other atmospheric hazards
- electricity
- gas
- gases and liquids under pressure
- structural hazards
- structural collapse
- equipment failures
- industrial (machinery, equipment and product)
- equipment or product mass
- noise, rotational equipment or vibration
- limited head spaces or overhangs
- flammability and explosivity
- hazardous products and materials
- unauthorised personnel
- sharp edges, protrusions or obstructions
- slippery surfaces, spills or leaks
- extreme weather
- other hazards that might arise

Unit Mapping Information

Release 1. Supersedes and is equivalent to MSAPMOHS216A Operate breathing apparatus

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=d1287d36-dff4-4e9f-ad2c-9d6270054027>

Assessment Requirements for MSMWHS216 Operate breathing apparatus

Modification History

Release 1. Supersedes and is equivalent to MSAPMOHS216A Operate breathing apparatus

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy the requirements of the elements and performance criteria and must include the ability to:

- conduct pre-donning tests on breathing apparatus
- correctly don and operate breathing apparatus
- identify hazards and apply control measures according to procedures
- communicate while using breathing apparatus
- determine the available working time from a breathing apparatus set
- correctly close down, remove and clean breathing apparatus
- report faults and/or damage to breathing apparatus.

Knowledge Evidence

Evidence must be provided that demonstrates knowledge of:

- the effects of irrespirable atmospheres on the body and the need for protective equipment
- characteristics, component parts, operation of compressed air breathing apparatus
- operational testing, standard operating procedures (SOPs) and safe work practices when wearing breathing apparatus
- use of procedures, personal lines and tallies
- pre-use tests and checks
- breathing apparatus control
- entrapment procedures
- communications while wearing breathing apparatus.

Assessment Conditions

- Competency must be achieved before performing this work unsupervised. Therefore this unit will typically be assessed off the job. Where assessment is undertaken on the job appropriate supervision and safety precautions must be provided.
- The unit should be assessed holistically and the judgement of competence based on a holistic assessment of the evidence.
- The collection of performance evidence:

- should provide evidence of the ability to perform over the range of situations which might be expected to be encountered, including typical disruptions to normal, smooth work conditions
- must include the use of breathing apparatus, appropriate tools, equipment and safety gear requiring demonstration of preparation, operation, completion and responding to problems
- may use industry-based simulation particularly where safety, lack of opportunity or significant cost is an issue.
- Off-the-job assessment must sufficiently reflect realistic operational workplace conditions that cover all aspects of workplace performance, including environment, task skills, task management skills, contingency management skills and job role environment skills.
- Assessment in a simulated environment should use evidence collected from one or more of:
 - walk-throughs
 - demonstration of skills
 - industry-based case studies/scenarios
 - ‘what ifs’.
- Knowledge evidence may be collected concurrently with performance evidence (provided a record is kept) or through an independent process, such as workbooks, written assessments or interviews (provided a record is kept).
- Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.
- Conditions for assessment must include access to all tools, equipment, materials and documentation required, including relevant workplace procedures, product and manufacturing specifications associated with this unit.
- The regulatory framework will be reflected in workplace policies and procedures and is not required to be independently assessed.
- Foundation skills are integral to competent performance of the unit and should not be assessed separately.
- As a minimum, assessors must satisfy the Standards for Registered Training Organisations 2015 assessor requirements.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=d1287d36-dff4-4e9f-ad2c-9d6270054027>

MSMWJ201 Use high pressure water jetting equipment

Modification History

Not applicable.

Application

This unit of competency covers the skills and knowledge required to use high pressure water jetting equipment under the supervision of a competent operator. The job may be to clean, prepare, abrade, cut or demolish concrete, steel or other plant, equipment, vessels or infrastructure.

Work will be undertaken on a worksite which may be a client's site or a site belonging to the organisation.

This work is undertaken in compliance with *AS/NZS 4233.1:2013 High pressure water jetting systems - Safe operation and maintenance*, or its authorised replacement and *Safe Work Australia Guide for Managing Risks from High Pressure Water Jetting December 2013*, its state/territory equivalent (where one exists) or the authorised replacement.

AS/NZS 4233.1:2013 High pressure water jetting systems - Safe operation and maintenance defines this work as work with:

- (a) *High pressure water jetting systems pressurised by positive displacement pumps with an output capability greater than 800 bar litres per minute.*
- (b) *High pressure water jetting operations carried out at pressures above 800 bar litres per minute and includes jetting operations involving the use of additives and abrasives.*
- (c) *Water jetting operations below 800 bar litres per minute where there is a foreseeable risk of injury to operators.*

It further defines:

High pressure water jetting systems with an output capability greater than 800 bar litres per minute and less than 5600 bar litres per minute are identified as Class A and systems with an output capability in excess of 5600 bar litres per minute are identified as Class B.

This unit covers an operator who is competent to operate under supervision. For a competent operator who is to operate independently *MSMWJ301A Operate a high pressure water jetting system should be used.*

AS/NZS 4233.1:2013 High pressure water jetting systems - Safe operation and maintenance states that 'Verification of competency or refresher training on high pressure water jetting operations shall be carried out and documented at appropriate intervals not exceeding two years to ensure the continued competency of operators'.

Competence may also be required in a range of other units of competency in order to be allowed to operate on site under supervision.

No other licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Nil

Competency Field

Operations

Unit Sector

Surface finishing

Elements and Performance Criteria

Elements describe the essential outcomes

Performance criteria describe the performance needed to demonstrate achievement of the element

1	Prepare for work	1.1	Obtain required job details as part of a team
		1.2	Complete site access and work control requirements
		1.3	Identify site hazards and required hazard controls
		1.4	Select, check, load and prepare required equipment under supervision
		1.5	Participate in toolbox meeting or similar, as required
		1.6	Complete required pre-work paperwork

2	Complete on-site preparation	2.1	Check correct equipment is at job/site location
		2.2	Check job location, scope and requirements
		2.3	Obtain required permits/work authorities, as directed
		2.4	Follow job-related documentation as directed
		2.5	Check that the required quantity and quality of water is available
		2.6	Check available waste disposal is adequate for all wastes generated by the job
		2.7	Report any deviations from requirements to supervisor
		2.8	Recognise and control job and site-specific hazards
3	Set up job as directed	3.1	Prepare worksite to comply with job and safety requirements
		3.2	Set up and prepare water jetting equipment
		3.3	Liaise with other work groups as appropriate to ensure safe and efficient operation
		3.4	Establish appropriate means of communication between operators
		3.5	Ensure hazard controls are operational and adequate
		3.6	Check and use required personal protective equipment
		3.7	Test emergency shut-off and request equipment be repaired if not functional.
4	Undertake water jetting job as directed	4.1	Start up high pressure water jetting system
		4.2	Communicate with supervisor and any other operators as required by job
		4.3	Operate equipment as directed
		4.4	Monitor the job, conditions and equipment

- 4.5 Maintain required line of sight
 - 4.6 Monitor hazards and activate emergency stop, as required
 - 4.7 Recognise problems and resolve routine problems
 - 4.8 Complete required paperwork
- 5 **Complete job**
- 5.1 Shut down equipment
 - 5.2 Clean job site and equipment
 - 5.3 Service and inspect equipment as directed
 - 5.4 Store equipment, as directed
 - 5.5 Restock running spares and consumables, as directed
 - 5.6 Report any issues or incidents according to procedures
 - 5.7 Participate in debrief
 - 5.8 Complete required paperwork

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance.

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

This field allows for different work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included.

Regulatory framework The latest version of all legislation, regulations, industry codes of practice and Australian/international standards, or the version specified by the local regulatory authority, must be used.

Applicable legislation, regulations, standards and codes of practice include one or more of the following:

- *AS/NZS 4233.1:2013 High pressure water jetting systems - Safe operation and maintenance*
- *Safe Work Australia Guide for Managing Risks from High Pressure Water Jetting December 2013*
- work health and safety (WHS) legislation, codes of practice and guidance material
- environmental regulations and guidelines
- other relevant government legislation, regulations and codes
- Australian and other standards
- other relevant codes and standards
- licence and certification requirements

Procedures

All operations must be performed in accordance with relevant procedures.

Procedures are written, verbal, visual, computer-based or in some other form, and include one or more of the following:

- work instructions
- standard operating procedures (SOPs)
- Guidance Notes
- temporary instructions
- any similar instructions provided for the smooth running of the plant

All operations to which this unit applies are subject to stringent health, safety and environment (HSE) requirements, which may be imposed through federal or state/territory legislation, and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and HSE requirements, the HSE requirements take precedence.

Site access requirements

Site access requirements include one or more of the following:

- site induction
- other requirements if defined by the site or client

Work control requirements

Work control requirements include one or more of the following:

- permits or other authorities to enter site, commence and continue

work

- other requirements if defined by the site or client

Equipment

Equipment includes one or more of the following:

- pumps
- pump motors/drivers
- hoses
- guns, lances and nozzles
- personal protective equipment (PPE)
- other equipment, plant, tools and hazard control devices required for the job

Routine problems Routine problems must be resolved by applying known solutions.

Routine problems are predictable and include one or more of the following:

- equipment not operating at desired conditions
- equipment malfunction
- jobs is not as described in the scope

Known solutions are drawn from one or more of the following:

- procedures
- training
- remembered experience

Non-routine problems must be reported according to according to relevant procedures.

Equipment operation

Equipment operation includes one or more of the following:

- manually on the worksite
- using local controller on the worksite
- using the control system which may be remote from the jetting equipment

Job paperwork

Job paperwork is electronic, hard copy or other format, and includes one or more of the following:

- tool storeroom records
- equipment loaded records
- maintenance/inspection records/checklists
- tag out/reports for failed equipment
- hazard controls
- work control system requirements.

PPE

PPE includes one or more of the following:

- PPE as specified in:
 - Section 4 *AS/NZS 4233.1:2013 High pressure water jetting systems - Safe operation and maintenance, or its authorised replacement*
 - Section 5 *Safe Work Australia Guide for Managing Risks from High Pressure Water Jetting December 2013*, or its authorised replacement
- medical alert card as specified in Section 9.5 of *AS/NZS 4233.1:2013 High pressure water jetting systems - Safe operation and maintenance, or its authorised replacement*
- other equipment as required

Communication

Communication includes one or more of the following:

- hand signals
- radio head phones
- other means appropriate to the job/site

Hazards

Hazards include one or more of the following:

- hazards from high/extreme pressure and or velocity
- hazards arising from the materials used in/generated by the water jetting job
- hose set-up and hose run
- hazards specific to the site/process
- slip/trip hazards
- PPE is unavailable or not functional
- emergency equipment is unavailable
- electricity
- gas
- gases and liquids under pressure
- structural hazards
- structural collapse

- equipment is in safe condition with hazard controls functional
- industrial (machinery, equipment and product)
- equipment or product mass
- noise, rotational equipment or vibration
- limited head spaces or overhangs
- working where the possibility of a fall is reasonably likely, in restricted or confined spaces, or in environments subjected to heat, noise, dusts or vapours, smoke or other atmospheric hazards
- flammability and explosivity
- hazardous products and materials
- unauthorised personnel
- sharp edges, protrusions or obstructions, swarf and scrap
- slippery surfaces, spills or leaks
- extreme weather
- other hazards that might arise

Hazard controls Hazard controls include one or more of the following:

- controls required by *AS/NZS 4233.1: 2013 High pressure water jetting systems - Safe operation and maintenance, or its authorised replacement*
- controls identified in the relevant permits to work
- use of PPE
- other appropriate controls consistent with the hierarchy of control

Unit Mapping Information

Release 1. Supersedes and is equivalent to MSAPMWJ201A Use high pressure water jetting equipment

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=d1287d36-dff4-4e9f-ad2c-9d6270054027>

Assessment Requirements for MSMWJ201 Use high pressure water jetting equipment

Modification History

Not applicable.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy the requirements of the elements and performance criteria and under supervision demonstrate the ability to:

- assemble and operate equipment which meets the requirements of a Class B system as defined by *AS/NZS 4233.1:2013 High pressure water jetting systems - Safe operation and maintenance* or its authorised replacement, including:
 - at least one (1) gun operation AND
 - at least one (1) of:
 - pipe cleaning
 - heat exchanger/tube cleaning
 - surface preparation
 - vessel (interior) cleaning using a cleaning head AND
 - use at least two (2) different types of nozzles/heads.

Knowledge Evidence

Must provide evidence that demonstrates knowledge relevant to their job sufficient to operate under routine only supervision and to solve routine problems, including:

- system controls required by *AS/NZS 4233.1: 2013 High pressure water jetting systems - Safe operation and maintenance*, or its authorised replacement
- possible injuries resulting from high pressure water jets and appropriate responses
- basic principles of how high pressure water jetting nozzles/jets work
- basic understanding of reaction force and its determination
- preoperational checks and set-up
- relevant communication systems, including hand signals
- types of waste generated and procedures for safe disposal.

Assessment Conditions

- Competency must be achieved before performing this work under supervision. Therefore this unit will typically be assessed off the job. Where assessment is undertaken on the job appropriate supervision and safety precautions must be provided.

- The unit should be assessed holistically and the judgement of competence shall be based on a holistic assessment of the evidence.
- While water jetting equipment meeting the requirements of Class B must be used, the plant/job requiring water jetting may be a realistic simulation of an industry plant/application/situation.
- All appropriate tools, equipment, paper work/permits and safety gear required will be available and used as required. The assessor should act as the supervisor, giving such directions as would be provided on the job. It is expected that one assessor would not observe a group larger than ten persons at the one assessment event.
- Off-the-job assessment must sufficiently reflect realistic operational workplace conditions that cover all aspects of workplace performance, including environment, task skills, task management skills, contingency management skills and job role environment skills.
- Assessment in a simulated environment should use evidence collected from one or more of:
 - walk-throughs
 - demonstration of skills
 - industry-based case studies/scenarios
 - ‘what ifs’.
- Knowledge evidence will be collected independently of the above practical assessment and may use workbooks, written assessments, interviews (provided a record is kept) or other methods.
- Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.
- Conditions for assessment must include access to all tools, equipment, materials and documentation required, including relevant workplace procedures, product and manufacturing specifications associated with this unit.
- Persons seeking verification of competence/retraining to comply with *AS/NZS 4233.1:2013 High pressure water jetting systems - Safe operation and maintenance*, or its authorised replacement must meet the same evidence requirements as above.
- The regulatory framework will be reflected in workplace policies and procedures and is not required to be independently assessed.
- Foundation skills are integral to competent performance of the unit and should not be assessed separately.
- As a minimum, assessors must satisfy the Standards for Registered Training Organisations 2015 assessor requirements.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=d1287d36-dff4-4e9f-ad2c-9d6270054027>

MSMWJ301 Operate a high pressure water jetting system

Modification History

Release 1. Supersedes and is equivalent to MSAPMWJ301A Operate a high pressure water jetting system

Application

This unit of competency covers the skills and knowledge required to operate a high pressure water jetting system which may be used to clean, prepare, abrade, cut or demolish concrete, steel or other plant, equipment, vessels or infrastructure.

This work is undertaken in compliance with AS/NZS 4233.1:2013 High pressure water jetting systems - Safe operation and maintenance, or its authorised replacement and Safe Work Australia Guide for Managing Risks from High Pressure Water Jetting December 2013, its state/territory equivalent (where one exists) or the authorised replacement.

Work will be undertaken on a worksite which may be a client's site or a site belonging to the organisation.

AS/NZS 4233.1:2013 High pressure water jetting systems - Safe operation and maintenance defines this work as work with:

- (a) High pressure water jetting systems pressurised by positive displacement pumps with an output capability greater than 800 bar litres per minute.
- (b) High pressure water jetting operations carried out at pressures above 800 bar litres per minute and includes jetting operations involving the use of additives and abrasives.
- (c) Water jetting operations below 800 bar litres per minute where there is a foreseeable risk of injury to operators.

It further defines:

High pressure water jetting systems with an output capability greater than 800 bar litres per minute and less than 5600 bar litres per minute are identified as Class A and systems with an output capability in excess of 5600 bar litres per minute are identified as Class B.

The competent operator as defined by this unit of competency will be able to operate independently. Operators who are not competent to operate independently should be competent to operate under supervision (refer to MSMWJ201 Use high pressure water jetting equipment).

Operators will also need to be competent in a range of other units of competency in order to be allowed to operate independently on site. Work will be undertaken on a worksite which may be a client's site or a site belonging to the organisation.

AS/NZS 4233.1:2013 High pressure water jetting systems - Safe operation and maintenance states that 'Verification of competency or refresher training on high pressure water jetting operations shall be carried out and documented at appropriate intervals not exceeding two years to ensure the continued competency of operators'.

No other licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Nil

Competency Field

Operations

Unit Sector

Elements and Performance Criteria

Elements describe the essential outcomes

Performance criteria describe the performance needed to demonstrate achievement of the element

1	Prepare for work	1.1	Obtain required job details
		1.2	Complete site access and work control requirements
		1.3	Identify site hazards and required hazard controls
		1.4	Select, check and load equipment and personal protective equipment (PPE) required for the job
		1.5	Ensure the adequate quantity of fuel and other consumables have been filled/loaded
		1.6	Lead tool box meeting as required
		1.7	Check work team members comply with site and job

			competency requirements
		1.8	Complete required pre-work paperwork
2	Complete on-site preparation	2.1	Check job scope, location and requirements with job owner
		2.2	Obtain required permits/work authorities
		2.3	Interpret and follow job related documentation
		2.4	Check that the required quantity and quality of water is available
		2.5	Check available waste disposal is adequate for all wastes generated by the job
		2.6	Recognise and control job and site-specific hazards
		2.7	Communicate needs back to base
3	Set up job in accordance with procedures	3.1	Prepare worksite to comply with job and safety requirements
		3.2	Inspect, assemble, check and flush water jetting equipment to procedures
		3.3	Liaise with other work groups as appropriate to ensure safe and efficient operation
		3.4	Identify competency of other team members and the degree and means of required supervision
		3.5	Establish appropriate means of communication between operators
		3.6	Ensure hazard controls are operational and adequate
		3.7	Liaise with job owner to confirm details, as required
		3.8	Select key equipment variables required for job
		3.9	Check and use required PPE
		3.10	Test emergency shut-off and have equipment repaired if not functional

4	Undertake water jetting job in accordance with procedures	4.1	Start up high pressure water jetting system
		4.2	Communicate with/supervise other operator as required by job
		4.3	Operate equipment to meet job requirements
		4.4	Monitor hazards and activate emergency stop, as required
		4.5	Maintain required line of sight
		4.6	Monitor the job, conditions and equipment
		4.7	Recognise and diagnose problems
		4.8	Take appropriate action to respond to problems
		4.9	Complete required paperwork
5	Complete job in accordance with procedures	5.1	Shut down equipment
		5.2	Advise job owner of job completion and any relevant observations during the job
		5.3	Clean job site and equipment
		5.4	Service and inspect equipment
		5.5	Store equipment
		5.6	Restock running spares and consumables
		5.7	Report any issues or incidents, as required
		5.8	Debrief relevant stakeholders
		5.9	Complete required paperwork

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance.

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

This field allows for different work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included.

Regulatory Framework The latest version of all legislation, regulations, industry codes of practice and Australian/international standards, or the version specified by the local regulatory authority, must be used.

Applicable legislation, regulations, standards and codes of practice include one or more of the following:

- *AS/NZS 4233.1:2013 High pressure water jetting systems - Safe operation and maintenance*
- work health and safety (WHS) legislation, codes of practice and guidance material
- environmental regulations and guidelines
- other relevant government legislation, regulations and codes
- Australian and other standards
- other relevant codes and standards
- licence and certification requirements

Procedures All operations must be performed in accordance with relevant procedures.

Procedures are written, verbal, visual, computer-based or in some other form, and include one or more of the following:

- work instructions
- standard operating procedures (SOPs)
- safe work method statements (SWMS)
- temporary instructions
- any similar instructions provided for the smooth running of the job

All operations to which this unit applies are subject to stringent health, safety and environment (HSE) requirements, which may be imposed through federal or state/territory legislation, and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and HSE requirements, the HSE requirements take precedence.

Site access requirements

Site access requirements include one or more of the following:

- site induction
- other site/client requirements

Equipment

Equipment includes one or more of the following:

- pump
- pump motor/driver
- hoses
- guns, lances and nozzles
- PPE
- other equipment, plant, tools and hazard control devices required by the job

Equipment variables

Equipment variables include:

- nozzle type
- pressure/flow required
- additives to be used
- other items under the control of the operator

Non-routine problems

Non-routine problems must be resolved by applying operational knowledge to develop new solutions, either individually or in collaboration with relevant experts to:

- determine problems needing action
- determine possible fault causes
- develop solutions to problems which do not have a known solution
- follow through items initiated until final resolution has occurred
- report problems outside area of responsibility to designated person

Non-routine problems are unexpected problems, or variations of previous problems and include one or more of the following:

- equipment not operating at desired conditions
- equipment malfunction
- jobs is not as described in the scope
- job owner wants a scope variation
- other unplanned event or unexpected consequence from a planned event

Operational knowledge includes one or more of: the following

- procedures
- training
- technical information such as journals, engineering specifications
- remembered experience
- relevant knowledge obtained from appropriate people

Job owner

Job owner includes one or more of the following:

- client or their representative
- site manager or their representative
- production manager or their representative
- maintenance manager or their representative
- other person with prime responsibility for the plant/plant area which is the subject of the water jetting job

Equipment operation

Equipment operation includes one or more of the following:

- manually on the worksite
- using local controller on the worksite
- using the control system which may be remote from the jetting equipment
-

Job paperwork

Job paperwork is electronic, hard copy or other format, and includes one or more of the following:

- tool storeroom records
- equipment loaded records
- maintenance/inspection records/checklists
- tag out/reports for failed equipment
- hazard controls
- work control system requirements

PPE

PPE includes one or more of the following:

- PPE as specified in:
- Section 4 *AS/NZS 4233.1:2013 High pressure water jetting systems - Safe operation and maintenance*, or its authorised replacement
- Section 5 *Safe Work Australia Guide for Managing Risks from High Pressure Water Jetting December 2013*, or its authorized replacement
- medical alert card as specified in Section 9.5 of *AS/NZS 4233.1:2013*

High pressure water jetting systems - Safe operation and maintenance, or its authorised replacement

- other equipment as required

Communication Communication includes one or more of the following:

- hand signals
- radio headphones
- other means appropriate to the job/site

Hazards Hazards include one or more of the following:

- hazards from high/extreme pressure and or velocity
- hazards arising from the materials used in/generated by the water jetting job
- hose set up and hose run
- hazards specific to the site/process
- slip/trip hazards
- PPE is unavailable or not functional
- emergency equipment is unavailable
- electricity
- gas
- gases and liquids under pressure
- structural hazards
- structural collapse
- equipment is in safe condition with hazard controls functional
- industrial (machinery, equipment and product)
- equipment or product mass
- noise, rotational equipment or vibration
- limited head spaces or overhangs
- working where there is a reasonable risk of a fall, in restricted or confined spaces, or in environments subjected to heat, noise, dusts, vapours, smoke, or other atmospheric hazards
- flammability and explosivity
- hazardous products and materials
- unauthorised personnel
- sharp edges, protrusions or obstructions, swarf and scrap
- slippery surfaces, spills or leaks
- extreme weather
- other hazards that might arise

Hazard controls Hazard controls include one or more of the following:

- controls required by *AS/NZS 4233.1:2013 High pressure water jetting systems - Safe operation and maintenance, or its authorised replacement*
- controls identified in the relevant permits to work
- use of PPE
- other appropriate controls consistent with the hierarchy of control

Unit Mapping Information

Release 1. Supersedes and is equivalent to MSAPMWJ301A Operate a high pressure water jetting system

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=d1287d36-dff4-4e9f-ad2c-9d6270054027>

Assessment Requirements for MSMWJ301 Operate a high pressure water jetting system

Modification History

Release 1. Supersedes and is equivalent to MSAPMWJ301A Operate a high pressure water jetting system

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy the requirements of the elements and performance criteria and demonstrate the ability to:

- assemble and operate equipment which meets the requirements of a Class B system as defined by *AS/NZS 4233.1:2013 High pressure water jetting systems - Safe operation and maintenance* or its authorised replacement, including:
 - at least one (1) gun operation AND
 - at least one (1) of:
 - pipe cleaning
 - heat exchanger/tube cleaning
 - surface preparation
 - vessel (interior) cleaning using a cleaning head AND
 - use at least two (2) different types of nozzles/heads.
-

Knowledge Evidence

Must provide evidence that demonstrates knowledge relevant to their job sufficient to operate independently and to solve routine and non-routine problems, including:

- hazards and hazard controls specific to the operation of water jetting equipment
- principles of operation and science (physics) of water jetting equipment and its component items
- types and duties of water jetting equipment and its component plant items
- correct methods of starting up, shutting down, operating and controlling water jetting equipment and its component plant items by type and duty
- relevant communication systems, including hand signals
- operational parameters and limits
- types and causes of known problems for water jetting and its components
- corrective action appropriate to the problem cause
- the importance of monitoring and controlling job conditions
- methods, purpose (and appropriate corrective action) of monitoring job variables
- situations requiring:
 - activating emergency stop

- stopping work until a situation is resolved
- raising alarm (when, how, who to)
- responding to injury.
-

Assessment Conditions

- Competency must be achieved before performing this work unsupervised. Therefore this unit will typically be assessed off the job. Where assessment is undertaken on the job appropriate supervision and safety precautions must be provided.
- The unit should be assessed holistically and the judgement of competence shall be based on a holistic assessment of the evidence.
- While water jetting equipment meeting the requirements of Class B must be used, the plant/job requiring water jetting may be a realistic simulation of an industry plant/application/situation.
- All appropriate tools, equipment, paper work/permits and safety gear required will be available and used as required. The assessor should only intervene if it would be unsafe to allow the assessment to continue. It is expected that one assessor would not observe a group larger than ten persons at the one assessment event.
- Off-the-job assessment must sufficiently reflect realistic operational workplace conditions that cover all aspects of workplace performance, including environment, task skills, task management skills, contingency management skills and job role environment skills.
- Assessment in a simulated environment should use evidence collected from one or more of:
 - walk-throughs
 - demonstration of skills
 - industry-based case studies/scenarios
 - 'what ifs'.
- Knowledge evidence will be collected independently of the above practical assessment and may use workbooks, written assessments, interviews (provided a record is kept) or other methods.
- Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.
- Conditions for assessment must include access to all tools, equipment, materials and documentation required, including relevant workplace procedures, product and manufacturing specifications associated with this unit.
- Persons seeking verification of competence/retraining to comply with AS/NZS 4233.1:2013 High pressure water jetting systems - Safe operation and maintenance or its authorised replacement must meet the same evidence requirements as above.
- The regulatory framework will be reflected in workplace policies and procedures and is not required to be independently assessed.
- Foundation skills are integral to competent performance of the unit and should not be assessed separately.
- As a minimum, assessors must satisfy the Standards for Registered Training Organisations 2015 assessor requirements.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=d1287d36-dff4-4e9f-ad2c-9d6270054027>

MSS024019 Collect and evaluate meteorological data

Modification History

Release 1. Updated unit code. Changes to performance criteria. Range of conditions removed. Assessment requirements amended. Equivalent outcome.

Application

This unit describes the skills and knowledge to set up basic, ground level meteorological equipment and collect and record reliable data. It also includes the ability to assess data quality, interpret significant data features and use the data to assist with analysing or processing other environmental monitoring measurements.

This unit applies to environmental technicians working in a range of industry sectors, including environmental services; environmental compliance, auditing and inspection; solid and hazardous waste management, and site remediation; management of contaminated sites; geotechnical services and civil engineering; natural resource management.

No licensing or certification requirements exist at the time of publication. Relevant legislation, industry standards and codes of practice within Australia must be applied.

Pre-requisite Unit

Nil

Competency Field

Environmental monitoring

Unit Sector

Environmental

Elements and Performance Criteria

Elements describe the essential outcomes.

Performance criteria describe the performance needed to demonstrate achievement of the element.

1 Prepare for field work	1.1	Review job request to identify the equipment required and the meteorological parameters to be measured
	1.2	Identify hazards and read safe work procedures associated with the site, test methods and equipment used

Elements describe the essential outcomes.		Performance criteria describe the performance needed to demonstrate achievement of the element.	
		1.3	Confirm site location, access, timing and any client requirements
		1.4	Assemble all required equipment and materials and check that they are fit for purpose
		1.5	Stow equipment and materials to ensure their safe transport
		1.6	Arrange transport to site
		1.7	Liaise with appropriate personnel on arrival at site to ensure safety and minimise disruption to others
2	Perform basic meteorological measurements	2.1	Select a location for the meteorological equipment at the site to achieve valid readings for the required parameters
		2.2	Install and check instrumentation and any recording or data logging equipment to ensure it is functioning correctly
		2.3	Confirm calibration status of meteorological equipment
		2.4	Perform measurements using ground level meteorological equipment
		2.5	Collect meteorological data using physical or electronic methods
		2.6	Ensure wind direction sensors are aligned or corrected to true north rather than magnetic north
3	Verify meteorological data	3.1	Ensure that quality requirements for data are met
		3.2	Perform any required corrections, calculations and data manipulations and identify significant trends in data
		3.3	Check for anomalous data and take corrective action
		3.4	Verify that processed data meets requirements

Elements describe the essential outcomes.		Performance criteria describe the performance needed to demonstrate achievement of the element.	
4	Interpret and apply meteorological information	4.1	Relate meteorological data to weather maps and other sources of meteorological data
		4.2	Associate meteorological conditions with related weather maps
		4.3	Compare weather patterns and data for different time periods and geographic locations
		4.4	Read and interpret meteorological data in terms of local atmospheric conditions
		4.5	Use meteorological data to interpret and assist with processing air and noise monitoring data
5	Maintain a safe work environment	5.1	Use safe work procedures and protective equipment to ensure personal safety and that of others
		5.2	Minimise environmental impacts of meteorological measurements and generation of waste
		5.3	Collect and dispose of all waste in accordance with environmental and quarantine requirements and workplace procedures
6	Report data and finalise documentation	6.1	Report field data in the required formats and expected timeframe
		6.2	Complete all required documentation
		6.3	Maintain the security and confidentiality of data and documentation in accordance with workplace requirements

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance.

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Unit Mapping Information

Release 1. Supersedes and is equivalent to MSS024007 Collect and evaluate meteorological data.

Links

The MSS Sustainability Companion Volume implementation Guides are available from VETNet: -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=5b04f318-804f-4dc0-9463-c3fb9a3fe998>

Assessment Requirements for MSS024019 Collect and evaluate meteorological data

Modification History

Release 1. Updated unit code. Changes to performance criteria. Range of conditions removed. Assessment requirements amended. Equivalent outcome.

Performance Evidence

There must be evidence the candidate has completed the tasks outlined in the elements and performance criteria of this unit, and:

- sighted and set up basic ground level meteorological monitoring equipment and collected reliable field data on at least 2 occasions
- analysed, interpreted and summarised the key features of at least 2 sets of meteorological data.

Knowledge Evidence

Must provide evidence that demonstrates knowledge of:

- site and meteorological instrumentation installation considerations, including:
 - topography
 - vegetation and built structures
 - exposure
 - availability of services
 - site security
- purpose and objectives of meteorological monitoring tasks, including:
 - information and analysis required
 - end users of information
 - significance of outcomes for broader programs
- operation, calibration and maintenance of meteorological equipment and instruments.
- distinction between weather and climate and an awareness of climate change science
- composition and structure of the atmosphere, especially the lower atmosphere
- solar energy spectrum and link to atmospheric conditions
- seasonality, effects of latitude and continental geography
- atmospheric motion (horizontal and vertical)
- lifting (orographic, convective and frontal)
- principles of pressure, temperature and volume
- high and low pressure cell formation
- weather effects (including precipitation, temperature and wind strength and direction)
- local wind effects (including sea breeze, city breeze, katabatic winds and anabatic winds)

- forms of atmospheric moisture and humidity
- atmospheric conditions related to wind direction
- measurement of atmospheric conditions (including precipitation, temperature, humidity, wind speed and direction)
- interpretation of weather maps (including symbols used, terminology, interpretation and forecasts)
- historical and geographic comparison of weather data
- scalar and vector wind speed and direction calculations
- wind run
- effects of instrument set-up, including different sampling intervals and averaging times.
- meteorological data collection hazards.

Assessment Conditions

Skills must have been demonstrated in the workplace or in a simulated environment that reflects workplace conditions and contingencies. The following conditions must be met for this unit:

- use of facilities, equipment and resources, including:
 - access to sites and vehicle transport
 - meteorological monitoring equipment and instruments
 - site information and history, maps, aerial photos; workplace procedures governing siting and operation of meteorological monitoring equipment and data collection; and equipment manuals.

Assessors must satisfy the NVR/AQTF mandatory competency requirements for assessors.

Links

The MSS Sustainability Companion Volume implementation Guides are available from VETNet: -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=5b04f318-804f-4dc0-9463-c3fb9a3fe998>

MSS025021 Collect and evaluate groundwater data

Modification History

Release 1. Updated unit code. Changes to elements and performance criteria. Range of conditions removed. Assessment requirements amended. Equivalent outcome.

Application

This unit describes the skills and knowledge to obtain, preserve and transport representative samples of groundwater for laboratory analysis; measure bore conditions; test chemical, physical parameters in the field; and to process data and interpret results. Personnel usually work within an existing sampling or monitoring plan, continually monitor levels of risk and use specified safe working procedures and equipment. They are also required to work closely with drillers during the construction of wells and bores to prevent contamination of samples, obtain logs and manage waste.

This unit applies to environmental technicians in a range of industry sectors, including environmental services (sampling and monitoring of air quality, water, soil and noise); environmental compliance, auditing and inspection; groundwater and clean water (catchments, supply and environmental flows); water treatment, storm and wastewater management; solid and hazardous waste management; management of contaminated sites; site remediation or rehabilitation; geotechnical services and civil engineering; and natural resource management.

No licensing or certification requirements exist at the time of publication. Relevant legislation, industry standards and codes of practice within Australia must be applied.

Pre-requisite Unit

Nil

Competency Field

Sampling and testing

Unit Sector

Environmental

Elements and Performance Criteria

Elements describe the essential outcomes.

Performance criteria describe the performance needed to demonstrate achievement of the element.

Elements describe the essential outcomes.	Performance criteria describe the performance needed to demonstrate achievement of the element.
1 Confirm groundwater data requirements with supervisor	1.1 Confirm the scope and purpose of sampling and monitoring data requirements
	1.2 Read and interpret available site information, including site plan, bore locations, construction and history of sampling and monitoring
	1.3 Confirm the sampling methods, locations, numbers and types of samples, and duration and frequency of sampling from workplace or client's sampling plan
	1.4 Check that all sampling and testing procedures are in accordance with client or workplace requirements, standards and guidelines
2 Prepare for groundwater sampling and monitoring	2.1 Identify site and sampling hazards and review workplace safety procedures
	2.2 Liaise with relevant personnel to arrange site access and obtain all clearances and permits
	2.3 Read and interpret field sampling procedures and sample preparation methods required for specific laboratory analyses
	2.4 Select purging and sampling equipment and sampling conditions to achieve representative samples and preserve sample integrity during collection, storage and transit
	2.5 Obtain and prepare all reagents, solutions, standards and blanks for field use
	2.6 Select field test equipment and instruments and check operation and calibration in accordance with methods, procedures and manufacturer instructions
	2.7 Assemble and stow all sampling equipment, field test equipment, materials, containers and safety equipment
	2.8 Arrange suitable transport to, from and around site

Elements describe the essential outcomes.		Performance criteria describe the performance needed to demonstrate achievement of the element.	
3	Establish a well or bore for monitoring purposes	3.1	Confirm location of well or bore and groundwater monitoring requirements using site sampling and monitoring plan
		3.2	Examine the well or bore area to identify possible hazards
		3.3	Check proposed drilling and construction method will not cause contamination and that casing, drilling fluids and any other materials used in the bore are free of contaminants
		3.4	Check powered and non-powered tools and sampling equipment are cleaned thoroughly before drilling commences
		3.5	Check protective casings and screens are kept in their protective coverings prior to installation
		3.6	Monitor process to accurately log samples and prevent their contamination
4	Conduct representative sampling of groundwater	4.1	Locate sampling locations and services at the site and identify possible hazards
		4.2	Conduct sufficient measurements to accurately determine water level and bore depth
		4.3	Record bore and environmental conditions and any atypical observations made during sampling that may impact on sample representativeness or integrity
		4.4	Conduct purging in accordance with defined procedure or method, collect the waste and decontaminate the equipment used
		4.5	Collect required representative samples and ensure all controls, blanks and replicate samples are correctly integrated into the sampling process
		4.6	Record all information and label samples in accordance with chain of custody and traceability requirements
		4.7	Filter and prepare samples to preserve their integrity for

Elements describe the essential outcomes.		Performance criteria describe the performance needed to demonstrate achievement of the element.	
		subsequent analysis	
		4.8	Secure and transport all samples back to base in accordance with workplace procedures and guidelines
5	Conduct field testing of groundwater	5.1	Assemble required monitoring instruments, equipment, and reagents and conduct pre-use checks in accordance with manufacturer instructions
		5.2	Retrieve samples for designated field tests or locate established locations for in-situ testing
		5.3	Set up, calibrate and operate equipment and instruments in accordance with test methods, procedures and manufacturer instructions
		5.4	Take sufficient measurements of groundwater field parameters to obtain reliable data and in accordance with specified methods and procedures
		5.5	Record all field observations and data and transfer accurately to workplace information database
6	Process and interpret groundwater data	6.1	Read and interpret test data noting atypical observations
		6.2	Check calculated values are consistent with expectations
		6.3	Estimate and document uncertainty of measurements in accordance with workplace procedures
		6.4	Record and report processed results in accordance with workplace procedures
		6.5	Interpret trends in data and results and report out-of-specification or atypical results promptly to relevant personnel
		6.6	Determine if obvious procedure or equipment problems have led to atypical data or results
		6.7	Compare results with established groundwater quality standards, statutory environmental quality concentration limits

Elements describe the essential outcomes.

Performance criteria describe the performance needed to demonstrate achievement of the element.

6.8 Finalise reporting of results in accordance with workplace requirements

7 Maintain a safe work environment

7.1 Use defined safe work practices and personal protective equipment (PPE) to ensure personal safety and that of others

7.2 Rehabilitate sampling site to render it safe and to minimise environmental impact

7.3 Clean and decontaminate all equipment, containers, work area and vehicles according to workplace procedures

7.4 Check serviceability of all equipment before storage

7.5 Minimise the generation of wastes and environment impacts

7.6 Liaise with relevant personnel for the safe collection of all hazardous wastes for appropriate disposal

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance.

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Unit Mapping Information

Release 1. Supersedes and is equivalent to MSS025006 Collect and evaluate groundwater data.

Links

The MSS Sustainability Companion Volume implementation Guides are available from VETNet: -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=5b04f318-804f-4dc0-9463-c3fb9a3fe998>

Assessment Requirements for MSS025021 Collect and evaluate groundwater data

Modification History

Release 1. Updated unit code. Changes to elements and performance criteria. Range of conditions removed. Assessment requirements amended. Equivalent outcome.

Performance Evidence

There must be evidence the candidate has completed the tasks outlined in the elements and performance criteria of this unit, and:

- collected representative samples of groundwater in accordance with a site sampling plan for at least 2 sites
- measured bore conditions and conducted reliable field tests of groundwater parameters on at least 2 sites
- processed and interpreted groundwater data for at least 2 sites.

Knowledge Evidence

There must be evidence the candidate has knowledge of:

- terminology used to describe aquifers, drilling and construction of wells and bores, and groundwater sampling and testing procedures
- principles of representative sampling and field testing of common groundwater parameters
- preservation of the integrity of samples
- maintaining identification of samples relative to their source, workplace and legal traceability requirements
- typical values of groundwater parameters, common pollutants and contaminants
- links between quality control, quality assurance, quality management systems and sampling procedures
- workplace procedures dealing with legislative requirements for the handling, labelling and transport of hazardous goods
- site hazards, links between safe work procedures and personal and environmental safety, particularly at high risk sites.

Assessment Conditions

Skills must have been demonstrated in the workplace or in a simulated environment that reflects workplace conditions and contingencies. The following conditions must be met for this unit:

- use of facilities, equipment and resources, including:
 - vehicle transport, sampling equipment, field test equipment, digital camera, containers, reagents, consumables

- safe work procedures and safety equipment
- workplace procedures, work program, maps, site plans, site sampling plans and test methods, and equipment manuals

Assessors must satisfy the NVR/AQTF mandatory competency requirements for assessors.

Links

The MSS Sustainability Companion Volume implementation Guides are available from VETNet: -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=5b04f318-804f-4dc0-9463-c3fb9a3fe998>

MSS402061 Use SCADA systems in operations

Modification History

Release 1. Supersedes and is equivalent to MSS402061A Use SCADA systems in operations

Application

This unit of competency covers the skills and knowledge required by an individual to interact with a System Control and Data Acquisition (SCADA) system as part of their job.

This unit applies to an individual in an organisation using a SCADA system and the individual must interface with that system. The individual will need to access this system as part of their routine and take actions based on the information they obtain from the SCADA system in accordance with procedures.

This unit requires the application of skills associated with using communication tools and technology for management of own work, planning and problem solving.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Nil

Competency Field

Competitive systems and practices

Unit Sector

Not applicable

Elements and Performance Criteria

Elements describe the essential outcomes.

Performance criteria describe the performance needed to demonstrate achievement of the element.

1 Use operator interface	1.1 Identify SCADA terminals relevant to own workstation and functions.

		1.2	Use keyboards, track ball, monitor and/or stand-alone controllers to access/interrogate system.
		1.3	Use correct level of access and find all relevant screens and information.
		1.4	Access message section and acknowledge messages.
		1.5	Input and output information correctly according to program and organisation requirements.
2	Use information	2.1	Obtain data and information from SCADA, as required, including process, supply and product chain data.
		2.2	Interpret data and information as required by own job.
		2.3	Find and use relevant historical data and information.
		2.4	Use manufacturer manuals or specifications, as required, to expand knowledge of SCADA system relevant to own work.
		2.5	Determine and prioritise required actions.
3	Make required changes in accordance with procedures	3.1	Adjust production/process in response to SCADA information.
		3.2	Record adjustments and variations to specifications/schedules and report to appropriate personnel.
		3.3	Seek feedback and information on adjustments to further improve procedures, where required.

Foundation Skills

This section describes those required skills (language, literacy and numeracy) that are essential to performance.

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

This field allows for different work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included.

Competitive systems and practices include one or more of:

- lean operations
- agile operations
- preventative and predictive maintenance approaches
- statistical process control systems, including six sigma and three sigma
- Just in Time (JIT), kanban and other pull-related operations control systems
- supply, value, and demand chain monitoring and analysis
- 5S
- continuous improvement (kaizen)
- breakthrough improvement (kaizen blitz)
- cause/effect diagrams
- overall equipment effectiveness (OEE)
- takt time
- process mapping
- problem solving
- run charts
- standard procedures
- current reality tree.

Procedures (written, verbal, visual, computer based, etc.) include one or more of:

- work instructions
- standard operating procedures (SOPs)
- safe work method statements
- formulas/recipes
- batch sheets
- temporary instructions
- any similar instructions provided for the smooth running of the plant.

Unit Mapping Information

Release 1. Supersedes and is equivalent to MSS402061A Use SCADA systems in operations

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=5b04f318-804f-4dc0-9463-c3fb9a3fe998>

Assessment Requirements for MSS402061 Use SCADA systems in operations

Modification History

Release 1. Supersedes and is equivalent to MSS402061A Use SCADA systems in operations

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy the requirements of the elements and performance criteria and include the ability, for three (3) or more adjustments to production/process utilising SCADA information, to:

- identify scope and relevance of SCADA system to own work
- access correct levels of SCADA system
- enter and retrieve data, including normal performance and variations
- use SCADA system to assist in own work.

Knowledge Evidence

Must provide evidence that demonstrates knowledge relevant to their job role sufficient to fulfil their job role under routine only supervision, including:

- hierarchy of SCADA system and operation
- available information from, and controls exercised by, SCADA system.

Assessment Conditions

- The unit should be assessed holistically and the judgement of competence shall be based on a holistic assessment of the evidence.
- The collection of performance evidence:
 - should occur over a range of situations which include typical disruptions to normal, smooth operation of the workplace
 - will typically include a supervisor/third-party report focussing on consistent performance and problem recognition and solving. A supervisor/third-party report must be prepared by someone who has a direct, relevant, current relationship with the person being assessed and who is in a position to form a judgement on workplace performance relevant to the unit of competency
 - must include use of SCADA systems in own workplace
 - will typically include the use of appropriate tools, equipment and safety gear requiring demonstration of preparation, operation, completion and responding to problems.
- Assessment should occur in operational workplace situations.
- Knowledge evidence may be collected concurrently with performance evidence (provided a record is kept) or through an independent process such as workbooks, written assessments or interviews (provided a record is kept).

- Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.
- Conditions for assessment must include access to all tools, equipment, materials and documentation required, including relevant workplace procedures, product and manufacturing specifications associated with this unit.
- Foundation skills are integral to competent performance of the unit and should not be assessed separately.
- Assessors must satisfy the assessor competency requirements that are in place at the time of the assessment as set by the VET regulator.
- The assessor must demonstrate both technical competency and currency.
- Technical competence can be demonstrated through:
 - relevant VET or other qualification/Statement of Attainment AND/OR
 - relevant workplace experience
- Currency can be demonstrated through:
 - performing the competency being assessed as part of current employment OR
 - having consulted with an organisation providing relevant environmental monitoring, management or technology services about performing the competency being assessed within the last twelve months.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=5b04f318-804f-4dc0-9463-c3fb9a3fe998>

MSS404061 Facilitate the use of SCADA systems in a team or work area

Modification History

Release 1. Supersedes and is equivalent to MSS404061A Facilitate the use of SCADA systems in a team or work area

Application

This unit of competency covers the skills and knowledge required by a team leader or technical expert to personally use and facilitate the use of System Control and Data Acquisition (SCADA), or other similar systems, and support the team in their use of SCADA.

This unit applies to individuals who will access the SCADA system for their own work, but will also need to provide support and organise skill development programs for their team members. It is also relevant to maintenance personnel using a SCADA system to coordinate maintenance activities.

This unit primarily requires the application of skills associated with using communication technology and supporting team use of SCADA systems. Problem solving, initiative and enterprise, and planning and organisational skills are required to ensure the system is used efficiently.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Nil

Competency Field

Competitive systems and practices

Unit Sector

Not applicable

Elements and Performance Criteria

Elements describe the essential outcomes.

Performance criteria describe the performance needed to demonstrate achievement of the element.

1	Identify scope of SCADA system	1.1	Identify categories of information held in and control options of SCADA system relevant to team or area.
		1.2	Identify range of information able to be provided to SCADA system by team.
		1.3	Identify range of information able to be provided to team by SCADA system.
		1.4	Identify team or area functions impacted by SCADA system.
2	Communicate using SCADA system	2.1	Send and receive information using SCADA.
		2.2	Send and receive messages using SCADA.
3	Make decisions using SCADA	3.1	Interrogate the SCADA system to find required current, historical or predicted information.
		3.2	Take actions appropriate to the information.
4	Monitor the use of SCADA	4.1	Routinely monitor SCADA information.
		4.2	Identify poor uses of SCADA system within team and system inadequacies.
		4.3	Identify system improvements required.
		4.4	Take action to improve SCADA system and its use.
5	Support team use of SCADA	5.1	Regularly communicate with team, both using SCADA-based communication and face to face.
		5.2	Identify skill improvement needs.
		5.3	Identify team members who require additional support.

5.4 Take action to provide support according to procedures.

Foundation Skills

This section describes those required skills (language, literacy and numeracy) that are essential to performance.

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

This field allows for different work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included.

- Competitive systems and practices include one or more of:**
- lean operations
 - agile operations
 - preventative and predictive maintenance approaches
 - statistical process control systems, including six sigma and three sigma
 - Just in Time (JIT), kanban and other pull-related operations control systems
 - supply, value, and demand chain monitoring and analysis
 - 5S
 - continuous improvement (kaizen)
 - breakthrough improvement (kaizen blitz)
 - cause/effect diagrams
 - overall equipment effectiveness (OEE)
 - takt time
 - process mapping
 - problem solving
 - run charts
 - standard procedures
 - current reality tree.

- Stages where value stream actions occur include one or more of:**
- sales outlet/representative
 - information gathering, data analysis and research
 - product design
 - raw material sourcing
 - intermediate processing
 - final assembler/collation/preparation
 - support services (e.g. accounting, finance and legal)
 - storage and delivery to customer
 - after market support.

Unit Mapping Information

Release 1. Supersedes and is equivalent to MSS404061A Facilitate the use of SCADA systems in a team or work area

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=5b04f318-804f-4dc0-9463-c3fb9a3fe998>

Assessment Requirements for MSS404061 Facilitate the use of SCADA systems in a team or work area

Modification History

Release 1. Supersedes and is equivalent to MSS404061A Facilitate the use of SCADA systems in a team or work area

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy the requirements of the elements and performance criteria and include the ability, to facilitate and/or provide support on three (3) or more occasions, to:

- identify team or area information and operations requirements and relate to SCADA system
- lead and motivate others in using SCADA system
- obtain regular and one-off information from SCADA system
- make decisions using SCADA generated information.

Knowledge Evidence

Must provide evidence that demonstrates knowledge relevant to their job role sufficient to fulfil their job role independently, including:

- hierarchy of SCADA system and operation
- information available from and controls exercised by/through the SCADA system
- query, control and other facilities and information offered by SCADA
- support/training/skill development mechanisms available for access by team members.

Assessment Conditions

- The unit should be assessed holistically and the judgement of competence shall be based on a holistic assessment of the evidence.
- The collection of performance evidence:
 - should occur over a range of situations which include typical disruptions to normal, smooth operation of the workplace
 - will typically include a supervisor/third-party report focussing on consistent performance and problem recognition and solving. A supervisor/third-party report must be prepared by someone who has a direct, relevant, current relationship with the person being assessed and who is in a position to form a judgement on workplace performance relevant to the unit of competency
 - must include facilitating and/or support for teams or work groups using SCADA systems in own workplace

- will typically include the use of appropriate tools, equipment and safety gear requiring demonstration of preparation, operation, completion and responding to problems.
- Assessment should occur in operational workplace situations.
- Knowledge evidence may be collected concurrently with performance evidence (provided a record is kept) or through an independent process such as workbooks, written assessments or interviews (provided a record is kept).
- Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.
- Conditions for assessment must include access to all tools, equipment, materials and documentation required, including relevant workplace procedures, product and manufacturing specifications associated with this unit.
- Foundation skills are integral to competent performance of the unit and should not be assessed separately.
- Assessors must satisfy the assessor competency requirements that are in place at the time of the assessment as set by the VET regulator.
- The assessor must demonstrate both technical competency and currency.
- Technical competence can be demonstrated through:
 - relevant VET or other qualification/Statement of Attainment AND/OR
 - relevant workplace experience
- Currency can be demonstrated through:
 - performing the competency being assessed as part of current employment OR
 - having consulted with an organisation providing relevant environmental monitoring, management or technology services about performing the competency being assessed within the last twelve months.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=5b04f318-804f-4dc0-9463-c3fb9a3fe998>

MSS404086 Assist in implementing a proactive maintenance strategy

Modification History

Release 1. Unit code changed. Application changed. Performance criteria changed. Range of conditions removed. Assessment requirements changed. Supersedes and is equivalent to MSS404082 Assist in implementing a proactive maintenance strategy.

Application

This unit describes the skills and knowledge required by a maintenance person to assist in the implementation of a proactive maintenance strategy in an organisation. This unit includes the interaction between a maintenance worker and operators, as appropriate.

This unit applies to a maintenance person in an organisation that has adopted or is implementing total preventative and/or productive maintenance (TPM), reliability centred maintenance (RCM) or similar strategies. As part of this, the maintenance person is expected to assist in the implementation by determining appropriate maintenance related schedules and also by providing maintenance related assistance to non-maintenance personnel, such as assisting production personnel to fulfil their role in the TPM/RCM strategy.

No licensing or certification requirements exist at the time of publication. Relevant legislation, industry standards and codes of practice within Australia must be applied.

Pre-requisite Unit

Nil.

Competency Field

Competitive systems and practices

Unit Sector

Elements and Performance Criteria

Elements	Performance Criteria	
Elements describe the essential outcomes.	Performance criteria describe the performance needed to demonstrate achievement of the element.	
1. Develop components of reliability strategy for a work or plant area	1.1	Read and interpret manufacturer's recommended inspection, servicing and related schedules for relevant plant

	1.2	Communicate appropriate inspections, services and schedules to stakeholders
	1.3	Discuss any conflicts and seek resolution of conflicts
	1.4	Develop schedules in liaison with stakeholders
	1.5	Identify inspections and servicing which may be done by operations personnel in liaison with stakeholders
2. Assess current practice for maintenance implications	2.1	Identify the overall equipment effectiveness (OEE) and organisation targets for equipment
	2.2	Evaluate procedures for equipment reliability implications
	2.3	Discuss current practices with stakeholders to determine equipment reliability implications
	2.4	Recommend changes to improve equipment reliability in accordance with procedures
3. Assist in implementing the reliability strategy	3.1	Arrange for schedules to be incorporated into work plans
	3.2	Identify training needs in discussion with key personnel
	3.3	Assist personnel to develop required skills for inspections and servicing within scope of authority
	3.4	Collect data and information as required by own work plan
	3.5	Compare data and information with performance indicators
	3.6	Recommend improvements to reliability strategy in accordance with procedures

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Unit Mapping Information

Supersedes and is equivalent to MSS404082 Assist in implementing a proactive maintenance strategy.

Links

The MSS Sustainability Companion Volume Implementation Guides are available from VETNet: -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=5b04f318-804f-4dc0-9463-c3fb9a3fe998>

Assessment Requirements for MSS404086 Assist in implementing a proactive maintenance strategy

Modification History

Release 1. Unit code changed. Application changed. Performance criteria changed. Range of conditions removed. Assessment requirements changed. Supersedes and is equivalent to MSS404082 Assist in implementing a proactive maintenance strategy.

Performance Evidence

There must be evidence the candidate has completed the tasks outlined in the elements and performance criteria of this unit, and:

- assisted in implementing a proactive maintenance strategy in at least 1 organisation.

Knowledge Evidence

There must be evidence the candidate has knowledge of:

- requirements of the proactive maintenance strategy being implemented
- operating principles and procedures for equipment and plant subject to proactive maintenance strategy
- purpose and processes for data collection in proactive maintenance strategies
- procedures relevant to own job and organisation implementation of proactive maintenance
- methods of making and recommending improvements.

Assessment Conditions

Skills must have been demonstrated in the workplace or in a simulated environment that reflects workplace conditions, contingencies, facilities, equipment and resources.

Assessors must satisfy the NVR/AQTF mandatory competency requirements for assessors.

Links

The MSS Sustainability Companion Volume Implementation Guides are available from VETNet: -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=5b04f318-804f-4dc0-9463-c3fb9a3fe998>

MSS405081 Develop a proactive maintenance strategy

Modification History

Release 1. Supersedes and is equivalent to MSS405081A Develop a proactive maintenance strategy

Application

This unit of competency covers the skills and knowledge required to develop and implement a proactive maintenance strategy for an organisation. The unit recognises that there are a number of predictive or proactive maintenance strategies, such as total productive maintenance (TPM) and reliability centred maintenance (RCM).

This unit applies to an individual responsible for developing a proactive maintenance strategy for an organisation. Typically the organisation will also be implementing other competitive systems and practices. The unit applies to the selection of appropriate strategies, initial development and implementation as well as application of the strategies to new areas and the improvement of operation in existing areas. This would typically be done in a team environment and in consultation with all key stakeholders.

This unit primarily requires the application of skills associated with communication in gathering, analysing and applying information and consulting with stakeholders. Teamwork, problem solving, initiative and enterprise, and planning and organising are required to develop and implement a predictive maintenance strategy. Strategies will incorporate the maintenance requirements of relevant technologies. This unit also requires aspects of self-management and learning to ensure feedback and new learning is integrated into maintenance strategies.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Nil

Competency Field

Competitive systems and practices

Unit Sector

Not applicable

Elements and Performance Criteria

Elements describe the essential outcomes.

Performance criteria describe the performance needed to demonstrate achievement of the element.

1	Determine appropriate analytical techniques	1.1	Liaise with key stakeholders to determine objectives of maintenance strategy.
		1.2	Examine current maintenance situation to determine major areas requiring improvement.
		1.3	Compare possible strategies, techniques and tools against organisation needs.
		1.4	Select possible strategies, techniques and tools.
		1.5	Confirm selected strategies, techniques and tools with key stakeholders.
2	Develop reliability strategies	2.1	Select preferred maintenance strategy.
		2.2	Examine and adapt strategy to organisation needs and priorities.
		2.3	Examine and adapt techniques and tools required to implement strategy.
		2.4	Liaise with key stakeholders to develop an implementation plan.
		2.5	Identify key information and performance indicators required.
3	Implement strategy	3.1	Identify data collection required.
		3.2	Identify hardware and other resources required.
		3.3	Identify skill needs required in consultation with key stakeholders.
		3.4	Ensure all resources/training are available.

		3.5	Implement strategy.
4	Monitor implementation of strategy	4.1	Compare information/performance indicators with desired levels.
		4.2	Liaise with key stakeholders regarding strategy issues.
		4.3	Identify areas requiring adjustment.
		4.4	Make required adjustments.

Foundation Skills

This section describes those required skills (language, literacy and numeracy) that are essential to performance.

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

This field allows for different work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included.

- Competitive systems and practices include one or more of:**
- lean operations
 - agile operations
 - preventative and predictive maintenance approaches
 - statistical process control systems, including six sigma and three sigma
 - Just in Time (JIT), kanban and other pull-related operations control systems
 - supply, value, and demand chain monitoring and analysis
 - 5S
 - continuous improvement (kaizen)
 - breakthrough improvement (kaizen blitz)
 - cause/effect diagrams
 - overall equipment effectiveness (OEE)
 - takt time
 - process mapping

- problem solving
- run charts
- standard procedures
- current reality tree.

OEE includes:

The combination of the main factors causing loss of productive capacity from equipment/plant and is:

- $OEE = \text{availability} \times \text{performance} \times \text{quality rate}$

where:

- availability takes into account losses due to breakdown, set-up and adjustments
- performance takes into account losses due to minor stoppages, reduced speed and idling
- quality rate takes into account losses due to rejects, reworks and start-up waste.

Mean time between failure (MTBF) includes:

One key measure of the effectiveness of a maintenance procedure, and is an indicator as to whether root causes are being found and resolved. If MTBF is reducing, then it is an indicator that the maintenance regime is failing.

There are many possible causes of any problem. Eliminating some will have no impact, others will ameliorate the problem. However, elimination of the root cause will eliminate the problem. There should only be one root cause for any problem and so the analysis should continue until this one cause is found. Elimination of the root cause permanently eliminates the problem.

Depending on the equipment, operations and procedures of the organisation, alternative statistical records of maintenance and maintenance-related events may be substituted for MTBF providing they relate strategies for improving OEE.

Failure mode effects analysis (FMEA) includes:

A systematic approach that identifies potential failure modes in a system, product, or operations/assembly operation caused by either design or operations/assembly process deficiencies. It also identifies critical or significant design or process characteristics that require special controls to prevent or detect failure modes. FMEA is a tool used to prevent problems from occurring.

Some industry sectors have highly adapted forms of FMEA and may practice traditional FMEA in say their routine maintenance while using another technique, such as Hazard and Operability Studies (HAZOP) for design and modification.

HAZOP is a form of FMEA which has been practiced by the process industries for over 30 years and examines the implications of changes in process conditions to process stability.

Condition**monitoring includes:**

The process of analysing the implications of condition monitoring data for proactive maintenance whether it be obtained from non-destructive testing (NDT) reports, visual assessment by experts, diagnostic reports obtained from SCADA or other enterprise or equipment software and product or process quality analyses. It does not require the actual undertaking of the NDT or condition monitoring assessment or test. If this is required appropriate units from other Training Packages will be required.

Unit Mapping Information

Release 1. Supersedes and is equivalent to MSS405081A Develop a proactive maintenance strategy

Links

Companion Volume implementation guides are found in VETNet - <https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=5b04f318-804f-4dc0-9463-c3fb9a3fe998>

Assessment Requirements for MSS405081 Develop a proactive maintenance strategy

Modification History

Release 1. Supersedes and is equivalent to MSS405081A Develop a proactive maintenance strategy

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy the requirements of the elements and performance criteria and include the ability, for one (1) or more work areas or product families, to:

- consider a variety of proactive maintenance strategies for suitability to an organisation
- consult operators, maintenance, management and other stakeholders in decisions on proactive maintenance strategies
- implement selected strategies
- monitor performance to selected indicators and make improvements to selected proactive maintenance strategies.

Knowledge Evidence

Must provide evidence that demonstrates sufficient knowledge to interact with relevant personnel and be able to develop and implement a proactive maintenance strategy, including knowledge of:

- characteristics and strengths of different types of strategies, techniques and tools
- holistic costs of different strategies combining cost of maintenance with costs of lost production, sales, and so on, as relevant to the organisation
- business goals sufficient to match the strategy to the business needs
- strategic thinking and its application to proactive maintenance
- principles of process equipment and how to improve its reliability
- resources required and how to obtain them.

Assessment Conditions

- The unit should be assessed holistically and the judgement of competence shall be based on a holistic assessment of the evidence.
- The collection of performance evidence is best done from a report and/or folio of evidence drawn from:
 - a single project which provides sufficient evidence of the requirements of all the elements and performance criteria
 - multiple smaller projects which together provide sufficient evidence of the requirements of all the elements and performance criteria.

- A third-party report, or similar, may be needed to testify to the work done by the individual, particularly when the project has been done as part of a project team.
- Assessment should use a real project where development of a proactive maintenance strategy occurs in an operational workplace.
- Knowledge evidence may be collected concurrently with performance evidence or through an independent process such as workbooks, written assessments or interviews (provided a record is kept).
- Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.
- Conditions for assessment must include access to all tools, equipment, materials and documentation required, including relevant workplace procedures, product and manufacturing specifications associated with this unit.
- Foundation skills are integral to competent performance of the unit and should not be assessed separately.
- Assessors must satisfy the assessor competency requirements that are in place at the time of the assessment as set by the VET regulator.
- The assessor must demonstrate both technical competency and currency.
- Technical competence can be demonstrated through:
 - relevant VET or other qualification/Statement of Attainment AND/OR
 - relevant workplace experience
- Currency can be demonstrated through:
 - performing the competency being assessed as part of current employment OR
 - having consulted with an organisation providing relevant environmental monitoring, management or technology services about performing the competency being assessed within the last twelve months.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=5b04f318-804f-4dc0-9463-c3fb9a3fe998>

NWPAMG001 Manage asset construction and maintenance

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to manage asset construction and maintenance.

It includes preparing for asset construction, planning construction operations and implementing quality assurance measures.

This unit applies to leaders in organisations with responsibility for the construction and maintenance of water, wastewater, channels, drains and components industry assets.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Asset Management

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Prepare for asset construction

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Identify and apply site investigation and construction guidelines, regulatory requirements and workplace procedures

1.2 Consult with stakeholders and identify and address

- requirements and issues impacting construction
- 1.3** Determine and document work requirements, materials and configurations according to plans, specifications, instructions and workplace procedures
 - 1.4** Conduct worksite inspections according to workplace procedures and risk management guidelines
 - 1.5** Collate and check project documentation and assess for impact on work planning and management
 - 1.6** Identify and investigate potential hazards and safety risks and report recommendations for preventative action according to organisational requirements
 - 1.7** Identify and specify roles and responsibilities of relevant personnel and stakeholders
 - 1.8** Identify and check construction and maintenance guidelines, industry standards and other regulatory requirements
- 2 Plan construction operations**
- 2.1** Identify organisational strategies for implementing construction operations
 - 2.2** Implement workplace health and safety (WHS) policy and procedures, including hazard and risk management
 - 2.3** Implement procedures for securing relevant plant and equipment
 - 2.4** Determine personnel requirements according to work plan and contract documentation
 - 2.5** Evaluate, select and source materials to complete work
 - 2.6** Sequence and schedule work to meet workplace requirements and completion timeframes
- 3 Implement quality assurance measures**
- 3.1** Conduct inspections to ensure progressive and finished work meets required standards, operational capability and stakeholder requirements
 - 3.2** Provide guidance to contractors/personnel according to workplace procedures
 - 3.3** Monitor construction activities to ensure compliance with WHS and environmental regulations

- 3.4 Monitor construction progress and maintain records according to workplace procedures and industry standards
- 3.5 Communicate changes to meet unforeseen requirements, reallocation of resources and rescheduling to reduce impacts
- 3.6 Confirm and certify completion of construction and installation according to workplace procedures and industry standards
- 3.7 Write progress and completion reports and communicate with relevant personnel according to workplace procedures

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Unit Mapping Information

This is a new unit. No equivalent unit.

Links

Companion Volume Implementation Guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPAMG001 Manage asset construction and maintenance

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- completing progress and completion reports
- completing relevant documentation for coordinating and monitoring asset construction and maintenance
- conducting worksite inspections, identifying potential risks and implementing control measures
- consulting with stakeholders and identifying requirements for asset construction and maintenance
- determining and documenting work requirements, materials and resources for project
- identifying and specifying roles of relevant personnel
- identifying defects and taking measures to rectify
- managing a construction or maintenance project on an asset
- selecting and sourcing materials and resources to complete asset construction and maintenance

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- assets system operations
- communication techniques
- project planning requirements
- supervision techniques
- relevant policies and procedures including:
 - codes of practice
 - industry standards
 - legislation
 - material handling
- workplace documentation associated with asset construction and maintenance including:

- instructions
- plans
- risk management guidelines
- specifications
- work requirements
- workplace procedures

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in suitable workplace operational situations. Where this is not appropriate, assessment must occur in suitable simulated workplace operational situations reflecting actual workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, facilities, equipment and personal protective equipment currently used in industry
- applicable relevant documentation including workplace procedures, industry standards, equipment specifications, regulations, codes of practice and operation manuals.

Links

Companion Volume Implementation Guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPCCO001 Analyse and implement network data

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to analyse and implement network data. It includes determining the scope of network data and analysing, verifying and documenting network data.

This unit applies to leaders in water organisations with responsibility for the management of network data.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Control Centre Operations

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Determine scope of network data

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

- 1.1** Determine network data requirements from work specifications
- 1.2** Determine security requirements for network data system to prevent unauthorised access

	1.3	Determine and obtain, as required, relevant equipment, software and testing devices
	1.4	Identify programming functions to produce network data according to operational procedures
	1.5	Provide programming support for relevant personnel
2 Analyse and verify network data	2.1	Analyse data generated for accuracy according to work specifications
	2.2	Analyse existing network data output for relevance, accuracy and current trends
	2.3	Test and monitor network data output for accuracy
	2.4	Interrogate network data to identify current, historical and predicted information
	2.5	Use network data software tools to test and monitor programs and correct identified anomalies according to workplace procedures
3 Document network data	3.1	Record and document network data programs according to workplace procedures
	3.2	Distribute network data generated to relevant personnel and industry bodies according to workplace procedures
	3.3	Complete reports and notify relevant personnel of network data results

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Unit Mapping Information

This is a new unit. No equivalent unit.

Links

Companion Volume Implementation Guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPCCO001 Analyse and implement network data

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- analysing and actioning data output
- determining and actioning security procedures to prevent unauthorised access to data
- distributing data generated by the network to relevant persons
- identifying programming needs and provide programming support to personnel
- obtaining relevant equipment, software and testing devices to keep integrity of data current
- testing data output for accuracy and quality assurance

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- analysis techniques
- data interrogation techniques
- data testing procedures
- problem solving techniques
- programming specifications

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in suitable workplace operational situations. Where this is not appropriate, assessment must occur in suitable simulated workplace operational situations reflecting actual workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, facilities, equipment and personal protective equipment currently used in industry
- applicable relevant documentation including workplace procedures, industry standards, equipment specifications, regulations, codes of practice and operation manuals.

Links

Companion Volume Implementation Guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPCCO002 Use control centre systems to monitor and control water

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to use control centre systems to monitor and control water.

It includes planning control centre systems operations and monitoring and controlling communication requirements. It also includes completing procedures for communication and liaison with stakeholders.

This unit applies to leaders in water organisations with responsibility for the management of control centre systems.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Control Centre Operations

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Plan control centre systems operations

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Detail and communicate work schedules, plans and workplace procedures to relevant control centre

- personnel
- 1.2** Identify shift requirements and confirm work requirements at handover according to workplace procedures
 - 1.3** Prioritise and sequence work according to workplace procedures
 - 1.4** Identify and determine work timeframes according to workplace procedures and industry standards
 - 1.5** Communicate work schedules, plans and workplace procedures to relevant control centre personnel
 - 1.6** Resolve liaison and communication issues and coordinate work activities with relevant stakeholders
- 2 Undertake monitoring, control and communication requirements**
- 2.1** Identify and action work safety and environmental policies according workplace procedures and industry standards
 - 2.2** Monitor and coordinate work according to work schedules and industry requirements
 - 2.3** Take action to overcome shortfalls in work schedule and safety risks and warnings
 - 2.4** Identify and communicate remedial actions to relevant stakeholders according to workplace procedures
 - 2.5** Monitor ongoing quality of work and adhere to stakeholder communication
 - 2.6** Ensure stakeholder communication is performed according to workplace procedures
 - 2.7** Identify and investigate potential hazards and safety risks and report recommendations for preventative actions
- 3 Complete procedures for communication and liaison with stakeholders**
- 3.1** Check work performed against work schedule for compliance with job requirements
 - 3.2** Identify and report anomalies in work requirements against the work schedule according to workplace procedures

- 3.3 Confirm, process and finalise works completion records, reports and other relevant documentation by notifying appropriate stakeholders
- 3.4 Manage shift handover according to workplace communication procedures
- 3.5 Ensure outstanding items are resolved or referred to relevant personnel for further investigation

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Unit Mapping Information

This is a new unit. No equivalent unit.

Links

Companion Volume Implementation Guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPCCO002 Use control centre systems to monitor and control water

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- communicating with relevant stakeholders and personnel
- ensuring work is completed within specified timeframes, to quality standards and work requirements
- identifying and investigating potential hazards and safety risks
- managing shift handover according to safety standards and workplace procedures
- prioritising and sequencing work according to work schedules and plans

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- communication techniques
- control centre system capabilities
- problem solving techniques
- project management procedures
- rostering requirements
- work scheduling

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in suitable workplace operational situations. Where this is not appropriate, assessment must occur in suitable simulated workplace operational situations reflecting actual workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, facilities, equipment and personal protective equipment currently used in industry
- applicable relevant documentation including workplace procedures, industry standards, equipment specifications, regulations, codes of practice and operation manuals.

Links

Companion Volume Implementation Guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPGEN002 Ensure compliance with water industry standards, guidelines and legislation

Modification History

Release	Comments
1	This unit was released in NWP Water Training Package release 1.0 and meets the Standards for Training Packages. • New unit • Created drawing upon information from deleted unit NWP702A

Application

This unit describes the skills required to ensure compliance with the risk management principles established in the Australian Drinking Water Guidelines (ADWG), Australian Sewage Quality Management Guidelines and Australian Guidelines for Water Recycling (AGWR) which contribute to the improved management of water supply systems and the reduction of water quality risks for water supplies.

This unit applies to those working in all roles in the water industry.

The skills and knowledge described in this unit must be applied within the legislative, regulatory and policy environment in which they are carried out. Organisational policies and procedures must be consulted and adhered to.

Those undertaking this unit would mostly work independently, with supervision responsibilities, while performing complex tasks in a range of contexts.

No licensing, legislative or certification requirements apply to unit at the time of publication.

Competency Field

General

Elements and Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA
Elements describe the essential outcomes	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the range of conditions section.
1. Interpret key legislation and guidelines of the water industry	1.1 Access and interpret the relevant guidelines and legislative requirements. 1.2 Analyse the key features or elements. 1.3 Establish the relationships between the guidelines and the state and territory requirements.
2. Lead compliance with legislation and reporting function	2.1 Interpret organisation standards and processes for reporting compliance with legislative requirements. 2.2 Integrate legislative requirements into organisation water quality management plan. 2.3 Provide advice on the links between the regulatory framework and work practices. 2.4 Convey importance of multiple barrier principles and their general function to team members. 2.5 Manage risks utilising the organisation's risk management principles. 2.6 Collate relevant collected data to support compliance and review for completeness and accuracy. 2.7 Refine and disseminate compliance reporting procedures.
3. Communicate compliance with legislation to team members	3.1 Establish steps to monitor compliance and reporting function. 3.2 Address identified areas of non-compliance and take corrective action. 3.3 Provide feedback on compliance issues to team members. 3.4 Make recommendation for preventative measures. 3.5 Drive continuous improvement of work practices to achieve water quality outcomes.

Foundation Skills

The foundation skills demands of this unit have been mapped for alignment with the Australian Core Skills Framework (ACSF). The following tables outline the performance levels indicated for successful attainment of the unit.

ACSF levels indicative of performance:

1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Learning					Reading					Writing					Oral communication					Numeracy				

Performance variables:

1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Support					Context					Text complexity					Task complexity				

Further information on ACSF and the foundation skills underpinning this unit can be found in the Foundation Skills Guide on the GSA website.

Range of Conditions

Guidelines include:	- ADWG (Australian Drinking Water Guidelines) - Australian Sewage Quality Management Guidelines - AGWR (Australian Guidelines for Water Recycling)

Unit Mapping Information

No equivalent unit.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPGEN002 Ensure compliance with water industry standards, guidelines and legislation

Modification History

Release	Comments
1	These Assessment Requirements were released in NWP Water Training Package release 1.0 and meet the Standards for Training Packages.

Performance Evidence

Evidence required to demonstrate competence must satisfy all of the requirements of the elements and performance criteria. To be deemed competent the candidate must be assessed using at least one of the guidelines listed in the Range of. If not otherwise specified the candidate must demonstrate evidence of performance of the following on at least one occasion.

- interpreting, analysing and applying relevant legislative requirements, complex industry codes and standards
- collating and analysing information
- providing advice and feedback
- communicating principles of relevant guidelines and putting into context
- initiating problem solving
- managing risks on a specific project or site
- accessing and interpreting risk management principles
- managing risk control measures
- integrating requirements of risk management plans
- analysing records of water quality incidents

Knowledge Evidence

Evidence required to demonstrate competence must satisfy all of the requirements of the elements and performance criteria. If not otherwise specified the depth of knowledge demonstrated must be appropriate to the job context of the candidate.

Operational knowledge of:

- relevant guidelines guiding principles
- framework for the management of drinking water quality (including the twelve elements)
- established organisational risk management procedures
- water quality risk assessment and control procedures

- water cycle
- ecologically sustainable development
- water quality risk factors and performance indicators
- relevant legislation, codes, standards
- chronic and acute health impacts from human exposure
- concept of the Disability Adjusted Life Year (DALY)

Assessment Conditions

Competency should be assessed in an actual workplace or in a simulated environment, with access to equipment and infrastructure appropriate to the outcome. Competency should be demonstrated over time to ensure the candidate is assessed across a variety of situations.

Assessors must satisfy the NVR/AQTF mandatory competency requirements for assessors.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPGEN005 Coordinate and monitor the application of environmental plans and procedures

Modification History

Release	Comments
1	This unit was released in NWP Water Training Package release 1.0 and meets the Standards for Training Packages. This unit supersedes and is equivalent to NWP401B Coordinate and monitor the application of environmental plans and procedures. • Unit code updated • Content and formatting updated to comply with the new standards • All PC transitioned from passive to active voice • PC 2.5 removed • PC 3.4 and 5.3 revised

Application

This unit describes the skills required to monitor and coordinate the application of environmental plans and procedures to specific projects and to develop environmental procedures for the local work area.

This unit applies to those working in the water industry with a specific responsibility for ensuring that all relevant environmental plans and policies are applied to each project and work site within the scope of their job role, and for ensuring that environmental plans and policies are implemented, monitored, reviewed and reported according to organisational and statutory requirements.

The skills and knowledge described in this unit must be applied within the legislative, regulatory and policy environment in which they are carried out. Organisational policies and procedures must be consulted and adhered to.

Those undertaking this unit would work autonomously while performing complex tasks, in a range of familiar contexts.

No licensing, legislative or certification requirements apply to unit at the time of publication.

Competency Field

General

Elements and Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA
Elements describe the essential outcomes	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the range of conditions section.
1. Determine relevant environmental plans and procedures	1.1 Identify environmental plans and procedures and determine relevance to specific projects or work sites. 1.2 Interpret relevant environmental plans and procedures in relation to specific project or site activities.
2. Implement environmental plans and procedures	2.1 Identify environmental risks and impacts. 2.2 Manage and minimise environmental risks. 2.3 Apply emergency procedures. 2.4 Carry out activities according to environmental plans and procedures.
3. Manage project or site specific environmental procedures	3.1 Assess the need for project or site specific environmental procedures. 3.2 Consult stakeholders and address issues and concerns. 3.3 Develop specific project or site environmental procedures. 3.4 Review and maintain specific project or site environmental procedures.
4. Control environmental incidents	4.1 Identify environmental incidents at site and apply appropriate control measures. 4.2 Analyse environmental incidents to prevent recurrence. 4.3 Record and report environmental incidents and complete environmental management documentation.
5. Monitor and report on environmental plans and procedures	5.1 Monitor and report on the implementation of environmental plans and procedures. 5.2 Report environmental risks. 5.3 Coordinate reviews of environmental procedures and report.

Foundation Skills

The foundation skills demands of this unit have been mapped for alignment with the Australian Core Skills Framework (ACSF). The following tables outline the performance levels indicated for successful attainment of the unit.

ACSF levels indicative of performance:

1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Learning					Reading					Writing					Oral communication					Numeracy				

Performance variables:

1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Support					Context					Text complexity					Task complexity				

Further information on ACSF and the foundation skills underpinning this unit can be found in the Foundation Skills Guide on the GSA website.

Unit Mapping Information

This unit supersedes and is equivalent to NWP401B Coordinate and monitor the application of environmental plans and procedures.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPGEN005 Coordinate and monitor the application of environmental plans and procedures

Modification History

Release	Comments
1	These Assessment Requirements were released in NWP Water Training Package release 1.0 and meet the Standards for Training Packages. • Assessment Requirements created drawing upon specified assessment information from superseded unit

Performance Evidence

Evidence required to demonstrate competence must satisfy all of the requirements of the elements and performance criteria. If not otherwise specified the candidate must demonstrate evidence of performance of the following on at least one occasion.

- reporting and recording environmental procedures
- developing local workplace environmental procedures
- coordinating and monitoring the application of environmental plans and procedures
- identifying and analysing environmental plans and procedures relevant to a representative variety of projects and work sites
- interpreting and implementing relevant environmental plans and procedures for a typical project or work site
- developing site or project specific environmental plans and procedures for an atypical project or work site, including consultation with stakeholders
- managing environmental incidents
- monitoring, reporting and reviewing the implementation of environmental plans and procedures
- coordinating participation by relevant sectors of the workforce

Knowledge Evidence

Evidence required to demonstrate competence must satisfy all of the requirements of the elements and performance criteria. If not otherwise specified the depth of knowledge demonstrated must be appropriate to the job context of the candidate.

- relevant legislative requirements and procedures
- sedimentation and erosion control
- rare and endangered plants

- identification of risks and impacts
- potential environmental risks and incidents
- disposal of dangerous and contaminated soils
- environmental auditing
- concepts of due diligence
- principles of environmental protection
- endangered species and habitat protection
- environmental impact assessment
- waste management

Assessment Conditions

Competency should be assessed in an actual workplace or in a simulated environment, with access to equipment and infrastructure appropriate to the outcome. Competency should be demonstrated over time to ensure the candidate is assessed across a variety of situations.

Assessors must satisfy the NVR/AQTF mandatory competency requirements for assessors.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
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NWPGEN006 Implement and manage environmental management policies

Modification History

Release 2: Minor document layout changes, no content changes.

Release 1: This unit was released in NWP Water Training Package release 1.0 and meets the Standards for Training Packages.

This unit supersedes and is equivalent to NWP505B Implement and monitor environmental management policies, plans, procedures and programs.

- Unit code updated
- Content and formatting updated to comply with the new standards
- All PC transitioned from passive to active voice
- Unit title changed to better reflect unit outcomes
- Elements 2 and 3 merged
- PC 3.1, 3.2 and 3.3 merged

Application

This unit involves the skills and knowledge required to implement and manage environmental management policies.

It includes consulting with stakeholders effectively, interpreting complex information and maintaining environmental records. It also includes implementing and monitoring procedures for quantifying environmental impacts, controlling risks and dealing with environmental incidents.

This unit applies to those working as managers with responsibility for environmental management within the organisation. Those undertaking this unit would work autonomously, supervising staff, while performing sophisticated tasks in a range of familiar contexts.

The skills and knowledge described in this unit must be applied within the legislative, regulatory and policy environment in which they are carried out. Organisational policies and procedures must be consulted and adhered to.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

General

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

PERFORMANCE CRITERIA

Elements describe the essential outcomes.

Performance criteria describe the performance needed to demonstrate achievement of the element.

1 Gather environmental management information

- 1.1** Review and interpret the organisation environmental policies and plans against current environmental legislation and perceived stakeholder attitudes and expectations
- 1.2** Identify all stakeholders and their relationship with the enterprise and their impact on, or relationship with, policies and plans
- 1.3** Identify the available resources to implement policies and plans
- 1.4** Confirm responsibilities and authorities as outlined in the policies and plans
- 1.5** Establish best practice procedures for the implementation of management plans

2 Implement and monitor environmental policies and plans

- 2.1** Develop and apply environmental management processes and workplace procedures to achieve policy
- 2.2** Monitor the effectiveness of policies and plans against objectives, timelines and key performance indicators
- 2.3** Audit environmental management processes and workplace procedures
- 2.4** Review and modify processes and procedures to achieve policy and plan objectives
- 2.5** Identify, quantify and report environmental risks as well as existing and potential events and or activities that may affect the environment

3 Implement and monitor the procedures for quantifying

- 3.1** Implement work procedures to control risks or remedy damage

environmental impacts and controlling risks

	3.2	Monitor risk control measures and report results
	3.3	Identify inadequacies in risk control measures, report to the appropriate authority and remedy
	3.4	Quantify and record environmental impacts
	3.5	Report adverse environmental impacts and make recommendations to minimise the impacts
4	Implement and monitor procedures for dealing with environmental incidents	
	4.1	Implement workplace procedures for managing incidents of environmental significance or harm to ensure prompt control and remediation
	4.2	Investigate incidents of environmental impact to identify their cause
	4.3	Implement control measures to prevent recurrence and minimise risks of events
	4.4	Record and report incidences of environmental impact, significance or harm according to enterprise procedures and legislative requirements
5	Maintain environmental records	
	5.1	Complete environmental management documentation for the work area
	5.2	Store environmental records for easy access and review
	5.3	Identify long term trends and impacts through review and assessment of environmental records
	5.4	Report results of record reviews

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Unit Mapping Information

This unit replaces and is equivalent to NWP505B Implement and manage environmental management policies, plans, procedures and programs

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPGEN006 Implement and manage environmental management policies

Modification History

Release 2: Minor document layout changes and assessment conditions updated.

Release 1: These Assessment Requirements were released in NWP Water Training Package release 1.0 and meet the Standards for Training Packages.

- Assessment Requirements created drawing upon specified assessment information from superseded unit

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- applying control procedures
- applying enterprise environmental policies
- applying relevant legislative requirements
- assessing and managing risks
- assessing environmental risks
- collecting, recording, assessing and reporting data associated with the performance of the environmental management plan
- consulting and communicating with internal and external groups and/or individuals
- gathering and interpreting information relating to environmental management
- implementing environmental management plans in consultation with relevant stakeholders
- managing activities associated with the implementation and management of environmental management policies, plans, procedures and programs
- managing records
- monitoring the effective implementation of environmental management plans
- responding to emergencies
- taking effective steps to ensure the remediation of environmental problems or impacts

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- economic systems and development needs
- enterprise consultation processes
- enterprise emergency response requirements
- relevant legislation, policies and procedures

- work health and safety legislation

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including legislation, regulations, codes of practice, workplace procedures and operation manuals.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
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<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPGEN010 Contribute to continuous improvement of quality systems

Modification History

Release	Comments
1	This unit was released in NWP Water Training Package release 1.0 and meets the Standards for Training Packages. This unit supersedes and is equivalent to NWP432A Contribute to the continuous improvement of quality systems. • Unit code updated • Content and formatting updated to comply with the new standards • All PC transitioned from passive to active voice • Unit title changed to better reflect unit outcomes • One new PC added in Element 1 • PC 1.2 revised

Application

This unit describes the skills required to understand and implement quality systems in the water industry and to identify opportunities for improvement in quality outcomes for the organisation.

This unit applies to those working as water industry technicians or supervisors with a responsibility for the implementation of quality systems.

The skills and knowledge described in this unit must be applied within the legislative, regulatory and policy environment in which they are carried out. Organisational policies and procedures must be consulted and adhered to.

Those undertaking this unit would work autonomously, usually with supervisory responsibilities, while performing complex tasks in a range of contexts.

No licensing, legislative or certification requirements apply to unit at the time of publication.

Competency Field

General

Elements and Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA
Elements describe the essential outcomes	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the range of conditions section.
1. Interpret and communicate quality system requirements	1.1 Interpret the accreditation requirements for relevant water quality systems. 1.2 Identify implications of non-conformance with quality accreditation requirements. 1.3 Communicate requirements and implications to work colleagues. 1.4 Review standard operating procedures to ensure compliance with current quality accreditation and legislative requirements.
2. Implement quality systems	2.1 Define individual roles and responsibilities in quality system implementation. 2.2 Implement standard operating procedures to ensure compliance with quality systems. 2.3 Record relevant data for quality system monitoring. 2.4 Record and report observations of non-conformance with quality accreditation requirements.
3. Identify and correct quality system implementation problems	3.1 Analyse system monitoring data to identify variances that indicate abnormal or sub-optimal performance. 3.2 Review non-conformance reports to identify contributing factors. 3.3 Identify corrective action to remove or control the risk of sub-optimal performance.
4. Contribute to improvement of quality system implementation	4.1 Develop recommendations for continuous improvement of work practices, methods, equipment and procedures. 4.2 Consult all relevant work colleagues to refine recommendations. 4.3 Document recommendations for quality system implementation improvements and record the required modifications in standard operating procedures.

Foundation Skills

The foundation skills demands of this unit have been mapped for alignment with the Australian Core Skills Framework (ACSF). The following tables outline the performance levels indicated for successful attainment of the unit.

ACSF levels indicative of performance:

1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Learning NA					Reading					Writing					Oral communication					Numeracy				

Performance variables:

1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Support					Context					Text complexity					Task complexity				

Further information on ACSF and the foundation skills underpinning this unit can be found in the Foundation Skills Guide on the GSA website.

Unit Mapping Information

This unit supersedes and is equivalent to NWP432A Contribute to the continuous improvement of quality systems.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPGEN010 Contribute to continuous improvement of quality systems

Modification History

Release	Comments
1	These Assessment Requirements were released in NWP Water Training Package release 1.0 and meet the Standards for Training Packages. • Assessment Requirements created drawing upon specified assessment information from superseded unit

Performance Evidence

Evidence required to demonstrate competence must satisfy all of the requirements of the elements and performance criteria. If not otherwise specified the candidate must demonstrate evidence of performance of the following on at least one occasion.

- interpreting a range of complex and technical documents, including relevant:
 - regulatory, legislative, licensing and organisational requirements
 - codes and standards
 - specifications
 - organisational policies
- communicating effectively with a range of relevant parties to articulate complex ideas
- analysing and evaluating reports
- interpreting, maintaining and checking records and documents
- identifying opportunities for improved water management
- implementing operational plans collaboratively and effectively
- monitoring assets to ensure performance meets specifications in management plans
- analysing problems and applying appropriate remedial solutions
- performing various calculations to provide data for the analysis and development of options and solutions
- identifying hazards and developing appropriate responses to control and mitigate risks
- interpreting and communicating the accreditation requirements for, and implications of non-conformance
- monitoring quality systems and reporting non-conformance
- analysing data and proposing improvements

Knowledge Evidence

Evidence required to demonstrate competence must satisfy all of the requirements of the elements and performance criteria. If not otherwise specified the depth of knowledge demonstrated must be appropriate to the job context of the candidate.

- relevant legislation, standards and workplace policies and procedures
- relevant quality standards and systems, including:
 - Australian Drinking Water Guidelines
 - HACCP
 - ISO 9000 series quality management and quality assurance standards
 - ISO 14001 environmental management systems
- quality improvement tools and techniques including statistical process control
- communication channels and consultative arrangements
- procedures for addressing non-compliance
- risk assessments
- control charts and control limits

Assessment Conditions

Competency should be assessed in an actual workplace or in a simulated environment, with access to equipment and infrastructure appropriate to the outcome. Competency should be demonstrated over time to ensure the candidate is assessed across a variety of situations.

Assessors must satisfy the NVR/AQTF mandatory competency requirements for assessors.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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NWPGEN014 Sample and test trade wastewater

Modification History

Release	Comments
1	This unit was released in NWP Water Training Package release 1.0 and meets the Standards for Training Packages.

Application

This unit describes the skills required to collect and prepare trade wastewater samples, perform basic field based tests and conduct and record analysis.

This unit applies to those working in the water industry but might be relevant to others.

The skills and knowledge described in this unit must be applied within the legislative, regulatory and policy environment in which they are carried out. Organisational policies and procedures must be consulted and adhered to.

Those undertaking this unit would work under indirect supervision, while performing complex tasks in familiar contexts.

No licensing, legislative or certification requirements apply to unit at the time of publication.

Competency Field

General

Elements and Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA
Elements describe the essential outcomes	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the range of conditions section.
1. Prepare for trade wastewater	1 1 Identify the need to sample based on trade waste customer risk, sewer catchment and infrastructure issues.

sampling and testing	1.2 Schedule sampling and testing in accordance with a monitoring program. 1.3 Identify wastewater quality parameters to be tested for. 1.4 Identify appropriate sampling location and type of sample to be taken in accordance with the monitoring program. 1.5 Communicate with an external laboratory regarding sampling, preservation, parameters to be analysed and transportation requirements. 1.6 Select and apply sample preservation methods. 1.7 Select, check, calibrate and prepare equipment and resources. 1.8 Select, fit and use personal protective equipment.
2. Conduct trade wastewater sampling and testing	2.1 Adopt hygienic work practices. 2.2 Carry out job safety analysis or risk assessment. 2.3 Determine sampling method, either manual or automatic and time based or flow based. 2.4 Sample and determine the trade wastewater related to the typical operation of the business. 2.5 Collect samples ensuring that types, locations and times comply with requirements. 2.6 Maintain integrity of samples during sampling and field testing. 2.7 Conduct basic field trade wastewater tests. 2.8 Assess and report abnormal characteristics and undertake corrective action. 2.9 Limit hazards and contamination to self, work area and environment.
3. Finalise work	3.1 Apply chain of custody procedures. 3.2 Organise transportation of samples to the laboratory. 3.3 Report observations or measurements requiring further action. 3.4 Clean testing equipment and sampling site. 3.5 Record analysis results from field testing and laboratory testing. 3.6 Interpret test results, assess compliance and reschedule sampling to confirm findings.

Foundation Skills

The foundation skills demands of this unit have been mapped for alignment with the Australian Core Skills Framework (ACSF). The following tables outline the performance levels indicated for successful attainment of the unit.

ACSF levels indicative of performance:

1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Learning					Reading					Writing					Oral communication					Numeracy				

Performance variables:

1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Support					Context					Text complexity					Task complexity				

Further information on ACSF and the foundation skills underpinning this unit can be found in the Foundation Skills Guide on the GSA website.

Range of Conditions

Field testing includes:	- pH - temperature - conductivity - metals - colour - visual assessment - odour - sulphides
Sampling processes include:	- automatic - flow proportional composites - time proportional composites - discreet manual

Unit Mapping Information

No equivalent unit.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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Assessment Requirements for NWPGEN014 Sample and test trade wastewater

Modification History

Release	Comments
1	These Assessment Requirements were released in NWP Water Training Package release 1.0 and meet the Standards for Training Packages.

Performance Evidence

Evidence required to demonstrate competence must satisfy all of the requirements of the elements and performance criteria. The candidate must be assessed in both types of sampling processes and at least two types of field tests listed in the Range of Conditions. If not otherwise specified the candidate must demonstrate evidence of performance of the following on at least one occasion.

- conducting hazard and risks assessments
- planning working activities
- applying procedures and standards
- performing task-related calculations
- maintaining a safe work environment
- using automatic samplers and flow measurement equipment
- using recording equipment (i.e. pH or temperature recorder) and field test kits
- conducting trade waste tests on-site according to specifications
- disposing of waste and spent samples
- identifying which parameters can be analysed in-field and which need laboratory testing
- identifying necessary equipment and resources for sampling and testing (i.e. field test kits, preservation reagents)
- selecting appropriate sample jars and preparing documentation (labels, chain of custody and other required forms, i.e. inspection sheets)
- installing sampling, flow measuring (if applicable) and recording equipment in accordance with manufacturers' specifications and site specific conditions
- applying labels to samples and prepare appropriate documentation for external analyses

Knowledge Evidence

Evidence required to demonstrate competence must satisfy all of the requirements of the elements and performance criteria. If not otherwise specified the depth of knowledge demonstrated must be appropriate to the job context of the candidate.

- relevant policies and procedures including chain of custody

- relevant standard methods for testing of water
- range and purpose of basic water quality testing and sampling
- abnormal characteristics of water samples
- relevant calculations
- storage of reagents
- relevant legislative and organisational requirements
- trade waste sample preparation:
 - prevention of contamination
 - volume of sample
 - appropriate containers
 - preservation
 - location selection
 - equipment
 - documentation and transportation procedures for trade waste samples
 - disposal procedures for excess trade waste samples
 - sampling and testing requirements
- water quality parameters of significance to a range of trade waste discharges
- hazards associated with collection of trade waste samples

Assessment Conditions

Competency should be assessed in an actual workplace or in a simulated environment, with access to equipment and infrastructure appropriate to the outcome. Competency should be demonstrated over time to ensure the candidate is assessed across a variety of situations.

Assessors must satisfy the NVR/AQTF mandatory competency requirements for assessors.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPGEN015 Develop an operational plan

Modification History

Release	Comments
1	This unit was released in NWP Water Training Package release 1.0 and meets the Standards for Training Packages.

Application

This unit describes the skills required to develop, implement and monitor an operational plan to provide efficient and effective workplace practices within the organisation.

This unit applies to those working with specific responsibility for managing the work of others and operating within the parameters of a broader business plan.

The skills and knowledge described in this unit must be applied within the legislative, regulatory and policy environment in which they are carried out. Organisational policies and procedures must be consulted and adhered to.

Those undertaking this unit would work autonomously in a supervisory capacity, making independent decisions while performing sophisticated tasks in a range of contexts.

No licensing, legislative or certification requirements apply to unit at the time of publication.

Competency Field

General

Elements and Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA
Elements describe the essential outcomes	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the range of conditions section.
1. Prepare an	1.1 Research, analyse and document resource requirements to

operational plan	develop an operational plan in consultation with relevant stakeholders. 1.2 Develop and implement consultation processes as a part of the operational planning process. 1.3 Ensure the operational plan includes key performance indicators to measure organisational performance. 1.4 Develop and implement contingency plans for the operational plan. 1.5 Ensure the development and presentation of proposals for resource requirements is supported by a variety of information sources. 1.6 Obtain approval for the plan from relevant parties and explain the plan to relevant work teams and stakeholders.
2. Plan and manage resource acquisition	2.1 Determine resources according to productivity and budgetary requirement. 2.2 Develop and implement strategies to ensure that physical resources and services are acquired. 2.3 Allocate resources according to the operational plan.
3. Monitor and review operational performance	3.1 Develop, monitor and review performance systems and processes to assess progress in productivity plans and targets. 3.2 Analyse and interpret budget and actual financial information to monitor and review profit and productivity performance. 3.3 Identify areas of under-performance, recommend solutions and take prompt action to rectify the situation. 3.4 Negotiate recommendations for variations to operational plans and gain approval from stakeholders. 3.5 Develop and implement systems to ensure that procedures and records associated with documenting performance are managed.

Foundation Skills

The foundation skills demands of this unit have been mapped for alignment with the Australian Core Skills Framework (ACSF). The following tables outline the performance levels indicated for successful attainment of the unit.

ACSF levels indicative of performance:

1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Learning					Reading					Writing					Oral communication					Numeracy				

Performance variables:

1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Support					Context					Text complexity					Task complexity				

Further information on ACSF and the foundation skills underpinning this unit can be found in the Foundation Skills Guide on the GSA website.

Unit Mapping Information

No equivalent unit.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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Assessment Requirements for NWPGEN015 Develop an operational plan

Modification History

Release	Comments
1	These Assessment Requirements were released in NWP Water Training Package release 1.0 and meet the Standards for Training Packages.

Performance Evidence

Evidence required to demonstrate competence must satisfy all of the requirements of the elements and performance criteria. If not otherwise specified the candidate must demonstrate evidence of performance of the following on at least one occasion.

- interpreting a range of complex and technical documents, including relevant:
 - regulatory, legislative, licensing and organisational requirements
 - codes and standards
 - specifications
 - organisational policies
- communicating effectively with a range of relevant parties to articulate complex ideas
- analysing and evaluating reports
- varying the operational plan and dealing with contingencies
- interpreting, maintaining and checking records and documents
- identifying opportunities for improved water management
- monitoring assets to ensure performance meets specifications in management plans
- analysing problems and applying appropriate remedial solutions
- implementing and reviewing standard operating procedures

Knowledge Evidence

Evidence required to demonstrate competence must satisfy all of the requirements of the elements and performance criteria. If not otherwise specified the depth of knowledge demonstrated must be appropriate to the job context of the candidate.

- relevant legislation, standards and workplace policies and procedures
- budgeting processes
- performance monitoring systems and processes
- methods for problem solving

Assessment Conditions

Competency should be assessed in an actual workplace or in a simulated environment, with access to equipment and infrastructure appropriate to the outcome. Competency should be demonstrated over time to ensure the candidate is assessed across a variety of situations.

Assessors must satisfy the NVR/AQTF mandatory competency requirements for assessors.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPGEN016 Interpret and comply with regulatory requirements

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to interpret and comply with regulatory requirements.

It includes researching relevant water industry regulatory requirements, implementing and communicating policies and procedures for regulatory compliance and maintaining workplace records. It also includes consideration of short term in situ issues and long-term planning in the water industry.

This unit applies to leaders responsible for interpreting and complying with regulations impacting the water industry.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

General

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Research relevant water industry regulatory requirements

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Evaluate business operations to determine scope of regulatory requirements

- 1.2 Identify and review relevant legislation and regulations
 - 1.3 Interpret water industry legislation and regulations according to workplace procedures
 - 1.4 Follow requirements according to workplace procedures
 - 1.5 Identify changes, amendments and emerging issues in legislation relevant to the organisation
 - 1.6 Identify risks, penalties and consequences of non-compliance
 - 1.7 Identify sources of information for compliance with regulatory requirements and licensing for business operations
 - 1.8 Identify relevant regulatory authorities when planning business operations
 - 1.9 Determine current and future legal requirements in the workplace
- 2 **Implement and communicate policies and procedures for regulatory compliance**
 - 2.1 Develop plans and documentation to support compliance with regulatory requirements
 - 2.2 Nominate roles and responsibilities of personnel for regulatory compliance in policies and procedures
 - 2.3 Review and communicate changed regulations and policy updates to relevant personnel to ensure compliance
 - 2.4 Review and distribute policies and procedures for compliance with regulatory and licensing requirements according to workplace procedures
 - 2.5 Respond in situ to ensure compliance and safety using prior knowledge and resources
 - 2.6 Validate contractor competence and compliance according to workplace procedures and job requirements
 - 2.7 Maintain business and occupational licences according to regulatory requirements
 - 2.8 Seek advice from legal advisors and other sources

- according to workplace procedures
- 2.9** Continuously evaluate business operations for non-compliance and implement modifications according to workplace procedures
- 3 Maintain organisational records**
- 3.1** Maintain record management systems to ensure compliance with regulatory requirements
- 3.2** Establish stakeholder records and relevant documentation according to workplace procedures, privacy principles and contractual obligations
- 3.3** Implement internal auditing of record management requirements according to regulatory requirements and workplace procedures
- 3.4** Maintain personnel and contractor records according to workplace procedures
- 3.5** Monitor current regulations and relevant documentation to ensure operational compliance

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Unit Mapping Information

This is a new unit. No equivalent unit.

Links

Companion Volume Implementation Guides are found in VETNet - <https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPGEN016 Interpret and comply with regulatory requirements

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- allocating roles and responsibilities to personnel
- determining legal requirements
- determining scope, interpreting and monitoring relevant legislation, regulations and industry standards
- ensuring consent, privacy and confidentiality of information
- ensuring the completion of statutory reporting
- explaining changes and implications of regulatory requirements to personnel
- identifying changes, amendments and emerging issues in legislation
- identifying risks, penalties and consequences for non-compliance
- maintaining business and occupational licenses
- maintaining records
- seeking legal advice
- validating contractor competence and compliance

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- contractor competence and compliance
- non-compliance issues and risks
- regulatory authorities
- relevant legislation, regulations and industry standards
- relevant workplace procedures including privacy principles
- sources of information and advice on regulatory compliance
- statutory reporting requirements

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training

Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in suitable workplace operational situations. Where this is not appropriate, assessment must occur in suitable simulated workplace operational situations reflecting actual workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, facilities, equipment and personal protective equipment currently used in industry
- applicable relevant documentation including workplace procedures, industry standards, equipment specifications, regulations, codes of practice and operation manuals.

Links

Companion Volume Implementation Guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPHYD002 Apply principles of open channel hydraulics

Modification History

Release 2: Competency Field changed from Hydrology to Hydrometric Monitoring.

Release 1: This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to apply principles of open channel hydraulics.

It includes using hydraulic principles, calculating theoretical flows, collecting, interpreting, verifying data and applying theoretical techniques to produce flow data essential to performance. It also includes applying relevant legislation, regulations, industry standards and workplace policies and procedures.

This unit applies to water operators involved in the monitoring of all elements of the water cycle and impacts on the environment. Those undertaking this unit would work in small teams, autonomously or under supervision, while performing complex tasks in a broad range of contexts that could be unpredictable, including remote, confined spaces, near water and/or at heights.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Hydrometric Monitoring

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1 Select open channel hydraulic methodology	1.1	Identify monitoring objectives of the site and hydraulic calculation requirements
	1.2	Select methodology for open channel hydraulic calculations
	1.3	Identify hydraulic principles used for verification of calculations
	1.4	Select other methodologies to review initial calculations
2 Collect and review data for flow calculations	2.1	Measure and collect appropriate data to calculate theoretical flows based on methodology selected
	2.2	Determine the hydraulic characteristics of a monitoring site
	2.3	Measure and collect appropriate data to calculate flows theoretically
	2.4	Estimate hydraulic coefficients based on observations
	2.5	Prepare records in a format suitable for dissemination
	2.6	Review data collected and subsequent calculations for inconsistencies against measured flows
3 Select the appropriate control structure	3.1	Select appropriate control structures based on characteristics of the open channel and its catchment
	3.2	Identify and determine the method to calculate flow by using the appropriate formulae for the control structure
4 Calculate flow in open channels	4.1	Select and use the appropriate formulae for calculating flows in open channels based on the characteristics of the open channel and its catchment
	4.2	Identify the limitations of the formulae
	4.3	Identify factors that would cause variations in the results
	4.4	Verify results by applying hydraulic principles and other methodologies
	4.5	Determine the characteristics of open channel pipe flow
5 Calculate flow from pressure measurements	5.1	Determine flow-based calculations by using pressure instruments
	5.2	Make adjustments for absolute pressure instruments to

measure head in open channels

- 5.3** Make corrections in pressure measurements to allow for head measurement of salt water

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Unit Mapping Information

This unit replaces and is equivalent to NWPHYD001 Apply principles of open channel hydraulics.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPHYD002 Apply principles of open channel hydraulics

Modification History

Release 2: Minor document layout changes, no content changes

Release 1: This is the first release of this unit of competency in the NWP National Water Training Package

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- checking data for inconsistency against measured flows
- identifying types of flows
- interpreting and applying technical documentation to the collection, analysis and reporting of hydrometric data
- presenting calculations and disseminating information
- selecting, performing and using relevant calculations associated with applying principles of open channel hydraulics including:
 - calculating hydraulic energy gradients
 - calculating minor energy losses associated with enlargements, contractions and bends
 - calculating the gradual varied flow profiles in uniform channels when the discharge is known
 - drawing velocity distribution curves for fluids in pipes or channels with both laminar flow and turbulent flow
 - using data to determine the value of roughness
 - using simple equations for determining channel friction with their appropriate application
- using recording and reporting systems
- using surveying techniques
- verifying results by applying hydraulic principles and other methodologies including:
 - estimating calculations based on observations
 - using continuity equations
 - using technology to perform high level calculations for channel hydraulics

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- applications and characteristics of notches and weirs, including type of the crest, shape of the

- notch, crest and conditions
- characteristics of open channels including:
 - critical
 - laminar
 - state of open channel flow
 - steadiness
 - subcritical and supercritical flow
 - transitional and turbulent flow
 - types of data including photographic, surveying, long-section and cross-section, topographic maps and historical
 - types of open channel
 - uniformity
- effect of velocity variation on velocity head
- flow conditions associated with open channel hydraulics including:
 - backwater
 - characteristics of open channel pipe flow
 - critical flow
 - distinction between laminar and turbulent flow
 - full pipe flow
 - laminar flow
 - rapidly changing flow
 - smooth, rough pipe and channel surfaces
 - subcritical and supercritical flow
 - submerged flow conditions
 - turbulent flow
 - uniform flow
 - weir and flumes behaviour under various flow conditions
- hydraulic calculations including:
 - estimating calculations
 - fluid dynamics
 - hydraulic mechanics
 - measuring and collecting data
 - principles of fluid statics
- mathematical formulae and calculation techniques for calculating channel hydraulics including:
 - application of matrix algebra to systems of linear equations
 - Bernoulli's equation
 - Darcy–Weisbach equation
 - equations for calculating the approximate value of the friction factor, the characteristics of flow through notches/weirs, including the use of these in channel flow measurement

- graphical and algebraic methods for solving systems of linear, quadratic, exponential, logarithmic and trigonometric equations
- Hagen–Poiseuille equation
- limitations of formulae
- Pascal’s law and hydrostatic effect on submerged surfaces

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in suitable workplace operational situations. Where this is not appropriate, assessment must occur in suitable simulated workplace operational situations reflecting actual workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, facilities, equipment and personal protective equipment currently used in industry
- applicable relevant documentation including workplace procedures, industry standards, equipment specifications, regulations, codes of practice and operation manuals.

Links

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<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPHYD003 Develop and maintain ratings

Modification History

Release 2: Competency Field changed from Hydrology to Hydrometric Monitoring.

Release 1: This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to develop and maintain ratings.

It includes understanding relationships between variables, processes for collecting, interpreting and verifying data and producing compliant reports. It also includes applying relevant legislation, regulations, industry standards and workplace policies and procedures.

This unit applies to water operators involved in the monitoring of all the elements of the water cycle and environmental impacts. Those undertaking this unit would work autonomously, leading staff, while performing complex tasks in a broad range of contexts that could be unpredictable, including remote, confined spaces, working on or near water and working at heights.

No licensing, legislative or certification requirements apply to unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Hydrometric monitoring

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1 Review individual measurements	1.1 Identify monitoring objectives of site and stage discharge ratings requirements
	1.2 Review historical discharge measurements, time series data and stage discharge rating curves and compare against expected trends
	1.3 Use standard processes and software to check, edit and verify field data
	1.4 Analyse, correct and adjust data utilising field measurements and data
2 Develop rating curves	2.1 Analyse existing measurements to establish trends and compare with existing ratings
	2.2 Identify events at monitoring site that can affect stage discharge curve
	2.3 Identify sources of error in ratings
	2.4 Confirm and verify existing trends whilst developing rating curves
	2.5 Identify and define new trends whilst developing rating curves
	2.6 Develop rating curves in compliance with industry and stakeholder requirements
	2.7 Use theoretical methods to create and extend ratings
	2.8 Document processes and observations to provide traceability and accountability for quality assurance
	2.9 Apply standard formulae to create ratings for pre-calibrated measuring structures
	2.10 Apply quality codes to rating curves utilising workplace procedures and stakeholder requirements
3 Maintain rating curves	3.1 Confirm accuracy of rating curves using recent measurements and review trends and rating applicability
	3.2 Adjust and maintain rating curves based on new information from data reviews, changed site conditions and additional field data
	3.3 Retrieve and analyse current, historic and trend data

using appropriate mathematical techniques

3.4 Document processes, observations and adjustments made

4 Report rating curves

4.1 Prepare and store required archival data to guarantee data security

4.2 Prepare and disseminate ratings according to stakeholder requirements

4.3 Make recommendations for future observations

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Unit Mapping Information

This unit replaces and is equivalent to NWPHYD017 Develop and maintain ratings.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
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Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPHYD003 Develop and maintain ratings

Modification History

Release 2: Minor document layout changes, no content changes.

Release 1: This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- applying appropriate quality codes to a rating
- applying mathematical modelling and analytical tools
- applying t-tests to determine whether a new rating is required
- calculating flow rates manually using a set of cross-sections and a long-section
- calculating flow rates through and over structures
- calculating the overall roughness coefficient of a channel consisting of multiple elements
- collecting, storing, archiving and analysing data
- creating ratings including:
 - adjusting gaugings, hydrograph trace and ratings to a common datum
 - checking hydrographic data for correctness and accuracy in preparation for creating ratings
 - creating ratings manually using methods for standard measuring structures
 - developing rating techniques to handle seasonal rating changes
 - identifying and recognising causes of progressive, cyclical and sudden rating changes
 - identifying backwater-affected stations and using techniques to rate them
 - identifying characteristics of ratings appropriate to various cross-section types and flow
 - identifying errors in rating, and incorrect and impossible ratings
 - identifying the possibilities and limitations of scale models for generating ratings
 - using computer systems to create ratings
- drawing an accurate rating by hand
- establishing relationships between variables including stage versus flow and conductivity versus salinity
- estimating channel roughness from photographs
- fitting a rating curve using various mathematical techniques available in relevant software packages
- gathering and interpreting complex documentation and applying it to the development and maintenance of rating curves

- identifying and addressing potential or actual operational problems
- identifying appropriate sections to use for slope-area flow calculations
- identifying gradual stream changes and adopting rating techniques
- identifying gross errors in ratings and the data used to compile them
- identifying short-term rating changes, their causes and means of correctly processing them
- identifying the elements of a stream bed and channel that affect ratings
- identifying, reporting and providing solutions to a range of flow conditions
- interpreting a range of organisational documents
- interpreting and applying technical documentation to the collection, analysis and reporting of hydrometric data
- recording information
- using a spreadsheet to perform calculations
- using graphical logarithmic methods to extend a rating
- using remote work communication systems

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- basis of statistical goodness of fit tests
- computer software relevant to the analysis and archiving of hydrographic data
- elements of a stream bed and channel that affect the rating
- mathematical and scientific techniques relevant to the analysis of hydrographic data
- relationship between roughness coefficients including Chezy and Manning
- t-tests
- Work Health and Safety procedures

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in suitable workplace operational situations. Where this is not appropriate, assessment must occur in suitable simulated workplace operational situations reflecting actual workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, facilities, equipment and personal protective

equipment currently used in industry

- applicable relevant documentation including workplace procedures, industry standards, equipment specifications, regulations, codes of practice and operation manuals.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPHYD004 Plan water resource management

Modification History

Release 2: Competency Field changed from Hydrology to Hydrometric Monitoring.

Release 1: This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to plan water resource management.

It includes reviewing and planning hydrometric data management processes, guaranteeing the provision of quality data and managing water resources. It also includes collecting, analysing, storing and reporting data, using this information to inform effective policy development for effective performance and applying and adhering to legislative, regulatory and workplace policies and procedures, particularly those related to Work Health and Safety (WHS), Bureau of Meteorology, World Meteorological Organisation and Australian Standards.

This unit applies to water operators involved in the monitoring of all the elements of the water cycle and their impact on the related environment. Those undertaking this unit would work autonomously, leading staff, while performing complex tasks in a broad range of contexts, that could be unpredictable, including remote, confined spaces, working on or near water and working at heights.

No licensing, legislative or certification requirements apply to unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Hydrometric Monitoring

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

PERFORMANCE CRITERIA

Elements describe the essential Performance criteria describe the performance needed to

outcomes.

demonstrate achievement of the element

1 Review and plan hydrometric data management processes

- 1.1** Design and review hydrographic network and water resource management objectives in consultation with senior management
- 1.2** Review and analyse the data required to support the hydrographic planning and water resource management processes within the organisation
- 1.3** Review hydrographic network data management processes to collect, analyse, store and report hydrometric data to support workplace planning needs
- 1.4** Identify, plan and report resource requirements to meet the hydrographic data management needs
- 1.5** Identify, plan, manage and report resource requirements to meet hydrographic network data management needs
- 1.6** Identify future and extended uses of data and monitoring networks as part of the planning process and to ensure the most effective use of data and network

2 Guarantee the provision of quality data

- 2.1** Develop and review work procedures and documentation used to support the collection, analysis, storage and reporting of hydrometric data as required and communicate to relevant personnel
- 2.2** Use complex mathematical and technical processes to support the planning and operation of hydrographic monitoring and testing regimes
- 2.3** Determine monitoring and testing priorities
- 2.4** Prepare reports in a format suitable to support decision making and planning within the organisation
- 2.5** Communicate purpose, use of data and outcomes of the documentation review to relevant personnel and stakeholders
- 2.6** Plan and ensure training is provided to relevant personnel in specialist systems used in data management

3 Manage water resources

- 3.1** Review and analyse the role of hydrometric data in the development of water resource management policy
- 3.2** Gather, review and communicate local, national and international information regarding effective water

resource management

- 3.3 Conduct analysis of current, historic and trend data to inform the organisation's water resource management planning
- 3.4 Gather, review and communicate best practice policy regarding effective water resource management
- 3.5 Identify deficiencies in networks
- 3.6 Prepare reports according to workplace procedures and communicate with relevant personnel and stakeholders

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Unit Mapping Information

This unit replaces and is equivalent to NWPHYD018 Plan water resource management.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPHYD004 Plan water resource management

Modification History

Release 2: Minor document layout changes, no content changes.

Release 1: This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- applying complex mathematical modelling and analytical tools
- communicating with employees, senior management and external industry experts
- contributing to the development of management planning within the organisation
- gathering, interpreting, collecting and analysing hydrographic network and water resource management information and complex documentation sourced locally, nationally and internationally
- gathering, interpreting, preparing and applying complex documentation relating to the hydrographic planning and water resource management processes of the organisation
- operating communication systems
- planning and setting priorities for the management of hydrographic data collection, storage and reporting
- reviewing and refining current practices used in the collection, analysis, storage and reporting of hydrographic data
- undertaking evidence-based short-, medium- and long-range planning
- using data management and storage systems

Knowledge Evidence

- high-level hydrographic and water resource management technical and planning information
- mathematical techniques relevant to the complex analysis and planning of hydrographic data
- natural and constructed catchment processes that may affect hydrographic network data outputs, quality and eventual interpretation via modelling outputs and resource management and planning decisions
- physical and chemical interactions of resources under varying catchment and climatic conditions and impact on data interpretation and analysis
- relevant industry standards, international guidelines and best practice systems applicable to the nature and purpose of the monitoring network
- sampling and testing procedures
- Work Health and Safety (WHS) procedures

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in suitable workplace operational situations. Where this is not appropriate, assessment must occur in suitable simulated workplace operational situations reflecting actual workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, facilities, equipment and personal protective equipment currently used in industry
- applicable relevant documentation including workplace procedures, industry standards, equipment specifications, regulations, codes of practice and operation manuals.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPHYD005 Process and report hydrographic time series data

Modification History

Release 2: Competency Field changed from Hydrology to Hydrometric Monitoring

Release 1: This is the first release of this unit of competency in the NWP National Water Training Package

Application

This unit involves the skills and knowledge required to process and report hydrographic time series data.

It includes compiling, interpreting, analysing and verifying data including water level (streams, lakes), rainfall, groundwater, soil moisture, evaporation, radiation, wind, temperature and electro conductivity. It also includes producing hydrometric data reports to support organisational decision making, complying with relevant environmental legislation, regulations and workplace policies. Organisational policies and procedures must be consulted and adhered to, particularly those relating to Work Health and Safety (WHS), Bureau of Meteorology, World Meteorological Organisation and Australian Standards.

This unit applies to water operators involved in the monitoring of the elements of the water cycle and their impact on the related environment. Those undertaking this unit would work autonomously, leading staff, while performing complex tasks in a broad range of contexts that could be unpredictable, including remote, confined spaces, working on or near water and working at heights.

No licensing, legislative or certification requirements apply to unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Hydrometric Monitoring

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

PERFORMANCE CRITERIA

Elements describe the essential outcomes.

Performance criteria describe the performance needed to demonstrate achievement of the element.

1 Prepare for collection of data	1.1 Identify objectives of time series, stakeholder data and reporting requirements
	1.2 Identify parameters and procedures for collection of hydrometric data
2 Retrieve time series data	2.1 Retrieve and manage data according to workplace procedures
	2.2 Apply and record field verification checks according to workplace procedures
3 Verify hydrometric data	3.1 Complete field documentation and prepare working copy of data
	3.2 Select data to be verified
	3.3 Use standard processes, software, mathematical and scientific techniques to check, edit, verify, adjust and qualify data
	3.4 Review and apply verification information and additional backup time series data sets to time series data and identify proposed adjustments to data
	3.5 Use historical data, nearby sites and related parameters to validate data, identify data irregularities and ensure data integrity
	3.6 Estimate failed periods required by stakeholders
	3.7 Check documents according to workplace procedures and incorporate adjustments
	3.8 Archive raw and processed data according to workplace procedures
4 Prepare reports	4.1 Prepare standard reports to check integrity of verified data
	4.2 Prepare stakeholder specific reports according to workplace procedures

- 4.3 Prepare verified data, documentation and reports for authorisation
- 4.4 File authorised information according to workplace procedures

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Unit Mapping Information

This unit replaces and is equivalent to NWPHYD016 Process and report hydrographic time series data.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPHYD005 Process and report hydrographic time series data

Modification History

Release 2. Minor document layout changes, no content changes

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- applying analytical tools for hydrographic data
- applying and recording field verification checks including at least one of:
 - electrical conductivity (EC) on-site meter reading
 - flood marks
 - groundwater down the casing tape check
 - peak level indicators
 - rainfall storage or calibration check
 - staff gauge reading
 - survey level
 - well tape check
- assessing the performance and limitations of the monitoring systems and sites employed in monitoring the network/catchment
- collecting samples
- communicating technical information using communication technology with relevant personnel, management and stakeholders
- compiling, analysing, storing, archiving and verifying data
- estimating failed periods required by stakeholder, using:
 - applying peak stage level or total stored rainfall checks
 - copy and paste
 - estimation using standard processes and software
 - historical data
 - nearby sites and related parameters
 - verification of information
- gathering and interpreting complex documentation and applying it to the specification of hydrographic data collection and reporting procedures
- identifying and assessing the characteristics of hydrographs and pluviometer traces
- identifying and responding effectively to operational problems

- identifying, reporting and resolving potential and actual problems
- interpreting and applying technical documentation to the collection, analysis and reporting of hydrographic data
- producing hydrographic data reports to support organisational decision making
- using information and data management computer systems

Knowledge Evidence

- computer software relevant to the analysis and archiving of hydrographic data
- continuous data verification techniques
- hydrographic cycle and its impact on the conditions and objectives of hydrographic time series data management
- mathematical and scientific techniques relevant to the analysis of hydrological and hydrographic data
- measurement methods for collection and checking continuous hydrometric, hydrological and hydrographic data in the field
- policies and standard operating procedures for data analysis
- water sampling and testing procedures

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in suitable workplace operational situations. Where this is not appropriate, assessment must occur in suitable simulated workplace operational situations reflecting actual workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, facilities, equipment and personal protective equipment currently used in industry
- applicable relevant documentation including workplace procedures, industry standards, equipment specifications, regulations, codes of practice and operation manuals.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPHYD011 Measure and process low and medium flows using area velocity methods

Modification History

Release	Comments
1	This unit was released in NWP Water Training Package release 1.0 and meets the Standards for Training Packages. This unit supersedes and is equivalent to NWP340A Measure and process hydrometric stream discharge data using wading gaugings. • Unit code updated • Content and formatting updated to comply with the new standards • All PC transitioned from passive to active voice • Unit title changed to better reflect unit outcomes • Element 1 reworded • Two new PC added in Element 1 • PC 1.2 and 2.4 revised

Application

This unit of competency describes the skills required to collect stream discharge data using a range of current meters. An understanding of risk assessment and factors affecting the accuracy and precision of the area velocity method is essential to performance.

This unit applies to hydrographers employed by the water industry and to water operators involved in the monitoring of all the elements of the water cycle and their impact on the related environment.

The skills and knowledge described in this unit must be applied within the legislative, regulatory and policy environment in which they are carried out. Organisational policies and procedures and relevant industry standards must be consulted and adhered to, particularly those relating to WHS, Bureau of Meteorology, World Meteorological Organisation and Australian Standards.

Those undertaking this unit would work in small teams, mostly under supervision, while performing complex tasks in a broad range of contexts that could be unpredictable, including remote, confined spaces, near water and/or at heights.

No licensing, legislative or certification requirements apply to unit at the time of publication.

Competency Field

Hydrography

Elements and Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA
Elements describe the essential outcomes	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the range of conditions section.
1. Prepare to collect discharge data	1.1 Identify the monitoring objective of the site and gauging requirements. 1.2 Identify, analyse and confirm the data collection method required by the organisation. 1.3 Select appropriate equipment and confirm site conditions are within instrument specifications. 1.4 Verify calibration and maintenance status. 1.5 Evaluate site conditions and prepare for taking measurements. 1.6 Identify possible influences on discharge measurement. 1.7 Select the cross-section for discharge measurement.
2. Collect depth and velocity data	2.1 Measure the width of the section. 2.2 Select appropriate sounding points (verticals) to subdivide the cross-section. 2.3 Measure the depth of vertical. 2.4 Select method to suit the ambient conditions and flow. 2.5 Collect velocity data at appropriate depth(s) for each vertical.
3. Calculate discharge	3.1 Calculate the point velocity. 3.2 Calculate the mean velocity for each vertical. 3.3 Calculate the area of subsection corresponding to each vertical. 3.4 Calculate the discharge corresponding to each subsection. 3.5 Calculate the area and discharge at the section by summation of the subsection data. 3.6 Apply corrections for oblique flow as required.

4. Complete recording and reporting requirements for discharge measurement	4.1 Gather supporting information from the site and complete documentation. 4.2 Calculate and record the mean stage height and rate of change using relevant mathematical techniques. 4.3 Grade and record the gauging quality. 4.4 Check records. 4.5 Enter gauging into ratings database.

Foundation Skills

The foundation skills demands of this unit have been mapped for alignment with the Australian Core Skills Framework (ACSF). The following tables outline the performance levels indicated for successful attainment of the unit.

ACSF levels indicative of performance:

1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Learning					Reading					Writing					Oral communication					Numeracy				

Performance variables:

1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Support					Context					Text complexity					Task complexity				

Further information on ACSF and the foundation skills underpinning this unit can be found in the Foundation Skills Guide on the GSA website.

Range of Conditions

Area velocity methods include:	• Doppler velocity meter • acoustic Doppler current profiler • electromagnetic current meter • mechanical current meter

Unit Mapping Information

This unit supersedes and is equivalent to NWP340A Measure and process hydrometric stream discharge data using wading gaugings.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPHYD011 Measure and process low and medium flows using area velocity methods

Modification History

Release	Comments
1	These Assessment Requirements were released in NWP Water Training Package release 1.0 and meet the Standards for Training Packages. Assessment Requirements created drawing upon specified assessment information from superseded unit

Performance Evidence

Evidence required to demonstrate competence must satisfy all of the requirements of the elements and performance criteria. The candidate must be assessed in at least one of the area velocity methods listed in the Range of Conditions. If not otherwise specified the candidate must demonstrate evidence of performance of the following on at least one occasion.

- assessing risks and taking appropriate precautions and/or actions
- maintaining testing equipment in good order and calibrating
- interpreting and applying technical documentation
- using surveying equipment to identify site location
- performing basic mathematical calculations using safety equipment and personal protective equipment
- identifying potential or actual operational problems
- communicating with employees and customers
- using computer and communication systems
- giving and receiving instructions
- collecting discharge data
- gathering, interpreting and applying complex documentation related to the specification of hydrographic data collection and reporting procedures
- collecting samples
- analysing and verifying data using standard procedures, software and databases
- preparing reports
- storing and archiving data
- identifying, reporting and solving potential or actual problems within scope of job function
- positioning equipment

Knowledge Evidence

Evidence required to demonstrate competence must satisfy all of the requirements of the elements and performance criteria. If not otherwise specified the depth of knowledge demonstrated must be appropriate to the job context of the candidate.

- limitations of the system principle of area velocity measurement of discharge
- turbulent and laminar flow
- equipment testing procedures
- WHS procedure
- characteristics of a suitable section for wading and boat gauging and how to make modifications

Assessment Conditions

Competency should be assessed in an actual workplace or in a simulated environment, with access to equipment and infrastructure appropriate to the outcome. Competency should be demonstrated over time to ensure the candidate is assessed across a variety of situations.

Assessors must satisfy the NVR/AQTF mandatory competency requirements for assessors.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPHYD013 Operate, maintain and decommission monitoring sites

Modification History

Release	Comments
1	These Assessment Requirements were released in NWP Water Training Package release 1.0 and meet the Standards for Training Packages. This unit supersedes and is equivalent to NWP420A Install, operate and maintain hydrologic instruments and equipment. • Unit code updated • Content and formatting updated to comply with the new standards • All PC transitioned from passive to active voice • Unit title changed to better reflect unit outcomes • Element 1 reworded • Element 2 removed • One new PC added to Element 1 and Element 3 • PC 1.1 removed • PC 1.3 revised

Application

This unit of competency describes the skills required to operate, maintain and decommission monitoring sites and related equipment and instruments. The role requires an understanding of the capacity, the original purpose of the site and the application of the instruments and equipment. It also requires the ability to test and maintain instruments, equipment and the site to provide accurate data.

This unit applies to hydrographers employed by the water industry and water operators involved in the monitoring of all the elements of the water cycle and their impact on the related environment.

The skills and knowledge described in this unit must be applied within the legislative, regulatory and policy environment in which they are carried out. Organisational policies and procedures must be consulted and adhered to, particularly those related to manufacturers' specifications and requirements, WHS, Bureau of Meteorology, World Meteorological Organisation and Australian Standards.

Those undertaking this unit would work in small teams, mostly under supervision, while performing complex tasks in a broad range of contexts that could be unpredictable, including remote, confined spaces, near water and/or at heights.

No licensing, legislative or certification requirements apply to unit at the time of publication.

Competency Field

Hydrography

Elements and Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA
Elements describe the essential outcomes	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the range of conditions section.
1. Plan the operation and maintenance of site, instruments and equipment	1.1 Identify monitoring objective of the site. 1.2 Prepare schedules for operation and maintenance. 1.3 Review the performance of instruments and equipment required for the site and its conditions. 1.4 Ensure that the manufacturers specifications are applied. 1.5 Address logistical requirements, prepare relevant equipment, authorisations and documentation required for the installation.
2. Maintain site	2.1 Maintain the site in accordance with the schedules and environmental conditions. 2.2 Assess conditions of the site and take corrective actions. 2.3 Review the effectiveness of the corrective actions. 2.4 Complete records.
3. Test, maintain and calibrate instruments, equipment and systems	3.1 Test assignment instruments and equipment. 3.2 Calibrate equipment. 3.3 Make and test adjustments to comply with the required tolerances. 3.4 Report errors or deviations from the appropriate range or tolerance levels.

	3.5 Maintain test records. 3.6 Complete routine maintenance in accordance with maintenance schedules. 3.7 Store and protect instruments and equipment.
4. Operate monitoring equipment	4.1 Use monitoring equipment to collect data required by plan and purpose. 4.2 Make calculations and adjustments according to the requirements of the site and equipment. 4.3 Check the accuracy and reliability of readings and confirm or adjust calibrations.
5. Decommission site	5.1 Demolish or decommission structures. 5.2 Restore sites. 5.3 Identify and address potential or actual problems and report to appropriate personnel.
6. Report processes and outcomes	6.1 Compile reports and data according to monitoring plan. 6.2 Identify potential and current problems proactively and take corrective action or report to relevant agents. 6.3 Identify indicators of urgency and high risk for priority response.

Foundation Skills

The foundation skills demands of this unit have been mapped for alignment with the Australian Core Skills Framework (ACSF). The following tables outline the performance levels indicated for successful attainment of the unit.

ACSF levels indicative of performance:

1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Learning					Reading					Writing					Oral communication					Numeracy				

Performance variables:

1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Support					Context					Text complexity					Task complexity				

Further information on ACSF and the foundation skills underpinning this unit can be found in the Foundation Skills Guide on the GSA website.

Unit Mapping Information

This unit supersedes and is equivalent to NWP420A Install, operate and maintain hydrologic instruments and equipment.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPHYD013 Operate, maintain and decommission monitoring sites

Modification History

Release	Comments
1	These Assessment Requirements were released in NWP Water Training Package release 1.0 and meet the Standards for Training Packages. • Assessment Requirements created drawing upon specified assessment information from superseded unit

Performance Evidence

Evidence required to demonstrate competence must satisfy all of the requirements of the elements and performance criteria. If not otherwise specified the candidate must demonstrate evidence of performance of the following on at least one occasion.

- interpreting and applying technical documentation to the installation and maintenance of instruments and equipment
- applying mechanical, electrical and electronic skills to the installation and maintenance of instruments and equipment
- using computer systems and system analysis equipment and tools to conduct in situ calibration of monitoring equipment and systems
- using required work practices to minimise environmental impact of the installation process
- using safety equipment and personal protective equipment
- using hand and power tools
- identifying and responding to potential or actual operational problems
- conducting inspections
- producing basic reports
- collecting and analysing data
- reading and interpreting plans, specifications, maps and job instructions
- interpreting and applying technical information and applications related to the installation and maintenance of a range of hydrographic instruments and equipment
- conducting tests of a range of hydrographic instruments and equipment and making adjustments to maintain accuracy
- installing and maintaining a range of hydrographic instruments and equipment in a range of sites and conditions and under conditions of extreme weather and high risk
- analysing risks in a range of locations and conditions and working safely in routine and extreme conditions

- identifying, reporting and solving potential and current problems, and taking immediate action to address high risk conditions
- storing and protecting instruments and equipment by stowing them in appropriate containers for storage and transport and by protecting them
- drafting decommissioning report with authorisation
- implementing decommission procedure for data management, site database, telemetry and internet

Knowledge Evidence

Evidence required to demonstrate competence must satisfy all of the requirements of the elements and performance criteria. If not otherwise specified the depth of knowledge demonstrated must be appropriate to the job context of the candidate.

- mathematical and scientific principles appropriate to the work role
- operating parameters, processes and capacity limitations of hydrographic instruments and equipment
- electrical and/or electronic systems operating principles
- risk factors and potential hazards involved with installing and monitoring instruments and equipment
- effects of weather and conditions on operating of hydrographic instruments and equipment
- computer based instrument and/or system analysis software and packages
- WHS procedures
- standards relevant to the tasks

Assessment Conditions

Competency should be assessed in an actual workplace or in a simulated environment, with access to equipment and infrastructure appropriate to the outcome. Competency should be demonstrated over time to ensure the candidate is assessed across a variety of situations.

Assessors must satisfy the NVR/AQTF mandatory competency requirements for assessors.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPHYD014 Measure and process medium and high flows using a range of methods and equipment

Modification History

Release	Comments
1	These Assessment Requirements were released in NWP Water Training Package release 1.0 and meet the Standards for Training Packages. This unit supersedes and is equivalent to NWP421A Collect, measure and process hydrometric stream discharge gauging. • Unit code updated • Content and formatting updated to comply with the new standards • All PC transitioned from passive to active voice • Unit title changed to better reflect unit outcomes • One new PC added in Element 1 and all PC reordered • Element 2 all PC reordered and revised • PC 3.4 removed

Application

This unit describes the skills required to collect data using a range of discharge measuring methods and equipment, to measure and calculate readings and to interpret and report data for a range of clients and stakeholders.

This unit applies to hydrographers employed by the water industry and water operators involved in the monitoring of all the elements of the water cycle and their impact on the related environment.

The skills and knowledge described in this unit must be applied within the legislative, regulatory and policy environment in which they are carried out. Organisational policies and procedures must be consulted and adhered to, particularly those relating to stream discharge measurement, registration, calibration, safe operation of equipment, identification of hazards, WHS, Bureau of Meteorology, World Meteorological Organisation and Australian Standards.

Those undertaking this unit would work in small teams, mostly under supervision, while performing complex tasks in a broad range of contexts, that could be unpredictable, including remote, confined spaces, near water and/or at heights.

No licensing, legislative or certification requirements apply to unit at the time of publication.

Competency Field

Hydrography

Elements and Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA
Elements describe the essential outcomes	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the range of conditions section.
1. Identify flow gauging	1.1 Identify the monitoring objective of the site and gauging requirements. 1.2 Identify appropriate methods for measuring discharge. 1.3 Select equipment and confirm site conditions are within instrument specifications. 1.4 Identify stream discharge and factors affecting accuracy. 1.5 Identify hazards and implement risk management principles.
2. Collect depth and velocity data	2.1 Perform a pre-discharge measurement check on equipment. 2.2 Prepare the gauging site. 2.3 Calculate the equipment configuration settings. 2.4 Position equipment at pre-determined position. 2.5 Take measurements during gauging. 2.6 Review the data collected.
3. Calculate discharge	3.1 Apply corrections where necessary. 3.2 Calculate the mean velocity. 3.3 Calculate the area and discharge. 3.4 Calculate and record the mean stage and rate of change. 3.5 Calculate the channel storage and time of travel effects.
4. Report discharge readings	4.1 Compare the discharge measurements with the current rating. 4.2 Record the percentage deviation from the rating. 4.3 Grade and record the gauging quality with interpretation comments. 4.4 Gather and document supporting information from the site.

	4.5 Enter gauging into ratings database.

Foundation Skills

The foundation skills demands of this unit have been mapped for alignment with the Australian Core Skills Framework (ACSF). The following tables outline the performance levels indicated for successful attainment of the unit.

ACSF levels indicative of performance:

1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Learning					Reading					Writing					Oral communication					Numeracy				

Performance variables:

1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Support					Context					Text complexity					Task complexity				

Further information on ACSF and the foundation skills underpinning this unit can be found in the Foundation Skills Guide on the GSA website.

Range of Conditions

Methods include:	• area slope method • dilution gauging • float gauging • area velocity method • Doppler velocity meter • acoustic Doppler current profiler (ADCP) • electromagnetic current meter • mechanical current meter

Unit Mapping Information

This unit supersedes and is equivalent to NWP421A Collect, measure and process hydrometric stream discharge gauging.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWP HYD014 Measure and process medium and high flows using a range of methods and equipment

Modification History

Release	Comments
1	These Assessment Requirements were released in NWP Water Training Package release 1.0 and meet the Standards for Training Packages. • Assessment Requirements created drawing upon specified assessment information from superseded unit

Performance Evidence

Evidence required to demonstrate competence must satisfy all of the requirements of the elements and performance criteria. The candidate must be assessed in at least one of the methods listed in the Range of Conditions. If not otherwise specified the candidate must demonstrate evidence of performance of the following on at least one occasion.

- using area velocity method
- assessing risks and applying precautions and action
- estimating and explaining the anticipated vertical distribution
- making calculations on depth and velocity
- maintaining the integrity of measurements
- using a range of suitable techniques to determine mean stage in rapidly changing situations
- adjusting measurements
- plotting discharge measurements on organisation's preferred scale
- using formulae for determining the percentage deviation
- using systems and/or software to transfer calculated flows to official database
- assembling and testing metering equipment
- checking and preparing gauging section
- setting tag lines
- measuring and calculating readings
- gathering, analysing, verifying, interpreting, storing, archiving and reporting data for a range of clients and stakeholders
- interpreting complex documentation
- sampling
- identifying, reporting and solving potential or current problems within scope of job function.

- recording the percentage deviation from the rating determined by checking:
 - calculations
 - equipment
 - control
 - recording equipment
 - repeat measurement
- gathering and documenting supporting information from the site (i.e. gauging section location and access maps, photographic records, site preparation undertaken, comments on issues encountered, data management and reporting)

Knowledge Evidence

Evidence required to demonstrate competence must satisfy all of the requirements of the elements and performance criteria. If not otherwise specified the depth of knowledge demonstrated must be appropriate to the job context of the candidate.

- principles and alternative methods of discharge measurement
- methods for calculating mean velocity in a vertical
- methods for determining the cross-sectional area at a site
- requirements for surface, single and multipoint floats
- basic mathematical principles for area and velocity measurements
- correction procedures for horizontal angles and suspension measurements
- techniques for monitoring stage changes during discharge measurement
- weighted mean stage calculations
- discharge and mean stage adjustment
- technical components in calculating discharge
- factors impacting on discharge measurements and the quality of the discharge
- formulae to adjust gauging
- potential impacts of modifications of site, method or equipment on discharge accuracy
- confidence limits

Assessment Conditions

Competency should be assessed in an actual workplace or in a simulated environment, with access to equipment and infrastructure appropriate to the outcome. Competency should be demonstrated over time to ensure the candidate is assessed across a variety of situations.

Measuring and processing flows: Assessment must occur on a minimum of two separate occasions, in at least two different locations, using a minimum of two different methods from a broad range of complex methods, with a maximum of one out of two from area velocity methods

Assessors must satisfy the NVR/AQTF mandatory competency requirements for assessors.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPHYD015 Undertake surveying of monitoring sites

Modification History

Release	Comments
1	These Assessment Requirements were released in NWP Water Training Package release 1.0 and meet the Standards for Training Packages. This unit supersedes and is equivalent to NWP504A Collect and manage hydrometric station survey data. • Unit code updated • Content and formatting updated to comply with the new standards • All PC transitioned from passive to active voice • Unit title changed to better reflect unit outcomes • Element 2 all PC reordered and revised • Two new PC added to Element 3 • One new PC added to Element 4 • PC 3.5 reworded • PC 1.1 and 4.1 revised

Application

This unit of competency describes the skills required to use appropriate survey equipment to collect survey data at monitoring sites and to process and manage the data for hydrographic purposes.

This unit applies to hydrographers employed by the water industry and water operators involved in the monitoring of all the elements of the water cycle and their impact on the related environment.

The skills and knowledge described in this unit must be applied within the legislative, regulatory and policy environment in which they are carried out. Organisational policies and procedures must be consulted and adhered to, particularly those relating to WHS, Bureau of Meteorology, World Meteorological Organisation and Australian Standards.

Those undertaking this unit would work autonomously, supervising staff, while performing complex tasks in a broad range of contexts, that could be unpredictable, including remote, confined spaces, near water and/or at heights.

No licensing, legislative or certification requirements apply to unit at the time of publication.

Competency Field

Hydrography

Elements and Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA
Elements describe the essential outcomes	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the range of conditions section.
1. Plan and assess survey requirements	1.1 Identify the survey objectives and any required standard processes and software. 1.2 Identify the location and value of survey reference marks from maps and plans. 1.3 Choose and justify appropriate survey techniques for specific hydraulic conditions and hydrographic purposes. 1.4 Identify and evaluate the source of levelling errors and misclosures. 1.5 Plan and manage the logistics and personnel to ensure effective outcomes and resource management. 1.6 Apply correct care procedure for storage, transport and use of survey equipment. 1.7 Assess and address WHS issues that may be encountered during the surveying exercise, taking appropriate risk management strategies. 1.8 Apply for and confirm authorisations for entry to property.
2. Operate survey equipment	2.1 Select, set up and prepare survey equipment for use and check level of accuracy. 2.2 Use mathematical techniques to check for correct operation. 2.3 Use suitable survey equipment.
3. Select and survey monitoring sites	3.1 Identify required survey reference benchmarks. 3.2 Establish cease-to-flow level of controlling feature. 3.3 Identify and assess high-flow cross-section and sectional control by survey.

	3.4 Survey sections of channels to determine the profile of the channel in the gauging station reach. 3.5 Identify and assess monitoring site survey reference points. 3.6 Establish benchmark and survey to Australian Height Datum. 3.7 Use different surveying techniques.
4. Document survey and data results	4.1 Verify results in corporate database. 4.2 Document and store results. 4.3 Produce a plot or plan of survey results.

Foundation Skills

The foundation skills demands of this unit have been mapped for alignment with the Australian Core Skills Framework (ACSF). The following tables outline the performance levels indicated for successful attainment of the unit.

ACSF levels indicative of performance:

1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Learning					Reading					Writing					Oral communication					Numeracy				

Performance variables:

1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Support					Context					Text complexity					Task complexity				

Further information on ACSF and the foundation skills underpinning this unit can be found in the Foundation Skills Guide on the GSA website.

Unit Mapping Information

This unit supersedes and is equivalent to NWP504A Collect and mangae hydrometric station survey data.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPHYD015 Undertake surveying of monitoring sites

Modification History

Release	Comments
1	These Assessment Requirements were released in NWP Water Training Package release 1.0 and meet the Standards for Training Packages. Assessment Requirements created drawing upon specified assessment information from superseded unit

Performance Evidence

Evidence required to demonstrate competence must satisfy all of the requirements of the elements and performance criteria. If not otherwise specified the candidate must demonstrate evidence of performance of the following on at least two occasions.

- locating features on maps and plans, finding survey reference marks and plotting locations
- preparing, setting up and operating surveying equipment
- preparing and loading surveying equipment for transportation
- maintaining surveying equipment
- preparing and holding staves
- measuring horizontal distance by stadia
- identifying physically survey reference mark
- applying sightings and standard error checks
- gathering and interpreting complex documentation
- applying documentation to the development and maintenance of rating curves
- analysing and verifying data using standard procedures, softwares and databases
- preparing clear and accurate reports
- capturing, storing and archiving data
- identifying, reporting and providing solutions to a range of flow conditions
- using a GPS
- applying appropriate datum and projections
- carrying out collimation test to check accuracy

Knowledge Evidence

Evidence required to demonstrate competence must satisfy all of the requirements of the elements and performance criteria. If not otherwise specified the depth of knowledge demonstrated must be appropriate to the job context of the candidate.

- mathematical and other scientific techniques relevant to the analysis of hydrographic data
- interaction of physico-chemical parameters of the process being monitored and the impact on data being recorded
- sensor and/or system characteristics and signal processing and/or algorithms, specifically with chemical sensors
- computer software relevant to the analysis and archiving of hydrographic data
- water sampling and testing procedures
- procedures for use of remote contact communication systems

Assessment Conditions

Competency should be assessed in an actual workplace or in a simulated environment, with access to equipment and infrastructure appropriate to the outcome. Competency should be demonstrated over time to ensure the candidate is assessed across a variety of situations.

Assessors must satisfy the NVR/AQTF mandatory competency requirements for assessors.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPHYS001 Identify and analyse information technology for hydrographic surveys

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to identify and analyse information technology for hydrographic surveys.

It includes identifying computer system components, utilising information technology for surveying activities and conducting data processing. It also includes analysing and organising data and producing deliverables.

This unit supports the attainment of skills and knowledge required for leaders with responsibility for performing hydrographic surveying and may lead to certification as a hydrographic surveyor.

Pre-requisite Unit

Not applicable.

Competency Field

Hydrographic Surveyor

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Utilise information technology for surveying activities

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Identify hardware components in surveying information technology

	1.2	Identify memory storage components within surveying information technology
	1.3	Use software to produce and manage administrative documentation
	1.4	Create and manage a database to store information according to relevant workplace procedures and industry standards
	1.5	Convert survey data from one format to another using software programs
	1.6	Define web and network communication requirements
2	Conduct data processing and analysis	
	2.1	Maintain data transfer and storage using information technology
	2.2	Perform spatial data cleaning, identify anomalies and provide solutions
	2.3	Perform spatial data cleaning using quality control criteria
	2.4	Conduct survey measurements and computations and analyse results
3	Organise data and produce deliverables	
	3.1	Select appropriate file types to support transfer of hydrographic data acquisition, database and Geographical Information Systems (GIS) between environments
	3.2	Use GIS within the marine environment according to manufacturer specifications
	3.3	Produce survey deliverables according to international hydrographic survey and cartographic standards

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Unit Mapping Information

This is a new unit. No equivalent unit.

Links

Companion Volume Implementation Guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPBYS001 Identify and analyse information technology for hydrographic surveys

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- applying correct symbology and meta data
- applying estimation procedures to survey measurements and volume computations
- applying procedures used to assess, accept and reject data
- applying spatial data cleaning techniques using appropriate software and distinguish between anomalies and real data
- applying spatial data processing methods to create digital terrain models or gridded surfaces and contouring
- assessing the total propagated uncertainty of survey data relative to the survey specification
- configuring elements of a viewing package to highlight features of interest within a hydrographic data set
- configuring systems for secure storage, transfer and backup of survey data
- converting survey data from one format to another
- creating a database, populating records and writing a query to extract information including fields for:
 - geographical information
 - marine floor sediment types
 - obstructions
 - rocks
 - wrecks
- creating a Geographical Information Systems (GIS) project using marine spatial data including merging and mashing up data sets of different origin by applying datum and projection transformations
- creating a template document using the appropriate software
- creating the required data types as part of standard exchange formats
- locating, identifying and explaining function of computer components used for hydrographic surveying including:
 - central processing unit
 - communication devices
 - data storage

- device drivers
- hardware
- input and output interfaces
- interfaces
- memory storage types
- motherboard
- operating systems
- software
- producing both paper and digital products complying with specifications and standards
- producing a hydrographic survey report
- writing a program for data format conversion or basic algorithm computation

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- communication protocols
- components contributing to uncertainty in observations
- content of files in different formats and file types used to record data in survey planning, data acquisition and products
- contouring to international charting standards
- database characteristics and functions
- data cleaning techniques including manual and automated methods within industry standard hydrographic processing software
- data conversion principles including:
 - algorithms including loops and conditional instructions
 - application to data exchange
 - file conversion
 - scientific computation environments
- data interpolation techniques
- data storage and backup systems
- definitions of the following:
 - communication protocols
 - internet
 - LAN
 - network integrity
- digital and paper products derived from source data for various survey types and usage including GIS and CAD files and geo-referenced images
- effects of time on data relating to:
 - clocks
 - synchronisation of data

- time drift
- time tagging
- GIS and hydrographic software presentation considerations including:
 - base maps and images
 - coordinate reference system
 - detail and quantify components contributing to uncertainty in derived ranges
 - features and feature types of point, line and polygon with marine examples
 - marine and coastal data bases
 - resolution
 - shading and illumination
 - survey metadata
 - symbology
 - use of colour schemes
 - vertical datums
 - vertical scale and exaggeration
- grids and TINs including:
 - appropriate usage
 - data analysis
 - differences between grids and TINs
 - resolution
 - visualisation affects
- identification of outliers and real features
- network communication protocols used in remote data exchange applications
- organisation of survey databases
- products provided directly from source data including sounding data files and metadata
- properties of computer components including:
 - buffers
 - communication board
 - communication ports
 - data transmission rates
 - ethernet links
 - serial links
- quality control criteria including:
 - comparing crossing and adjacent data between survey lines
 - comparing overlapping data between survey platforms
 - identification of systematic errors
 - total propagated uncertainty including horizontal and vertical
- raster and vector data models and commonly used file types
- relevant international and Australian hydrographic standards including nautical charting products

- relevant standard reports on quality control, procedures, results and conclusions detailing processes adopted within survey operations and data processing
- role of software including:
 - graphic and image software
 - spreadsheets
 - storage and data exchange
 - word processing
- spatial data infrastructures including GIS
- types of databases including:
 - file types (binary, text and XML)
 - geospatial databases
 - relational databases
- type of information gathered for:
 - anomalies in survey area
 - light lists
 - notices to mariners
 - offshore hazards
 - port guides
 - sailing directions
- types of geospatial data and their representation
- vertical scale and exaggeration and the application of quality assurance and data representation
- volume computations

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in suitable workplace operational situations. Where this is not appropriate, assessment must occur in suitable simulated workplace operational situations reflecting actual workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, facilities, equipment and personal protective equipment currently used in industry
- applicable relevant documentation including workplace procedures, industry standards, equipment specifications, regulations, codes of practice, international standards and operation

manuals.

Links

Companion Volume Implementation Guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPHYS002 Interpret and analyse science principles for hydrographic surveying

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to interpret and analyse science principles for hydrographic surveying.

It includes performing mathematical calculations for a survey, detailing the fundamentals of physics and identifying the impact of geography and geology on the hydrographic survey.

This unit supports the attainment of skills and knowledge required for leaders with responsibility for performing hydrographic surveying and may lead to certification as a hydrographic surveyor.

Pre-requisite Unit

Not applicable.

Competency Field

Hydrographic Surveyor

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Perform calculations for hydrographic survey

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

- 1.1 Identify hydrographic survey dataset and observations according to workplace procedures
- 1.2 Apply relevant mathematical equations in hydrographic survey

	1.3	Apply the Theory of Errors to hydrographic survey observations
	1.4	Analyse error budget components, calculate using theory of errors and report on outcomes
2 Interpret and use physics fundamentals for hydrographic survey	2.1	Evaluate the relationship between linear and rotational motions through acceleration and velocity
	2.2	Determine the impacts of gravity field of the earth in terms of acceleration and potential in relation to hydrographic survey
	2.3	Analyse differences between types of waves including generation and propagation
	2.4	Determine how medium parameters affect wave behaviour in hydrographic survey outcomes
3 Identify the impact of geography and geology on hydrographic survey	3.1	Identify internal structure, physical characteristics and dynamics of the Earth relevant to hydrographic survey outcomes
	3.2	Determine the impact of substrate layers of the marine floor structure from the coast to deep ocean floor
	3.3	Identify common marine floor characteristics from inland rivers, through harbours and coast to deep ocean floor, and their impact relevant to hydrographic survey outcomes

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Unit Mapping Information

This is a new unit. No equivalent unit.

Links

Companion Volume Implementation Guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPHYS002 Interpret and analyse science principles for hydrographic surveying

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- applying the variance propagation law to a linear observation equation and deriving a measurement uncertainty as a function of observable co-variances
- defining natural features and characteristics of the seafloor using graphical representation
- performing an a-priori error budget calculation for a hydrographic survey
- solving mathematical calculations and analysing results of a hydrographic dataset including the following:
 - mean
 - variance
 - standard deviation

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- characteristics of the following:
 - earthquakes zones
 - erosion and deposition
 - plate tectonics
 - rivers and estuaries
 - types of rocks
- characteristics of wave types including:
 - energy source
 - movement
- complex mathematical statistics including:
 - covariance and correlation
 - estimation of mean, variance and co-variance
 - mean

- normal distribution
- random variables
- standard deviation
- variance
- contribution to the error budget of different components
- covariance propagation law
- describe a random variable
- equipotential surfaces
- gravity field of the earth
- linear observation equations
- mechanics of physics including:
 - accelerations, angular and linear velocities of kinematics
 - characteristics of the Coriolis effect
 - characteristics of Newton's Laws of Motion including forces, accelerations, energy
- medium parameters impacts on the following:
 - radiation, emission and absorption
 - reflection, refraction, diffraction
 - wave propagation
- ocean basin structure and major processes affecting coastal morphology affected by the following:
 - different types of rocks
 - earthquakes zones
 - erosion and deposition
 - plate tectonics
 - rivers and estuaries
- wave generation and propagation including:
 - radiation, emission and absorption
 - reflection, refraction, diffraction
 - Snell's Law
- wave types including:
 - electromagnetic
 - pressure
 - ocean

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the

time of assessment.

Assessment must occur in suitable workplace operational situations. Where this is not appropriate, assessment must occur in suitable simulated workplace operational situations reflecting actual workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, facilities, equipment and personal protective equipment currently used in industry
- applicable relevant documentation including workplace procedures, industry standards, equipment specifications, regulations, codes of practice and operation manuals.

Links

Companion Volume Implementation Guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPHY003 Manage and analyse water levels and flows

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to manage and analyse water levels and flows.

It includes applying the principles of water levels, explaining water level measurement methods and analysing water level data. It also includes explaining the process of water movement.

This unit supports the attainment of skills and knowledge required for leaders with responsibility for performing hydrographic surveying and may lead to certification as a hydrographic surveyor.

Pre-requisite Unit

Not applicable.

Competency Field

Hydrographic Surveyor

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Apply principles of water levels

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

- 1.1** Analyse tidal characteristics in terms of tide raising forces and local and regional morphological features in hydrographic survey
- 1.2** Evaluate the effect of non-tidal influences on tidal water levels in hydrographic survey

	1.3	Evaluate the impact of sources of water level variations occurring in inland waters
2 Use water level measurement methods	2.1	Determine the appropriate type of electronic water level gauge when calculating water level measurements according to manufacturer instructions
	2.2	Configure electronic water level gauges for logging data, data communication, data download and for network operation with appropriate quality control measures
	2.3	Compute tidally based reference levels on the basis of tide time series
	2.4	Determine vertical reference levels in rivers and lakes according to workplace procedures
	2.5	Determine uncertainty in water levels to uncertainties in measurement, duration and distance from the electronic water level gauge according to workplace procedures
3 Analyse water level data	3.1	Obtain and interpret water level and flow data according to workplace procedures
	3.2	Use tidal information and vessel parameters to reduce soundings to a specified datum
	3.3	Configure and calibrate Global Navigation Satellite System (GNSS) to reduce soundings to a specified survey datum
4 Analyse water movement	4.1	Determine the forces behind currents, change in currents and tidal streams
	4.2	Calculate current measurement using appropriate techniques and methods for acquiring and displaying current data

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work

environment.

Unit Mapping Information

This is a new unit. No equivalent unit.

Links

Companion Volume Implementation Guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPHY003 Manage and analyse water levels and flows

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- analysing and reporting on electronic water level gauge data and reducing to survey datum
- applying tide tables and using appropriate software to determine predicted water levels and tidal streams
- constructing a co-tidal chart
- installing, levelling and calibrating an electronic water level gauge
- portraying stream data

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- aspects of a co-tidal chart
- changes in water level caused by:
 - atmospheric pressure
 - ocean temperature
 - precipitation
 - seiches
 - wind
- electronic water level gauge installation techniques, establishment and levelling of associated survey marks
- methods for measuring tidal streams and currents including:
 - acoustic doppler current profilers (ADCP)
 - current meters
 - drogues
- networks of electronic water level gauges
- operating principles of electronic water level gauges including:
 - acoustic sensors
 - atmospheric pressure including vented and unvented

- float
- GNSS buoys
- radar
- tide poles, boards and staffs
- methods for planning current and tidal stream surveys
- methods for reduction of survey data to a datum using:
 - GNSS observations
 - lever-arms and position reference point offsets
 - predicted tides versus measured tide reduction
 - rectilinear and rotary tidal streams
 - relationship between tidal stream and tides
 - vertical datums for sounding reduction
 - water level observations
- reference levels including mean sea level (MSL), chart datum, and mean high water
- river and lake datums
- surface current radar observations
- tidal fundamentals including:
 - amphidromic points and co-tidal charts
 - geomorphological influences on tidal characteristics
 - major harmonic constituents and different types of tide
 - tide generating forces, the equilibrium and real tides
- tidal information including:
 - current tables
 - tidal stream
 - tide table
 - tide prediction tools
- uncertainties associated with:
 - duration of observations
 - measurement devices
 - spatial separation of water level measurements
- vessel motion characteristics including:
 - draft
 - settlement
 - squat
- water level variations occurring in:
 - canals
 - estuaries
 - inland lakes
 - reservoirs
 - rivers

- wetlands

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in suitable workplace operational situations. Where this is not appropriate, assessment must occur in suitable simulated workplace operational situations reflecting actual workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, facilities, equipment and personal protective equipment currently used in industry
- applicable relevant documentation including workplace procedures, industry standards, equipment specifications, regulations, codes of practice, and operation manuals.

Links

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<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPHYS004 Manage hydrographic surveying projects

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to manage hydrographic surveying projects.

It includes planning hydrographic survey projects, producing reports and other products whilst applying relevant professional ethics, industry standards, and national and international legislation and conventions.

This unit supports the attainment of skills and knowledge required for leaders with responsibility for performing hydrographic surveying and may lead to certification as a hydrographic surveyor.

Pre-requisite Unit

Not applicable.

Competency Field

Hydrographic Surveyor

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Plan hydrographic survey projects

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1	Compare, interpret and apply hydrographic instructions and tenders associated with survey specifications
1.2	Distinguish the roles and responsibilities of individuals within a survey team

- 1.3 Analyse proposed survey area and determine survey requirements
 - 1.4 Identify and interpret relevant documentation and product, including plans reports, geographic information system (GIS) and charts, according to workplace procedures
 - 1.5 Identify and interpret relevant metadata according to relevant industry standards and workplace procedures
 - 1.6 Determine potential legal responsibilities for conducting surveying work according to relevant workplace procedures
- 2 Conduct hydrographic surveying**
 - 2.1 Gather and analyse data telemetry in support of on-board survey data according to hydrographic survey plan requirements
 - 2.2 Manage installation, calibration and determination of the attitude and position of each sensor according to manufacturer specifications
 - 2.3 Determine purpose and application of speed of sound measurements in acoustic systems according to manufacturer specifications
 - 2.4 Determine the effects on the survey quality of vessel motion while conducting hydrographic survey
 - 2.5 Identify and analyse methods of maintaining a survey vessel and survey systems on planned survey lines and routes according to the hydrographic survey plan requirements
 - 2.6 Apply survey data quality control methods to ensure quality assurance of survey operations
 - 2.7 Demonstrate the process of on-line data validation and selection methods while conducting hydrographic survey
- 3 Produce hydrographic survey documentation**
 - 3.1 Maintain quality assurance of survey data
 - 3.2 Synthesise survey information to produce survey reports
- 4 Apply legislation and international convention**
 - 4.1 Apply roles and responsibilities according to industry standards, legislation and conventions

- 4.2 Determine types of baselines using international conventions and territorial sea limits including the use of low tide elevations
- 4.3 Apply international conventions for data collection and vessel transit within maritime boundaries

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Unit Mapping Information

This is a new unit. No equivalent unit.

Links

Companion Volume Implementation Guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPHYS004 Manage hydrographic surveying projects

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- applying metadata to survey information to maintain quality assurance procedures
- compiling a survey report and comparing documents associated with survey procedures to align with requirements using files, charts and reporting tools
- conducting and applying speed of sound measurements in acoustic systems
- configuring data collection and recording software for sensors and selecting sampling rates, gating and filtering settings
- creating a vessel survey line plan including:
 - autonomous vehicle lines in space and time
 - remote vehicle
 - towed instrumentation
- defining baselines and basepoints under international conventions
- demonstrating the data meets survey requirements through on-line monitoring of display and visualisation tools
- developing a survey method statement against a hydrographic instruction or tender specification
- implementing a data telemetry link between a survey infrastructure component and a survey system for real-time use
- implementing quality control procedures
- maintaining survey notes on event by event findings during data acquisition
- producing calibration reports
- setting up, integrating and testing survey systems including:
 - acquisition system time-stamping strategies
 - appropriate physical offset determinations
 - sensors
- using monitoring software to detect possible biases and errors in data

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the

requirements of the elements and performance criteria and includes knowledge of:

- applications and methods of on-board survey data
- base points including geodetic positions
- characteristics of international conventions including:
 - internal waters
 - low tide elevations
 - types
- compliance with survey specifications and standards
- development of current international regulations for baselines including:
 - archipelagic
 - closing lines
 - normal
 - straight
- fundamentals of professional liability relating to surveying
- international conventions on maritime boundaries including:
 - contiguous zones
 - exclusive economic zone
 - extended continental shelf
 - high seas
 - internal waters
 - territorial seas
- metadata including:
 - data types of data obtained
 - quality measures including positional, thematic and temporal uncertainty
 - lineage
 - nautical charts
 - notice to mariners
- quality assurance of:
 - on-line data validation and selection
 - survey data
 - survey operations
- phases and terminology associated with types of survey operations
- planned survey lines and routes
- project planning and techniques
- relevant documentation and product including:
 - charts
 - GIS
 - plans
 - reports
- responsibilities and potential legal liability of hydrographic surveyors

- roles and relationships of survey parameters including:
 - data coverage
 - environmental and oceanographic parameters
 - line orientation
 - overlap
 - positional accuracy and precision
 - scale
 - sounding density and spatial resolution
 - survey lines, interlines and cross lines
 - survey speed
- survey report components
- survey vessel and system maintenance
- vessel motion including:
 - angular velocity
 - speed over the ground

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in suitable workplace operational situations. Where this is not appropriate, assessment must occur in suitable simulated workplace operational situations reflecting actual workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, facilities, equipment and personal protective equipment currently used in industry
- applicable relevant documentation including workplace procedures, industry standards, equipment specifications, regulations, codes of practice, international conventions and operation manuals.

Links

Companion Volume Implementation Guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPHY005 Use alternate positioning systems to gather data

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to use alternate positioning systems to gather data.

It includes using the principles of cartography, applying acoustic positioning systems and understanding the difference between inertial motion units (IMU) and inertial navigation systems (INS).

This unit supports the attainment of skills and knowledge required for leaders with responsibility for performing hydrographic surveying and may lead to certification as a hydrographic surveyor.

Pre-requisite Unit

Not applicable.

Competency Field

Hydrographic Surveyor

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Use the principles of cartography from positioning systems to gather data

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Analyse the data properties and distortions in projections used in map and chart positioning systems

	1.2	Analyse the selection of projection types for data gathering and product generation
	1.3	Identify, interpret and synthesise historical surveys compared to legacy positioning systems
	1.4	Select and apply projection formulae to provide an appropriate graphic representation
	1.5	Identify and interpret relevant documentation and product including plans, reports, geographic information system (GIS) and charts, according to workplace procedures
2	Apply acoustic positioning systems	
	2.1	Plan, monitor, review and assess the deployment, calibration, signal structure and performance of acoustic positioning devices
	2.2	Identify and analyse the principles of integrated underwater positioning systems
	2.3	Use underwater positioning systems in the use of remote survey platforms according to workplace procedures
	2.4	Apply appropriate statistical formulae to obtain accurately calculated values and represent graphically
3	Use IMU and INS	
	3.1	Use inertial motion units and calculate measures to analyse positioning data
	3.2	Analyse the concepts of aided inertial navigation systems
	3.3	Describe and analyse the sources and magnitude of uncertainties associated with positioning methods and positioning systems

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Unit Mapping Information

This is a new unit. No equivalent unit.

Links

Companion Volume Implementation Guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWP HYS005 Use alternate positioning systems to gather data

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- analysing the sources and magnitude of uncertainties associated with positioning methods and positioning systems
- comparing historical surveys with modern surveys and report
- comparing IMU heading measurements with magnetic compasses and gyrocompasses
- calculating dynamic alignment of inertial navigational systems (INS) and analysing impacts
- analysing distortions in projection types
- monitoring, reviewing and assessing the performance of positioning systems in both relative and absolute terms using appropriate statistical tools analysing the following:
 - accuracy
 - precision
 - repeatability
- performing complex calculations to provide the final solution for a position
- selecting and applying projection formulae to provide an appropriate graphic representation
- selecting the appropriate projection type for product generation
- using acoustic positioning systems in offshore survey operations
- using inertial motion units (IMU) including north finding and heave estimation

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- analytical projection formulae and planimetric coordinates
- baseline equipment used for calculating positions including:
 - depth sensors
 - integration with INS and velocity sensors
 - purpose of acoustics for positioning towed vehicles
 - remotely operated underwater vehicles (ROV) and autonomous underwater vehicles (AUV)

- transponders
- characteristics of legacy positioning systems
- complex mathematical calculations relevant to determining position using position system data including total propagated uncertainty in vertical and horizontal
- differences between IMU and INS
- geometrical properties of map projections including:
 - direction associated with different map projections
 - distortions in distance
- inertial measurement units (IMU) of a survey platform including:
 - heave estimation
 - north finding
 - pitch
 - roll
 - yaw
- INS including:
 - procedures for static and dynamic alignment
 - acoustic doppler current profiler (ADCP) and INS
 - Global Navigation Satellite System (GNSS) and INS
 - ultra short baseline (USBL), Depth and INS
- mobile surveys including:
 - GNSS equipment
 - IMU and INS
 - acoustic positioning
- operational procedures for correct installation of gyrocompasses and accelerometers
- positioning methods including:
 - Continuously Operating Reference Stations (CORS) networks
 - intersection
 - post processed GNSS
 - real time kinematic
 - resection
 - satellite corrections
 - static network
- principles of cartography
- principles of integrated underwater positioning systems
- relevant documentation and product including:
 - charts
 - GIS
 - plans
 - reports
- remote survey platforms including:

- autonomous underwater vehicles
- drones
- gliders
- unmanned surface vehicles
- set up procedures for calculating the following baselines:
 - long
 - short
 - ultra-short
- static surveys including:
 - acoustic positioning
 - GNSS observations
 - levelling instruments
 - total stations
- types of projections including:
 - conical
 - cylindrical
 - stereographic
 - Universal Transverse Mercator (UTM) system

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in suitable workplace operational situations. Where this is not appropriate, assessment must occur in suitable simulated workplace operational situations reflecting actual workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, facilities, equipment and personal protective equipment currently used in industry
- applicable relevant documentation including workplace procedures, industry standards, equipment specifications, regulations, codes of practice, and operation manuals.

Links

Companion Volume Implementation Guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPHY006 Use remote sensing for hydrographic surveying

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to use remote sensing for hydrographic survey.

It includes using light detection and ranging (LiDAR) for data collection and analysis. It also includes analysing collected data and selecting the most appropriate methods to use.

This unit supports the attainment of skills and knowledge required for leaders with responsibility for performing hydrographic surveying and may lead to certification as a hydrographic surveyor.

Pre-requisite Unit

Not applicable.

Competency Field

Hydrographic Surveyor

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Use LiDAR for data collection and analysis

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

- 1.1** Collect and analyse data using topographic and bathymetric LiDAR for a hydrographic survey according to workplace procedures
- 1.2** Analyse the environmental and operational environments in which bathymetric LiDAR surveys are

complementary to echo sounder surveys

- 1.3** Use appropriate hydrographic equipment to gather data for survey
 - 1.4** Extract high and low water lines from LiDAR data sets
 - 1.5** Use computer aided design (CAD) to graphically represent data sets
 - 1.6** Determine the level of turbidity using appropriate equipment
- 2 Use remotely sensed data**
- 2.1** Calculate data sources in remotely sensed bathymetric data and determine the associated spatial parameters
 - 2.2** Create a shoreline map from images and aerial photographs using geometrical properties
 - 2.3** Analyse the optical characteristics of coastal terrain and floors
 - 2.4** Analyse methods of bottom detection in forming a hydrographic survey
 - 2.5** Analyse remote sensing techniques according to workplace procedures

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Unit Mapping Information

This is a new unit. No equivalent unit.

Links

Companion Volume Implementation Guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPHY006 Use remote sensing for hydrographic surveying

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- analysing the different methods of bottom detection
- analysing the differences in remote sensing techniques
- determining the level of turbidity
- extracting high and low water lines from bathymetric and topographic LiDAR data sets, combining with other spatial data and using computer aided design to represent graphically
- scanning frequency and pattern in relation to power, coverage and spatial density
- using and selecting appropriate hydrographic equipment
- using LiDAR to collect and analyse data

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- characteristics of hydrographic equipment including:
 - echo sounders
 - satellite bathymetry
- combined bathymetric and topographic LiDAR systems
- floor optical characteristics and bottom detection
- influence of geometry and waveform on feature detection
- influence of water surface roughness and water column turbidity on the beam pattern and penetration
- integration of components including:
 - attitude compensation
 - networking
 - sensor offsets
 - time stamping
- multispectral imagery including:
 - reflectance in relation to wavelength

- terrain characteristics
- optical characteristics of coastal terrain
- principles, capabilities and limitations of LiDAR systems
- principles of wavelength, water penetration and ground detection
- remote sensing techniques including:
 - hyperspectral
 - multispectral
- satellite derived bathymetry (SDB) techniques and procedures
- spatial resolution and accuracy with relation to multi spectral imagery and satellite derived bathymetry
- Secchi disc and Secchi depth
- techniques for LiDAR systems including:
 - bathymetric
 - topographic
- wavelength performance with different interfaces including water and ground

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in suitable workplace operational situations. Where this is not appropriate, assessment must occur in suitable simulated workplace operational situations reflecting actual workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, facilities, equipment and personal protective equipment currently used in industry
- applicable relevant documentation including workplace procedures, industry standards, equipment specifications, regulations, codes of practice, and operation manuals.

Links

Companion Volume Implementation Guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPHY007 Use underwater acoustics to map waterways

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to use underwater acoustics to map waterways.

It includes applying acoustic theory and using single beam, side scan sonar and swath echo sounders. It also includes using sonar systems, reviewing and reporting results and understanding the differences between the different methods.

This unit supports the attainment of skills and knowledge required for leaders with responsibility for performing hydrographic surveying and may lead to certification as a hydrographic surveyor.

Pre-requisite Unit

Not applicable.

Competency Field

Hydrographic Surveyor

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Apply underwater acoustics

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

- 1.1** Analyse and determine the generation of acoustic waves in relation to hydrographic surveying
- 1.2** Analyse the propagation of acoustic waves for hydrographic surveys

- 1.3 Determine reflection and scatter of acoustic waves and analyse effects on system performance of acoustic equipment
 - 1.4 Analyse the reception of acoustic waves for hydrographic surveys
 - 1.5 Analyse the sonar equation for hydrographic surveys
 - 1.6 Apply quality control procedures to data acquisition and on-line processing to validate information according to workplace procedures
- 2 Use sonar systems**
 - 2.1 Set up, deploy, operate and adjust underwater sonar systems according to manufacturer specifications and workplace procedures
 - 2.2 Interpret echo sounder returns through differentiation between return signals
 - 2.3 Calculate and report components in derived ranges according to workplace procedures
 - 2.4 Determine and analyse beams in relation to transducer settings
 - 2.5 Use phase and amplitude multibeam systems
 - 2.6 Analyse returns in the context of marine floor type, angle of incidence and backscatter from within the water column
 - 2.7 Determine sounding density and object detection capability as functions of system parameters
 - 2.8 Determine and use suitable mounting structure and location for transducers according to manufacturer instructions
 - 2.9 Determine and analyse error sources for phase and amplitude detection modes
- 3 Review and report acoustic results**
 - 3.1 Review processes to ensure accuracy of information gathered, report anomalies and analyse solutions
 - 3.2 Complete acoustic reports and present to relevant personnel according to workplace procedures and industry standards

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Unit Mapping Information

This is a new unit. No equivalent unit.

Links

Companion Volume Implementation Guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPHY007 Use underwater acoustics to map waterways

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- adjusting acoustic parameters for optimum performance during sounding operations
- analysing and reporting echo sounder returns through differentiation between return signals
- analysing and reporting on the following:
 - problems or artefacts in on-line data due to inappropriate configuration or changing environmental parameters
 - side scan sonar records considering target characteristics, system configuration, potential sources of noise and distortion
 - sources of error and angle uncertainty depending on acoustic parameter configuration
- analysing sounding data and identifying the marine floor type using backscatter analysis
- analysing the water column to identify features
- applying quality control procedures to data acquisition and on-line processing
- calculating and reporting on components contributing to uncertainty in derived ranges
- creating sound speed profiles from water column measurements and describing the effect on the acoustic ray path
- detailing sources of noise and the impact of noise on operation of acoustic systems
- reviewing acoustic results and reporting to relevant personnel
- selecting appropriate range, scale, frequency and pulse repetition rate for marine floor surface return and assessment of sediment layer in relation to spatial resolution, bottom penetration and depth of water
- setting up, deploying and operating all of the following types of underwater sonar systems including:
 - side scan
 - single beam
 - swath echo sounders

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- acoustic wave behaviour with reference to physical properties of the water column
- active sonar equation including:
 - causes of propagation loss in relation to water properties together with characteristics of the sea floor and targets
 - noise level and directivity
 - sound source
- characteristics of acoustic units, intensities and sound levels
- combining sources of uncertainty
- echo sounders including:
 - bottom detection principles
 - components of a single beam echo sounder
 - full echo envelope returns
 - operation of single beam echo sounders
 - split beam and dual beam echo sounders
 - sub-bottom profiling systems
- plane and spherical waves including:
 - amplitude
 - frequency
 - wavelength
- principles and geometry of multibeam and interferometric (phase measurement) sonar systems
- principles, components, geometry and deployment of side scan sonar systems
- quality control procedures for hydrographic surveys
- refraction and the path of sound rays through the water column
- side scan including:
 - images and sources of distortion
 - sonar backscatter and floor reflection
- speed of sound in relation to water properties and profile in the water column
- swath echo sounders systems including:
 - amplitude and phase bottom detection
 - backscatter and seabed classification
 - beam forming and beam steering
 - gain, power and pulse length
 - hull and pole mounting of transducers considering platform motion
 - integration of components including:
 - attitude compensation
 - networking
 - sensor offsets
 - time stamping
 - optimisation of environmental factors for measurement and target detection

- surface and water column sound speed monitoring
- system parameters including:
 - bandwidth
 - detection
 - gain
 - pulse length
 - pulse repetition rate
 - range resolution
 - spatial resolution
 - threshold
- transducer parameters impacting beam characteristics, elements and arrays
- validation and calibration for hydrographic surveys
- variations in beam spacing and footprint size

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in suitable workplace operational situations. Where this is not appropriate, assessment must occur in suitable simulated workplace operational situations reflecting actual workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, facilities, equipment and personal protective equipment currently used in industry
- applicable relevant documentation including workplace procedures, industry standards, equipment specifications, regulations, codes of practice and operation manuals.

Links

Companion Volume Implementation Guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPIRR004 Develop and review a groundwater plan

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to develop and review a groundwater plan.

It includes analysing system performance, liaising with stakeholders and reviewing and refining the groundwater plan. It also includes applying and adhering to relevant legislation, industry regulations and workplace procedures.

This unit applies to leaders working in organisations with responsibility for the development and review of plans for management of groundwater resources. Those undertaking this unit would work autonomously, lead personnel and review and analyse information and data about aquifers whilst performing sophisticated tasks in a range of contexts.

No licensing, legislative or certification requirements apply to unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Irrigation

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Prepare for groundwater management

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Gather historical groundwater data and evaluate as input to the planning process

	1.2	Identify, analyse and interpret relevant data to monitor and test water quality and quantity requirements
	1.3	Identify and interpret relevant legislation, industry standards and workplace procedures impacting groundwater catchment
	1.4	Identify and interpret environmental, hydraulic and development factors and determine system constraints impacting on the aquifer recharge and use of groundwater
2 Develop the groundwater plan	2.1	Identify and interpret groundwater management requirements
	2.2	Identify, interpret and validate stakeholder requirements impacting groundwater usage
	2.3	Develop a groundwater plan according to relevant legislation, industry standards and workplace procedures
	2.4	Identify, investigate and report breaches of usage provisions and changes to quality parameters to relevant persons
3 Review and refine the groundwater plan	3.1	Evaluate data from the ongoing implementation and monitoring of the groundwater plan and use to inform the review of the plan
	3.2	Review objectives of the management and implementation plans
	3.3	Recommend changes to plan objectives and implementation procedures
	3.4	Provide advice and guidance to groundwater stakeholders

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Unit Mapping Information

This unit replaces and is equivalent to NWPIRR061 Develop and review groundwater management plan.

Links

Companion Volume Implementation Guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPIRR004 Develop and review a groundwater plan

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- developing effective groundwater plans addressing organisational objectives and requirements
- gathering, interpreting and synthesising data to underpin the sound development of the groundwater plan including:
 - aquifer hydraulics and changes in potentiometric surface
 - historical data
 - recharge and usage
 - relevant legislation, industry standards and workplace procedures
 - stakeholder requirements
 - water quality test results
 - water table changes
- identifying, investigating and reporting breaches
- managing groundwater as a resource to be used for water supply
- preparing reports and recommending changes to the objectives of the management plan and its implementation
- providing advice and guidance to stakeholders and users
- reading and interpreting data to inform groundwater management
- using data from testing and monitoring arrangements to track performance of the groundwater plan and inform the review of the plan

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- aquifer recharge related to usage
- changes in potentiometric surfaces
- environmental factors
- groundwater conservation zones

- groundwater hydraulics
- monitoring and testing procedures
- numerical data interpretations
- plan requirements and specifications
- relevant legislation, industry standards and workplace procedures
- salinity and pollution intrusion
- stakeholder expectations and requirements
- usage licensing and controls
- usage provision breaches
- water table monitoring practices

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in suitable workplace operational situations. Where this is not appropriate, assessment must occur in suitable simulated workplace operational situations reflecting actual workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- aquifer and groundwater monitoring and their application to management planning
- relevant and appropriate materials, tools, facilities, equipment and personal protective equipment currently used in industry
- applicable relevant documentation including workplace procedures, industry standards, equipment specifications, regulations, codes of practice and operation manuals.

Links

Companion Volume Implementation Guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPIRR005 Develop and review a surface water plan

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to develop and review a surface water plan.

It includes ensuring environmental considerations are met and source of supply is maintained. It also includes applying and adhering to relevant legislation, industry regulations and workplace procedures.

This unit applies to leaders working in water organisations with responsibility for the development and review of surface water resources including but not limited to rivers and streams, dam catchments, flood retarding, overland flow controls and related drainage. It does not include flood routing through storages.

Those undertaking this unit would work autonomously and lead personnel whilst performing sophisticated tasks in a range of contexts.

No licensing, legislative or certification requirements apply to unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Irrigation

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1 Prepare for surface water flow and quality management	1.1	Identify hazards, assess risks and implement control measures associated with surface water flow requirements
	1.2	Identify, interpret and synthesise relevant data to monitor and test water flow, quality and quantity requirements, including release figures
	1.3	Identify, interpret and analyse historic source water flow and system capacity information
	1.4	Identify and interpret environmental factors impacting surface water flows and quality
	1.5	Identify, interpret and review resource and operational protocols
	1.6	Complete complex calculations and incorporate analysed results into the surface water plan
2 Develop the surface water plan	2.1	Identify and interpret surface water management requirements
	2.2	Identify, interpret and validate stakeholder requirements impacting surface water
	2.3	Develop a surface water plan according to relevant legislation, industry standards and workplace procedures
	2.4	Identify, investigate and report breaches of surface water management controls
3 Review the surface water plan	3.1	Analyse and report deviations from planned performance measures
	3.2	Review objectives of the management and implementation plans
	3.3	Review parameters for water usage and quality through monitoring and testing programs
	3.4	Report and recommend changes to plan objectives, workplace procedures and usage and quality parameters
	3.5	Provide advice and guidance to water users and stakeholders

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Unit Mapping Information

This unit replaces and is equivalent to NWPIRR063 Develop and review surface water management plan.

Links

Companion Volume Implementation Guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPIRR005 Develop and review a surface water plan

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- developing and reviewing a surface water plan to ensure environmental considerations are met and source of supply is maintained
- developing effective surface water plans addressing the water organisation's objectives and requirements
- gathering, interpreting and synthesising information including:
 - historical data
 - monitoring and testing results
 - relevant legislation, industry standards and workplace procedures
 - stakeholder requirements
- identifying and interpreting environmental factors
- identifying hazards, assessing risks and implementing control measures associated with surface water flow requirements
- preparing reports and recommendations for changes to the objectives of the surface water plan and its implementation
- reviewing the implementation and development plan
- reading and interpreting complex data and performing complex calculations to track and manage performance of surface water
- using data from testing and other monitoring arrangements to track the performance of the surface water plan and inform the review of the plan

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- climatic and weather characteristics and impacts
- changes to water flow and levels over time
- complex calculations
- hydraulic analysis
- physical assets associated with surface water management

- public and government reporting requirements
- relevant legislation, regulations, industry standards and workplace procedures relating to surface water
- relevant water data including:
 - flow
 - quality and quantity requirements
 - release figures
- rights of water authority control and management procedures
- risk management principles
- stakeholder requirements and rights associated with managing surface water
- surface water sources

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in suitable workplace operational situations. Where this is not appropriate, assessment must occur in suitable simulated workplace operational situations reflecting actual workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, facilities, equipment and personal protective equipment currently used in industry
- applicable relevant documentation including workplace procedures, industry standards, equipment specifications, regulations, codes of practice and operation manuals.

Links

Companion Volume Implementation Guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPIRR006 Develop and review an irrigation system plan

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to develop and review an irrigation system plan.

It includes analysing total irrigation system performance, liaising with customers and stakeholders and reviewing and refining the irrigation system plan. It also includes applying and adhering to relevant legislation, industry regulations and workplace procedures.

This unit applies to leaders with responsibility for the development and review of plans for the management of irrigation systems. Those undertaking this unit would work autonomously and lead personnel whilst performing sophisticated tasks in a range of contexts.

No licensing, legislative or certification requirements apply to unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Irrigation

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Prepare for irrigation system management

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Determine, interpret and analyse water quantity and quality requirements including release and flow rates

	1.2	Access, interpret and synthesise historical irrigation system capacity and delivery performance information
	1.3	Identify and interpret legislative, organisational and environmental requirements and determine system constraints impacting the delivery of irrigation water
2 Develop an irrigation system plan	2.1	Identify and interpret irrigation system management requirements
	2.2	Identify and validate customer requirements for irrigated culture
	2.3	Consult and communicate with stakeholders and obtain input for the irrigation system plan
	2.4	Develop and document an irrigation system plan and an implementation strategy
	2.5	Identify, investigate and report breaches of customer entitlements and other usage provisions
3 Review and refine the irrigation system plan	3.1	Evaluate operations and maintenance activities and system performance and incorporate into the irrigation system plan review
	3.2	Review objectives of the irrigation system plan and implementation strategy
	3.3	Recommend changes to plan objectives and operational and maintenance procedures
	3.4	Provide advice and guidance to stakeholders

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Unit Mapping Information

This unit replaces and is equivalent to NWPIRR062 Develop and review irrigation system management plan.

Links

Companion Volume Implementation Guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPIRR006 Develop and review an irrigation system plan

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- assessing environmental impacts
- conducting investigations
- consulting and communicating with stakeholders and customers
- determining and interpreting water quantity and quality requirements
- developing and reviewing the operation and maintenance of irrigation systems
- developing effective irrigation system plans addressing the organisation's objectives and requirements
- gathering, interpreting and synthesising information for incorporating into the irrigation system plan including:
 - customer flow rates and usage
 - delivery performance
 - historical system capacity data
 - key indicators
 - stakeholder requirements
- interpreting and applying legislation, standards and policies
- preparing reports and recommendations for changes to the objectives of the plan
- reviewing the implementation and development plan
- using data from monitoring arrangements to track performance of the irrigation system plan

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- customer and stakeholder expectations and requirements
- irrigation operations and maintenance activities
- legislation and regulations including:
 - channel, pipe and pump
 - customer entitlements

- flow rates
- relevant workplace policies and procedures associated with irrigation system plans
- water quantity and quality requirements including release and flow rates
- water requirements for irrigated cultures within the system

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in suitable workplace operational situations. Where this is not appropriate, assessment must occur in suitable simulated workplace operational situations reflecting actual workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, facilities, equipment and personal protective equipment currently used in industry
- applicable relevant documentation including workplace procedures, industry standards, equipment specifications, regulations, codes of practice and operation manuals.

Links

Companion Volume Implementation Guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPIRR007 Implement and coordinate a surface water plan

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to implement and coordinate a surface water plan.

It includes ensuring environmental and sustainability considerations are met, where appropriate source of supply is maintained and controls for surface water management including catchment land use, flow controls and retardation, release flows and managed usage are implemented and effectiveness monitored.

This unit applies to those working as leaders with responsibility for the management of surface water resources. Those undertaking this unit would work autonomously, leading staff, while performing sophisticated tasks in a range of familiar contexts.

No licensing, legislative or certification requirements apply to unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Irrigation

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Develop and implement monitoring and testing

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Develop an implementation strategy for the surface water plan according to workplace procedures

programs

	1.2	Coordinate management plan activities relating to the surface water plan and determine responsibilities and timelines for implementation
	1.3	Plan, design and implement monitoring and testing programs
	1.4	Identify hazards, assess risks and implement control measures for monitoring and testing programs
	1.5	Gather historical surface water collection information and evaluate as input to the planning process
	1.6	Monitor water usage, water flow and water quality according to the plan
	1.7	Record and analyse test results and education programs
2	Monitor and evaluate performance of surface water plans	
	2.1	Review objectives of the surface water and implementation plans
	2.2	Identify, investigate and report deviations of surface water flows and controls from management objectives
	2.3	Monitor and review environmental factors impacting the collection of surface water
	2.4	Make recommendations for changes to plan objectives and procedures and usage and quality parameters
	2.5	Provide advice and guidance to water stakeholders
3	Report on monitoring and implementation activities	
	3.1	Identify and report deviations from the surface water plan
	3.2	Review and report operational problems of controls and regulations from the surface water and implementation plans
	3.3	Make recommendations for changes to plan objectives

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Unit Mapping Information

This unit replaces and is equivalent to NWPIRR072 Implement and coordinate surface water management plan.

Links

Companion Volume Implementation Guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPIRR007 Implement and coordinate a surface water plan

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- designing and implementing testing processes and programs
- gathering, interpreting and synthesising information to underpin the implementation of a surface water plan including:
 - current legislation and standards
 - effectiveness of plan controls
 - historical data
 - stakeholder requirements
 - water quantity and quality test results
- implementing management plans for surface water to ensure environmental considerations are met and source of supply is maintained
- monitoring and evaluating the outcomes of the surface water plan
- preparing reports and recommendations for future action
- providing advice about water usage and communicating with stakeholders
- reading and interpreting numerical data related to surface water and environmental factors

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- climatic and weather characteristics and impacts
- environmental and sustainability considerations
- hydraulic analysis
- monitoring and performance procedures
- operation and interrelationships of surface water flows and controls
- operational and maintenance problems
- physical and regulatory control limitations
- relevant legislation, industry standards, regulations and workplace procedures
- risk management principles

- surface water system objectives

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in suitable workplace operational situations. Where this is not appropriate, assessment must occur in suitable simulated workplace operational situations reflecting actual workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, facilities, equipment and personal protective equipment currently used in industry
- applicable relevant documentation including workplace procedures, industry standards, equipment specifications, regulations, codes of practice and operation manuals.

Links

Companion Volume Implementation Guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPIRR008 Implement and coordinate an irrigation delivery system plan

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to implement and coordinate an irrigation delivery system plan.

It includes coordinating and monitoring the performance of irrigation delivery systems, analysing the operation of system components, stakeholder liaison and planning. It also includes applying and adhering to relevant legislation, industry regulations and workplace procedures.

This unit applies to leaders with responsibility for implementing and coordinating irrigation delivery systems. Those undertaking this unit would work autonomously and lead personnel whilst performing sophisticated tasks in a range of contexts.

No licensing, legislative or certification requirements apply to unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Irrigation

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Develop and implement irrigation delivery system

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Confirm performance measures for the irrigation

plan	delivery system plan
	1.2 Identify and interpret legislative requirements and organisational policies for the management of irrigation delivery
	1.3 Identify stakeholder requirements and environmental factors impacting irrigation delivery
	1.4 Gather historical catchment information and evaluate as input to the planning process
	1.5 Develop an implementation strategy for irrigation delivery according to workplace procedures
	1.6 Inform relevant personnel and stakeholders of the irrigation delivery system plan according to regulatory requirements and workplace procedures
	1.7 Develop plan components and activities for implementation
	1.8 Determine responsibilities and timelines for implementation activities
2 Monitor and evaluate irrigation system operation and maintenance	2.1 Design and implement monitoring and testing programs to identify deviations of planned water system operations including quantity, quality, release and flow rates
	2.2 Evaluate delivery of water to customers and identify, investigate and report deviations from agreed service standards
	2.3 Evaluate maintenance budgets, activity programs and output target measures
	2.4 Identify, investigate and report deviations from irrigation delivery targets from plan objectives
	2.5 Identify and document links between operational problems and maintenance activities
	2.6 Provide advice and guidance to irrigation customers and stakeholders
3 Report on the implementation of the irrigation system plan	3.1 Identify, investigate and report deviations of planned water usage and quality against the irrigation delivery system plan

- 3.2 Review objectives of the irrigation delivery system and implementation plans
- 3.3 Make recommendations for changes to plan objectives and operational and maintenance procedures

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Unit Mapping Information

This unit replaces and is equivalent to NWPIRR071 Implement and coordinate irrigation delivery systems.

Links

Companion Volume Implementation Guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPIRR008 Implement and coordinate an irrigation delivery system plan

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- applying ratios to evaluate maintenance budgets, activity programs and output targets
- calculating timelines for implementation activities
- evaluating delivery of water to customers including:
 - flow rates
 - timelines
 - volume
- gathering, interpreting and synthesising information to underpin the implementation of the irrigation delivery system plan including:
 - agreed service standards
 - current legislation, regulatory requirements and industry standards
 - historical data
 - results of irrigation system testing and monitoring
 - stakeholder requirements
- interpreting numerical data to control and measure delivery of water to customers
- monitoring and evaluating the outcomes of the irrigation delivery system plan
- performing the activities associated with the implementation and management of the operation and maintenance of irrigation delivery systems
- planning and implementing testing processes and programs
- preparing reports and recommendations for future action
- providing advice and communicating with stakeholders and customers

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- agreed service standards
- irrigation system limitations
- irrigation system performance measures including:

- quality
- quantity
- release and flow rates
- monitoring and performance procedures
- operation and interlinks of total system network
- operational and maintenance problems
- relevant legislation, regulations, policies and workplace procedures associated with irrigation delivery systems
- stakeholder communication and consultation techniques

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in suitable workplace operational situations. Where this is not appropriate, assessment must occur in suitable simulated workplace operational situations reflecting actual workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, facilities, equipment and personal protective equipment currently used in industry
- applicable relevant documentation including workplace procedures, industry standards, equipment specifications, regulations, codes of practice and operation manuals.

Links

Companion Volume Implementation Guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPIRR033 Coordinate and monitor the operation of irrigation delivery systems

Modification History

Release	Comments
1	This unit was released in NWP Water Training Package release 1.0 and meets the Standards for Training Packages. This unit supersedes and is equivalent to NWP425B Coordinate and monitor the operation of irrigation delivery systems. • Unit code updated • Content and formatting updated to comply with the new standards • All PC transitioned from passive to active voice • PC 2.1 removed • PC 2.2 reworded • PC 2.4 revised

Application

This unit describes the skills required to coordinate and monitor irrigation delivery systems to meet performance standards and including system maintenance and customer liaison.

This unit applies to those working as field and operational staff with a specific responsibility for ensuring that the operation of irrigation systems complies with organisational and statutory requirements.

The skills and knowledge described in this unit must be applied within the legislative, regulatory and policy environment in which they are carried out. Organisational policies and procedures must be consulted and adhered to.

Those undertaking this unit would work independently or in a team, while performing complex tasks ensuring minimum damage to the environment in a familiar context. However, the level of responsibility may vary according to the size, scope, location, and technical complexity of process.

No licensing, legislative or certification requirements apply to unit at the time of publication.

Competency Field

Irrigation

Elements and Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA
Elements describe the essential outcomes	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the range of conditions section.
1. Confirm performance measures in irrigation system's management plan	1.1 Identify customer requirements for irrigated culture. 1.2 Identify environmental factors that impact on the irrigation system. 1.3 Consult historic system information and stakeholders as appropriate. 1.4 Confirm performance requirements for an irrigation system management plan.
2. Monitor and coordinate processes and resource targets	2.1 Monitor and test programs and identify, investigate and report any deviations from water quantity, quality, release or flow. 2.2 Evaluate the duration, volume and flow rates of water deliveries and identify, investigate and report deviations from agreed service levels. 2.3 Evaluate maintenance activities and report deviations from targets. 2.4 Identify and record links between operational problems and maintenance activities.
3. Report outcomes of coordination and monitoring	3.1 Analyse, record and report coordination and monitoring data. 3.2 Identify and report current and potential problems. 3.3 Make recommendations for improvements in system performance and/or customer service.

Foundation Skills

The foundation skills demands of this unit have been mapped for alignment with the Australian Core Skills Framework (ACSF). The following tables outline the performance levels indicated for successful attainment of the unit.

ACSF levels indicative of performance:

1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Learning NA					Reading					Writing					Oral communication					Numeracy				

Performance variables:

1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Support					Context					Text complexity					Task complexity				

Further information on ACSF and the foundation skills underpinning this unit can be found in the Foundation Skills Guide on the GSA website.

Unit Mapping Information

This unit supersedes and is equivalent to NWP425B Coordinate and monitor the operation of irrigation delivery systems.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPIRR033 Coordinate and monitor the operation of irrigation delivery systems

Modification History

Release	Comments
1	These Assessment Requirements were released in NWP Water Training Package release 1.0 and meet the Standards for Training Packages. • Assessment Requirements created drawing upon specified assessment information from superseded unit

Performance Evidence

Evidence required to demonstrate competence must satisfy all of the requirements of the elements and performance criteria. If not otherwise specified the candidate must demonstrate evidence of performance of the following on at least one occasion.

- assessing environmental impact
- operating irrigation and/or domestic stock supply system
- checking channel flow
- identifying customer requirements for irrigated culture and environmental factors that impact on the irrigation system
- consulting historic system information and stakeholders as appropriate
- confirming performance requirements for an irrigation system management plan
- implementing monitoring and testing programs and investigating and reporting deviations from planned parameters
- evaluating performance of water deliveries and investigating and reporting deviations from agreed service levels
- evaluating performance targets
- analysing and reporting data
- identifying and reporting problems
- making recommendations for system performance or customer service improvements

Knowledge Evidence

Evidence required to demonstrate competence must satisfy all of the requirements of the elements and performance criteria. If not otherwise specified the depth of knowledge demonstrated must be appropriate to the job context of the candidate.

- relevant legislation, policies and procedures

- customer expectations and requirements
- impact of the principles of hydraulics on the operation of flows
- coordination processes
- principles of scheduling
- system layout and operations
- environmental aspects of irrigation and/or stock and domestic supply system asset infrastructure
- environment, landscape and ground structure of work area
- risk factors and potential hazards of irrigation and/or domestic and stock supply systems
- equipment operation, capacity and limitations
- water flow calculations
- gravity systems
- control systems

Assessment Conditions

Competency should be assessed in an actual workplace or in a simulated environment, with access to equipment and infrastructure appropriate to the outcome. Competency should be demonstrated over time to ensure the candidate is assessed across a variety of situations.

Assessors must satisfy the NVR/AQTF mandatory competency requirements for assessors.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPIRR034 Coordinate and monitor surface water systems

Modification History

Release	Comments
1	This unit was released in NWP Water Training Package release 1.0 and meets the Standards for Training Packages. This unit supersedes and is equivalent to NWP415A Coordinate and monitor surface water systems. • Unit code updated • Content and formatting updated to comply with the new standards • All PC transitioned from passive to active voice

Application

This unit describes the skills required to coordinate and monitor the operation of surface water systems, ensuring that Surface Water Management Plan (SWMP) performance measures are met, environmental issues are addressed and a source of supply is maintained.

This unit applies to those working as field and operational staff with a specific responsibility for ensuring that the operation of surface water systems complies with the requirements of the organisation's SWMP and with relevant organisational and statutory requirements.

The skills and knowledge described in this unit must be applied within the legislative, regulatory and policy environment in which they are carried out. Organisational policies and procedures must be consulted and adhered to, particularly those related to WHS.

Those undertaking this unit would work independently or in a team, and may be responsible for the coordination of an operational team. They would performing complex tasks ensuring minimum damage to the environment, in a familiar context. However, the level of responsibility may vary according to the size, scope, location, and technical complexity of process.

No licensing, legislative or certification requirements apply to unit at the time of publication.

Competency Field

Irrigation

Elements and Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA
Elements describe the essential outcomes	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the range of conditions section.
1. Confirm SWMP performance measures	1.1 Identify water flow requirements in surface water sources. 1.2 Identify water quality and quantity requirements, including release rates. 1.3 Identify environmental factors that may impact on water flows and quality. 1.4 Identify performance measures for the resource and operations. 1.5 Access historic information and consult stakeholders as required.
2. Monitor the performance of assets	2.1 Carry out monitoring and testing programs. 2.2 Select, fit and use personal protective equipment. 2.3 Monitor assets to ensure performance meets specifications in the SWMP. 2.4 Schedule maintenance programs to meet current and potential problems.
3. Monitor and coordinate processes	3.1 Test and monitor water usage and quality according to the SWMP. 3.2 Coordinate processes to meet SWMP requirements and targets. 3.3 Take action to optimise system performance.
4. Report the outcomes of testing and monitoring	4.1 Analyse, record and report coordination and monitoring data. 4.2 Identify and report current or potential problems.

Foundation Skills

The foundation skills demands of this unit have been mapped for alignment with the Australian Core Skills Framework (ACSF). The following tables outline the performance levels indicated for successful attainment of the unit.

ACSF levels indicative of performance:

1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Learning NA					Reading					Writing					Oral communication					Numeracy				

Performance variables:

1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Support					Context					Text complexity					Task complexity				

Further information on ACSF and the foundation skills underpinning this unit can be found in the Foundation Skills Guide on the GSA website.

Unit Mapping Information

This unit supersedes and is equivalent to NWP415A Coordinate and monitor surface water systems.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPIRR034 Coordinate and monitor surface water systems

Modification History

Release	Comments
1	These Assessment Requirements were released in NWP Water Training Package release 1.0 and meet the Standards for Training Packages. Assessment Requirements created drawing upon specified assessment information from superseded unit

Performance Evidence

Evidence required to demonstrate competence must satisfy all of the requirements of the elements and performance criteria. If not otherwise specified the candidate must demonstrate evidence of performance of the following on at least one occasion.

- interpreting and applying legislation and policies
- coordinating measuring and testing activities
- consulting with customers and stakeholders
- conducting site inspections
- assessing environmental impact
- coordinating and monitoring the operation of surface water systems
- identifying water flow, quality and quantity requirements and any environmental factors that may affect these
- identifying surface water system performance measures from the SWMP
- accessing historic information
- conducting or supervising asset monitoring and testing programs
- conducting or supervising testing and monitoring of water usage and water quality
- coordinating processes to meet targets and optimise system performance
- analysing data, completing records and producing reports

Knowledge Evidence

Evidence required to demonstrate competence must satisfy all of the requirements of the elements and performance criteria. If not otherwise specified the depth of knowledge demonstrated must be appropriate to the job context of the candidate.

- relevant legislation
- relevant enterprise policies and procedures

- surface water system
- customer expectations and requirements
- climatic and weather characteristics and impacts
- hydraulic analysis

Assessment Conditions

Competency should be assessed in an actual workplace or in a simulated environment, with access to equipment and infrastructure appropriate to the outcome. Competency should be demonstrated over time to ensure the candidate is assessed across a variety of situations.

Assessors must satisfy the NVR/AQTF mandatory competency requirements for assessors.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
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Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPNET005 Optimise network systems

Modification History

Release	Comments
1	This unit was released in NWP Water Training Package release 1.0 and meets the Standards for Training Packages. This unit supersedes and is equivalent to NWP403A Investigate and plan the optimisation of potable water distribution systems. • Unit code updated • Content and formatting updated to comply with the new standards • All PC transitioned from passive to active voice • Unit title changed to better reflect unit outcomes

Application

This unit describes the skills required to coordinate, monitor and optimise system performance and maintenance planning in potable water distribution systems.

This unit applies to those working as staff members with a specific responsibility for ensuring that potable water systems comply with organisational and statutory requirements.

The skills and knowledge described in this unit must be applied within the legislative, regulatory and policy environment in which they are carried out. Organisational policies and procedures must be consulted and adhered to, particularly those related to WHS.

Those undertaking this unit would work independently or in a team, and may be responsible for the coordination of an operational team. They will perform complex tasks in a familiar context, ensuring minimum damage to the environment.

No licensing, legislative or certification requirements apply to unit at the time of publication.

Competency Field

Networks

Elements and Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA
Elements describe the essential outcomes	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the range of conditions section.
1. Evaluate potable water distribution system performance	1.1 Review existing distribution system performance data against relevant organisational and legislative requirements. 1.2 Identify the impact of the distribution system on water quality. 1.3 Identify and coordinate any additional sampling and testing required for valid evaluation of current process performance.
2. Investigate water distribution system issues	2.1 Review existing system fault reports and relevant water quality information. 2.2 Identify and record links between operational problems and maintenance activities. 2.3 Investigate the operational status of system components with reference to manufacturer and supplier specifications. 2.4 Carry out distribution system configuration investigations to identify potential deficiencies.
3. Plan optimisation of potable water distribution system	3.1 Identify potential hazards to the distribution system. 3.2 Select appropriate preventive measures. 3.3 Develop and validate a system optimisation plan.

Foundation Skills

The foundation skills demands of this unit have been mapped for alignment with the Australian Core Skills Framework (ACSF). The following tables outline the performance levels indicated for successful attainment of the unit.

ACSF levels indicative of performance:

1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Learning					Reading					Writing					Oral communication					Numeracy				

Performance variables:

1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Support					Context					Text complexity					Task complexity				

Further information on ACSF and the foundation skills underpinning this unit can be found in the Foundation Skills Guide on the GSA website.

Unit Mapping Information

This unit supersedes and is equivalent to NWP403A Investigate and plan the optimisation of potable water distribution systems.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
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Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPNET005 Optimise network systems

Modification History

Release	Comments
1	These Assessment Requirements were released in NWP Water Training Package release 1.0 and meet the Standards for Training Packages. • Assessment Requirements created drawing upon specified assessment information from superseded unit

Performance Evidence

Evidence required to demonstrate competence must satisfy all of the requirements of the elements and performance criteria. If not otherwise specified the candidate must demonstrate evidence of performance of the following on at least one occasion.

- producing optimisation reports
- analysing problems and recommending appropriate remedial solutions
- identifying risks and hazards
- identifying opportunities for improved distribution system management
- participating in the provision of appropriate information to inform workplace processes
- optimising system performance and maintenance planning
- assessing distribution system performance and impacts on water quality
- investigating system faults and deficiencies and assessing the status of system components
- conducting hazard assessment and proposing prevention strategies
- producing and monitoring a potable water distribution system optimisation plan

Knowledge Evidence

Evidence required to demonstrate competence must satisfy all of the requirements of the elements and performance criteria. If not otherwise specified the depth of knowledge demonstrated must be appropriate to the job context of the candidate.

- relevant legislation, standards, policies and procedures
- customer expectations and requirements
- system hydraulics
- incident management processes
- system layout, processes and operations
- risk factors and potential hazards involved in water systems

- equipment operation, capacity and limitations of control system
- forces including gravitational, valve operation, hydraulic and pumps

Assessment Conditions

Competency should be assessed in an actual workplace or in a simulated environment, with access to equipment and infrastructure appropriate to the outcome. Competency should be demonstrated over time to ensure the candidate is assessed across a variety of situations.

Assessors must satisfy the NVR/AQTF mandatory competency requirements for assessors.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPNET006 Apply construction principles to civil works in the water industry

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to apply construction principles to civil works in the water industry.

It includes the fundamental principles and concepts associated with planning, estimating and costing for the preparation and interpretation of tender documents, costs estimates and reporting actual versus estimated project costs. It also includes documenting people, plant, equipment and processes employed in the water industry.

This unit applies to para-professionals in a water operations environment where civil construction is undertaken for new or maintenance works.

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Networks

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1 Identify civil project	1.1 Identify and implement work health and safety (WHS) and environmental requirements for the civil work area 1.2 Identify hazards, assess risks and implement control measures 1.3 Identify planning, estimating, costing and construction requirements from project documentation, work requests, maintenance requests and discussions with relevant personnel 1.4 Identify construction project materials from project documents, work requests, maintenance requests and discussions with relevant personnel 1.5 Evaluate civil design references to complete planning, estimating, costing and construction principles according to workplace procedures 1.6 Obtain resources and equipment needed for work and check for correct operation according to workplace procedures 1.7 Consult relevant personnel to ensure civil work is co-ordinated effectively at the work site 1.8 Conduct community and stakeholder impact assessments according to workplace procedures
2 Apply construction principles to civil projects	2.1 Apply planning, estimating, costing and construction principles according to workplace procedures 2.2 Use civil design references according to manufacturer specifications, techniques and workplace procedures 2.3 Record, analyse and apply outcomes according to workplace procedures 2.4 Select methods for dealing with unexpected situations on the basis of discussions with appropriate personnel, job specifications and workplace procedures 2.5 Communicate with community and stakeholders according to workplace procedures
3 Compile, document and report results	3.1 Record, analyse and report results according to project brief and workplace procedures 3.2 Maintain and store civil design references according to

industry standards and workplace procedures

3.3 Store and archive results according to workplace procedures

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Unit Mapping Information

This is a new unit. No equivalent unit.

Links

Companion Volume Implementation Guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPNET006 Apply construction principles to civil works in the water industry

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements and performance criteria on at least one occasion and includes:

- applying, identifying and evaluating construction principles to a civil or maintenance project
- applying relevant work health and safety (WHS) and environmental requirements
- communicating with relevant personnel and stakeholders
- completing relevant organisational documentation and permits
- compliance with regulatory requirements
- conducting impact statements
- consulting with relevant personnel
- implementing risk control measures
- obtaining resources and equipment
- planning, estimating and costing of a civil or maintenance project
- reading and analysing project designs and briefs
- recording, reporting, storing and archiving results

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- civil construction materials
- construction principles and standards including:
 - communication
 - costing
 - estimating
 - planning
- equipment required to perform construction
- fundamental construction principles
- pipework bed, joint and laying techniques
- relevant civil construction WHS/OHS legislated requirements
- risk control processes

- relevant manufacturer specifications
- relevant workplace documentation including permits
- relevant workplace policies and procedures
- traffic management plan
- types of excavations

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in suitable workplace operational situations. Where this is not appropriate, assessment must occur in suitable simulated workplace operational situations reflecting actual workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, facilities, equipment and personal protective equipment currently used in industry
- applicable relevant documentation including workplace procedures, industry standards, equipment specifications, regulations, codes of practice and operation manuals.

Links

Companion Volume Implementation Guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPNET007 Conduct commissioning and post-commissioning activities

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to conduct commissioning and post-commissioning activities.

It includes planning and managing commissioning and post-commissioning activities associated with asset construction. It also includes applying and adhering to relevant legislation, industry regulatory and workplace procedures.

This unit applies to those working as construction leaders with responsibility for the commissioning of new assets and management of post-commissioning activities. Those undertaking this unit would work autonomously, with leadership responsibilities, while performing complex tasks in a range of familiar contexts.

No licensing, legislative or certification requirements apply to unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Networks

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1 Plan for commissioning activities	1.1 Access and interpret workplace and contractual requirements and documentation for the post-construction commissioning of assets
	1.2 Develop a specified commissioning plan
	1.3 Secure authorisation of the commissioning process from appropriate personnel
	1.4 Negotiate and communicate commissioning activities, process and schedule with relevant stakeholders
	1.5 Identify hazards, assess risks and implement control measures
2 Conduct commissioning activities	2.1 Schedule and conduct the defined commissioning program
	2.2 Conduct site inspections according to commissioning requirements
	2.3 Review construction and installation planning and implement identified improvements
3 Conduct post-commissioning activities	3.1 Monitor and record asset performance against inspection and test plans
	3.2 Identify and rectify defects according to workplace procedures
	3.3 Record required operational and maintenance schedules
	3.4 Finalise the asset register according to workplace procedures

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Unit Mapping Information

This unit replaces and is equivalent to NWPNET034 Conduct commissioning and post-commissioning activities.

Links

Companion Volume Implementation Guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPNET007 Conduct commissioning and post-commissioning activities

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- accessing and interpreting organisational construction requirements
- adjusting and altering designs
- developing a commissioning plan and schedule to meet workplace requirements
- finalising asset register
- interpreting complex documentation by preparing a commissioning plan and schedule
- identifying and rectifying defects
- interpreting contractual specifications, job specifications and design plans
- monitoring and reading asset performance information including interpreting numerical data
- negotiating and communicating with relevant stakeholders
- performing inspections and other commissioning activities to meet organisational requirements and reflect the specifications of the job
- performing post-commissioning activities associated with assets planning and managing the commissioning and post-commissioning activities associated with asset construction
- recording operational and maintenance schedules
- reporting outcomes
- securing authorisation from appropriate personnel after asset is commissioned

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- activities for commissioning and post-commissioning assets
- asset register associated with commissioning activities including:
 - asset performance records
 - asset value
 - contractual requirements and procedures
 - physical location of asset
 - reporting requirements

- characteristics, technical capabilities and limitations of relevant materials associated with commissioning assets
- commissioning plan and schedule
- evaluation and investigation requirements
- relevant legislation, industry standards and workplace procedures
- relevant documentation associated with asset commissioning activities

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in suitable workplace operational situations. Where this is not appropriate, assessment must occur in suitable simulated workplace operational situations reflecting actual workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, facilities, equipment and personal protective equipment currently used in industry
- applicable relevant documentation including workplace procedures, industry standards, equipment specifications, regulations, codes of practice and operation manuals.

Links

Companion Volume Implementation Guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPNET008 Develop and manage a drinking water system plan

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to develop and manage a drinking water system plan.

It includes planning, developing, implementing, monitoring and evaluating the operation and maintenance of drinking water systems. It also includes reporting on implementation of the plan including system performance analysis, stakeholder and customer liaison.

This unit supports the attainment of skills and knowledge required for managers in water organisations with responsibility for implementing drinking water system management plans. Those undertaking this unit would work autonomously, leading staff, while performing sophisticated tasks in a range of familiar contexts.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Networks

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Plan for drinking water systems

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Identify, interpret and synthesise historical water system information relevant to the management process

- 1.2 Identify and access legislation, workplace procedures, environmental requirements and system constraints impacting on delivery of drinking water
 - 1.3 Identify and interpret drinking water system specifications including regulatory requirements, industry standards and workplace procedures
 - 1.4 Identify hazards, assess risks and implement control measures according to workplace procedures
 - 1.5 Identify stakeholder requirements impacting the drinking water system
 - 1.6 Confirm performance measures for the drinking water system plan
 - 1.7 Determine responsibilities and timelines for implementation activities
 - 1.8 Determine and analyse water quantity and quality requirements, including pressure and flow rates according to industry standards and workplace procedures
- 2 **Develop drinking water system plan**
 - 2.1 Apply system specification requirements to the drinking water system plan according to relevant legislation, industry standards and workplace procedures
 - 2.2 Assess public health, environmental and community factors impacting drinking water systems
 - 2.3 Apply information impacting the specification planning process according to regulatory requirements, industry standards and workplace procedures
 - 2.4 Develop and document a plan for managing water collection, treatment and distribution
 - 2.5 Design and implement monitoring and testing programs according to the drinking water plan
- 3 **Implement drinking water system plan**
 - 3.1 Provide advice and guidance to plan users and stakeholders according to regulatory requirements and workplace procedures
 - 3.2 Manage resources to achieve drinking water system plan
 - 3.3 Operate the system according to the drinking water

- system plan and regulatory requirements
- 4 Monitor and evaluate drinking water system plan**
- 4.1** Evaluate delivery of water to customers including quality supply and pressure by identifying, investigating and reporting deviations from agreed service levels
 - 4.2** Plan and oversee system maintenance according to drinking water system plan
 - 4.3** Analyse and interpret monitoring and testing results and report according to regulatory requirements and workplace procedures
 - 4.4** Investigate current and identify potential problems and report results and recommendations according to regulatory requirements and workplace procedures
 - 4.5** Evaluate maintenance budgets, activity programs and output target measures and identify, investigate and report deviations from target
 - 4.6** Identify and record links between operational problems and maintenance activities
 - 4.7** Investigate breaches of usage provisions and report results and recommendations according to regulatory requirements and workplace procedures
 - 4.8** Identify and evaluate changes to the drinking water system plan as a result of changes in regulatory and stakeholder requirements
 - 4.9** Modify and implement the drinking water collection plan, incorporating accepted recommendations
- 5 Review and refine plan**
- 5.1** Review objectives of management and implementation plans
 - 5.2** Make recommendations for changes to plan objectives and operational and maintenance procedures
 - 5.3** Implement outcomes from audits and internal reviews

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Unit Mapping Information

This is a new unit. No equivalent unit.

Links

Companion Volume Implementation Guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPNET008 Develop and manage a drinking water system plan

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- advising and guiding plan users in compliance with regulatory requirements
- assessing environmental impacts
- assessing impacts on public health
- consulting and communicating with stakeholders and customers
- coordinating measuring and testing activities
- coordinating operation and maintenance activities
- evaluating delivery of water to customers
- identifying and recording links between operational problems and maintenance activities
- identifying deviations of water quality, quantity and pressure using testing methods
- identifying hazards, assessing risks and implementing control measures
- identifying, interpreting and synthesising information for implementing activities for the drinking water plan including:
 - developing an implementation plan
 - historical data
 - pressure and flow rates
 - relevant legislation, industry standards and workplace policies
 - stakeholder requirements
 - raw water supply availability
 - results of drinking water system testing and monitoring
 - reviewing plan objectives
 - water quality and quantity
- managing maintenance budgets and reporting deviations
- monitoring and evaluating the outcomes of the drinking water system plan
- planning and implementing testing processes and programs
- performing investigations and reporting deviations
- preparing reports and recommendations for future action
- using analytical skills

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- budgeting techniques
- constraints impacting water system
- customer and stakeholder expectations and requirements
- drinking water distribution system
- investigation techniques
- measure and test procedures
- relevant legislation associated with drinking water including:
 - environmental legislation
 - public health of drinking water
 - work health and safety (WHS)
- relevant workplace policies and procedures
- risk management principles
- water performance measures
- water system historical information

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in suitable workplace operational situations. Where this is not appropriate, assessment must occur in suitable simulated workplace operational situations reflecting actual workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, facilities, equipment and personal protective equipment currently used in industry
- applicable relevant documentation including workplace procedures, industry standards, equipment specifications, regulations, codes of practice and operation manuals.

Links

Companion Volume Implementation Guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPNET009 Develop and manage a wastewater collection plan

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to develop and manage a wastewater collection plan.

It includes planning, developing, implementing, monitoring and evaluating the operation and maintenance of wastewater systems. It also includes reporting on implementation of the plan including system performance analysis, stakeholder and customer liaison.

This unit applies to leaders with responsibility for implementing wastewater collection management plans. Those undertaking this unit would work autonomously, leading staff, while performing sophisticated tasks in a range of familiar contexts.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Networks

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Plan for wastewater collection

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

- 1.1** Identify, interpret and synthesise historic wastewater collection system information relevant to the management process

- 1.2 Identify and analyse legislation, workplace procedures environmental requirements and system constraints impacting wastewater collection
 - 1.3 Identify and interpret wastewater collection and transport system specifications including regulatory requirements, industry standards and workplace procedures
 - 1.4 Identify hazards, assess risks and implement control measures according to workplace procedures
 - 1.5 Identify and analyse stakeholder requirements impacting wastewater collection
 - 1.6 Confirm performance measures for the wastewater collection plan
 - 1.7 Identify and define available resources against wastewater specifications
 - 1.8 Determine responsibilities and timelines for implementation activities
- 2 Develop wastewater collection plan**
 - 2.1 Apply system specification requirements for waste water collection planning according to relevant legislation, industry standards and workplace procedures
 - 2.2 Assess public health, environmental and community factors impacting the wastewater collection system
 - 2.3 Analyse performance data and incorporate into plan development
 - 2.4 Design and implement monitoring and testing programs according to the objectives of the wastewater collection plan
 - 2.5 Develop and document a plan for managing wastewater collection
- 3 Implement wastewater collection plan**
 - 3.1 Provide advice and guidance to plan users and stakeholders according to regulatory requirements and workplace procedures
 - 3.2 Manage resources to achieve the objectives of the wastewater collection plan
 - 3.3 Operate the system according to the wastewater

- collection plan and regulatory requirements
- 4 Monitor and evaluate wastewater collection plan**
- 4.1** Evaluate collection of wastewater from customers by identifying, investigating and reporting deviations from agreed service levels
 - 4.2** Plan and oversee system maintenance according to the wastewater collection plan
 - 4.3** Analyse and interpret monitoring and testing results and report according to regulatory requirements and workplace procedures
 - 4.4** Investigate current and identify potential problems and report results and recommendations according to regulatory requirements and workplace procedures
 - 4.5** Evaluate maintenance budgets, activity programs and output target measures and identify, investigate and report deviations from target
 - 4.6** Identify and record links between operational problems and maintenance activities
 - 4.7** Investigate breaches of usage provisions and report results and recommendations according to regulatory requirements and workplace procedures
 - 4.8** Identify and evaluate system changes to the wastewater collection plan according to changes in regulatory and stakeholder requirements
 - 4.9** Modify and implement the wastewater collection plan, incorporating accepted recommendations
- 5 Review and refine plan**
- 5.1** Review objectives of wastewater collection and implementation plans
 - 5.2** Make recommendations for changes to plan objectives and operational and maintenance procedures
 - 5.3** Implement outcomes from audits and internal reviews

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Unit Mapping Information

This is a new unit. No equivalent unit.

Links

Companion Volume Implementation Guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPNET009 Develop and manage a wastewater collection plan

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- advising and guiding plan users in compliance with regulatory requirements
- assessing environmental impacts
- assessing impacts on public health
- confirming performance measures
- designing, implementing, analysing and interpreting monitoring and testing activities
- identifying and investigating problems
- identifying and recording links between operational problems and maintenance activities
- identifying hazards, assessing risks and implementing control measures
- identifying, interpreting and synthesising information for implementing activities for the wastewater collection plan including:
 - analysing historical and performance data
 - developing an implementation plan
 - relevant legislation, industry standards and workplace policies
 - results of wastewater collection system monitoring and testing
 - reviewing plan objectives
 - stakeholder requirements
- managing maintenance budgets and reporting deviations
- managing resources to achieve objectives of the wastewater collection plan
- performing investigations and reporting deviations
- planning water treatment operations effectively
- preparing reports and recommendations for future action
- using analytical skills

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- budgeting techniques

- constraints impacting wastewater collection
- customer and stakeholder expectations and requirements
- investigation techniques
- measure and test procedures
- relevant legislation associated with wastewater collection including:
 - environmental
 - public health issues
 - work health and safety (WHS)/occupational health and safety (OHS)
- relevant workplace policies and procedures
- requirements and techniques for management plans
- risk management principles
- mathematical and scientific techniques for interpreting test results
- user expectations and requirements

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in suitable workplace operational situations. Where this is not appropriate, assessment must occur in suitable simulated workplace operational situations reflecting actual workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, facilities, equipment and personal protective equipment currently used in industry
- applicable relevant documentation including workplace procedures, industry standards, equipment specifications, regulations, codes of practice and operation manuals.

Links

Companion Volume Implementation Guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPNET010 Develop and manage an alternate water supply plan

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to develop and manage an alternate water supply plan.

It includes identifying and harvesting alternate water supply sources, analysing data and implementing the developed plan. It also includes analysing system performance, liaising with stakeholders and reviewing and refining the plan.

This unit applies to leaders with responsibility for the management of alternate water supply processes. Those undertaking this units would work autonomously, leading staff, while performing sophisticated tasks in a range of familiar contexts.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Networks

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Plan for alternate water supplies

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Identify, interpret and synthesise alternate water specifications according to regulatory requirements and workplace procedures

- 1.2 Identify alternate sources of water as an opportunity to contribute to environmental sustainability
 - 1.3 Identify and analyse legislation, workplace procedures, environmental requirements and system constraints impacting water obtained from alternate supply
 - 1.4 Identify hazards, assess risks and implement control measures according to workplace procedures
 - 1.5 Estimate the value of implementing alternate water sources and determine financial viability
 - 1.6 Identify stakeholder requirements impacting alternate water source
 - 1.7 Confirm performance measures for the alternate water supply plan
- 2 **Develop an alternate water plan**
 - 2.1 Apply system specification requirements to the alternate water supply plan according to relevant legislation, industry standards and workplace procedures
 - 2.2 Assess public health, environmental and community factors impacting alternate water supply
 - 2.3 Analyse performance data and incorporate into plan development
 - 2.4 Design and implement monitoring and testing programs according to the alternate water supply plan
 - 2.5 Develop and document a plan for harvesting alternate water
- 3 **Implement alternate water supply plan**
 - 3.1 Provide advice and guidance to plan stakeholders according to regulatory requirements and workplace procedures
 - 3.2 Manage resources to achieve the objectives of the alternate water supply plan
 - 3.3 Operate the system according to the alternate water supply plan and regulatory requirements
 - 3.4 Manage implementation of the changes identified in the alternate water supply plan
- 4 **Monitor and evaluate alternate water supply**
 - 4.1 Evaluate collection of alternate water supplies by identifying, investigating and reporting deviations from

plan	agreed service levels
	4.2 Monitor information impacting planning processes according to workplace procedures
	4.3 Plan and oversee system maintenance according to the alternate water supply plan
	4.4 Analyse and interpret monitoring and testing results and report according to regulatory requirements and workplace procedures
	4.5 Investigate breaches of usage provisions and report results and recommendations according to regulatory requirements and workplace procedures
	4.6 Identify and evaluate system changes to the alternate water supply plan as a result of changes in regulatory and stakeholder requirements
5 Review and refine plan	5.1 Review objectives of alternate water supply and implementation plans
	5.2 Make recommendations for changes to plan objective and operational and maintenance procedures
	5.3 Modify and implement the alternate water supply plan, incorporating accepted recommendations

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Unit Mapping Information

This is a new unit. No equivalent unit.

Links

Companion Volume Implementation Guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPNET010 Develop and manage an alternate water supply plan

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- advising and guiding plan stakeholders in compliance with regulatory requirements
- analysing measuring and testing data relative to treatment plant operations
- applying alternate water supply system specification requirements
- assessing environmental and public health factors impacting alternate water supply
- determining financial viability of alternate water sources
- estimating the value of implementing sources of alternate water
- identifying and interpreting relevant water recycling legislation, industry standards and workplace procedures
- identifying, interpreting and synthesising information for developing and managing an alternate water supply plan including:
 - historical data
 - relevant legislation, industry standards and workplace policies
 - reviewing plan objectives
 - stakeholder requirements
- managing resources for implementation of alternate water supply
- operating the alternate water system ensuring it complies with the supply plan
- preparing reports and recommendations for changes to the objectives of the alternate water supply plan and its implementation

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- analytical skills for assessing data and system performance
- environmental impacts affecting alternate water supply
- performance measures for alternate water supply
- measuring and testing procedures

- relevant legislation and industry standards
- relevant workplace documentation
- relevant workplace policies and procedures associated with developing an alternative water supply plan
- stakeholder requirements

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in suitable workplace operational situations. Where this is not appropriate, assessment must occur in suitable simulated workplace operational situations reflecting actual workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, facilities, equipment and personal protective equipment currently used in industry
- applicable relevant documentation including workplace procedures, industry standards, equipment specifications, regulations, codes of practice and operation manuals.

Links

Companion Volume Implementation Guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPNET017 Supervise and report on conduit inspections

Modification History

Release	Comments
1	This unit was released in NWP Water Training Package release 1.0 and meets the Standards for Training Packages. This unit supersedes and is equivalent to NWP440A Supervise conduit inspection and reporting. • Unit code updated • Content and formatting updated to comply with the new standards • All PC transitioned from passive to active voice • Unit title changed to better reflect unit outcomes

Application

This unit describes the skills required to supervise or manage the inspection and reporting of the condition and features in sewer and stormwater conduits using specialised CCTV equipment.

This unit applies to those who supervise or manage work involved in the inspection and reporting of the condition and features in sewer and stormwater conduits using specialised CCTV equipment. It is also applicable to people who prepare inspection reports from data supplied by specialised CCTV sewer inspection operators.

The skills and knowledge described in this unit must be applied within the legislative, regulatory and policy environment in which they are carried out. Organisational policies and procedures must be consulted and adhered to, particularly those related to industry codes and specifications.

Those undertaking this unit would work independently or in a team and the level of responsibility may vary according to the size, scope, location, and technical complexity of process. They would perform complex tasks in familiar contexts while ensuring minimum damage to the environment.

No licensing, legislative or certification requirements apply to unit at the time of publication.

Competency Field

Networks

Elements and Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA
Elements describe the essential outcomes	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the range of conditions section.
1. Determine inspection reporting requirements	1.1 Determine the inspection reporting standard and special inspection and reporting requirements of the client or asset owner from specifications and instructions. 1.2 Obtain plans and maps of assets to be inspected and identify relevant asset data. 1.3 Seek clarification of inspection reporting requirements from the client/asset owner for unusual or non-routine inspections. 1.4 Verify the competence of operators undertaking the inspection.
2. Review video images, data and reports from inspections	2.1 Check video records of inspections. 2.2 Compile documentation from inspection and check for completeness and accuracy. 2.3 Recognise unsatisfactory video images and other non-compliant data and submit non-compliance reports to the operator. 2.4 Label and reference inspection information.
3. Identify and code defects and other features from video images of conduit inspection	3.1 Identify and code structural defects, service conditions and other features of the conduit. 3.2 Record asset and inspection data using appropriate software. 3.3 Investigate and report unrecognisable defects, service conditions or other features. 3.4 Identify a conduit at risk of imminent failure and communicate details to the system operator/asset owner. 3.5 Confirm defects or malfunctioning of maintenance holes, pits or other access structures with the operator and report.
4. Prepare conduit inspection reports for client	4.1 Compile inspection reports and present to the client. 4.2 Follow inspection video and data security procedures.

Foundation Skills

The foundation skills demands of this unit have been mapped for alignment with the Australian Core Skills Framework (ACSF). The following tables outline the performance levels indicated for successful attainment of the unit

ACSF levels indicative of performance:

1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Learning					Reading					Writing					Oral communication					Numeracy				

Performance variables:

1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Support					Context					Text complexity					Task complexity				

Further information on ACSF and the foundation skills underpinning this unit can be found in the Foundation Skills Guide on the GSA website.

Unit Mapping Information

This unit supersedes and is equivalent to NWP440A Supervise conduit inspection and reporting.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPNET017 Supervise and report on conduit inspections

Modification History

Release	Comments
1	These Assessment Requirements were released in NWP Water Training Package release 1.0 and meet the Standards for Training Packages. • Assessment Requirements created drawing upon specified assessment information from superseded unit

Performance Evidence

Evidence required to demonstrate competence must satisfy all of the requirements of the elements and performance criteria. If not otherwise specified the candidate must demonstrate evidence of performance of the following on at least one occasion.

- using data capture software
- accessing and interpreting conduit details from asset information systems, construction drawings, plans, maps, house service diagrams
- identifying inspection reporting requirements in specifications
- supervising or managing the inspection and reporting of the condition and features in sewer and stormwater conduits using specialised CCTV equipment
- identifying and correctly coding all critical defects and/or features of conduits observable in inspection video records
- reading and interpreting a wide range of numerical data from construction drawings, plans, maps and service diagrams
- recognising non-compliant video images and data from conduit inspections
- interpreting asset information on maps, plans and drawings of the conduit provided by the asset owner/operator/client

Knowledge Evidence

Evidence required to demonstrate competence must satisfy all of the requirements of the elements and performance criteria. If not otherwise specified the depth of knowledge demonstrated must be appropriate to the job context of the candidate.

- industry inspection reporting code
- data capture, recording and reporting software
- asset information systems
- operational plans, maps

- design plans for construction
- features of conduits used in Australia or operating area for gravity sewer and stormwater construction over the last 100 years
- construction and operation of sewerage and stormwater systems

Assessment Conditions

Competency should be assessed in an actual workplace or in a simulated environment, with access to equipment and infrastructure appropriate to the outcome. Competency should be demonstrated over time to ensure the candidate is assessed across a variety of situations.

Assessors must satisfy the NVR/AQTF mandatory competency requirements for assessors.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPNET025 Coordinate and manage maintenance and repair of network assets

Modification History

Release	Comments
1	This unit was released in NWP Water Training Package release 1.0 and meets the Standards for Training Packages. This unit supersedes and is equivalent to NWP303A Monitor and control maintenance of water and wastewater system assets. • Unit code updated • Content and formatting updated to comply with the new standards • All PC transitioned from passive to active voice • Unit title changed to better reflect unit outcomes • PC 3.1 removed

Application

This unit of competency describes the skills required to inspect asset condition, to plan for asset repairs and to monitor and report on maintenance and repair work completion. The ability to identify faults, gather data, interpret technical information, assess risks and produce technical work plans and reports are essential to performance.

This unit applies to those working as field staff with responsibility for ensuring that water collection, distribution, storage and transfer assets are regularly monitored and for conducting scheduled maintenance and repair work on assets.

The skills and knowledge described in this unit must be applied within the legislative, regulatory and policy environment in which they are carried out. Organisational policies and procedures must be consulted and adhered to.

Those undertaking this unit would work under indirect supervision, in a familiar context, while performing routine tasks ensuring minimum damage to the environment.

No licensing, legislative or certification requirements apply to unit at the time of publication.

Competency Field

Networks

Elements and Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA
Elements describe the essential outcomes	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the range of conditions section.
1. Analyse asset condition and determine remedial action	1.1 Schedule routine inspections of assets and monitor fault reporting. 1.2 Collect and analyse data on asset and infrastructure condition. 1.3 Determine and cost asset maintenance and repair methods. 1.4 Select, fit and use equipment including personal protective equipment.
2. Plan and prepare for asset repair	2.1 Schedule and plan work site investigations and repair activities. 2.2 Develop repair plans and procedures and communicate to all stakeholders. 2.3 Assess and record environmental and WHS risks and specify appropriate preventative measures. 2.4 Select equipment, materials, prefabricated components and fittings and make available for use on site.
3. Monitor and report maintenance activities	3.1 Monitor repair and maintenance progress and keep records. 3.2 Inspect, confirm and report completion of repair and maintenance.
4. Complete records and reports	4.1 Complete workplace records and reports. 4.2 Make recommendations which contribute to the continuous improvement and quality of the organisation's systems.

Foundation Skills

The foundation skills demands of this unit have been mapped for alignment with the Australian Core Skills Framework (ACSF). The following tables outline the performance levels indicated for successful attainment of the unit.

ACSF levels indicative of performance:

1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Learning NA					Reading					Writing					Oral communication					Numeracy				

Performance variables:

1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Support					Context					Text complexity					Task complexity				

Further information on ACSF and the foundation skills underpinning this unit can be found in the Foundation Skills Guide on the GSA website.

Unit Mapping Information

This unit supersedes and is equivalent to NWP303A Monitor and control maintenance of water and wastewater system assets.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPNET025 Coordinate and manage maintenance and repair of network assets

Modification History

Release	Comments
1	These Assessment Requirements were released in NWP Water Training Package release 1.0 and meet the Standards for Training Packages. • Assessment Requirements created drawing upon specified assessment information from superseded unit

Performance Evidence

Evidence required to demonstrate competence must satisfy all of the requirements of the elements and performance criteria. If not otherwise specified the candidate must demonstrate evidence of performance of the following on at least one occasion.

- identifying and solving operational problems
- undertaking calculations
- determining work requirements
- monitoring system operations and processes
- producing reports and logs
- using safety equipment and personal protective equipment
- interpreting plans and instructions
- interpreting the organisation's policies, standard operating procedures and standards for monitoring and maintenance of assets
- calculating water pressures and flows
- conducting operational and maintenance inspections
- monitoring fault reports
- collecting and analysing operational and mechanical data
- identifying and assessing work methods effectiveness
- planning investigations and repairs
- developing repair procedures
- assessing risks and specifying preventive methods
- selecting equipment, materials, prefabricated components and fittings

Knowledge Evidence

Evidence required to demonstrate competence must satisfy all of the requirements of the elements and performance criteria. If not otherwise specified the depth of knowledge demonstrated must be appropriate to the job context of the candidate.

- environmental aspects of water distribution systems and infrastructure
- WHS procedures
- lock out procedures for mechanical and electrical installations
- cleaning and protection of assets
- policies and standard operating procedures for monitoring and maintenance of assets
- relevant utilities and service bodies
- communication systems
- environment, landscape and ground structure of work area
- risk factors and potential hazards involved with water pressures and flows
- equipment operation, capacity and limitations
- effects of weather and conditions on operation of supply infrastructure
- system pipes and fittings
- pumping and valving systems
- system layout, process, operation
- gravity systems
- control systems

Assessment Conditions

Competency should be assessed in an actual workplace or in a simulated environment, with access to equipment and infrastructure appropriate to the outcome. Competency should be demonstrated over time to ensure the candidate is assessed across a variety of situations.

Assessors must satisfy the NVR/AQTF mandatory competency requirements for assessors.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
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Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPNET033 Coordinate and monitor water asset construction

Modification History

Release	Comments
1	This unit was released in NWP Water Training Package release 1.0 and meets the Standards for Training Packages. • New unit, created drawing upon information from deleted units NWP410C and NWP525B

Application

This unit describes the skills required to coordinate and monitor asset construction, including site management and associated commissioning and post-commissioning activities. This requires the ability to conduct often complex planning of activities including the scheduling and resourcing of projects and the monitoring of the project to ensure the completion of the work in line with the organisation's requirements and to the required quality.

This unit applies to those working as operators with responsibility for ensuring that asset construction activities are performed and completed in compliance with all relevant organisational and statutory requirements.

The skills and knowledge described in this unit must be applied within the legislative, regulatory and policy environment in which they are carried out. Organisational policies and procedures must be consulted and adhered to.

Those undertaking this unit would work independently or in a team, and may be responsible for the coordination of an operational team. They would perform complex tasks in a familiar context, ensuring minimum damage to the environment. However, the level of responsibility may vary according to the size, scope, location and technical complexity of individual projects.

No licensing, legislative or certification requirements apply to unit at the time of publication.

Competency Field

Networks

Elements and Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA
Elements describe the essential outcomes	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the range of conditions section.
1. Plan and prepare for asset construction	1.1 Conduct risk assessment. 1.2 Determine and record work requirements, materials and configurations according to task from plans, specifications, instructions and or organisational procedures. 1.3 Conduct site inspections. 1.4 Select and source materials to complete the job. 1.5 Sequence and schedule work to meet organisational requirements and the efficient completion of the project. 1.6 Review networks system operations. 1.7 Identify and address stakeholder issues. 1.8 Identify and check construction guidelines, standards and other regulatory requirements. 1.9 Collate and check project documentation and assess for impact on work planning. 1.10 Identify and specify roles and responsibilities of all parties.
2. Monitor construction	2.1 Monitor material handling procedures. 2.2 Monitor tasks and jobs to ensure compliance with plans in terms of time frames, quality assurance issues and organisational requirements. 2.3 Conduct inspections by applying commissioning programs according to commissioning and stakeholders' requirements. 2.4 Monitor test results to ensure that the assets function within agreed specifications. 2.5 Provide guidance to contractors or employees.
3. Conduct post construction activities	3.1 Monitor asset performance and undertake a review of the construction or installation. 3.2 Identify defects and make arrangements to rectify them. 3.3 Ensure completion and recording of all reports and documentation required by the organisation. 3.4 Communicate changes to meet unforeseen requirements, resources reallocation or rescheduling and the extent of the

	change. 3.5 Confirm and certify completion of construction or installation.

Foundation Skills

The foundation skills demands of this unit have been mapped for alignment with the Australian Core Skills Framework (ACSF). The following tables outline the performance levels indicated for successful attainment of the unit.

ACSF levels indicative of performance:

1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Learning					Reading					Writing					Oral communication					Numeracy				

Performance variables:

1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Support					Context					Text complexity					Task complexity				

Further information on ACSF and the foundation skills underpinning this unit can be found in the Foundation Skills Guide on the GSA website.

Unit Mapping Information

No equivalent unit.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPNET033 Coordinate and monitor water asset construction

Modification History

Release	Comments
1	These Assessment Requirements were released in NWP Water Training Package release 1.0 and meet the Standards for Training Packages.

Performance Evidence

Evidence required to demonstrate competence must satisfy all of the requirements of the elements and performance criteria. If not otherwise specified the candidate must demonstrate evidence of performance of the following on at least one occasion.

- identifying and securing the human resources, plant and equipment and materials to complete the work
- making adjustments and alterations to designs
- scheduling and sequencing of the project
- ensuring organisational, planning and statutory obligations are met
- providing targeted, timely and constructive feedback to contractors or staff
- monitoring adherence to the project plan or schedule
- exercising judgement if the project plan or schedule requires revision due to unforeseen circumstances
- overseeing and ensuring quality outcomes are achieved
- reporting the outcomes
- managing costs overruns
- supervising and advising construction team
- managing risks

Knowledge Evidence

Evidence required to demonstrate competence must satisfy all of the requirements of the elements and performance criteria. If not otherwise specified the depth of knowledge demonstrated must be appropriate to the job context of the candidate.

- enterprise contract conditions and compliance
- legislation, organisational policies, procedures, guidelines and requirements
- system layout, integrity, design and performance
- evaluation and investigation requirements
- enterprise auditing and recording procedures and reporting requirements

- characteristics, technical capabilities and limitations of materials and equipment according to manufacturer specifications
- risk factors and potential hazards

Assessment Conditions

Competency should be assessed in an actual workplace or in a simulated environment, with access to equipment and infrastructure appropriate to the outcome. Competency should be demonstrated over time to ensure the candidate is assessed across a variety of situations.

Assessors must satisfy the NVR/AQTF mandatory competency requirements for assessors.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPSOU004 Develop and manage a catchment plan

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to develop and manage a catchment plan.

It includes preparing for catchment management and developing, reviewing and refining the catchment plan. It also includes identifying issues impacting water yield and quality.

This unit supports the attainment of skills and knowledge required for managers in water organisations with responsibility for the management of water catchments. Those undertaking this unit would work autonomously, leading staff, while performing sophisticated tasks in a range of familiar contexts.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Source

Unit Sector

Not applicable

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Prepare for catchment

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

- 1.1** Identify and interpret catchment requirements according to relevant legislation, codes of practice, industry standards and workplace procedures

- 1.2 Identify and evaluate stakeholder requirements impacting catchment area
 - 1.3 Gather historical catchment information and evaluate as input to the planning process
 - 1.4 Identify, interpret and assess water quality and quantity requirements
 - 1.5 Identify and interpret environmental factors and other relevant issues impacting catchment area according to regulatory requirements
 - 1.6 Complete risk assessment to ensure catchment area is free from contamination causing no adverse impacts
- 2 Develop catchment plan**
 - 2.1 Interpret and validate stakeholder requirements impacting catchment area
 - 2.2 Review and clarify organisational objectives and key performance indicators for catchment plan
 - 2.3 Develop catchment plan according to specifications and regulatory requirements
 - 2.4 Develop contingency plans based on risk analysis and stakeholder requirements
 - 2.5 Evaluate the catchment plan to ensure compliance against specifications, stakeholder and regulatory requirements
- 3 Review and refine catchment plan**
 - 3.1 Obtain and assess data of catchment plan against specifications, stakeholder and regulatory requirements
 - 3.2 Review objectives of the catchment and implementation plan and make recommendations for rectifications to ensure compliance against specifications, stakeholder and regulatory requirements
 - 3.3 Communicate corrective actions to users and stakeholders regarding identified catchment area changes
 - 3.4 Perform validation tests to ensure the reviewed plan is compliant against specifications and stakeholder and regulatory requirements

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Unit Mapping Information

This is a new unit. No equivalent unit.

Links

Companion Volume Implementation Guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPSOU004 Develop and manage a catchment plan

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- acquiring, interpreting and synthesising information to underpin the sound development of the water catchment plan including:
 - historical data
 - current legislation
 - policies and standards
 - stakeholder views
 - water quality test results
- assessing environmental impacts
- developing a catchment plan including complying with the organisation's objectives and specifications
- interpreting and using testing activities
- preparing recommendations for changes to the objectives of the catchment plan and its implementation
- tracking the performance of the catchment plan and inform the review of the plan
- using data to inform planning process

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- analysis of historical records
- communicating with stakeholders and users
- environmental factors impacting on catchment area
- land use implications
- relevant legislation, industry standards and workplace procedures
- relevant workplace policies and procedures
- risk management principles
- stakeholder expectations and requirements

- testing procedures
- water management processes
- water quality processes and parameters

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in suitable workplace operational situations. Where this is not appropriate, assessment must occur in suitable simulated workplace operational situations reflecting actual workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, facilities, equipment and personal protective equipment currently used in industry
- applicable relevant documentation including workplace procedures, industry standards, equipment specifications, regulations, codes of practice and operation manuals.

Links

Companion Volume Implementation Guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPSOU005 Develop and manage a dam safety inspection plan

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to develop and manage a dam safety inspection plan.

It includes developing operational procedures, reviewing status of inspection plans, consulting with personnel and stakeholders, developing inspection checklists and gathering historical dam construction maintenance information. It also includes adhering to relevant legislation, industry standards and workplace procedures.

This unit applies to those working as leaders with responsibility for developing and reviewing of dam safety and monitoring. Those undertaking this unit would work autonomously, leading staff, while performing sophisticated tasks in a range of familiar contexts.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Source

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Plan for dam safety inspections

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Identify, interpret and assess historical dam construction and maintenance information and evaluate as input to

- the planning process
- 1.2** Identify and analyse legislation, workplace procedures, environmental requirements and operational procedures and requirements impacting dam safety inspection planning
 - 1.3** Identify, interpret and assess information relevant for dam safety inspection planning
 - 1.4** Identify, interpret and review the dam safety inspection plan
- 2 Develop dam safety inspection plan**
- 2.1** Identify, interpret and shortlist all factors to be used in the dam safety inspection plan
 - 2.2** Identify, interpret and validate stakeholder requirements, legislation and industry standards impacting the dam safety inspection plan
 - 2.3** Identify and develop operational procedures and inspection checklists used in conjunction with the dam safety inspection plan
 - 2.4** Develop and document a plan for managing dam safety inspections
- 3 Review and refine safety inspection plan**
- 3.1** Consult with dam operational personnel for on-site evaluation of the dam safety inspection plan and inspection checklists
 - 3.2** Review the dam safety inspection plan and checklists and make changes based on feedback from dam operational personnel
 - 3.3** Recommend the implementation of the dam safety inspection plan and inspection checklists
 - 3.4** Provide advice and guidance to dam operational personnel and other stakeholders

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Unit Mapping Information

This is a new unit. No equivalent unit.

Links

Companion Volume Implementation Guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPSOU005 Develop and manage a dam safety inspection plan

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- consulting with relevant personnel and stakeholders
- developing a safety inspection plan
- developing inspection checklists
- developing operational procedures
- identifying and analysing historical dam construction maintenance information
- identifying and interpreting environmental and operational procedures and requirements
- identifying, interpreting and assessing relevant information for developing the safety inspection plan including:
 - historical data
 - industry standards
 - legislation
 - maintenance history
 - workplace policies
- identifying, interpreting and validating stakeholder requirements
- identifying impacts on dam safety inspection planning
- making recommendations for the implementation of the dam safety inspection plan
- providing advice and guidance to personnel and stakeholders
- reviewing status of dam safety inspection plan
- reviewing the dam safety inspection plan and checklists

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements and performance criteria and includes knowledge of:

- dam construction maintenance historical information
- dam safety inspection plans and inspection checklists
- environmental and operational procedures and requirements
- implementation procedures

- inspection planning
- relevant legislation, relevant operational personnel and stakeholders
- relevant workplace policies and procedures
- stakeholder requirements

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in suitable workplace operational situations. Where this is not appropriate, assessment must occur in suitable simulated workplace operational situations reflecting actual workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, facilities, equipment and personal protective equipment currently used in industry
- applicable relevant documentation including workplace procedures, industry standards, equipment specifications, regulations, codes of practice and operation manuals.

Links

Companion Volume Implementation Guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPSOU006 Develop and manage a flood plan

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to develop and manage a flood plan.

It includes analysing and modelling data relating to flooding, developing effective management and warning systems and communicating outcomes concisely. It also includes applying and adhering to relevant legislation, industry regulations and workplace procedures.

This unit applies to those working as leaders with responsibility for the preparation of flood management strategies and flood warning systems. Those undertaking this unit would work autonomously with leadership responsibilities, while performing complex tasks in familiar contexts.

No licensing, legislative or certification requirements apply to unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Source

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Plan and prepare for flood operations

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Access and interpret historical rainfall run-off and flooding regimes of specific catchments

	1.2	Collate and analyse simulated, hypothetical and estimated rainfall intensity data and model catchment
	1.3	Estimate and record flood levels, extents and flow rates
	1.4	Identify and interpret storage asset specifications including regulatory requirements, industry standards and workplace procedures
	1.5	Identify resources, environment and stakeholders at risk during a flood event
2	Develop a flood plan	
	2.1	Consult with stakeholders to obtain input for flood planning
	2.2	Develop and document a plan for managing the flood impact on a storage asset
	2.3	Confirm performance measures for flood operations
	2.4	Develop plan components and activities for implementation
	2.5	Develop a flood plan according to relevant legislation, industry standards, workplace procedures and environmental requirements
3	Monitor and evaluate flood plan	
	3.1	Assess and record a flood event according to industry standards and workplace procedures
	3.2	Evaluate the roles of storage and retarding basins safety and flood attenuation strategies
	3.3	Evaluate current flood classifications and impacts according to flood plan
	3.4	Formulate planning controls for flood plain and waterway management
	3.5	Evaluate current flood warning systems according to flood plan
	3.6	Recommend and develop changes to existing flood plain and waterway management controls and warning systems
4	Report on implementation of the plan	
	4.1	Collate, analyse and record information according to workplace procedures

- 4.2 Prepare and present reports to relevant persons
- 4.3 Communicate findings and recommendations to stakeholders according to workplace procedures and relevant regulations

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Unit Mapping Information

This unit replaces but is not equivalent to NWPSOU028 Prepare and report on data related to flood operations.

Links

Companion Volume Implementation Guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPSOU006 Develop and manage a flood plan

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- analysing and developing flood mitigation warning systems and strategies
- analysing, interpreting and modelling flood data
- assessing and recording a flood event
- communicating flood planning findings with stakeholders and relevant persons
- developing a flood plan including:
 - documenting an implementation plan
 - identifying plan components and activities for completion
 - specifying environmental requirements
- developing critical flood warning systems
- developing strategies to mitigate the impact of potential future floods
- identifying and interpreting storage asset specifications

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- catchment hydrology principles including the roles of:
 - retarding basins
 - safety and flood attenuation strategies
 - water storage
- current flood classifications and flood warning systems
- performance measures for flood operations
- relevant documentation associated with developing and managing a flood plan including:
 - industry standards
 - workplace procedures
- relevant legislation and regulatory requirements associated with developing and managing a flood plan including:
 - by-laws

- environmental legislation
- work health and safety (WHS) legislation
- planning schemes
- storage asset specifications
- water flow measurement and flow routing models

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in suitable workplace operational situations. Where this is not appropriate, assessment must occur in suitable simulated workplace operational situations reflecting actual workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, facilities, equipment and personal protective equipment currently used in industry
- applicable relevant documentation including workplace procedures, industry standards, equipment specifications, regulations, codes of practice and operation manuals.

Links

Companion Volume Implementation Guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPSOU007 Implement and coordinate a catchment plan

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to implement and coordinate a catchment plan.

It includes coordinating, monitoring and extending the development of the catchment plan to ensure all aspects are implemented and performance measures and objectives are met. It also includes applying and adhering to relevant legislation, industry regulations and workplace procedures.

This unit applies to those working as leaders with responsibility for management of water catchments. Those undertaking this unit work autonomously, leading staff, while performing sophisticated tasks in a range of familiar contexts.

No licensing, legislative or certification requirements apply to unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Source

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Plan for catchment management

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Confirm performance measures for catchment plan

- 1.2 Identify and interpret legislative requirements and organisational policies for the management of water catchment
 - 1.3 Identify and interpret catchment plan requirements
 - 1.4 Identify stakeholder requirements impacting the catchment area
 - 1.5 Gather historical catchment data and evaluate as input to the planning process
 - 1.6 Identify, interpret and assess water quality and quantity requirements
 - 1.7 Identify and interpret environmental and developmental factors impacting water catchment
- 2 **Develop the catchment plan**
 - 2.1 Develop catchment plan components and activities for implementation
 - 2.2 Coordinate catchment plan activities and determine responsibilities and timelines for implementation activities
 - 2.3 Communicate the catchment plan with relevant personnel and stakeholders according to regulations and workplace procedures
- 3 **Monitor and review catchment plan**
 - 3.1 Design and implement monitoring and testing programs and check for compliance against the catchment plan
 - 3.2 Analyse, interpret and record testing results according to workplace procedures
 - 3.3 Identify and investigate current and potential problems for catchment management
 - 3.4 Evaluate objectives and performance of the water catchment plan and report deviations
 - 3.5 Report investigation results and make recommendations according to workplace procedures
 - 3.6 Identify, investigate and report deviations from plan objectives
 - 3.7 Review objectives of the catchment and implementation plans

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Unit Mapping Information

This unit replaces and is equivalent to NWPIRR073 Implement and coordinate catchment management plan.

Links

Companion Volume Implementation Guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPSOU007 Implement and coordinate a catchment plan

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- analysing, interpreting and recording test results
- communicating responsibilities of the catchment plan with personnel and stakeholders
- confirming performance measures for the catchment plan
- designing and implementing monitoring and testing activities
- developing implementation plans including objectives and requirements specified in the catchment plan
- evaluating objectives and performance measures of the catchment plan and reporting deviations
- identifying and reporting investigation results
- gathering, interpreting and synthesising information for the water catchment plan including:
 - environmental impacts
 - historical data
 - plan components
 - relevant legislation and industry standards
 - stakeholder requirements
 - water quality test results
- implementing and managing activities in water catchments that impact on water yield and quality
- performing activities associated with implementing and managing catchment plan components
- preparing reports and recommendations for future action

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- environmental impacts of water catchment
- catchment plan development and components

- problem identification and investigation
- relevant information associated with implementing and coordinating a water catchment plan including:
 - historical records and data
 - water industry standards
 - water industry legislation and regulations
 - workplace policies and procedures
- risk management principles
- water quality determinants

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in suitable workplace operational situations. Where this is not appropriate, assessment must occur in suitable simulated workplace operational situations reflecting actual workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, facilities, equipment and personal protective equipment currently used in industry
- applicable relevant documentation including workplace procedures, industry standards, equipment specifications, regulations, codes of practice and operation manuals.

Links

Companion Volume Implementation Guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPSOU008 Implement and coordinate a groundwater plan

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to implement and coordinate a groundwater plan.

It includes coordinating and monitoring the management plan to use groundwater as a resource for water supply. It also includes applying, consulting and adhering to legislation, regulations and organisational policies

This unit applies to leaders with responsibility for the management of groundwater resources. Those undertaking this unit would work autonomously and lead staff, while performing sophisticated tasks in a range of familiar contexts.

No licensing, legislative or certification requirements apply to unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Source

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Plan for groundwater management

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Confirm performance measures for the groundwater management plan

- 1.2 Identify and interpret legislative requirements and organisational policies for the management of groundwater
 - 1.3 Identify stakeholder requirements impacting on the groundwater quality, quantity and conservation
 - 1.4 Gather historical groundwater information and evaluate as input to the planning process
 - 1.5 Identify, interpret and assess water quality and quantity requirements
 - 1.6 Identify and interpret environmental and developmental factors impacting groundwater
- 2 **Implement the groundwater management plan**
 - 2.1 Communicate the groundwater management plan to relevant personnel and stakeholders according to regulations and workplace procedures
 - 2.2 Develop management plan components and activities for implementation
 - 2.3 Coordinate groundwater plan activities and determine responsibilities and timelines for implementation activities
- 3 **Monitor and review the groundwater management plan**
 - 3.1 Design and implement monitoring and testing programs for groundwater usage and quality according to the groundwater plan
 - 3.2 Analyse, interpret and record test results according to workplace procedures
 - 3.3 Identify and investigate current and potential problems and report results and recommendations
 - 3.4 Evaluate objectives and performance of the groundwater plan and report deviations from target values
 - 3.5 Report investigation results and make recommendations according to workplace procedures
 - 3.6 Identify, investigate and report deviations of planned groundwater usage quality from plan objectives
 - 3.7 Review objectives of the groundwater management and implementation plans

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Unit Mapping Information

This unit replaces and is equivalent to NWPIRR074 Implement and coordinate groundwater management plan.

Links

Companion Volume Implementation Guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPSOU008 Implement and coordinate a groundwater plan

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- communicating with stakeholders and determining requirements
- developing implementation plans addressing the objectives and requirements specified in the groundwater plan
- developing, implementing and overseeing testing and other monitoring arrangements to track the performance of the groundwater plan
- evaluating extraction of water including:
 - flow rates
 - timelines
 - volume
- evaluating plans and implementation activities and procedures
- gathering, interpreting and synthesising information to underpin the implementation of the groundwater plan including:
 - historical data
 - quality test results
 - stakeholder views
 - relevant legislation and industry standards
 - water quantity
- investigating and reporting breaches of groundwater usage
- linking implementation plans to the groundwater plan objectives and organisational requirements
- performing activities associated with implementing and managing the operation of groundwater as a supply system
- performing calculations to evaluate performance of groundwater plan

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- environmental impacts of groundwater collection
- groundwater hydraulics
- plan development and components
- problem identification and investigation
- relevant information associated with implementing and coordinating a groundwater collection plan including:
 - historical records and data
 - relevant legislation and industry standards
 - water industry legislation and regulations
 - workplace policies and procedures
- risk management principles

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in suitable workplace operational situations. Where this is not appropriate, assessment must occur in suitable simulated workplace operational situations reflecting actual workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, facilities, equipment and personal protective equipment currently used in industry
- applicable relevant documentation including workplace procedures, industry standards, equipment specifications, regulations, codes of practice and operation manuals.

Links

Companion Volume Implementation Guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPSOU014 Develop and implement catchment operational plans

Modification History

Release	Comments
1	This unit was released in NWP Water Training Package release 1.0 and meets the Standards for Training Packages. This unit supersedes and is equivalent to NWP416B Coordinate and monitor water storage catchment activities. • Unit code updated • Content and formatting updated to comply with the new standards • All PC transitioned from passive to active voice • Unit title changed to better reflect unit outcomes • PC 1.1, 1.2 and 1.4 merged • PC 2.2 renumbered and PC 2.4 removed • One new PC added to Element 2

Application

This unit describes the skills required to develop and implement catchment operational plans.

This unit applies to workers with a specific responsibility for ensuring that storage catchment activities comply with organisational and statutory requirements.

The skills and knowledge described in this unit must be applied within the legislative, regulatory and policy environment in which they are carried out. Organisational policies and procedures must be consulted and adhered to, particularly those related to WHS.

Those undertaking this unit would work independently or in a team, however, the level of responsibility may vary according to the size, scope, location, and technical complexity of individual projects. They would perform complex tasks, ensuring minimum damage to the environment in a familiar context.

No licensing, legislative or certification requirements apply to unit at the time of publication.

Competency Field

Source

Elements and Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA
Elements describe the essential outcomes	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the range of conditions section.
1. Confirm the performance measures	1.1 Identify catchment management, stakeholder and water quality and quantity requirements. 1.2 Gather historical catchment information and apply as required. 1.3 Identify environmental factors and issues that impact on the catchment area.
2. Monitor catchment activities	2.1 Conduct monitoring and testing programs. 2.2 Develop catchment operation and maintenance plan. 2.3 Monitor catchment area usage and maintenance activities.
3. Report outcome of testing and monitoring	3.1 Analyse, record and report coordination and monitoring data. 3.2 Identify and investigate current and/or potential problems and report results. 3.3 Identify, investigate and report breaches of usage provisions.

Foundation Skills

The foundation skills demands of this unit have been mapped for alignment with the Australian Core Skills Framework (ACSF). The following tables outline the performance levels indicated for successful attainment of the unit.

ACSF levels indicative of performance:

1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Learning NA					Reading					Writing					Oral communication					Numeracy				

Performance variables:

1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Support					Context					Text complexity					Task complexity				

Further information on ACSF and the foundation skills underpinning this unit can be found in the Foundation Skills Guide on the GSA website.

Unit Mapping Information

This unit supersedes and is equivalent to NWP416B Coordinate and monitor water storage catchment activities.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPSOU014 Develop and implement catchment operational plans

Modification History

Release	Comments
1	These Assessment Requirements were released in NWP Water Training Package release 1.0 and meet the Standards for Training Packages. • Assessment Requirements created drawing upon specified assessment information from superseded unit

Performance Evidence

Evidence required to demonstrate competence must satisfy all of the requirements of the elements and performance criteria. If not otherwise specified the candidate must demonstrate evidence of performance of the following on at least one occasion.

- using safety equipment and personal protective equipment
- identifying water quality risks and preparing protection strategies
- coordinating and monitoring water storage catchment activities
- identifying catchment management requirements
- identifying stakeholder requirements and environmental factors that impact on water storage catchment areas
- implementing monitoring and testing programs
- monitoring usage
- investigating and reporting on breaches
- reporting on monitoring activities

Knowledge Evidence

Evidence required to demonstrate competence must satisfy all of the requirements of the elements and performance criteria. If not otherwise specified the depth of knowledge demonstrated must be appropriate to the job context of the candidate.

- relevant historical records
- relevant legislation, policies, procedures
- relevant technical skills
- coordination processes
- system layout, processes
- environmental aspects of catchment areas

- hazardous substances handling
- communication systems
- risk management principles
- risk factors and potential hazards involved with catchment area processes equipment operation, capacity and limitations
- effects of weather and conditions on operation of catchment areas
- pumping and valving systems
- control systems
- pest control specifications
- customer expectations and requirements
- catchment management issues, including:
 - feral/native animals
 - transfer of noxious weeds
 - human interaction with the catchment including litter and waste
 - perimeter inspections
 - fire management
 - mimosa
 - policing role
 - conservation management
 - remote community catchment areas

Assessment Conditions

Competency should be assessed in an actual workplace or in a simulated environment, with access to equipment and infrastructure appropriate to the outcome. Competency should be demonstrated over time to ensure the candidate is assessed across a variety of situations.

Assessors must satisfy the NVR/AQTF mandatory competency requirements for assessors.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPSOU026 Implement dam safety plans

Modification History

Release	Comments
1	This unit was released in NWP Water Training Package release 1.0 and meets the Standards for Training Packages. This unit supersedes and is equivalent to NWP511B Manage large dam safety surveillance. • Unit code updated • Content and formatting updated to comply with the new standards • All PC transitioned from passive to active voice • Unit title changed to better reflect unit outcomes • PC 1.4 removed

Application

This unit describes the skills required to plan, schedule, implement and report on dam safety surveillance.

This unit applies to those working as staff with a specific responsibility for managing the safety surveillance of large dams.

The skills and knowledge described in this unit must be applied within the legislative, regulatory and policy environment in which they are carried out. Organisational policies and procedures must be consulted and adhered to.

Those undertaking this unit would work autonomously, with management responsibilities, while performing complex tasks in a range of familiar contexts.

No licensing, legislative or certification requirements apply to unit at the time of publication.

Competency Field

Source

Elements and Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA
Elements describe the essential outcomes	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the range of conditions section.
1. Plan and prepare for dam safety surveillance	1.1 Access and apply relevant legislation and documentation. 1.2 Implement safety surveillance policies, plans and procedures. 1.3 Access and interpret historical and design information. 1.4 Assess and document dam behaviour and potential failure modes. 1.5 Determine instrumentation requirements and data collection methods.
2. Implement dam safety surveillance plans	2.1 Inform stakeholders of policies and plans. 2.2 Develop inspection programs and implement inspection and monitoring procedures. 2.3 Communicate procedures for the collection and recording of information to field staff. 2.4 Collate, process, validate, record and store data from instruments and personnel. 2.5 Analyse data and determine, record and evaluate structural, material and/or behavioural problems.
3. Complete safety surveillance reports	3.1 Prepare and distribute reports to meet dam owner, stakeholder and regulatory requirements. 3.2 Communicate consequences of failure to dam owners and other stakeholders. 3.3 Include recommendations for remedial action. 3.4 Undertake cost estimates and work schedules according to enterprise requirements. 3.5 Assess the timeliness of all stages of communication and reporting.

Foundation Skills

The foundation skills demands of this unit have been mapped for alignment with the Australian Core Skills Framework (ACSF). The following tables outline the performance levels indicated for successful attainment of the unit.

ACSF levels indicative of performance:

1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Learning NA					Reading					Writing					Oral communication					Numeracy				

Performance variables:

1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Support					Context					Text complexity					Task complexity				

Further information on ACSF and the foundation skills underpinning this unit can be found in the Foundation Skills Guide on the GSA website.

Unit Mapping Information

This unit supersedes and is equivalent to NWP511B Manage large dam safety surveillance.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPSOU026 Implement dam safety plans

Modification History

Release	Comments
1	These Assessment Requirements were released in NWP Water Training Package release 1.0 and meet the Standards for Training Packages. Assessment Requirements created drawing upon specified assessment information from superseded unit

Performance Evidence

Evidence required to demonstrate competence must satisfy all of the requirements of the elements and performance criteria. If not otherwise specified the candidate must demonstrate evidence of performance of the following on at least one occasion.

- analysing and processing data
- inspecting and operating instruments
- planning, scheduling, implementing and reporting on dam safety surveillance
- planning and preparing for dam safety surveillance
- implementing dam safety surveillance plans
- completing safety surveillance reports

Knowledge Evidence

Evidence required to demonstrate competence must satisfy all of the requirements of the elements and performance criteria. If not otherwise specified the depth of knowledge demonstrated must be appropriate to the job context of the candidate.

- properties of stored water
- dam design principles
- materials science
- communication systems
- relevant utilities
- principles of hydraulics
- principles of soil mechanics
- concrete structure
- strengths and deterioration
- construction procedure

- safe dam operating procedures
- principles of dam surveillance
- risk management techniques
- maintenance practices

Assessment Conditions

Competency should be assessed in an actual workplace or in a simulated environment, with access to equipment and infrastructure appropriate to the outcome. Competency should be demonstrated over time to ensure the candidate is assessed across a variety of situations.

Assessors must satisfy the NVR/AQTF mandatory competency requirements for assessors.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPSOU041 Coordinate and monitor bulkwater system operations

Modification History

Release	Comments
1	This unit was released in NWP Water Training Package release 1.0 and meets the Standards for Training Packages. This unit supersedes and is equivalent to NWP418B Coordinate and monitor bulkwater system operations. • Unit code updated • Content and formatting updated to comply with the new standards • All PC transitioned from passive to active voice • Element 4 reworded • Elements 2 and 3 merged • PC 1.2 and 1.3 merged

Application

This unit describes the skills required to monitor and coordinate the operation of bulkwater systems, to measure and report on system performance and process quality control.

This unit applies to workers responsible for ensuring that bulkwater system operations are coordinated and monitored to ensure compliance with organisational and statutory requirements.

The skills and knowledge described in this unit must be applied within the legislative, regulatory and policy environment in which they are carried out. Organisational policies and procedures must be consulted and adhered to.

Those undertaking this unit would work independently or in a team, and may coordinate an operational team. They would perform complex tasks in mostly familiar contexts while ensuring minimum damage to the environment.

No licensing, legislative or certification requirements apply to unit at the time of publication.

Competency Field

Source

Elements and Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA
Elements describe the essential outcomes	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the range of conditions section.
1. Confirm performance measures	1.1 Identify water flow, quality and quantity requirements. 1.2 Identify surveillance and stakeholder requirements. 1.3 Identify performance measures for the resource and operation. 1.4 Identify environmental flows that impact on water flows and quality.
2. Monitor and coordinate asset performance	2.1 Select, fit and use equipment, including personal protective equipment. 2.2 Apply monitoring and testing programs. 2.3 Monitor assets to ensure performance meets specifications in management plan. 2.4 Schedule maintenance programs. 2.5 Monitor water flows and quality. 2.6 Coordinate processes to meet plan requirements and targets. 2.7 Take action to optimise system performance.
3. Finalise work	3.1 Analyse, record and report coordination and monitoring data. 3.2 Identify and report current and potential problems.

Foundation Skills

The foundation skills demands of this unit have been mapped for alignment with the Australian Core Skills Framework (ACSF). The following tables outline the performance levels indicated for successful attainment of the unit.

ACSF levels indicative of performance:

1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Learning NA					Reading					Writing					Oral communication					Numeracy				

Performance variables:

1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Support					Context					Text complexity					Task complexity				

Further information on ACSF and the foundation skills underpinning this unit can be found in the Foundation Skills Guide on the GSA website.

Unit Mapping Information

This unit supersedes and is equivalent to NWP418B Coordinate and monitor bulkwater system operations.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPSOU041 Coordinate and monitor bulkwater system operations

Modification History

Release	Comments
1	These Assessment Requirements were released in NWP Water Training Package release 1.0 and meet the Standards for Training Packages. • Assessment Requirements created drawing upon specified assessment information from superseded unit

Performance Evidence

Evidence required to demonstrate competence must satisfy all of the requirements of the elements and performance criteria. If not otherwise specified the candidate must demonstrate evidence of performance of the following on at least one occasion.

- interpreting plans, charts and instructions, policies, procedures and standards
- using safety equipment and personal protective equipment
- identifying and investigating operational problems
- monitoring and coordinating the operation of bulkwater systems
- identifying system performance measures, stakeholder requirements and environmental factors that may influence performance
- implementing monitoring and testing programs
- scheduling maintenance
- coordinating and optimising system performance
- collecting and recording data
- producing required reports

Knowledge Evidence

Evidence required to demonstrate competence must satisfy all of the requirements of the elements and performance criteria. If not otherwise specified the depth of knowledge demonstrated must be appropriate to the job context of the candidate.

- system hydraulics
- coordination processes
- system layout, processes
- environmental aspects of bulkwater systems
- chemical use

- policies, procedures and legislation
- risk factors and potential hazards involved with water pressures and flows
- equipment operation, capacity and limitations
- effects of weather and conditions on operation of supply networks
- pipes and fittings
- pumping and valving systems
- control systems

Assessment Conditions

Competency should be assessed in an actual workplace or in a simulated environment, with access to equipment and infrastructure appropriate to the outcome. Competency should be demonstrated over time to ensure the candidate is assessed across a variety of situations.

Assessors must satisfy the NVR/AQTF mandatory competency requirements for assessors.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPSOU053 Coordinate and monitor groundwater system usage

Modification History

Release	Comments
1	This unit was released in NWP Water Training Package release 1.0 and meets the Standards for Training Packages. This unit supersedes and is equivalent to NWP417B Coordinate and monitor groundwater system usage. • Unit code updated • Content and formatting updated to comply with the new standards • All PC transitioned from passive to active voice • PC 1.1, 1.2 and 1.4 merged

Application

This unit describes the skills required to coordinate and monitor the use of groundwater as a source of water supply ensuring that Ground Water Management Plan (GWMP) performance measures are met, environmental issues are addressed and a source of supply is maintained.

This unit applies to those workers with a specific responsibility for ensuring that groundwater system usage complies with the GWMP and that assets and processes comply with organisational and statutory requirements.

The skills and knowledge described in this unit must be applied within the legislative, regulatory and policy environment in which they are carried out. Organisational policies and procedures must be consulted and adhered to, particularly those related to WHS.

Those undertaking this unit would work independently or in a team, and may be required to coordinate an operational team. They will perform complex tasks while operating in a familiar context, ensuring minimum damage to the environment. However, the level of responsibility may vary according to the size, scope, location, and technical complexity of individual projects and groundwater system.

No licensing, legislative or certification requirements apply to unit at the time of publication.

Competency Field

Source

Elements and Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA
Elements describe the essential outcomes	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the range of conditions section.
1. Confirm GWMP performance measures	1.1 Identify groundwater management, stakeholder and water quality and quantity requirements. 1.2 Gather historical groundwater information and apply as required. 1.3 Identify environmental factors and issues that impact on groundwater.
2. Monitor and coordinate processes	2.1 Conduct monitoring and testing programs. 2.2 Monitor groundwater usage and quality. 2.3 Identify, investigate and report breaches of usage provisions and changes to quality parameters.
3. Monitor performance of assets	3.1 Monitor assets to ensure performance meets specifications in plan. 3.2 Select, fit and use personal protective equipment. 3.3 Schedule maintenance programs to meet current and potential problems.
4. Report on groundwater system usage	4.1 Analyse, record and report coordination and monitoring data. 4.2 Identify and investigate current and potential problems. 4.3 Report investigation results and recommendations.

Foundation Skills

The foundation skills demands of this unit have been mapped for alignment with the Australian Core Skills Framework (ACSF). The following tables outline the performance levels indicated for successful attainment of the unit.

ACSF levels indicative of performance:

1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Learning NA					Reading					Writing					Oral communication					Numeracy				

Performance variables:

1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Support					Context					Text complexity					Task complexity				

Further information on ACSF and the foundation skills underpinning this unit can be found in the Foundation Skills Guide on the GSA website.

Unit Mapping Information

This unit supersedes and is equivalent to NWP417B Coordinate and monitor groundwater system usage.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPSOU053 Coordinate and monitor groundwater system usage

Modification History

Release	Comments
1	These Assessment Requirements were released in NWP Water Training Package release 1.0 and meet the Standards for Training Packages. Assessment Requirements created drawing upon specified assessment information from superseded unit

Performance Evidence

Evidence required to demonstrate competence must satisfy all of the requirements of the elements and performance criteria. If not otherwise specified the candidate must demonstrate evidence of performance of the following on at least one occasion.

- undertaking source inspections
- using safety equipment and personal protective equipment
- identifying potential sources of contamination
- coordinating and monitoring groundwater system usage
- identifying groundwater management requirements, including water quality and quantity requirements
- identifying stakeholder requirements and environmental and development factors that impact on groundwater
- implementing monitoring and testing programs
- monitoring groundwater usage and quality
- investigating and reporting on breaches
- monitoring assets performance
- scheduling asset maintenance programs
- analysing and reporting asset performance data
- identifying, investigating and reporting current and potential asset problems, including recommendations for action

Knowledge Evidence

Evidence required to demonstrate competence must satisfy all of the requirements of the elements and performance criteria. If not otherwise specified the depth of knowledge demonstrated must be appropriate to the job context of the candidate.

- relevant legislation, policies and procedures, organisational and statutory requirements
- customer expectations and requirements
- groundwater hydraulics
- properties of stored water
- system layout
- control systems
- equipment operation
- relevant utilities and service bodies
- hazardous materials handling
- effects of weather and conditions on bulkwater assets
- principles of soil mechanics
- concrete structure, strengths and deterioration
- risk management techniques
- WHS

Assessment Conditions

Competency should be assessed in an actual workplace or in a simulated environment, with access to equipment and infrastructure appropriate to the outcome. Competency should be demonstrated over time to ensure the candidate is assessed across a variety of situations.

Assessors must satisfy the NVR/AQTF mandatory competency requirements for assessors.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
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Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPTRD001 Evaluate, implement and monitor standard low risk trade waste discharge approvals

Modification History

Release	Comments
1	This unit was released in NWP Water Training Package release 1.0 and meets the Standards for Training Packages. This unit supersedes and is equivalent to NWP430A Evaluate, implement and monitor standard low-risk trade waste discharge approvals. • Unit code updated • Content and formatting updated to comply with the new standards • All PC transitioned from passive to active voice • All Elements reworded • All PC in Element 1 revised • One new PC in Element 3

Application

This unit describes the skills required to assess and process applications for standard low risk trade waste discharges from retail commercial and light industrial organisations; monitor compliance with the trade waste discharge approval issued; and renew, amend, suspend or revoke trade waste approvals.

This unit applies to those working as trade waste officers or inspectors with a specific responsibility for managing applications and approvals for standard low risk liquid trade waste discharges to wastewater collection systems from small commercial and light industrial organisations.

The skills and knowledge described in this unit must be applied within the legislative, regulatory and policy environment in which they are carried out. Organisational policies and procedures must be consulted and adhered to.

Those undertaking this unit would work independently, while performing complex tasks, in a range of familiar contexts. The level of responsibility may vary according to the size and scope of the trade waste system.

No licensing, legislative or certification requirements apply to unit at the time of publication.

Competency Field

Trade waste

Elements and Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA
Elements describe the essential outcomes	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the range of conditions section.
1. Evaluate trade waste discharges	1.1 Identify significant pollutants generated. 1.2 Identify and apply information about known impacts, risk assessments and control procedures. 1.3 Identify trade waste management processes and workplace procedures. 1.4 Develop and check contingency plans. 1.5 Prepare trade waste management policies and plans.
2. Process applications for trade waste	2.1 Answer customer queries regarding trade waste applications. 2.2 Assess standard low risk trade waste applications to establish that all necessary documentation has been provided. 2.3 Assess standard trade waste applications against concentration, mass and flow limits, discharges of prohibited substances and local sewerage issues, and consider environmental issues. 2.4 Assess proposed pre-treatment and monitoring systems for suitability. 2.5 Schedule and conduct on-site inspections.
3. Implement approved trade waste discharge applications	3.1 Calculate estimates of relevant charges and discuss with the applicant as appropriate, according to established charging policies and formulae. 3.2 Determine monitoring activities and schedules and discuss with the applicant. 3.3 Create and maintain database records, including charging parameters and monitoring schedule. 3.4 Monitor construction activities where applicable to ensure compliance with approvals.
4. Monitor customers' trade waste treatment	4.1 Conduct routine monitoring of the compliance of customers' trade waste treatment and discharge.

and disposal and review trade waste approval	4.2 Establish processes to identify and report non-compliances with trade waste approvals. 4.3 Identify and apply enforcement measures and processes to manage identified non-compliances.

Foundation Skills

The foundation skills demands of this unit have been mapped for alignment with the Australian Core Skills Framework (ACSF). The following tables outline the performance levels indicated for successful attainment of the unit.

ACSF levels indicative of performance:

1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Learning NA					Reading					Writing					Oral communication					Numeracy				

Performance variables:

1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Support					Context					Text complexity					Task complexity				

Further information on ACSF and the foundation skills underpinning this unit can be found in the Foundation Skills Guide on the GSA website.

Unit Mapping Information

This unit supersedes and is equivalent to NWP430A Evaluate, implement and monitor standard low-risk trade waste discharge approvals.

Links

Companion Volume implementation guides are found in VETNet - <https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet - <https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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Companion Volume implementation guides are found in VETNet - <https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPTRD001 Evaluate, implement and monitor standard low risk trade waste discharge approvals

Modification History

Release	Comments
1	These Assessment Requirements were released in NWP Water Training Package release 1.0 and meet the Standards for Training Packages. • Assessment Requirements created drawing upon specified assessment information from superseded unit

Performance Evidence

Evidence required to demonstrate competence must satisfy all of the requirements of the elements and performance criteria. If not otherwise specified the candidate must demonstrate evidence of performance of the following on at least one occasion.

- interpreting and reviewing hydraulic and site plans
- identifying and evaluating trade waste producing processes
- evaluating process inputs and outputs
- using flow measuring or flow assessment techniques
- using wastewater sampling and preservation techniques for onsite and laboratory testing
- interpreting and evaluating sample analysis data
- interpreting and applying legislation and policies applicable to trade waste
- developing monitoring plans and coordinating measuring, testing and sampling activities
- planning and conducting investigations
- assessing environmental impact using ISO 14001 where appropriate
- assessing waste treatment methods, processes, plant and equipment
- using appropriate personal protective equipment for protection against physical, chemical and biological hazards
- advising customers of the trade waste management policies and procedures in operation
- advising customers of requirements for obtaining and complying with trade waste discharge approvals
- assessing and evaluating applications for standard trade waste treatment and disposal
- implementing charging and monitoring procedures
- completing records and reports

Knowledge Evidence

Evidence required to demonstrate competence must satisfy all of the requirements of the elements and performance criteria. If not otherwise specified the depth of knowledge demonstrated must be appropriate to the job context of the candidate.

- relevant legislation
- relevant enterprise policies for trade waste management
- water quality parameters of significance to the wastewater system
- personal protection and safety precautions for wastewater sampling, including the requirements for relevant inoculations including:
 - Q fever
 - hepatitis A and B
 - polio
 - tetanus
 - diphtheria
- standard industrial waste treatment methods and processes for retail commercial and light industrial organisations
- basic hydraulics, chemistry and/or equivalent science
- basic knowledge of wastewater collection, treatment and disposal systems
- investigation procedures
- range of appropriate measuring, testing and sampling procedures
- customer expectations and requirements
- WHS
-

Assessment Conditions

Competency should be assessed in an actual workplace or in a simulated environment, with access to equipment and infrastructure appropriate to the outcome. Competency should be demonstrated over time to ensure the candidate is assessed across a variety of situations.

Assessors must satisfy the NVR/AQTF mandatory competency requirements for assessors.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPTRD003 Evaluate, implement and monitor high risk trade waste discharge approvals

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to evaluate, implement and monitor high risk trade waste discharge approvals.

It includes managing trade waste approvals from large and complex industrial organisations. It also includes adhering to legislation, regulations, industry standards and workplace procedures.

This unit applies to those working as trade waste officers or inspectors with the responsibility for managing applications and approvals for high risk liquid trade waste discharges to wastewater collection systems. Those undertaking this unit would work autonomously while performing sophisticated tasks in a range of familiar contexts.

No licensing, legislative or certification requirements apply to unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Trade waste

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Advise customers on trade waste approval

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Respond to customer queries regarding applications for

procedures	high risk trade waste approvals
	1.2 Advise customers of the procedures involved in processing, approving and monitoring trade waste applications
	1.3 Obtain and analyse work health and safety (WHS), environmental and sustainable energy practices and procedures
2 Evaluate trade waste discharges for new industries	2.1 Identify significant pollutants generated according to environmental legislation and workplace procedures
	2.2 Identify hazards, assess risks and implement control measures according to workplace procedures
	2.3 Identify and evaluate trade waste management processes and workplace procedures
	2.4 Develop and check contingency plans
	2.5 Prepare trade waste management policies and plans
3 Assess applications for high risk trade waste discharge approvals	3.1 Receive all relevant documentation and assess customer applications
	3.2 Assess applications against concentration, mass and flow limits, discharges of prohibited substances and local sewerage issues according to environmental issues
	3.3 Assess proposed pre-treatment systems, monitoring, control systems and procedures for suitability
	3.4 Assess chemical storage, handling and spill prevention procedures and ensure compliance with relevant legislation and industry standards
	3.5 Schedule and conduct on-site inspections according to workplace procedures
4 Implement approved trade waste discharge applications	4.1 Determine and assess approval conditions and discuss with customer
	4.2 Estimate cost calculations and discuss with customers according to current charging policies and formulae
	4.3 Monitor construction and commissioning activities to

		ensure compliance with approvals
	4.4	Determine monitoring activities and schedules and discuss with customer
	4.5	Create and maintain database records including charging parameters and monitoring schedule
5	Monitor and review trade waste treatment and disposal approvals	
	5.1	Monitor customer for compliance of trade waste treatment and discharge according to trade waste approvals and workplace requirements
	5.2	Establish processes to identify and report non-compliances with trade waste approvals to relevant stakeholders
	5.3	Identify and implement enforcement measures and processes to manage identified non-compliances

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operatin conditions and any other variables essential to the work environmnet.

Unit Mapping Information

This unit replaces and is equivalent to NWPTRD002 Evaluate, implement and monitor high-risk trade waste discharge approvals.

Links

Companion Volume Implementation Guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPTRD003 Evaluate, implement and monitor high risk trade waste discharge approvals

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- advising customers of the trade waste management policies and procedures in operation and of requirements for obtaining and complying with trade waste discharge approvals
- assessing and evaluating applications for high risk trade waste treatment and disposal including the following factors:
 - concentration
 - discharges of prohibited substances
 - environmental issues
 - flow limits
 - local sewage issues
 - mass
- assessing applications including:
 - applying approval conditions
 - communicating conditions with customers
- assessing chemical storage
- assessing proposed pre-treatment, monitoring and control systems
- creating and maintaining customer database records
- creating records and maintaining database containing customer records
- estimating cost calculations for high risk trade waste disposal
- identifying and evaluating trade waste producing processes
- identifying and implementing non-compliance issues
- identifying and reporting non-compliance of trade waste approvals
- implementing charging and monitoring procedures
- interpreting and applying legislation and policies applicable to trade waste
- interpreting and reviewing hydraulic, architectural and site plans
- scheduling and performing onsite inspections
- using personal protective equipment for protection against physical, chemical and biological hazards

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- customer expectations and requirements
- hydraulics and chemistry
- industrial waste treatment methods and processes for high risk industrial organisations
- investigation procedures
- measuring, testing and sampling procedures
- personal protection and safety precautions relevant for wastewater sampling
- pollutant identification techniques
- relevant formulae
- relevant legislation, policies and procedures including:
 - environmental
 - sustainable practices
 - work health and safety
- significant pollutants
- wastewater collection, treatment and disposal systems
- water quality parameters of significance to the wastewater system

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in suitable workplace operational situations. Where this is not appropriate, assessment must occur in suitable simulated workplace operational situations reflecting actual workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, facilities, equipment and personal protective equipment currently used in industry
- applicable relevant documentation including workplace procedures, industry standards, equipment specifications, regulations, codes of practice and operation manuals.

Links

Companion Volume Implementation Guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPTRD004 Implement and manage trade waste policies and plans

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to implement and manage trade waste policies and plans.

It includes implementing and coordinating monitoring and testing programs, monitoring treatment and discharge, providing advice and guidance to customers, maintaining trade waste records, and gathering and preparing evidence in relation to breaches of statutory regulations. It also includes applying and adhering to relevant legislation, regulations and workplace policies and procedures.

This unit applies to those working as leaders who manage the disposal of trade waste. Those undertaking this unit would work autonomously, leading staff, whilst performing sophisticated tasks in a range of familiar contexts.

No licensing, legislative or certification requirements apply to unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Trade waste

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1 Implement trade waste policies and plans	1.1 Confirm performance measures for trade waste management plans 1.2 Identify and communicate relevant environmental factors, regulations, policies and criteria for the disposal of trade waste to waste generators and stakeholders 1.3 Identify and interpret trade waste quality and quantity requirements 1.4 Carry out the management system maintenance according to trade waste management plans 1.5 Manage the system and workplace to achieve objectives of trade waste management plans
2 Implement and coordinate the monitoring and testing program	2.1 Design and implement the monitoring and testing programs and procedures according to the objectives of trade waste management plans 2.2 Analyse, interpret and report testing results according to workplace procedures 2.3 Identify and conduct investigations, issues and/or potential issues, trends, report results and recommendations
3 Monitor treatment and discharge and provide advice and guidance	3.1 Monitor trade waste treatment and discharge according to the trade waste agreement 3.2 Provide advice and guidance to trade waste generators and stakeholders 3.3 Identify and investigate breaches of trade waste discharge provisions and report the results and recommendations
4 Maintain trade waste records	4.1 Complete trade waste management records 4.2 Store trade waste records for access and review 4.3 Monitor, review and assess trade waste records to identify long-term trends and impacts 4.4 Report results of record reviews

5 Gather and prepare evidence in relation to breaches of statutory regulations

5.1 Carry out testing, sampling and collection of physical evidence of breaches

5.2 Collect, collate and present evidence to the legal department of the organisation for prosecution of waste generators

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Unit Mapping Information

This unit replaces and is equivalent to NWPTRD021 Implement and manage trade waste policies and plans.

Links

Companion Volume Implementation Guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPTRD004 Implement and manage trade waste policies and plans

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- applying risk assessment and management principles and guidelines
- assessing environmental impacts using international standards
- assessing waste treatment methods, processes, plant and equipment
- coordinating measuring, testing and sampling activities
- developing monitoring plans
- evaluating process inputs and outputs including using at least one of the following methodologies:
 - mass balance
 - process yield
- gathering data and preparing reports of the implementation of the trade waste management plan
- identifying and evaluating trade waste producing processes
- implementing and designing monitoring programs
- interpreting and evaluating sample analysis data
- interpreting and reviewing hydraulic, architectural and site plans
- managing the storage and maintenance of records
- managing trade waste resources
- monitoring trade waste treatment and disposal programs
- planning and conducting investigations
- providing input to legal processes for investigating breaches

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- analytical techniques
- capacity and operation of plant and equipment
- industrial waste treatment methods

- personal protection and safety precautions for wastewater sampling
- measuring, testing and sampling procedures
- relevant legislation and procedures
- relevant workplace policies for trade waste management
- stakeholder expectations and requirements
- water quality parameters of significance to the wastewater system

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in suitable workplace operational situations. Where this is not appropriate, assessment must occur in suitable simulated workplace operational situations reflecting actual workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, facilities, equipment and personal protective equipment currently used in industry
- applicable relevant documentation including workplace procedures, industry standards, equipment specifications, regulations, codes of practice and operation manuals.

Links

Companion Volume Implementation Guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPTRD005 Develop and modify trade waste policies and plans

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to develop and modify trade waste policies and plans.

It includes planning, developing, modifying, reviewing and refining policies and plans for trade waste activities relating to liquid waste discharge to wastewater collection systems. It also includes applying and complying with relevant legislation, regulations, industry standards and workplace policies and procedures.

This unit applies to those working as leaders in water organisations with responsibility for the management of trade waste policies and plans. Those undertaking this unit would work autonomously, leading staff, while performing sophisticated tasks in a range of familiar contexts.

No licensing, legislative or certification requirements apply to unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Trade waste

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Prepare for trade waste management

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Identify and review relevant provisions of trade waste legislation, standards and enterprise policies

	1.2	Document trade waste policies and procedures
	1.3	Identify wastewater quality parameters generated by major industries
	1.4	Consider information about known impacts, risk assessments and control procedures in preparing plans
	1.5	Document responsibilities and accountabilities according to workplace procedures
2	Develop and modify trade waste policies and plans	
	2.1	Conduct community, workplace and stakeholder consultation
	2.2	Address issues raised through consultation and incorporate issues relevant to policy in policy development
	2.3	Identify and explain trade waste processes to stakeholders including treatment and disposal processes together with the required workplace procedures and relevant environmental factors
	2.4	Develop and modify contingency plans for major trade waste industries
	2.5	Summarise issues identified by reviews and audits in trade waste policies and plans
	2.6	Prepare and present trade waste policies and plans
3	Review and refine trade waste policies and plans	
	3.1	Review trade waste policies against established objectives, policies and plans
	3.2	Review policies and plans through consultation, against prevailing stakeholder expectations
	3.3	Modify policies and plans to include identified and required changes
	3.4	Benchmark policies, systems and plans against other water utilities

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Unit Mapping Information

This unit replaces and is equivalent to NWPTRD022 Develop and modify trade waste policies and plans.

Links

Companion Volume Implementation Guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPTRD005 Develop and modify trade waste policies and plans

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- assessing environmental impact using relevant international standards
- assessing waste treatment methods, processes, plants and equipment
- consulting stakeholders
- developing and modifying trade waste policies and plans addressing workplace objectives and requirements
- developing contingency plans
- gathering, interpreting and synthesising information to underpin the sound development and modification of trade waste policies and plans including:
 - relevant legislation and industry standards
 - results of trade waste system testing and monitoring
 - stakeholder requirements
- interpreting and applying legislation and policies applicable to trade waste
- managing records
- preparing reports and recommendations for changes to the objectives of the policies and plans and their implementation
- using data from monitoring arrangements to track the performance of the trade waste system and inform the review of the policies and plans
- using mathematical and scientific techniques to interpret test results

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- personal protection and safety precautions for wastewater sampling
- relevant legislation, policies, procedures
- risk assessment processes
- trade waste management systems and records
- trade waste treatment and process technology
- wastewater collection, treatment, re-use and disposal systems

- water quality parameters of significance to the wastewater system
- workplace, stakeholder and community consultation processes
- workplace emergency response requirements

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in suitable workplace operational situations. Where this is not appropriate, assessment must occur in suitable simulated workplace operational situations reflecting actual workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, facilities, equipment and personal protective equipment currently used in industry
- applicable relevant documentation including workplace procedures, industry standards, equipment specifications, regulations, codes of practice and operation manuals.

Links

Companion Volume Implementation Guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPTRD012 Investigate, rectify and report on trade waste incidents

Modification History

Release	Comments
1	This unit was released in NWP Water Training Package release 1.0 and meets the Standards for Training Packages. This unit supersedes and is equivalent to NWP431A Investigate, rectify and report on trade waste incidents. • Unit code updated • Content and formatting updated to comply with the new standards • All PC transitioned from passive to active voice • PC 3.1 and 3.2 revised • PC 5.2 removed

Application

This unit of competency describes the skills required to investigate trade waste incidents, to make arrangements for rectification and to complete reports.

This unit applies to those working as trade waste officers or inspectors with a specific responsibility for investigating trade waste incidents, identifying the source of the problem, arranging corrective action and compiling comprehensive reports.

The skills and knowledge described in this unit must be applied within the legislative, regulatory and policy environment in which they are carried out. Organisational policies and procedures must be consulted and adhered to.

Those undertaking this unit would work independently, while performing complex tasks, in a range of familiar contexts. The level of responsibility may vary according to the size and scope of the trade waste system.

No licensing, legislative or certification requirements apply to unit at the time of publication.

Competency Field

Trade waste

Elements and Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA
Elements describe the essential outcomes	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the range of conditions section.
1. Analyse trade waste incident location	1.1 Identify and confirm the location and nature of trade waste incidents. 1.2 Assess the extent of incidents and the possible effects. 1.3 Implement actions or make recommendations to minimise potential harm. 1.4 Notify relevant organisations and individuals. 1.5 Conduct inspections and sampling of incident locations and environs and analyse and report findings and results.
2. Investigate the cause and effect of trade waste incidents	2.1 Identify and confirm the wastewater catchment for incident locations. 2.2 Analyse the wastewater catchment for possible sources of unauthorised or illegal discharge. 2.3 Schedule inspections of potential sources of unauthorised or illegal discharge and make appropriate preparations. 2.4 Investigate the possible effects of trade waste incidents and assess the level of severity.
3. Identify incident source and arrange rectification	3.1 Conduct inspections of potential sources. 3.2 Gather, record and analyse evidence and, where possible, confirm the correct source of unauthorised or illegal trade waste discharge. 3.3 Identify, analyse and select methods for rectifying problems. 3.4 Consult personnel within the identified customer organisations and advise of rectification requirements and incident repercussions.
4. Compile trade waste incident reports	4.1 Record and process data and information relating to investigations and evidence gathered. 4.2 Compile, process and distribute incident reports, including rectification arrangements.
5. Conduct post incident monitoring to	5.1 Adjust trade waste treatment and discharge monitoring schedules and prepare and apply a post-incident monitoring plan. 5.2 Identify and investigate breaches of the trade waste discharge

ensure ongoing compliance	provisions and report the results and/or recommendations.

Foundation Skills

The foundation skills demands of this unit have been mapped for alignment with the Australian Core Skills Framework (ACSF). The following tables outline the performance levels indicated for successful attainment of the unit.

ACSF levels indicative of performance:

1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Learning NA					Reading					Writing					Oral communication					Numeracy				

Performance variables:

1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Support					Context					Text complexity					Task complexity				

Further information on ACSF and the foundation skills underpinning this unit can be found in the Foundation Skills Guide on the GSA website.

Unit Mapping Information

This unit supersedes and is equivalent to NWP431A Investigate, rectify and report on trade waste incidents.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPTRD012 Investigate, rectify and report on trade waste incidents

Modification History

Release	Comments
1	These Assessment Requirements were released in NWP Water Training Package release 1.0 and meet the Standards for Training Packages. • Assessment Requirements created drawing upon specified assessment information from superseded unit

Performance Evidence

Evidence required to demonstrate competence must satisfy all of the requirements of the elements and performance criteria. If not otherwise specified the candidate must demonstrate evidence of performance of the following on at least one occasion.

- interpreting and reviewing hydraulic and site plans
- identifying and evaluating trade waste producing processes
- identifying and selecting appropriate remedial measures
- evaluating process and wastewater system inputs and outputs
- using wastewater sampling and preservation techniques for onsite and laboratory testing
- developing monitoring plans and coordinating measuring, testing and sampling activities
- interpreting and evaluating sample analysis data
- planning and conducting investigations
- assessing environmental impact using ISO 14001 where appropriate
- assessing waste treatment methods, processes, plant and equipment
- interpreting and applying legislation and policies applicable to trade waste
- identifying and analysing incident locations
- assessing the type and extent of incident impact
- assessing the trade waste catchment and identifying possible sources of the problem
- investigating possible sources and identifying the instigators of the incidents
- investigating the instigating organisations and negotiating rectification measures
- completing reports for prosecutions

Knowledge Evidence

Evidence required to demonstrate competence must satisfy all of the requirements of the elements and performance criteria. If not otherwise specified the depth of knowledge demonstrated must be appropriate to the job context of the candidate.

- relevant legislation
- relevant enterprise policies for trade waste management
- water quality parameters of significance to the wastewater system
- trade waste treatment methods and processes
- impact and interaction of pollutants and toxins
- remedial measures relevant to customer base and associated risk
- investigation procedures
- report writing procedures
- range of appropriate measuring, testing and sampling procedures
- customer expectations and requirements
- work health and safety legislation
 - personal protection and safety precautions for wastewater sampling, including the requirements for relevant inoculations, including:
 - Q fever
 - hepatitis A and B
 - polio
 - tetanus
 - diphtheria

Assessment Conditions

Competency should be assessed in an actual workplace or in a simulated environment, with access to equipment and infrastructure appropriate to the outcome. Competency should be demonstrated over time to ensure the candidate is assessed across a variety of situations.

Assessors must satisfy the NVR/AQTF mandatory competency requirements for assessors.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPTRD023 Coordinate, implement and report on trade waste monitoring procedures

Modification History

Release	Comments
1	This unit was released in NWP Water Training Package release 1.0 and meets the Standards for Training Packages. This unit supersedes and is equivalent to NWP429B Coordinate, implement and report trade waste monitoring procedures. • Unit code updated • Content and formatting updated to comply with the new standards • All PC transitioned from passive to active voice • Unit title changed to better reflect unit outcomes • Elements 2 and 3 merged • PC 3.1 and 3.2 revised

Application

This unit describes the skills required to coordinate, implement and report on monitoring programs for trade waste treatment and disposal in retail commercial and light industrial organisations. It also applies and to the monitoring of complex trade waste systems in large organisations.

This unit applies to those working with a specific responsibility for coordinating and conducting monitoring and testing of trade waste treatment and disposal.

The skills and knowledge described in this unit must be applied within the legislative, regulatory and policy environment in which they are carried out. Organisational policies and procedures must be consulted and adhered to.

Those undertaking this unit would work independently, while performing complex tasks, in a range of familiar contexts. The level of responsibility may vary according to the size and scope of the trade waste system.

No licensing, legislative or certification requirements apply to unit at the time of publication.

Competency Field

Trade waste

Elements and Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA
Elements describe the essential outcomes	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the range of conditions section.
1. Coordinate the monitoring and testing program	1.1 Apply monitoring and testing programs and procedures for trade waste. 1.2 Analyse testing results where appropriate and report. 1.3 Identify and investigate issues and inconsistencies and consult stakeholders. 1.4 Report investigation results and recommendations.
2. Monitor treatment and disposal	2.1 Monitor trade waste treatment and disposal. 2.2 Identify and investigate breaches of the trade waste discharge provisions and approvals. 2.3 Report results and/or recommendations. 2.4 Complete, review and store trade waste management records for the work area.

Foundation Skills

The foundation skills demands of this unit have been mapped for alignment with the Australian Core Skills Framework (ACSF). The following tables outline the performance levels indicated for successful attainment of the unit.

ACSF levels indicative of performance:

1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Learning NA					Reading					Writing					Oral communication					Numeracy				

Performance variables:

1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Support					Context					Text complexity					Task complexity				

Further information on ACSF and the foundation skills underpinning this unit can be found in the Foundation Skills Guide on the GSA website.

Unit Mapping Information

This unit supersedes and is equivalent to NWP429B Coordinate, implement and report trade waste monitoring procedures.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPTRD023 Coordinate, implement and report on trade waste monitoring procedures

Modification History

Release	Comments
1	These Assessment Requirements were released in NWP Water Training Package release 1.0 and meet the Standards for Training Packages. • Assessment Requirements created drawing upon specified assessment information from superseded unit

Performance Evidence

Evidence required to demonstrate competence must satisfy all of the requirements of the elements and performance criteria. If not otherwise specified the candidate must demonstrate evidence of performance of the following on at least one occasion.

- using wastewater sampling and preservation techniques for on-site and laboratory testing
- interpreting and applying legislation and policies applicable to trade waste
- developing monitoring plans
- coordinating measuring, testing and sampling activities
- interpreting and evaluating sample analysis data
- assessing risks and hazards associated with sampling activities
- monitoring process inputs and outputs
- planning and conducting investigations
- assessing environmental impact using ISO 14001 where appropriate
- assessing waste treatment methods, processes, plant and equipment
- using appropriate personal protective equipment for protection against physical, chemical and biological hazards
- implementing monitoring and testing programs
- analysing test results
- investigating problems on-site
- monitoring treatment and disposal provisions on-site
- recording and reporting data

Knowledge Evidence

Evidence required to demonstrate competence must satisfy all of the requirements of the elements and performance criteria. If not otherwise specified the depth of knowledge demonstrated must be appropriate to the job context of the candidate.

- relevant legislation
- relevant enterprise policies for trade waste management
- water quality parameters of significance to the wastewater system
- personal protection and safety precautions for wastewater sampling, including the requirements for relevant inoculations including:
 - Q fever
 - hepatitis A and B
 - polio
 - tetanus
 - diphtheria
- standard industrial waste treatment methods, processes and procedures for retail commercial and light industrial organisations
- investigation procedures
- range of appropriate measuring, testing and sampling procedures
- customer expectations and requirements
- WHS

Assessment Conditions

Competency should be assessed in an actual workplace or in a simulated environment, with access to equipment and infrastructure appropriate to the outcome. Competency should be demonstrated over time to ensure the candidate is assessed across a variety of situations.

Assessors must satisfy the NVR/AQTF mandatory competency requirements for assessors

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPTRD024 Establish connections of water and wastewater systems

Modification History

Release	Comments
1	This unit was released in NWP Water Training Package release 1.0 and meets the Standards for Training Packages.

Application

This unit describes the skills required to establish the connection conditions of new water, waste water and recycled water conditions by assessing the hydraulics and infrastructure capacity.

This unit applies to those working as trade waste officers within the water industry with a specific responsibility for managing applications and approvals for connection requests.

The skills and knowledge described in this unit must be applied within the legislative, regulatory and policy environment in which they are carried out. Organisational policies and procedures must be consulted and adhered to.

Those undertaking this unit would work independently as part of a team making independent decisions while performing sophisticated tasks in a range of familiar contexts.

No licensing, legislative or certification requirements apply to unit at the time of publication.

Competency Field

Source

Elements and Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA
Elements describe the essential outcomes	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used,

	further information is detailed in the range of conditions section.
1. Plan and prepare for establishing connections	1.1 Respond to customer enquiries regarding applications for new connections. 1.2 Advise customer of the procedures involved in processing and approving and monitoring applications.
2. Evaluate connection application	2.1 Identify and confirm the location and nature of the work to be assessed from the job specifications. 2.2 Review the property conditions and assess the issues that affect connection. 2.3 Prioritise work load to ensure compliance with KPI requirements. 2.4 Notify the relevant organisations and individuals who will be affected by the work.
3. Assess the infrastructure capacity	3.1 Assess local infrastructure with the use of relevant database systems. 3.2 Assess utilities assets to determine suitability for connection. 3.3 Determine the impacts on the infrastructure. 3.4 Apply connection requirements.
4. Conduct hydraulic assessment	4.1 Review connection attributes. 4.2 Apply delegations and approvals controls. 4.3 Conduct community and stakeholder consultation. 4.4 Determine the connection conditions.
5. Maintain connection records	5.1 Compile assessment findings into information systems. 5.2 Prepare and store business and customer documentation in information systems for access and review. 5.3 Complete customer requests and generate compliance data.

Foundation Skills

The foundation skills demands of this unit have been mapped for alignment with the Australian Core Skills Framework (ACSF). The following tables outline the performance levels indicated for successful attainment of the unit.

ACSF levels indicative of performance:

1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Learning					Reading					Writing					Oral communication					Numeracy				

Performance variables:

1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Support					Context					Text complexity					Task complexity				

Further information on ACSF and the foundation skills underpinning this unit can be found in the Foundation Skills Guide on the GSA website.

Unit Mapping Information

No equivalent unit.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPTRD024 Establish connections of water and wastewater systems

Modification History

Release	Comments
1	These Assessment Requirements were released in NWP Water Training Package release 1.0 and meet the Standards for Training Packages.

Performance Evidence

Evidence required to demonstrate competence must satisfy all of the requirements of the elements and performance criteria. If not otherwise specified the candidate must demonstrate evidence of performance of the following on at least one occasion.

- interpreting and reviewing hydraulic, architectural and site plans
- identifying and evaluating trade waste processes
- interpreting and evaluating sample analysis data
- developing monitoring plans
- managing stakeholders
- exercising judgement when revising work
- managing change in customer demands

Knowledge Evidence

Evidence required to demonstrate competence must satisfy all of the requirements of the elements and performance criteria. If not otherwise specified the depth of knowledge demonstrated must be appropriate to the job context of the candidate.

- relevant legislation
- relevant enterprise policies and procedures for connection management, customer connections and metering guides and supplier instructions
- water quality parameters of significance to the wastewater system
- basic hydraulics
- property spatial information
- property creation processes
- basic knowledge of wastewater collection, treatment and disposal systems
- investigation procedures
- customer expectations and requirements
- WHS

Assessment Conditions

Competency should be assessed in an actual workplace or in a simulated environment, with access to equipment and infrastructure appropriate to the outcome. Competency should be demonstrated over time to ensure the candidate is assessed across a variety of situations.

Assessors must satisfy the NVR/AQTF mandatory competency requirements for assessors.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPTRT002 Develop and manage a treatment process monitoring program

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to develop and manage a treatment process monitoring program.

It includes developing, implementing and coordinating treatment process monitoring programs and optimising processes and production. It also includes reporting on implementation and monitoring plans for treatment activities.

This unit applies to leaders with responsibility for the implementation of treatment management plans.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Treatment

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Develop and implement a treatment process

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Confirm performance measures for treatment management plans

monitoring program

- 1.2** Develop implementation plans according to legislation, industry standards, workplace procedures and environmental factors
 - 1.3** Design and implement monitoring and testing programs according to objectives of treatment management plans and workplace procedures
 - 1.4** Analyse, interpret and report testing results according to relevant legislation and workplace procedures
 - 1.5** Identify and investigate problems and potential problems, and report results and recommendations according to workplace procedures
 - 1.6** Store results and reports according to relevant legislation and workplace procedures
 - 1.7** Identify hazards, assess risks and implement control measures
- 2 Monitor and optimise the process and production**
 - 2.1** Monitor treatment process resource usage according to treatment management plans
 - 2.2** Implement incident action plans according to treatment management plans
 - 2.3** Identify, report and recommend opportunities for process performance improvements according to treatment management plans
 - 2.4** Advise and communicate to relevant stakeholders according to relevant legislation and workplace procedures
 - 2.5** Review, interpret and action stakeholder and customer requirements according to treatment management plans
 - 2.6** Identify and investigate breaches of treatment management plan provisions with results and recommendations reported and actioned according to relevant legislation and workplace procedures
- 3 Report on implementation and monitoring of the plan**
 - 3.1** Identify, investigate and report deviations from planned treatment parameters and management plan requirements
 - 3.2** Review objectives of the treatment process monitoring

program and make recommendations for changes to plan objectives and operational procedures

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Unit Mapping Information

This is a new unit. No equivalent unit.

Links

Companion Volume Implementation Guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPTRT002 Develop and manage a treatment process monitoring program

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- assessing environmental factors
- assessing public health impacts
- conducting investigations
- coordinating measuring and testing activities
- gathering, interpreting and synthesising information including:
 - historical data
 - relevant legislation
 - industry standards
 - stakeholder requirements
 - results of treatment testing and monitoring
- monitoring and evaluating the outcomes of the treatment processes management plan
- planning and implementing testing processes and programs
- preparing reports and recommendations for future action
- providing advice and communicating with stakeholders and customers
- using mathematical and scientific techniques to interpret test results

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- investigation procedures
- multiple barrier approach to water quality
- measuring and testing procedures
- relevant legislation, industry standards and workplace procedures
- relevant workplace documentation
- risk management principles
- stakeholder requirements

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in suitable workplace operational situations. Where this is not appropriate, assessment must occur in suitable simulated workplace operational situations reflecting actual workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, facilities, equipment and personal protective equipment currently used in industry
- applicable relevant documentation including workplace procedures, industry standards, equipment specifications, regulations, codes of practice and operation manuals.

Links

Companion Volume Implementation Guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPTRT003 Develop and manage a wastewater treatment plan

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to develop and manage a wastewater treatment plan.

It includes planning and preparing for wastewater treatment and developing a management plan consistent with regulatory requirements. It also includes analysing system performance, liaising with stakeholders and reviewing and refining the plan.

This unit applies to leaders with responsibility for the management of the wastewater treatment processes. Those undertaking this unit would work autonomously, leading staff, while performing sophisticated tasks in a range of familiar contexts.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Treatment

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Plan for wastewater treatment

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Identify, interpret and synthesise historic wastewater treatment information relevant to the management process

- 1.2 Interpret wastewater quality and quantity requirements according to relevant legislation and workplace procedures
 - 1.3 Identify and analyse legislation, workplace procedures, environmental requirements and system constraints impacting wastewater treatment
 - 1.4 Identify hazards, assess risks and implement control measures according to workplace procedures
 - 1.5 Identify and analyse stakeholder requirements impacting wastewater discharge environments
 - 1.6 Confirm performance measures for the wastewater treatment plan
 - 1.7 Identify and define available resources against wastewater treatment specifications
 - 1.8 Determine responsibilities and timelines for implementation activities
- 2 **Develop wastewater treatment plan**
 - 2.1 Apply system specification requirements to wastewater treatment plan according to relevant legislation, industry standards and workplace procedures
 - 2.2 Assess public health, environmental and community factors impacting wastewater treatment
 - 2.3 Analyse performance data and incorporate into plan development
 - 2.4 Design and implement monitoring and testing programs according to the wastewater treatment plan
 - 2.5 Develop and document a plan for wastewater treatment
- 3 **Implement wastewater treatment plan**
 - 3.1 Provide advice and guidance to plan users and stakeholders according to regulatory requirements and workplace procedures
 - 3.2 Manage resources to achieve the objectives of the wastewater treatment plan
 - 3.3 Operate the system according to the wastewater treatment plan and regulatory requirements
 - 3.4 Manage implementation of the changes identified to the

		wastewater treatment plan
4 Monitor and evaluate wastewater treatment	4.1	Evaluate collection of treated wastewater from customers by identifying, investigating and reporting deviations from agreed service levels
	4.2	Monitor information impacting planning processes according to workplace procedures
	4.3	Plan and oversee system maintenance according to the wastewater treatment plan
	4.4	Analyse and interpret monitoring and testing results and report according to regulatory requirements and workplace procedures
	4.5	Investigate breaches of usage provisions and report results and recommendations according to regulatory requirements and workplace procedures
	4.6	Identify and evaluate system changes to the wastewater treatment plan as a result of changes in regulatory and stakeholder requirements
	4.7	Modify and implement the wastewater treatment plan, incorporating accepted recommendations
5 Review and refine plan	5.1	Review objectives of wastewater treatment and implementation plans
	5.2	Make recommendations for changes to plan objective and operational and maintenance procedures
	5.3	Implement outcomes from audits and internal reviews

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Unit Mapping Information

This is a new unit. No equivalent unit.

Links

Companion Volume Implementation Guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPTRT003 Develop and manage a wastewater treatment plan

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- advising and guiding plan users in compliance with regulatory requirements
- analysing measuring and testing data relative to treatment plant operations
- assessing wastewater environmental factors
- developing a wastewater treatment plan that addresses the organisation's objectives and requirements
- identifying and interpreting relevant water recycling legislation, industry standards and workplace procedures
- identifying, interpreting and synthesising information for developing and managing a wastewater treatment plan including:
 - historical data
 - industry standards
 - maintenance activities and costs
 - plan objectives
 - relevant legislation
 - stakeholder requirements
 - workplace policies
- preparing reports and recommendations for changes to the objectives of the wastewater treatment plan and its implementation

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- analysis of wastewater treatment plant processes
- customer and stakeholder requirements
- measuring and testing procedures
- relevant legislation and industry standards
- environmental impacts

- relevant workplace documentation
- relevant workplace policies and procedures associated with developing a wastewater treatment plan

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in suitable workplace operational situations. Where this is not appropriate, assessment must occur in suitable simulated workplace operational situations reflecting actual workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, facilities, equipment and personal protective equipment currently used in industry
- applicable relevant documentation including workplace procedures, industry standards, equipment specifications, regulations, codes of practice and operation manuals.

Links

Companion Volume Implementation Guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPTRT004 Develop and manage a water treatment plan

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Application

This unit involves the skills and knowledge required to develop and manage a water treatment plan.

It includes monitoring, operating and maintaining water treatment and reviewing and reporting on the water treatment plan. It also includes evaluating maintenance budgets, assessing environmental factors, managing resources, investigating breaches of usage provisions and analysing testing results.

This unit applies to leaders with responsibility for the management of the water treatment process. Those undertaking this unit would work autonomously, leading staff, while performing sophisticated tasks in a range of familiar contexts.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Treatment.

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Plan for water treatment

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Identify, interpret and synthesise historic water collection system information relevant to the

management process

- 1.2 Identify and analyse water quality and quantity requirements according to relevant legislation, industry regulations, industry standards and workplace procedures
 - 1.3 Identify and assess process capability and performance design according to specifications
 - 1.4 Identify hazards, assess risks and implement control measures according to workplace procedures
 - 1.5 Identify and interpret issues impacting the catchment and treatment of water
 - 1.6 Identify and interpret stakeholder requirements impacting on the treatment processes
 - 1.7 Identify and assess environmental factors impacting the treatment of water
 - 1.8 Confirm performance measures for the water treatment plan
 - 1.9 Identify and define available resources against wastewater specifications
- 2 Develop water treatment plan**
 - 2.1 Apply system specification requirements for water treatment planning according to regulatory requirements and workplace procedures
 - 2.2 Assess public health, environmental and community factors impacting the water treatment system
 - 2.3 Analyse performance data and incorporate into plan development
 - 2.4 Design and implement monitoring and testing programs according to the objectives of the water treatment plan
 - 2.5 Develop and document a plan for managing water treatment
- 3 Implement water treatment plan**
 - 3.1 Provide advice and guidance to plan users and stakeholders according to relevant legislation, regulations, industry standards and workplace procedures
 - 3.2 Manage resources to achieve objectives of the water

- treatment plan
- 3.3** Operate the system according to the water treatment plan, legislation, regulations and industry standards
- 4 Monitor and evaluate water treatment**
- 4.1** Monitor treatment process resource usage according to the water treatment plan
- 4.2** Implement emergency action plans according to the water treatment plan
- 4.3** Identify, report and recommend opportunities for improving process performance according to the water treatment plan
- 4.4** Analyse and interpret monitoring and testing results and report according to regulatory regulations, industry standards and workplace procedures
- 4.5** Investigate breaches of usage provisions or discharge provisions and report results and recommendations according to regulatory requirements and workplace procedures
- 4.6** Identify and evaluate changes to the water treatment plan as a result of changes in legislation, regulations, industry standards and stakeholder requirements
- 4.7** Modify and implement the water treatment plan, incorporating accepted recommendations
- 4.8** Evaluate maintenance budgets, activity programs and output target measures and identify, investigate and report deviations from target
- 4.9** Identify and record links between operational problems and maintenance activities
- 5 Review and refine plan**
- 5.1** Review objectives of water treatment and implementation plans
- 5.2** Make recommendations for changes to plan objectives and operational and maintenance procedures
- 5.3** Implement outcomes from audits and internal reviews

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of

competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Unit Mapping Information

This is a new unit. No equivalent unit.

Links

Companion Volume Implementation Guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPTRT004 Develop and manage a water treatment plan

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- advising and guiding plan users in compliance with regulatory requirements
- analysing and interpreting test results
- assessing public health impacts
- assessing environmental impacts
- conducting investigations
- coordinating measuring and testing activities
- identifying and reporting on deviations to the water treatment plan
- identifying hazards, assessing risks and implementing control measures
- identifying, interpreting and synthesising information for developing and managing a water treatment plan including:
 - historical data
 - industry standards
 - maintenance activities and costs
 - plan objectives
 - relevant legislation
 - results of treatment testing and monitoring
 - stakeholder requirements
 - water quality and quantity
- monitoring and evaluating the outcomes of treatment processes
- planning and implementing testing processes and programs
- preparing reports and recommendations for future action
- using complex mathematical and scientific techniques to interpret test results

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- appropriate measuring and testing procedures

- budgeting techniques
- investigation procedures
- relevant legislation, regulations, industry standards and workplace procedures
- relevant workplace documentation
- risk management principles
- stakeholder requirements
- water collection historical information

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in suitable workplace operational situations. Where this is not appropriate, assessment must occur in suitable simulated workplace operational situations reflecting actual workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, facilities, equipment and personal protective equipment currently used in industry
- applicable relevant documentation including workplace procedures, industry standards, equipment specifications, regulations, codes of practice and operation manuals.

Links

Companion Volume Implementation Guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPTRT011 Assess and improve chemical dosing process

Modification History

Release	Comments
1	This unit was released in NWP Water Training Package release 1.0 and meets the Standards for Training Packages. This unit supersedes and is equivalent to NWP409A Investigate and plan to optimise the operation of chemical addition processes. • Unit code updated • Content and formatting updated to comply with the new standards • All PC transitioned from passive to active voice • Unit title changed to better reflect unit outcomes • Element 1 reworded

Application

This unit describes the skills required to review, coordinate and optimise chemical addition processes and to evaluate and report on system performance and process quality control.

This unit applies to those working as technical staff with a responsibility for optimising chemical addition processes in water, wastewater and stormwater treatment plants and processes.

The skills and knowledge described in this unit must be applied within the legislative, regulatory and policy environment in which they are carried out. Organisational policies and procedures must be consulted and adhered to, particularly those relating to manufacturer and plant designer specifications, dosing pump capacity and calibration chart.

Those undertaking this unit would work as single operator or as part of a team with some responsibility for team coordination and supervision, depending on the size of the treatment plant. They would perform complex tasks within a familiar context.

No licensing, legislative or certification requirements apply to unit at the time of publication.

Competency Field

Treatment

Elements and Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA
Elements describe the essential outcomes	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the range of conditions section.
1. Evaluate chemical addition process performance	1.1 Review existing process performance data against relevant organisational and legislative requirements. 1.2 Identify the impact of changing raw or influent water quality on chemical addition processes. 1.3 Identify and coordinate any additional sampling and testing required for valid evaluation of current process performance.
2. Investigate chemical addition plant configuration	2.1 Review existing fault reports and other plant asset information. 2.2 Investigate the operational status of plant components with reference to manufacturer and plant designer specifications. 2.3 Carry out plant configuration investigations to identify potential deficiencies.
3. Investigate chemical options for process optimisation	3.1 Review current chemical addition practices with reference to organisational procedures to identify potential deficiencies. 3.2 Investigate dosing options for current chemicals. 3.3 Identify and investigate new or additional chemicals and related dosing options.
4. Develop and record a plan for process optimisation	4.1 Determine plant configuration or chemical options for process optimisation. 4.2 Plan a trial to test the performance of the determined optimisation options. 4.3 Compile report with recommendations on optimisation options.

Foundation Skills

The foundation skills demands of this unit have been mapped for alignment with the Australian Core Skills Framework (ACSF). The following tables outline the performance levels indicated for successful attainment of the unit.

ACSF levels indicative of performance:

1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Learning NA					Reading					Writing					Oral communication					Numeracy				

Performance variables:

1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Support					Context					Text complexity					Task complexity				

Further information on ACSF and the foundation skills underpinning this unit can be found in the Foundation Skills Guide on the GSA website.

Unit Mapping Information

This unit supersedes and is equivalent to NWP409A Investigate and plan to optimise the operation of chemical addition processes.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPTRT011 Assess and improve chemical dosing process

Modification History

Release	Comments
1	These Assessment Requirements were released in NWP Water Training Package release 1.0 and meet the Standards for Training Packages. • Assessment Requirements created drawing upon specified assessment information from superseded unit

Performance Evidence

Evidence required to demonstrate competence must satisfy all of the requirements of the elements and performance criteria. If not otherwise specified the candidate must demonstrate evidence of performance of the following on at least one occasion.

- conducting investigations and reporting on operational and control system problems
- coordinating sampling and testing including at least one of:
 - jar testing
 - flocculation growth
 - mixing energy
 - UV absorbance
 - pH
 - colour
 - turbidity
 - residual inorganic compounds
 - alkalinity
 - conductivity
- assessing quality of treatment chemicals by conducting a full range of jar tests
- performing mathematical calculations to provide data for the analysis and development of options and solutions
- investigating chemical dosing
- interpreting a range of complex and technical documents, including at least one of:
 - regulatory, legislative, licensing and organisational requirements
 - codes and standards
 - specifications
 - organisational policies

- articulating complex ideas
- analysing and evaluating reports and reference materials
- analysing problems and recommending appropriate remedial solutions
- identifying and responding to risks and hazards
- identifying opportunities for improved water treatment
- reviewing existing process performance with reference to historical data, differences in raw water quality and plant configuration including at least one of:
 - pH
 - turbidity
 - colour
 - presence of algae
 - temperature
- identifying data deficiencies and plan additional data collection through appropriate sampling and testing
- assessing fault reports and investigating the current operational status of plant components
- investigating current and potential chemical addition practices
- planning trials to test the performance of the determined optimisation options and compiling recommendation reports

Knowledge Evidence

Evidence required to demonstrate competence must satisfy all of the requirements of the elements and performance criteria. If not otherwise specified the depth of knowledge demonstrated must be appropriate to the job context of the candidate.

- the role of chemical addition in water treatment
- the principles of chemical addition, including enhanced coagulation
- chemical addition plant and equipment and system layout including:
 - mixing equipment
 - streaming current detector
 - dosing pumps
 - chemical injection equipment
 - turbidity meter
 - particle counter
 - flow meters
- chemical concepts and reactions relevant to chemical addition processes, including pH and alkalinity
- range and characteristics of chemicals used in chemical addition processes including:
 - polyaluminium chloride (PACL)
 - aluminium sulphate
 - aluminium chlorohydrate (ACH)
 - ferric chloride
 - ferric sulphate

- polyDADMAC
- polyacrylamide
- sulphuric acid
- hydrated lime
- caustic soda
- functions of various chemicals in chemical addition processes
- factors influencing the effectiveness of chemicals in chemical addition processes
- factors affecting the selection of chemicals in chemical addition processes
- range of appropriate measuring and testing procedures
- investigation procedures
- risk management principles
- locating chemical dosing points including at least one of:
 - mixing or reaction detention times
 - type of mixer or impeller
- customer expectations and requirements
- dosing pump capacity and calibration chart including:
 - detention times
 - mixing intensity for flash or rapid mixing and flocculation

Assessment Conditions

Consideration must be given to holistic assessment for this unit. Refer to advice in the companion volumes.

Competency should be assessed in an actual workplace or in a simulated environment, with access to equipment and infrastructure appropriate to the outcome. Competency should be demonstrated over time to ensure the candidate is assessed across a variety of situations.

Some components of this unit require assessment in a workplace environment therefore the unit is not suitable for fully external or electronic based assessment.

Assessors must satisfy the NVR/AQTF mandatory competency requirements for assessors.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPTRT032 Assess and improve sedimentation processes

Modification History

Release	Comments
1	This unit was released in NWP Water Training Package release 1.0 and meets the Standards for Training Packages. This unit supersedes and is equivalent to NWP408A Investigate and plan the optimisation of sedimentation and clarification processes. • Unit code updated • Content and formatting updated to comply with the new standards • All PC transitioned from passive to active voice • Unit title changed to better reflect unit outcomes • One new PC added to Element 2

Application

This unit describes the skills required to evaluate system performance and investigate and report on the optimisation of sedimentation and clarification processes.

This unit applies to those working as technical staff with responsibility for optimising sedimentation and clarification processes in water and wastewater treatment plants. This role may be performed as a single operator, or as part of a team with some responsibility for team coordination and supervision, depending on the size of the treatment plant.

The skills and knowledge described in this unit must be applied within the legislative, regulatory and policy environment in which they are carried out. Organisational policies and procedures must be consulted and adhered to.

Those undertaking this unit would work under indirect supervision, while performing complex tasks, within a familiar context.

No licensing, legislative or certification requirements apply to unit at the time of publication.

Competency Field

Treatment

Elements and Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA
Elements describe the essential outcomes	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the range of conditions section.
1. Assess sedimentation and clarification process performance	1.1 Review existing process performance data. 1.2 Identify the impact of changing incoming water quality on sedimentation and clarification processes in a range of conditions. 1.3 Identify any additional sampling and testing required for valid evaluation of current process performance.
2. Investigate sedimentation and clarification assets	2.1 Review existing fault reports and other plant asset information. 2.2 Investigate the operational status of plant components with reference to manufacturer and plant designer specifications. 2.3 Carry out investigations to identify potential deficiencies.
3. Investigate process optimisation	3.1 Review relevant fault and incident reports and remedial actions taken. 3.2 Investigate potential changes to operational processes to identify possible optimisation strategies.
4. Plan process optimisation	4.1 Determine plant configuration and revised operational processes for process optimisation. 4.2 Plan a trial to test the performance of the determined optimisation options. 4.3 Compile a report making recommendations on optimisation options.

Foundation Skills

The foundation skills demands of this unit have been mapped for alignment with the Australian Core Skills Framework (ACSF). The following tables outline the performance levels indicated for successful attainment of the unit.

ACSF levels indicative of performance:

1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Learning NA					Reading					Writing					Oral communication					Numeracy				

Performance variables:

1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Support					Context					Text complexity					Task complexity				

Further information on ACSF and the foundation skills underpinning this unit can be found in the Foundation Skills Guide on the GSA website.

Unit Mapping Information

This unit supersedes and is equivalent to NWP408A Investigate and plan the optimisation of sedimentation and clarification processes.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPTRT032 Assess and improve sedimentation processes

Modification History

Release	Comments
1	These Assessment Requirements were released in NWP Water Training Package release 1.0 and meet the Standards for Training Packages. Assessment Requirements created drawing upon specified assessment information from superseded unit

Performance Evidence

Evidence required to demonstrate competence must satisfy all of the requirements of the elements and performance criteria. If not otherwise specified the candidate must demonstrate evidence of performance of the following on at least one occasion.

- conducting investigations and reporting on operational or control system problems
- coordinating sedimentation and clarification inspection, sampling and testing
- performing calculations to provide data for the analysis and development of options and solutions, including at least one of:
 - surface loading rate
 - upflow velocity
 - detention time
 - weir loading rate
- interpreting a range of complex and technical documents, including at least one of:
 - regulatory, legislative, licensing and organisational requirements
 - codes and standards
 - specifications
 - organisational policies
- articulating complex ideas
- analysing problems and recommending appropriate remedial solutions
- identifying risks and hazards
- reviewing existing sedimentation and clarification process performance with reference to historical data, differences in incoming water quality and plant configuration
- identifying data deficiencies and organising additional data collection through appropriate sampling and testing
- assessing fault reports and investigating the current operational status of sedimentation and clarification plant components

- investigating current and potential chemical addition practices
- planning trials to test the performance of the determined sedimentation and clarification optimisation options and compiling recommendation reports

Knowledge Evidence

Evidence required to demonstrate competence must satisfy all of the requirements of the elements and performance criteria. If not otherwise specified the depth of knowledge demonstrated must be appropriate to the job context of the candidate.

- principles that form the basis of sedimentation and clarification processes
- types of sedimentation and clarification processes
- re-establishing sludge blankets
- polymers and weighting agents
- principles of sedimentation and clarification system maintenance
- system layout
- pumping and valving systems
- range of appropriate measuring and testing procedures
- investigation procedures
- risk management principles relating to sedimentation and clarification systems
- chemical dosing processes

Assessment Conditions

Competency will need to be demonstrated over a period of time reflecting the scope of the role and the practical requirements of the workplace, the evidence collected must relate to a number of performances assessed at different points in time and separated by further learning and practice.

Assessors must satisfy the NVR/AQTF mandatory competency requirements for assessors.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPTRT042 Assess and improve granular media filters

Modification History

Release	Comments
1	This unit was released in NWP Water Training Package release 1.0 and meets the Standards for Training Packages. This unit supersedes and is equivalent to NWP406A Investigate and plan the optimisation of granular media filtration processes. • Unit code updated • Content and formatting updated to comply with the new standards • All PC transitioned from passive to active voice • Unit title changed to better reflect unit outcomes • One new PC added to Element 2

Application

This unit describes the skills required to evaluate and report on system performance and process quality control and may require the control and coordination of granular media filtration processes used in water and wastewater treatment.

This unit applies to those working as technical staff with responsibility for optimising granular media filtration processes in water or wastewater treatment plants. This role may include coordination or supervision of a work team, or may be performed by a single operator, depending on the size of the treatment plant.

The skills and knowledge described in this unit must be applied within the legislative, regulatory and policy environment in which they are carried out. Organisational policies and procedures must be consulted and adhered to, particularly those relating to manufacturers' specifications.

Those undertaking this unit would work under indirect supervision, while performing complex tasks within a range of familiar contexts.

No licensing, legislative or certification requirements apply to unit at the time of publication.

Competency Field

Treatment

Elements and Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA
Elements describe the essential outcomes	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the range of conditions section.
1. Assess granular media filtration process performance	1.1 Review existing process performance data. 1.2 Review existing operational <i>processes</i> . 1.3 Identify the impact of incoming water quality on granular media filtration processes. 1.4 Identify any additional sampling and testing required for valid evaluation of current process performance.
2. Investigate granular media filtration plant or equipment operation	2.1 Review existing fault reports and other relevant plant asset information. 2.2 Investigate the operational status of plant components. 2.3 Carry out investigations to identify potential deficiencies.
3. Investigate the operational options for process optimisation	3.1 Review relevant fault and incident reports and remedial actions taken. 3.2 Investigate current media status with reference to manufacturer or plant designer specifications. 3.3 Investigate potential changes to operational processes to identify possible optimisation strategies.
4. Develop and record a plan for process optimisation	4.1 Determine plant configuration or media options and revised operational procedures for process optimisation. 4.2 Plan a trial to test the performance of the determined optimisation options. 4.3 Compile a report making recommendations on optimisation options.

Foundation Skills

The foundation skills demands of this unit have been mapped for alignment with the Australian Core Skills Framework (ACSF). The following tables outline the performance levels indicated for successful attainment of the unit.

ACSF levels indicative of performance:

1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Learning					Reading					Writing					Oral communication					Numeracy				

Performance variables:

1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Support					Context					Text complexity					Task complexity				

Further information on ACSF and the foundation skills underpinning this unit can be found in the Foundation Skills Guide on the GSA website.

Range of Conditions

Processes include:	- gravity filters - pressure filters - continuous backwash processes

Unit Mapping Information

This unit supersedes and is equivalent to NWP406A Investigate and plan the optimisation of granular media filtration processes.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPTRT042 Assess and improve granular media filters

Modification History

Release	Comments
1	These Assessment Requirements were released in NWP Water Training Package release 1.0 and meet the Standards for Training Packages. Assessment Requirements created drawing upon specified assessment information from superseded unit

Performance Evidence

Evidence required to demonstrate competence must satisfy all of the requirements of the elements and performance criteria. The candidate must be assessed in as least one type of process listed in the Range of Conditions. If not otherwise specified the candidate must demonstrate evidence of performance of the following on at least one occasion.

- conducting system investigation and reporting on operational or control system problems
- coordinating filter inspection, sampling and testing
- conducting trend analysis for long-term filter monitoring
- performing calculations to provide data for the analysis and development of options and solutions, including backwash rates and filtration rates
- determining filter run and backwash profiles and times
- interpreting a range of complex and technical documents, including at least one of:
 - regulatory, legislative, licensing and organisational requirements
 - codes and standards
 - specifications
 - organisational policies
- analysing problems and recommending appropriate remedial solutions
- reviewing existing filtration process performance with reference to historical data, initial specifications and differences in incoming water quality
- identifying data deficiencies and organising additional data collection through appropriate sampling and testing
- assessing faults and incident reports and investigating the status of filtration plant components and media
- investigating potential changes to filtration operational processes to identify possible optimisation strategies
- planning trials to test the performance of the determined filtration optimisation options

- compiling recommendation reports

Knowledge Evidence

Evidence required to demonstrate competence must satisfy all of the requirements of the elements and performance criteria. If not otherwise specified the depth of knowledge demonstrated must be appropriate to the job context of the candidate.

- principles that form the basis of granular media filtration processes
- types of filters and their range of applications, conditions for use and manufacturers' requirements
- backwash principles and optimisation
- filter run profiles
- the range and performance of filter aids
- filter media properties and selection
- filter inspection and sampling
- principles of filter maintenance, including:
 - filter cleaning
 - double backwashes
 - surface cleaning
 - lancing
 - caustic washing
- filter ripening and turbidity breakthrough
- pilot filters
- pumping and valving systems
- range of appropriate measuring and testing procedures

Assessment Conditions

Competency will need to be demonstrated over a period of time reflecting the scope of the role and the practical requirements of the workplace, the evidence collected must relate to a number of performances assessed at different points in time and separated by further learning and practice.

Assessors must satisfy the NVR/AQTF mandatory competency requirements for assessors.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPTRT045 Assess and improve desalination processes

Modification History

Release	Comments
1	This unit was released in NWP Water Training Package release 1.0 and meets the Standards for Training Packages.

Application

This unit describes the skills required to assess, evaluate system performance, investigate and report on the optimisation of desalination processes for water treatment and water recycling.

This unit applies to those working as water treatment operators responsible for water quality in a range of technical and process applications in water and wastewater treatment.

The skills and knowledge described in this unit must be applied within the legislative, regulatory and policy environment in which they are carried out. Organisational policies and procedures must be consulted and adhered to.

Those undertaking this unit would work autonomously performing sophisticated tasks in a familiar context.

No licensing, legislative or certification requirements apply to unit at the time of publication.

Competency Field

Treatment

Elements and Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA
Elements describe the essential outcomes	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the range of conditions section.
1. Assess	1.1 Review existing process performance data.

performance of desalination processes	1.2 Review existing operational processes with reference to manufacturer and plant designer specifications. 1.3 Identify the impact of raw water quality on desalination treatment processes. 1.4 Review existing fault reports and other relevant plant asset information. 1.5 Investigate the operational status of plant components. 1.6 Assess the effectiveness of various process control strategies.
2. Improve performance of desalination process	2.1 Identify treatment process conditions for optimising desalination. 2.2 Determine plant configuration and revised operational processes for process optimisation. 2.3 Plan a trial to test the performance of the determined optimisation options.
3. Report on system performance and improvement	3.1 Report on the current operational status of the water treatment process. 3.2 Report on effective treatment processes and associated sampling and testing requirements required to maintain water quality. 3.3 Compile a report making recommendations on optimisation options.

Foundation Skills

The foundation skills demands of this unit have been mapped for alignment with the Australian Core Skills Framework (ACSF). The following tables outline the performance levels indicated for successful attainment of the unit.

ACSF levels indicative of performance:

1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Learning					Reading					Writing					Oral communication					Numeracy				

Performance variables:

1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Support					Context					Text complexity					Task complexity				

Further information on ACSF and the foundation skills underpinning this unit can be found in the Foundation Skills Guide on the GSA website.

Range of Conditions

Desalination processes include:	• reverse osmosis • electrodialysis reversal (EDR) • nanofiltration

Unit Mapping Information

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Companion Volume implementation guides are found in VETNet -
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Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPTRT045 Assess and improve desalination processes

Modification History

Release	Comments
1	These Assessment Requirements were released in NWP Water Training Package release 1.0 and meet the Standards for Training Packages.

Performance Evidence

Evidence required to demonstrate competence must satisfy all of the requirements of the elements and performance criteria. The candidate must be assessed in at least one of the desalination processes listed in the Range of conditions. If not otherwise specified the candidate must demonstrate evidence of performance of the following on at least one occasion.

- preparing and applying chemical dosing and cleaning
- applying calculations to determine log removal values, Langelier saturation index, silt density index, salt passage or permeate flux, as required
- evaluating process performance
- reviewing existing process performance with reference to historical data, differences in raw water quality and plant configuration
- identifying data deficiencies and collecting additional data through appropriate sampling and testing
- assessing fault reports and investigating current operational status of processes for water treatment
- investigating current and potential chemical addition practices
- planning trials to test the performance of the treatment optimisation options for desalination
- preparing recommendation reports

Knowledge Evidence

Evidence required to demonstrate competence must satisfy all of the requirements of the elements and performance criteria. If not otherwise specified the depth of knowledge demonstrated must be appropriate to the job context of the candidate.

- types and characteristics of chemical and microbial contaminants treated through desalination processes
- problems for desalination processes caused by chemical and biological contamination

- relevant legislation, standards and workplace policies and procedures relating directly to the control and operation of desalination processes
- principles of water reuse treatment processes
- log removal value concept for desalination
- saturation indices used for prediction of scaling formation
- silt and/or fouling indices used for prediction of solids or colloidal fouling
- properties and modes of action for desalination
- types and application of chemicals and chemical cleaning methods for desalination processes
-

Assessment Conditions

Competency should be assessed in an actual workplace or in a simulated environment, with access to equipment and infrastructure appropriate to the outcome. Competency should be demonstrated over time to ensure the candidate is assessed across a variety of situations.

Some components of this unit require assessment in a workplace environment therefore the unit is not suitable for fully external or electronic based assessment.

Assessors must satisfy the NVR/AQTF mandatory competency requirements for assessors.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPTRT051 Assess and improve treatment for pathogen removal

Modification History

Release	Comments
1	This unit was released in NWP Water Training Package release 1.0 and meets the Standards for Training Packages. • New unit, created drawing upon information from deleted unit NWP411A

Application

This unit describes the skills required to identify microorganisms and assess the appropriate drinking water or water re-use treatment processes for inactivation or removal.

This unit applies to those working as water treatment operators responsible for water quality in a range of technical and process applications in water and wastewater treatment.

The skills and knowledge described in this unit must be applied within the legislative, regulatory and policy environment in which they are carried out. Organisational policies and procedures must be consulted and adhered to.

Those undertaking this unit would work autonomously performing sophisticated tasks in a familiar context.

No licensing, legislative or certification requirements apply to unit at the time of publication.

Competency Field

Treatment

Elements and Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA
Elements describe	Performance criteria describe the performance needed to demonstrate

the essential outcomes	achievement of the element. Where bold italicised text is used, further information is detailed in the range of conditions section.
1. Assess performance of processes to remove microorganisms	1.1 Review existing process performance data. 1.2 Review existing operational processes with reference to manufacturer and plant designer specifications. 1.3 Identify the impact of raw water quality on water treatment effectiveness for <i>microorganism</i> removal. 1.4 Review existing fault reports and other relevant plant asset information. 1.5 Investigate the operational status of plant components. 1.6 Investigate the cause of treated water quality issues relating to microorganisms. 1.7 Assess the effectiveness of process control strategies for microorganism removal.
2. Improve process performance for removal of microorganisms	2.1 Identify treatment process conditions for optimising microorganism removal. 2.2 Determine plant configuration and revised operational processes for process optimisation. 2.3 Plan a trial to test the performance of the determined optimisation options.
3. Report on system performance and improvement	3.1 Report on the current operational status of the water treatment process. 3.2 Report on effective treatment processes and associated sampling and testing procedures to maintain water quality. 3.3 Compile a report making recommendations on optimisation options.

Foundation Skills

The foundation skills demands of this unit have been mapped for alignment with the Australian Core Skills Framework (ACSF). The following tables outline the performance levels indicated for successful attainment of the unit.

ACSF levels indicative of performance:

1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Learning					Reading					Writing					Oral communication					Numeracy				

Performance variables:

1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Support					Context					Text complexity					Task complexity				

Further information on ACSF and the foundation skills underpinning this unit can be found in the Foundation Skills Guide on the GSA website.

Range of Conditions

Treatment processes include:	- source water management - pre-treatment processes to address problems associated with waterborne microorganisms - physical treatment processes to remove waterborne microorganisms - disinfection processes to kill or deactivate waterborne microorganisms
Associated problems with microorganisms include:	- algal toxins - taste and odour compounds - disinfection by-products - regrowth, nitrification & disinfection failure

Unit Mapping Information

No equivalent unit.

Links

Companion Volume implementation guides are found in VETNet - <https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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Assessment Requirements for NWPTRT051 Assess and improve treatment for pathogen removal

Modification History

Release	Comments
1	These Assessment Requirements were released in NWP Water Training Package release 1.0 and meet the Standards for Training Packages.

Performance Evidence

Evidence required to demonstrate competence must satisfy all of the requirements of the elements and performance criteria. Candidate must be assessed operating at least one of the processes, treating at least one of the problems, listed in Range of Conditions. If not otherwise specified the candidate must demonstrate evidence of performance of the following on at least one occasion.

- identifying a range of waterborne microorganisms
- analysing general characteristics caused by waterborne microorganisms, including at least one of:
 - pathogenicity
 - virulence
 - resistance to disinfectants
 - opportunistic infection capability
- analysing types of problems caused by waterborne microorganisms, including at least one of:
 - nuisance problems
 - taste and odour
 - filter clogging
 - colour
 - corrosion
 - toxicity problems
 - pathogenic problems
- identifying pathogenic microorganisms and the diseases they cause, including at least one of:
 - viruses
 - bacteria
 - protozoa

- algae
- cyanobacteria
- helminths
- assessing and selecting water or re-use treatment processes for physically removing or deactivating pathogenic microorganisms, including at least one of:
 - filtration
 - slow sand filter
 - granular media filters
 - membrane filters
 - disinfection:
 - chlorination
 - chloramination
 - UV
 - chlorine dioxide
 - ozone
- assessing causes of nuisance and toxicity problems, including at least one of:
 - micro types:
 - diatoms
 - sulphur bacteria
 - cyanobacteria:
 - *Microcystis aeruginosa*
 - *Anabaena circinalis*
 - pathogenic microorganisms:
 - viruses
 - enterovirus
 - hepatitis A
 - hepatitis E
 - rotavirus
 - bacteria:
 - *Campylobacter*
 - *Salmonella*
 - *Escherichia coli*
 - protozoa species:
 - *Giardia*
 - *cryptosporidium*
 - *Nagleria*
 - helminths, including *Ascaris lumbricoides*
- selecting pre- or post-treatment processes for removing the causes of nuisance and toxicity problems, including at least one of:
 - micro-straining

- algicides
- activated carbon
- ozone-biologically activated carbon (BAC)
- preparing reports on the optimum treatment for a range of microorganisms, including measures to ensure validity
- preparing and applying chemical dosing as required
- assessing process performance
- reviewing existing process barrier performance with reference to historical data, differences in raw water quality and plant configuration
- identifying data deficiencies and additional data collection through sampling and testing
- assessing fault reports and investigating current operational status of processes for microorganism removal
- investigating current and potential chemical addition practices
- planning trials to test the performance of the treatment optimisation options for microorganism removal
- preparing recommendation reports
- applying calculations to determine log removal values for physical barriers and contact time for disinfection
-

Knowledge Evidence

Evidence required to demonstrate competence must satisfy all of the requirements of the elements and performance criteria. If not otherwise specified the depth of knowledge demonstrated must be appropriate to the job context of the candidate.

- types, lifecycle, characteristics of waterborne microorganisms, including:
 - evolutionary development
 - source
 - structure
 - life cycle
 - growth rates and requirements
- nuisance problems caused by waterborne microorganisms
- toxicity and pathogenic problems caused by waterborne microorganisms, including:
 - typhoid
 - cholera
 - ascariasis
 - hepatitis
 - giardiasis
 - cryptosporidiosis
 - gastroenteritis
 - tuberculosis

- relevant legislation, standards and workplace policies and procedures relating directly to the control and treatment of waterborne microorganisms
- principles of water or re-use treatment processes
- log removal value concept for physical barriers
- Ct concept for disinfection
- properties and modes of action of disinfectants
- properties and modes of action for physical barriers
-

Assessment Conditions

Competency should be assessed in an actual workplace or in a simulated environment, with access to equipment and infrastructure appropriate to the outcome. Competency should be demonstrated over time to ensure the candidate is assessed across a variety of situations.

Some components of this unit require assessment in a workplace environment therefore the unit is not suitable for fully external or electronic based assessment.

Consideration must be given to holistic assessment for this unit. Refer to advice in the companion volumes.

Assessors must satisfy the NVR/AQTF mandatory competency requirements for assessors.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPTRT084 Assess and improve activated sludge and nutrient removal processes

Modification History

Release	Comments
1	This unit was released in NWP Water Training Package release 1.0 and meets the Standards for Training Packages. This unit supersedes and is equivalent to NWP412A Investigate and plan the optimisation of activated sludge processes. • Unit code updated • Content and formatting updated to comply with the new standards • All PC transitioned from passive to active voice • Unit title changed to better reflect unit outcomes • Elements 1 and 2 merged and all PC renumbered • Element 3 removed • One new Element added • PC 4.1 and 4.2 removed • PC 4.3 revised

Application

This unit describes the skills required to assess, evaluate system performance and investigate and report on the optimisation of activated sludge and nutrient removal treatment processes in maintaining water quality.

This unit applies to those working as technical staff with a specific responsibility for optimising activated sludge and nutrient removal treatment processes.

The skills and knowledge described in this unit must be applied within the legislative, regulatory and policy environment in which they are carried out. Organisational policies and procedures must be consulted and adhered to.

Those undertaking this unit would work under indirect supervision, performing complex tasks in a familiar context.

No licensing, legislative or certification requirements apply to unit at the time of publication.

Competency Field

Treatment

Elements and Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA
Elements describe the essential outcomes	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the range of conditions section.
1. Assess process	1.1 Review existing process performance data. 1.2 Review existing operational processes with reference to manufacturer and plant designer specifications. 1.3 Identify the impact of influent quality on treatment process. 1.4 Identify additional sampling and testing required for valid evaluation of current process performance. 1.5 Review existing fault reports and other relevant plant asset information. 1.6 Investigate the operational status of plant components.
2. Improve process	2.1 Investigate the cause of effluent quality issues. 2.2 Investigate the operational status of the wastewater treatment process. 2.3 Assess the effectiveness of process control strategies. 2.4 Identify treatment process conditions for optimising the growth of beneficial microorganisms.
3. Report on process	3.1 Compile report on current status. 3.2 Make recommendations on optimisation options.

Foundation Skills

The foundation skills demands of this unit have been mapped for alignment with the Australian Core Skills Framework (ACSF). The following tables outline the performance levels indicated for successful attainment of the unit.

ACSF levels indicative of performance:

1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Learning NA					Reading					Writing					Oral communication					Numeracy				

Performance variables:

1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Support					Context					Text complexity					Task complexity				

Further information on ACSF and the foundation skills underpinning this unit can be found in the Foundation Skills Guide on the GSA website.

Range of Conditions

Activated sludge processes include:	- sequencing batch reactors (SBR) - intermittent decant extended aeration (IDEA) - Bathurst Box - oxidation ditches
Nutrient removal processes include:	- biological nutrients removal - fermentation - pre-fermenters

Unit Mapping Information

This unit supersedes and is equivalent to NWP412A Investigate and plan the optimisation of activated sludge processes.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPTRT084 Assess and improve activated sludge and nutrient removal processes

Modification History

Release	Comments
1	These Assessment Requirements were released in NWP Water Training Package release 1.0 and meet the Standards for Training Packages. Assessment Requirements created drawing upon specified assessment information from superseded unit

Performance Evidence

Evidence required to demonstrate competence must satisfy all of the requirements of the elements and performance criteria. The candidate must be assessed preparing recommendation reports on at least one process listed in the Range of Conditions. If not otherwise specified the candidate must demonstrate evidence of performance of the following on at least one occasion.

- identifying wastewater microorganisms
- selecting measures to optimise the growth of beneficial microorganisms
- identifying a range of wastewater microorganisms, and their general characteristics and types of problems caused
- identifying effluent quality and selecting process control strategies to optimise the growth of beneficial microorganisms
- preparing reports outlining the optimum treatment for various microorganisms including measures to ensure validity
- performing various calculations to provide data for the analysis and development of options and solutions, including at least one of F:M ratio, MCRT
- return and wasting rates
- preparing and applying chemical dosing as required
- reviewing existing activated sludge or BNR treatment process performance with reference to historical data, differences in raw water quality and plant configuration
- identifying data deficiencies
- assessing fault reports and investigating the current operational status of activated sludge or BNR treatment process plant components
- investigating current and potential chemical addition practices
- planning trials to test the performance of the determined activated sludge or BNR treatment process optimisation options
- identifying the general characteristics of different types of microorganisms

- identifying wastewater characteristics that impact on microorganism growth
- identifying the problems caused by microorganisms in specific wastewater treatment processes

Knowledge Evidence

Evidence required to demonstrate competence must satisfy all of the requirements of the elements and performance criteria. If not otherwise specified the depth of knowledge demonstrated must be appropriate to the job context of the candidate.

- types, lifecycle, characteristics of wastewater microorganisms
- operational problems caused by wastewater microorganisms
- effluent quality problems caused by wastewater microorganisms
- properties and mode of action of chemical additives
- principles that form the basis of activated sludge treatment processes
- principles that form the basis of BNR-activated sludge treatment processes, including nitrification and de-nitrification, enhanced biological phosphorous removal
- types of activated sludge and BNR-activated sludge treatment processes
- activated sludge and BNR microbiology

Assessment Conditions

Competency should be assessed in an actual workplace or in a simulated environment, with access to equipment and infrastructure appropriate to the outcome. Competency should be demonstrated over time to ensure the candidate is assessed across a variety of situations.

Assessors must satisfy the NVR/AQTF mandatory competency requirements for assessors.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPTRT085 Assess and improve wastewater processes to control microbial impacts

Modification History

Release	Comments
1	This unit was released in NWP Water Training Package release 1.0 and meets the Standards for Training Packages. This unit supersedes and is equivalent to NWP414A Select strategies to control microbial impact on wastewater treatment processes. • Unit code updated • Content and formatting updated to comply with the new standards • All PC transitioned from passive to active voice • Unit title changed to better reflect unit outcomes • PC 2.3 revised

Application

This unit describes the skills required to identify wastewater microorganisms and select appropriate measures to optimise the growth of beneficial microorganisms.

This unit applies to those working as wastewater treatment operational specialists.

The skills and knowledge described in this unit must be applied within the legislative, regulatory and policy environment in which they are carried out. Organisational policies and procedures must be consulted and adhered to.

Those undertaking this unit would work autonomously, performing sophisticated tasks in a familiar context.

No licensing, legislative or certification requirements apply to unit at the time of publication.

Competency Field

Treatment

Elements and Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA
Elements describe the essential outcomes	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the range of conditions section.
1. Investigate wastewater microorganisms	1.1 Identify a range of typical wastewater microorganisms. 1.2 Identify the general characteristics of different types of microorganisms. 1.3 Identify wastewater characteristics that impact on microorganism growth. 1.4 Identify the problems caused by microorganisms in specific wastewater treatment processes.
2. Select strategies to optimise the growth of beneficial microorganisms	2.1 Investigate the cause of effluent quality issues. 2.2 Investigate the operational status of the wastewater treatment process. 2.3 Assess the effectiveness of various process control strategies to optimise the growth of beneficial microorganisms. 2.4 Select the most appropriate method.
3. Identify and report on appropriate process controls	3.1 Identify treatment process conditions for optimising the growth of beneficial microorganisms. 3.2 Report on appropriate treatment processes and associated sampling and testing requirements.

Foundation Skills

The foundation skills demands of this unit have been mapped for alignment with the Australian Core Skills Framework (ACSF). The following tables outline the performance levels indicated for successful attainment of the unit.

ACSF levels indicative of performance:

1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Learning					Reading					Writing					Oral communication NA					Numeracy NA				

Performance variables:

1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Support					Context					Text complexity					Task complexity				

Further information on ACSF and the foundation skills underpinning this unit can be found in the Foundation Skills Guide on the GSA website.

Unit Mapping Information

This unit supersedes and is equivalent to NWP414A Select strategies to control microbial impact on wastewater treatment processes.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

Assessment Requirements for NWPTRT085 Assess and improve wastewater processes to control microbial impacts

Modification History

Release	Comments
1	These Assessment Requirements were released in NWP Water Training Package release 1.0 and meet the Standards for Training Packages. • Assessment Requirements created drawing upon specified assessment information from superseded unit

Performance Evidence

Evidence required to demonstrate competence must satisfy all of the requirements of the elements and performance criteria. If not otherwise specified the candidate must demonstrate evidence of performance of the following on at least one occasion.

- interpreting a range of complex and technical documents, including:
 - regulatory, legislative, licensing and organisational requirements
 - codes and standards
 - specifications
 - organisational policies
- identifying wastewater microorganisms
- identifying a range of wastewater microorganisms, and their general characteristics and types of problems caused
- preparing reports outlining the optimum treatment for various microorganisms including measures to ensure validity

Knowledge Evidence

Evidence required to demonstrate competence must satisfy all of the requirements of the elements and performance criteria. If not otherwise specified the depth of knowledge demonstrated must be appropriate to the job context of the candidate.

- types, lifecycle, characteristics of wastewater microorganisms
- operational problems caused by wastewater microorganisms
- effluent quality problems caused by wastewater microorganisms
- relevant legislation, standards and workplace policies and procedures
- principles of wastewater treatment processes
- process control strategies

- properties and mode of action of chemical additives

Assessment Conditions

Competency should be assessed in an actual workplace or in a simulated environment, with access to equipment and infrastructure appropriate to the outcome. Competency should be demonstrated over time to ensure the candidate is assessed across a variety of situations.

Assessors must satisfy the NVR/AQTF mandatory competency requirements for assessors.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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NWPTRT093 Assess and improve anaerobic digestion processes

Modification History

Release	Comments
1	This unit was released in NWP Water Training Package release 1.0 and meets the Standards for Training Packages. This unit supersedes and is equivalent to NWP413A Investigate and plan the optimisation of anaerobic treatment processes. • Unit code updated • Content and formatting updated to comply with the new standards • All PC transitioned from passive to active voice • Unit title changed to better reflect unit outcomes • One new PC added to Element 2

Application

This unit describes the skills required to evaluate system performance and investigate and report on optimisation of anaerobic bioreactor processes.

This unit applies to those working as technical staff with a specific responsibility for optimising mixed, fixed and suspended media anaerobic bioreactor processes in wastewater treatment plants.

The skills and knowledge described in this unit must be applied within the legislative, regulatory and policy environment in which they are carried out. Organisational policies and procedures must be consulted and adhered to, particularly those related to measuring and testing, investigation and manufacturers' specifications.

Those undertaking this unit would work autonomously, performing sophisticated, tasks in a familiar context.

No licensing, legislative or certification requirements apply to unit at the time of publication.

Competency Field

Treatment

Elements and Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA
Elements describe the essential outcomes	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the range of conditions section.
1. Evaluate anaerobic treatment process performance	1.1 Review existing process performance data. 1.2 Review existing operational processes with reference to manufacturer and plant designer specifications. 1.3 Identify the impact of incoming feed quality on anaerobic treatment processes. 1.4 Identify and coordinate any additional sampling and testing required for valid evaluation of current process performance.
2. Investigate anaerobic treatment plant configuration	2.1 Review existing fault reports and other relevant plant asset information. 2.2 Investigate the operational status of plant components with reference to manufacturers' or plant designers' specifications. 2.3 Carry out investigations to identify potential deficiencies.
3. Investigate the operational options for process optimisation	3.1 Review relevant fault and incident reports and remedial actions taken. 3.2 Investigate potential changes to operational processes to identify possible optimisation strategies.
4. Develop and record a plan for process optimisation	4.1 Determine plant configuration and revised operational processes for process optimisation. 4.2 Plan a trial to test the performance of the determined optimisation options. 4.3 Compile a report making recommendations on optimisation options.

Foundation Skills

The foundation skills demands of this unit have been mapped for alignment with the Australian Core Skills Framework (ACSF). The following tables outline the performance levels indicated for successful attainment of the unit.

ACSF levels indicative of performance:

1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Learning NA					Reading					Writing					Oral communication					Numeracy				

Performance variables:

1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Support					Context					Text complexity					Task complexity				

Further information on ACSF and the foundation skills underpinning this unit can be found in the Foundation Skills Guide on the GSA website.

Unit Mapping Information

This unit supersedes and is equivalent to NWP413A Investigate and plan the optimisation of anaerobic treatment processes.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

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Assessment Requirements for NWPTRT093 Assess and improve anaerobic digestion processes

Modification History

Release	Comments
1	These Assessment Requirements were released in NWP Water Training Package release 1.0 and meet the Standards for Training Packages. Assessment Requirements created drawing upon specified assessment information from superseded unit

Performance Evidence

Evidence required to demonstrate competence must satisfy all of the requirements of the elements and performance criteria. If not otherwise specified the candidate must demonstrate evidence of performance of the following on at least one occasion.

- coordinating anaerobic treatment process inspection, sampling and testing, including the following tests:
 - chemical oxygen demand (COD)
 - temperature
 - macro nutrients, including nitrogen or phosphorus
 - micro nutrients, including cobalt or iron
 - settling tests
 - pH
 - redox potential
 - volatile fatty acids
 - alkalinity
 - gas analysis
 - solids
- performing mathematical calculations to provide data for the analysis and development of options and solutions, including at least one of:
 - COD removal
 - volatile solids reductions
 - solids retention time
- interpreting a range of complex and technical documents, including at least one of:
 - regulatory, legislative, licensing and organisational requirements
 - codes and standards

- specifications
- organisational policies
- evaluating system performance
- reviewing existing anaerobic treatment process performance with reference to historical data, differences in feed water quality and plant configuration
- identifying data deficiencies and organising additional data collection through appropriate sampling and testing
- assessing fault reports and investigating the current operational status of anaerobic treatment process plant components
- investigating current and potential chemical addition practices
- planning trials to test the performance of the determined anaerobic treatment process optimisation options:
 - recirculation rates
 - addition of nutrients
 - temperature
 - pre-treatment to remove inhibitory or toxic substances
 - alkalinity and pH correction
 - flow or feed rate
 - mixing rate
 - sludge wastage rate
- preparing reports with recommendations

Knowledge Evidence

Evidence required to demonstrate competence must satisfy all of the requirements of the elements and performance criteria. If not otherwise specified the depth of knowledge demonstrated must be appropriate to the job context of the candidate.

- principles that form the basis of anaerobic treatment processes including:
 - design parameters:
 - organic loading rate
 - solids retention time
 - hydraulic loading rate
 - temperature
 - mixing strategy
 - volatile solids reduction
 - recycle flow rates
 - detention time
 - chemical oxygen demand (COD) removal
 - volatile fatty acids to alkalinity ratio
 - intended plant configuration
 - feed water quality:

- chemical oxygen demand (COD)
- nutrients
- pH and alkalinity
- total and suspended solids
- salt
- inhibitory compounds
- temperature
- types of anaerobic treatment processes including:
 - up flow anaerobic sludge blanket reactors (UASB)
 - fluidised bed reactors
 - anaerobic digesters
 - high rate anaerobic lagoons (HRAL)
 - bulk volume fermenters (BVF)
- anaerobic microbiology
- pH
- VFA: alkalinity ratio
- nutrient requirements – macro and micro
- gas production and characterisation
- inhibitory substances
- system layout
- principles of anaerobic system maintenance
- range of appropriate procedures (measuring and testing, investigation)
- risk management principles relating to anaerobic treatment processes
- chemical and nutrient dosing processes
-

Assessment Conditions

Competency should be assessed in an actual workplace or in a simulated environment, with access to equipment and infrastructure appropriate to the outcome. Competency should be demonstrated over time to ensure the candidate is assessed across a variety of situations.

Consideration must be given to holistic assessment for this unit. Refer to advice in the companion volumes.

Assessors must satisfy the NVR/AQTF mandatory competency requirements for assessors.

Links

Companion Volume implementation guides are found in VETNet -
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PMAOMIR512 Establish incident response preparedness and response systems

Modification History

Release 1. Supersedes and is equivalent to PMAOMIR512B Establish incident response preparedness and response systems

Application

This unit of competency covers the skills and knowledge required to develop and establish incident response preparedness and response systems.

An incident is an event which causes, or could have caused, injury or illness; damage to plant, material or the environment; disruption to production or public alarm.

An incident is an unintended event, or an unintended consequence of an intended event, such as:

- fire and explosion
- loss of containment
- excursions above/below acceptable limits for emissions or plant conditions
- excursions above occupational hygiene or biological exposure limits
- non-compliance with regulatory requirements
- security breaches
- failure to follow procedures
- complaints
- vehicle incidents
- on/off-site incidents.

This unit of competency applies to incident management team members who are required to gather strategic operational and risk information, seek input from stakeholders and specialist services, as required, and translate that into a framework of management and operational systems which enable organisation personnel to effectively prepare for and respond to an incident.

This unit of competency applies to an individual working alone or as part of an incident management team and working in liaison with other members of the incident management team and the incident manager, as appropriate.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Nil

Competency Field

Incident readiness and response

Unit Sector

Elements and Performance Criteria

Elements describe the essential outcomes.

Performance criteria describe the performance needed to demonstrate achievement of the element.

1	Clarify the requirements for incident preparedness and response systems	1.1	Access, interpret and clarify the legislative and statutory requirements and standards related to incident preparedness and response systems
		1.2	Access, interpret and clarify the site requirements relating to systematic analysis of hazards, technical and operational information
		1.3	Consult and collaborate with relevant stakeholders, specialists and emergency services, as necessary and in accordance with legislative requirements
2	Design incident response plans and systems	2.1	Develop an organisational structure for the management of incident preparedness and response from an analysis of relevant technical and operational information
		2.2	Establish incident response procedures for management of decision-making processes and decision monitoring systems
		2.3	Develop incident response procedures for the containment of various types of incidents from an analysis of relevant technical and operational information
		2.4	Identify and develop required management and operational systems to support incident preparedness and

		response in compliance with legislative and site requirements
	2.5	Build processes for evaluation into the plan and system and comply with legislative requirements and/or special site needs
	2.6	Ensure all aspects of the plan are consistent with commitments to health, safety and environment (HSE)
	2.7	Review the plan and systems in conjunction with relevant stakeholders and specialists
3	Manage the implementation of the incident preparedness plan and response systems	3.1 Document and disseminate plans and systems to the appropriate personnel 3.2 Identify required services, personnel, equipment and resources for various types of incidents 3.3 Ensure arrangements are made to ensure required services, personnel, equipment and resources are ready for immediate mobilisation/deployment
4	Ensure periodic and timely evaluation of the incident preparedness plans and response systems	4.1 Encourage, receive and review suggestions and recommendations for changes to incident preparedness plans and response systems and, where appropriate, assist with implementation 4.2 Initiate and conduct evaluations as prescribed by the plan and in accordance with commitment to HSE and legislative requirements

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance.

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

This field allows for different work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included.

Regulatory framework

The latest version of all legislation, regulations, industry codes of practice and Australian/international standards, or the version specified by the local regulatory authority, must be used, and include one or more of the following:

- legislative requirements, including work health and safety (WHS)
- industry codes of practice and guidelines
- environmental regulations and guidelines
- Australian and other standards
- licence and certification requirements

All operations to which this unit applies are subject to stringent health, safety and environment (HSE) requirements, which may be imposed through state/territory or federal legislation, and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and HSE requirements, the HSE requirements take precedence.

Duty of care responsibilities under general work health and safety (WHS) Acts and regulations and state/territory and national standards applying to hazardous substances, dangerous goods and major hazards must be met.

Management and operational systems

Management and operational systems to support incident preparedness and response include one or more of the following:

- evacuation
- emergency operations structure
- communications
- information management
- documentation and reporting requirements
- resource management
- training
- audit and review system
- financial management
- post incident actions

Procedures

All operations must be performed in accordance with relevant procedures.

Procedures are written, verbal, visual, computer-based or in some other form, and include one or more of the following:

- emergency procedures
- work instructions
- standard operating procedures (SOPs)
- safe work method statements (SWMS)
- formulas/recipes
- batch sheets
- temporary instructions
- any similar instructions provided for the smooth running of the plant

Incident response

Incident response includes one or more of the following:

- deployment of site incident response personnel
- containing/controlling the incident at source and or its spread
- search and rescue operations
- engagement of external emergency services (such as fire, ambulance, rescue and military)
- liaison with other agencies (such as environmental, clean-up and specialised troubleshooters)
- evacuation
- hazard control

Incident response actions must:

- be in accordance with and relevant organisation procedures
- use appropriate response equipment, where required
- prioritise the safety and/or successful recovery of personnel and others affected by the incident response
- **not** inhibit effectiveness of the incident response or further contribute to the incident

Specialist services

Specialist services appropriate to the management and operational systems must be consulted. Specialist services include one or more of the following:

- fire brigade
- ambulance
- medical services
- local emergency management organisations
- media

- security services
- solicitors
- engineers
- scientists

Unit Mapping Information

Release 1. Supersedes and is equivalent to PMAOMIR512B Establish incident response preparedness and response systems

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=9fc2cf53-e570-4e9f-ad6a-b228ffdb6875>

Assessment Requirements for PMAOMIR512 Establish incident response preparedness and response systems

Modification History

Release 1. Supersedes and is equivalent to PMAOMIR512B Establish incident response preparedness and response systems

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy the requirements of the elements and performance criteria, and include the ability to:

- collect and analyse information to identify organisation and legislative requirements for incident response and related systems
- communicate and consult with internal and external stakeholders and relevant specialist services
- facilitate and manage the development, introduction and operation of incident response and related systems
- facilitate evaluation of the systems (and make recommendations for improvements/implement improvements)
- write strategies, tactics and procedures
- develop containment strategies.

Knowledge Evidence

Evidence must be provided that demonstrates knowledge of:

- regulatory framework and specific compliance requirements that apply to the organisation
- organisational procedures, including those covering:
 - safety, hazards and hazard control
 - incident, fire and accident
 - environmental protection
 - risk assessment/risk management
 - relevant facility fire management and safety systems
 - communication systems
 - emergency response plans
 - release of information to external bodies
- types of incidents that can arise in the work environment and related risks, responses and equipment
- the role of stakeholders and specialists
- incident response and disaster planning processes and techniques
- incident resources and how to access them

- hazard identification and control methods and procedures
- risk management principles and techniques
- structure, roles, capabilities and operational limitations of external resources and agencies
- rescue techniques
- intervention and control techniques for heating, fires and explosions
- insurance policies and considerations
- economic impact and considerations.

Assessment Conditions

- The unit should be assessed holistically and the judgement of competence based on a holistic assessment of the evidence.
- Performance evidence must include the development of containment strategies for at least two (2) different types of incident, the collection of which is best done from a report and/or folio of evidence drawn from:
 - a single project which provides sufficient evidence of the requirements of all the elements and performance criteria
 - multiple smaller projects which together provide sufficient evidence of the requirements of all the elements and performance criteria.
- A third-party report, or similar, may be needed to testify to the work done by the individual, particularly when the project has been done as part of a project team.
- Assessment should use a real project in an operational workplace. Where this is not possible or practical, assessment must occur using a sufficiently rigorous simulated environment reflecting realistic operational workplace conditions. This must cover all aspects of workplace performance, including environment, task skills, task management skills, contingency management skills and job role environment skills.
- Knowledge evidence may be collected concurrently with performance evidence (provided a record is kept) or through an independent process, such as workbooks, written assessments or interviews (provided a record is kept).
- Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.
- Conditions for assessment must include access to all tools, equipment, materials and documentation required, including relevant workplace procedures, product and manufacturing specifications associated with this unit.
- Foundation skills are integral to competent performance of the unit and should not be assessed separately.
- Assessors must satisfy the assessor competency requirements that are in place at the time of the assessment as set by the VET regulator.
- In addition, the assessor or anyone acting in subject matter expert role in assessment must demonstrate both technical competency and currency. If the assessor cannot demonstrate technical competency and currency they must assess with a subject matter expert who does meet these requirements.
- Technical competence can be demonstrated through one or more of:
 - relevant VET or other qualification/Statement of Attainment

- appropriate workplace experience undertaking the type of work being assessed under routine and non-routine conditions
- appropriate workplace experience supervising/evaluating the type of work being assessed under routine and non-routine conditions
- Currency can be demonstrated through one or more of:
 - being currently employed undertaking the type of work being assessed
 - being employed by the organisation undertaking the type of work being assessed and having maintained currency in accordance with that organisation's policies and procedures
 - having consulted/had contact with an organisation undertaking the type of work being assessed within the last twelve months, the consultation/contact being related to assessment
 - conducting on-the-job training/assessments of the type of work being assessed

being an active member of a relevant professional body and participating in activities relevant to the assessment of this type of work

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=9fc2cf53-e570-4e9f-ad6a-b228ffdb6875>

PMAOPS330 Communicate and monitor pipeline activities

Modification History

Release 1. Supersedes and is equivalent to PMAOPS330B Communicate and monitor pipeline activities

Application

This unit of competency covers the skills and knowledge required to gather and relay information about pipeline activities from the pipeline control centre.

This unit of competency includes all such items of equipment and unit operations which form part of the pipeline control system, including as appropriate to the facility:

- radio communications equipment, email, fax and telephones
- heaters, furnaces and exchangers
- station instrumentation/metering equipment
- condition monitoring equipment
- process control equipment
- gas quality and analysis equipment
- valves, actuators and flanges
- piping systems
- pressure vessels/filtration equipment
- compressors and prime movers
- cathodic protection systems.

This unit of competency applies to operations technicians who are required to demonstrate a significant understanding of pipeline operations in order to monitor flows, pressures and temperatures in the field; direct field operators to check and maintain pipeline operations; and communicate with field personnel, suppliers and customers to maintain the safe and efficient operation of the pipeline.

This unit of competency applies to an individual operating independently in a plant with local control or in liaison with the control room operator in a plant with a centralised control panel, such as distributed control system (DCS) type controls. In the case of large complex plant, the operations technician would be part of a team during start-up and shutdown procedures.

This unit of competency applies to an individual working alone or as part of a team or group and working in liaison with other shift team members and the control room operator, as appropriate. They may also be communicating with customers.

This unit of competency reflects relevant aspects of the Australian Standard AS 2885.3-2012 *Pipelines - Gas and liquid petroleum - Operation and maintenance*.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Nil

Competency Field

Operations

Unit Sector

Elements and Performance Criteria

Elements describe the essential outcomes.

Performance criteria describe the performance needed to demonstrate achievement of the element.

1	Gather information about pipeline operation needs	1.1	Respond to and record messages and information received from field operations and pipeline system stations
		1.2	Interpret and acknowledge alarm codes correctly to ensure the correct response strategy is selected and applied to the situation
		1.3	Clarify additional information needs and select an appropriate communication medium to deliver the information required
		1.4	Improve operational efficiency through adequate and timely application of information provided
		1.5	Interpret and action customer/shipper gas forecasts to ensure correct gas flow rates into the pipeline system are achieved
2	Communicate pipeline	2.1	Monitor activities of pipeline personnel in the field and data from the control centre

	information	2.2	Evaluate internal messages and response communications concerning system alarms/incidents to establish the scope and severity of the alarm/ incident
		2.3	Convey pipeline system operation information to relevant personnel in other work areas to ensure safe and efficient operation of the pipeline system
		2.4	Relay information to technicians and other services/parties so that fault-finding or safety checks can be conducted to identify risks to product supply, pipeline equipment, environment and personnel
		2.5	Authorise, record and monitor permits to work to allow operational activities to be undertaken or cancelled
3	Coordinate pipeline systems operations	3.1	Monitor field and pipeline station operations data
		3.2	Monitor and observe equipment operating conditions, pressures and temperatures, and maintain correct equipment operating parameters
		3.3	Identify faults and initiate the required repair or reporting of the fault
		3.4	Isolate identified faults in the pipeline as appropriate
		3.5	Respond to system alarms and emergencies
		3.6	Determine the required course of action or emergency response to the identified system condition/ emergency
		3.7	Complete and document pre-shutdown checks
		3.8	Shut down the pipeline system under either normal or emergency conditions in accordance with operating procedures
		3.9	Confirm all identified maintenance is in compliance with the permit to work system and administer to ensure that all work complies with all issued permits
4	Record and report	4.1	Record and monitor field personnel movements to ensure the safety of all personnel in the field

- 4.2 Report safety and environmental risks or faulty equipment to designated personnel for further action or advice concerning the selection of the appropriate response or course of action
 - 4.3 Interpret and maintain field inspection records and reports
 - 4.4 Complete operations and production reports
 - 4.5 Perform shift handover procedures
- 5 **Control hazards**
 - 5.1 Identify hazards in work area
 - 5.2 Assess the risks arising from those hazards
 - 5.3 Implement measures to control those risks in line with procedures and duty of care
- 6 **Resolve problems**
 - 6.1 Identify possible problems in equipment or process
 - 6.2 Determine problems needing action
 - 6.3 Determine possible fault causes
 - 6.4 Rectify problem using appropriate solution within area of responsibility
 - 6.5 Follow up items initiated until final resolution has occurred
 - 6.6 Report problems outside area of responsibility to designated person

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance.

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

This field allows for different work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included.

Regulatory framework The latest version of all legislation, regulations, industry codes of practice and Australian/international standards, or the version specified by the local regulatory authority, must be used, and include one or more of the following:

- legislative requirements, including work health and safety (WHS)
- industry codes of practice and guidelines
- environmental regulations and guidelines
- Australian and other standards
- licence and certification requirements

All operations to which this unit applies are subject to stringent health, safety and environment (HSE) requirements, which may be imposed through state/territory or federal legislation, and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and HSE requirements, the HSE requirements take precedence.

Hazards Hazards include one or more of the following:

- electricity
- gas
- gases and liquids under pressure
- structural hazards
- structural collapse
- equipment failures
- industrial (machinery, equipment and product)
- equipment or product mass
- noise, rotational equipment or vibration
- plant services (steam, condensate and cooling water)
- working at heights, in restricted or confined spaces, or in environments subjected to heat, noise, dusts or vapours
- flammability and explosivity
- hazardous products and materials
- unauthorised personnel
- sharp edges, protrusions or obstructions
- slippery surfaces, spills or leaks
- extreme weather
- other hazards that might arise

Routine problems

Routine problems are predictable, will have solutions in the procedures and include one or more of:

- communications disruptions
- corrosion/hydrate formation
- variations in flow temperature and/or pressure
- failures of piping, valves or flanges
- pipeline leakages

Non-routine problems

Non-routine problems are unexpected problems, or variations of previous problems and must be resolved by applying operational knowledge to develop new solutions, either individually or in collaboration with relevant experts, to:

- determine problems needing action
- determine possible fault causes
- develop solutions to problems which do not have a known solution
- follow through items initiated until final resolution has occurred
- report problems outside area of responsibility to designated person

Operational knowledge includes one or more of the following:

- procedures
- training
- technical information such as journals, engineering specifications
- remembered experience
- relevant knowledge obtained from appropriate people

Procedures

All operations must be performed in accordance with relevant procedures.

Procedures are written, verbal, visual, computer-based or in some other form, include one or more of the following:

- emergency procedures
- work instructions
- standard operating procedures (SOPs)
- safe work method statements (SWMS)
- formulas/recipes
- batch sheets
- temporary instructions
- any similar instructions provided for the smooth running of the plant

Unit Mapping Information

Release 1. Supersedes and is equivalent to PMAOPS330B Communicate and monitor pipeline activities

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=9fc2cf53-e570-4e9f-ad6a-b228ffdb6875>

Assessment Requirements for PMAOPS330 Communicate and monitor pipeline activities

Modification History

Release 1. Supersedes and is equivalent to PMAOPS330B Communicate and monitor pipeline activities

Performance Evidence

- Evidence required to demonstrate competence in this unit must be relevant to and satisfy the requirements of the elements and performance criteria, and include the ability to:
- use data, communications and observations to monitor plant and maximise performance
- interpret information, decide on appropriate action and convey required action to others
- identify early warning signs of equipment/processes needing attention or with potential problems
- resolve non-routine problems
- identify hazards and risks and apply risk control procedures
- communicate effectively with team/workgroup, supervisors and other personnel
- identify and communicate information required by others

complete written records.

Knowledge Evidence

Evidence must be provided that demonstrates knowledge of:

- all items on a schematic) of the production unit and functions of each
- principles of operation of plant/equipment, pipeline system functions within the design parameters and design philosophy
- interactions between plant items/processes
- systems' operating parameters, integrity limits, product specifications and tolerances, temperature, pressure and flow
- process information schemata of the pipeline system and associated facilities
- architecture of the pipeline system
- gas quality/analysis equipment operation
- safety data sheets (SDS) information
- emergency shutdown procedures
- function and troubleshooting of major components and their problems
- hierarchy of control
- hazards that may arise in the job/work environment, and:
 - their possible causes
 - potential consequences

- appropriate risk controls.

Assessment Conditions

- The unit should be assessed holistically and the judgement of competence based on a holistic assessment of the evidence.
- The collection of performance evidence:
 - should occur over a range of situations which include typical disruptions to normal, smooth operations
 - will typically include a supervisor/third-party report focusing on consistent performance and problem recognition and solving. A supervisor/third-party report must be prepared by someone who has a direct, relevant, current relationship with the person being assessed and who is in a position to form a judgement on workplace performance relevant to the unit of competency
 - must include the use of appropriate tools, equipment and safety gear requiring demonstration of preparation, operation, completion and responding to problems
 - may use industry-based simulation for all or part of the unit particularly where safety, lack of opportunity or significant cost is an issue.
- Assessment should occur in operational workplace situations. Where this is not possible, or where personal safety or environmental damage are limiting factors, assessment must occur in a sufficiently rigorous simulated environment reflecting realistic operational workplace conditions. This must cover all aspects of workplace performance, including environment, task skills, task management skills, contingency management skills and job role environment skills.
- Assessment in a simulated environment should use evidence collected from one or more of:
 - walk-throughs
 - pilot plant operation
 - demonstration of skills
 - industry-based case studies/scenarios
 - 'what ifs'.
- Knowledge evidence may be collected concurrently with performance evidence (provided a record is kept) or through an independent process, such as workbooks, written assessments or interviews (provided a record is kept).
- Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.
- Conditions for assessment must include access to all tools, equipment, materials and documentation required, including relevant workplace procedures, product and manufacturing specifications associated with this unit.
- The regulatory framework will be reflected in workplace policies and procedures and is not required to be independently assessed.
- Foundation skills are integral to competent performance of the unit and should not be assessed separately.
- Assessors must satisfy the assessor competency requirements that are in place at the time of the assessment as set by the VET regulator.

- In addition, the assessor or anyone acting in subject matter expert role in assessment must demonstrate both technical competency and currency. If the assessor cannot demonstrate technical competency and currency they must assess with a subject matter expert who does meet these requirements.
- Technical competence can be demonstrated through one or more of:
 - relevant VET or other qualification/Statement of Attainment
 - appropriate workplace experience undertaking the type of work being assessed under routine and non-routine conditions
 - appropriate workplace experience supervising/evaluating the type of work being assessed under routine and non-routine conditions
- Currency can be demonstrated through one or more of:
 - being currently employed undertaking the type of work being assessed
 - being employed by the organisation undertaking the type of work being assessed and having maintained currency in accordance with that organisation's policies and procedures
 - having consulted/had contact with an organisation undertaking the type of work being assessed within the last twelve months, the consultation/contact being related to assessment
 - conducting on-the-job training/assessments of the type of work being assessed
 - being an active member of a relevant professional body and participating in activities relevant to the assessment of this type of work.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=9fc2cf53-e570-4e9f-ad6a-b228ffdb6875>

PMBWELD301 Butt weld polyethylene plastic pipelines

Modification History

Release 1. Supersedes and is equivalent to PMBWELD301B Butt weld polyethylene plastic pipelines

Application

This unit of competency covers the skills and knowledge required to butt weld polyethylene (PE) plastic pipelines. It applies to welding undertaken in the field and in factory conditions. Pipelines may be for transmission of gas or liquids.

This unit of competency applies to experienced operators who are required to calculate appropriate welding parameters to be used, set up equipment, perform butt weld, assess joints against specifications and solve problems within area of responsibility.

This unit of competency applies to an experienced operator demonstrating theoretical and technical knowledge and well developed skills in situations that require some discretion and judgement. The operator may work alone or as a member of a team or group and will work in liaison with other shift team members, team leader and supervisor, as appropriate.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Nil

Competency Field

Welding

Unit Sector

Not applicable

Elements and Performance Criteria

Elements describe the essential outcomes.

Performance criteria describe the performance needed to demonstrate achievement of the element.

1	Identify materials as being compatible for welding	1.1	Identify materials as polyethylene (PE) from specifications and work site instructions
		1.2	Identify PE materials and pipes supplied as being compatible for welding from specifications
2	Calculate appropriate pipe welding parameters	2.1	Identify welding machine type and operating data
		2.2	Identify pipe materials and dimensions
		2.3	Perform welding parameter calculations for individual welding machines and pipe details
		2.4	Prepare field operational sheets as per enterprise requirements
3	Maintain and calibrate welding equipment	3.1	Set up welding equipment and work area
		3.2	Ensure safety equipment is available and operational
		3.3	Identify non-conformance, report and rectify
		3.4	Check operation and calibrate where required, heating, trimming, and pressure systems
4	Perform welding to required standard	4.1	Assemble pipeline components in welding machine
		4.2	Clean, align and trim pipe ends
		4.3	Perform heating, welding, and cooling phases using calculated welding parameters
		4.4	Monitor and record achieved weld parameters for each joint according to enterprise requirements
		4.5	Clean up equipment when completed according to enterprise procedures
		4.6	Clean up work site, dispose of scrap materials according to enterprise procedures
		4.7	Use personal protective equipment (PPE) according to enterprise requirements

5	Assess quality of completed joints	5.1	Identify quality requirements for joints
		5.2	Assess joints against specification requirements, and report results
		5.3	Identify and report non-conformances according to enterprise requirements

Foundation Skills

This section describes those required skills (language, literacy and numeracy) that are essential to performance.

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

This field allows for different work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included.

Regulatory framework The latest version of all legislation, regulations, industry codes of practice and Australian/international standards, or the version specified by the local regulatory authority, must be used.

Applicable legislation, regulations, standards and codes of practice include:

- health, safety and environmental (HSE) legislation, regulations and codes of practice relevant to the workplace, manual handling and hazardous materials
- Australian/international standards relevant to the materials being used and products being made, including one or more of:
 - AS/NZS 4130:2009 Polyethylene (PE) pipes for pressure applications, or its replacement
 - AS/NZS 4131:2010 Polyethylene (PE) compounds for pressure pipes and fittings, or its replacement
 - AS/NZS 4401:2006 Plastics piping systems for soil and waste discharge (low and high temperature) inside buildings - Polyethylene (PE), or its replacement
 - AS/NZS 5065:2005 Polyethylene and polypropylene pipes and fittings for drainage and sewerage applications, or its replacement

- ISO 21307:2011 Plastics pipes and fittings -- Butt fusion jointing procedures for polyethylene (PE) pipes and fittings used in the construction of gas and water distribution systems or its replacement
- any relevant licence and certification requirements.

All operations to which this unit applies are subject to stringent HSE requirements, which may be imposed through state/territory or federal legislation, and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and such requirements the legislative requirements take precedence.

Procedures All operations must be performed in accordance with relevant procedures.

Procedures are written, verbal, visual, computer-based or in some other form, and include one or any combination of:

- emergency procedures
- work instructions
- standard operating procedures (SOPs)
- safe work method statements (SWMS)
- formulas/recipes
- batch sheets
- temporary instructions
- any similar instructions provided for the smooth running of the plant.

Tools and equipment

Tools and equipment include:

- hydraulic activated butt welding machines
- pipe supports
- measurement devices, including one or more of:
 - pressure gauges
 - timers
 - temperature probes
 - callipers
 - computer-based pressure/temperature monitors
- cleaning equipment
- spray equipment.

Additional tools and equipment will be selected as required from:

- hand tools used in this process

- hoists/lifting equipment not requiring any special permits or licences
- manual handling, aids such as hand carts and trolleys
- relevant PPE.

Hazards

Hazards must be identified and controlled. Identifying hazards requires consideration of:

- power tools, leads and power supplies
- hazardous products and materials
- cutting equipment
- sharp edges, swarf and scrap
- protrusions or obstructions
- slippery surfaces, spills or leaks
- rotational equipment or vibration
- smoke, dust, vapours or other atmospheric hazards
- high temperatures
- electricity
- gas
- gases and liquids under pressure
- structural hazards
- equipment failures
- machinery, equipment and product mass
- other hazards that might arise.

Problems

Routine and non-routine problems must be resolved.

Non-routine problems must be resolved by applying operational knowledge to develop new solutions, either individually or in collaboration with relevant experts, to:

- determine problems needing action
- determine possible fault causes
- develop solutions to problems which do not have a known solution
- follow through items initiated until final resolution has occurred
- report problems outside area of responsibility to designated person.

Non-routine problems are unexpected problems or variations of previous problems and include one or more of:

- variations in quality
- emergency situations
- intermittent faults.

Operational knowledge includes one or more of:

- procedures
- training
- technical information, such as journals and engineering specifications
- remembered experience
- relevant knowledge obtained from appropriate people.

Routine problems are predictable and have known solutions and include one or more of:

- variable PE materials and pipes as supplied
- equipment malfunction or wear and tear
- variable field site conditions.

Unit Mapping Information

Release 1. Supersedes and is equivalent to PMBWELD301B Butt weld polyethylene plastic pipelines

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=932aacef-7947-4c80-acc6-593719fe4090>

Assessment Requirements for PMBWELD301 Butt weld polyethylene plastic pipelines

Modification History

Release 1. Supersedes and is equivalent to PMBWELD301B Butt weld polyethylene plastic pipelines

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy the requirements of the elements and performance criteria and demonstrate the ability to:

- read and interpret designs, plans, patterns, procedures, job specifications, instruments/control panels, material labels and safety data sheets (SDS)
- plan the welding process and sequence tasks
- use mathematics to calculate welding parameters
- set up butt welding equipment and materials/components to meet specifications
- operate the equipment to weld the materials
- monitor key variables, including:
 - temperature
 - pressure
 - alignment
 - colour and uniformity
 - surface finish/appearance
 - tolerance for weld/joint
 - consistency of weld
 - product output rate
 - mechanical strength of weld (e.g. tensile strength results)
 - product integrity and general conformance to specification
- make adjustments to remedy faults and nonconformity
- maintain output and product quality using appropriate instruments, controls, test information and readings
- calibrate equipment according to procedures
- identify hazards and apply relevant hazard controls
- apply safety procedures
- apply housekeeping procedures
- apply waste management procedures
- recognise early warning signs of equipment/processes needing attention or with potential problems
- distinguish between causes of problems, including:
 - operational problems

- instrument failure/malfunction
- electrical failure/malfunction
- mechanical failure/malfunction
- wrong readings
- equipment design deficiencies
- materials properties
- process variables
- raw material variations/contamination
- process abnormalities
- procedural errors
- recognise and prioritise problems requiring action
- resolve routine and non-routine problems
- communicate effectively with team/work group and supervisors
- complete workplace records.

Knowledge Evidence

Must provide evidence that demonstrates knowledge relevant to their job sufficient to operate independently and to solve routine and non-routine problems, including knowledge of:

- function and operating principles of butt welding equipment, components and ancillary equipment
- types and application of butt welding processes and their effect on the welded product
- impact of variations in welding process variables and raw materials on product quality and production output
- factors which may affect product quality or production output and appropriate remedies
- characteristics of materials and their behaviour in relation to welding process variables and stages of production
- quality requirements at each production stage
- common adjustments in process variables and their impact on product quality and production output
- impact of variations in raw materials and equipment operation in relation to final product
- possible changes to materials properties to better suit specific process requirements
- routine and non-routine problems that may arise, the range of possible causes and appropriate actions
- organisation procedures relevant to the work environment/job role
- hierarchy of control
- hazards that may arise in the job/work environment and:
 - their possible causes
 - potential consequences
 - appropriate risk controls.

Assessment Conditions

- The unit should be assessed holistically and the judgement of competence shall be based on a holistic assessment of the evidence.
- In all plants it may be appropriate to assess this unit concurrently with units such as:
 - teamwork
 - communication.
- Where the assessee does not currently possess evidence of competency in *PMBPROD287 Weld plastics materials*, it may be co-assessed with this unit.
- The collection of performance evidence:
 - should occur over a range of situations which include typical disruptions to normal, smooth operation of an operating plant
 - will typically include a supervisor/third-party report or other evidence, focusing on consistent performance and problem recognition and solving. A supervisor/third-party report must be prepared by someone who has a direct, relevant, current relationship with the person being assessed and who is in a position to form a judgement on workplace performance relevant to the unit of competency
 - must include the use of an appropriate industrial item of equipment requiring demonstration of operation, start and stop procedures and responding to problems
 - may use industry-based simulation for all or part of the unit particularly where safety, lack of opportunity or significant cost is an issue.
- Assessment should occur in operational workplace situations. Where this is not possible or where personal safety or environmental damage are limiting factors assessment must occur in a sufficiently rigorous simulated environment that reflects realistic operational workplace conditions. This must cover all aspects of workplace performance, including environment, task skills, task management skills, contingency management skills and job role environment skills.
- Assessment in a simulated environment should use evidence collected from demonstration of skills and one or more of:
 - walk-throughs
 - pilot plant operation
 - industry-based case studies/scenarios
 - ‘what ifs’.
- Knowledge evidence may be collected concurrently with performance evidence or through an independent process, such as workbooks, written assessments or interviews.
- Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.
- Conditions for assessment must include access to all tools, equipment, materials and documentation required, including relevant workplace procedures, product and manufacturing specifications associated with this unit.
- The regulatory framework will be reflected in workplace policies and procedures and is not required to be independently assessed.
- Foundation skills are integral to competent performance of the unit and should not be assessed separately.

- Assessors must satisfy the assessor competency requirements that are in place at the time of the assessment as set by the VET regulator.
- In addition the assessor or anyone acting in subject matter expert role in assessment shall demonstrate both technical competency and currency. If the assessor cannot demonstrate technical competency and currency they shall assess with a subject matter expert who does meet these requirements.
- Technical competence can be demonstrated through one or more of:
 - relevant VET or other qualification/Statement of Attainment
 - appropriate workplace experience undertaking the type of work being assessed under routine and non-routine conditions
 - appropriate workplace experience supervising/evaluating the type of work being assessed under routine and non-routine conditions
- Currency can be demonstrated through one or more of:
 - being currently employed undertaking the type of work being assessed
 - being employed by the organisation undertaking the type of work being assessed and having maintained currency in accordance with that organisation's policies and procedures
 - having consulted/had contact with an organisation undertaking the type of work being assessed within the last twelve months, the consultation/contact being related to assessment
 - conducting on the job training/assessments of the type of work being assessed
 - being an active member of a relevant professional body and participating in activities relevant to the assessment of this type of work.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=932aacef-7947-4c80-acc6-593719fe4090>

PMBWELD302 Electrofusion weld polyethylene pipelines

Modification History

Release 1. Supersedes and is equivalent to PMBWELD302B Electrofusion weld polyethylene pipelines

Application

This unit of competency covers the skills and knowledge required to weld polyethylene (PE) plastic pipes using electrofusion. It applies to welding of pipes and pipelines undertaken in the field and in factory conditions. Pipelines may be for transmission of gas or liquids.

This unit of competency applies to experienced operators who are required to select welding parameters to be used, set up equipment, perform electrofusion weld, assess joints against specifications and solve problems within area of responsibility.

This unit of competency applies to an experienced operator demonstrating theoretical and technical knowledge and well developed skills in situations that require some discretion and judgement. The operator may work alone or as a member of a team or group and will work in liaison with other shift team members, team leader and supervisor, as appropriate.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Nil

Competency Field

Welding

Unit Sector

Not applicable

Elements and Performance Criteria

Elements describe the essential outcomes.

Performance criteria describe the performance needed to demonstrate achievement of the element.

1	Identify compatibility of commercial electrofusion control systems	1.1	Identify electrofusion welding control unit type and operating data
		1.2	Identify pipe material and dimension compatibility with electrofusion fittings
		1.3	Identify control unit compatibility with electrofusion fitting control
2	Maintain and calibrate electrofusion control unit equipment	2.1	Set up electrofusion welding equipment and work area according to enterprise procedures
		2.2	Ensure safety equipment is available and operational according to enterprise procedures
		2.3	Identify non-conformance, report and rectify according to enterprise procedures
		2.4	Determine equipment is operational according to specifications
3	Perform electrofusion welding to required standard	3.1	Prepare pipe and fitting according to specification
		3.2	Perform heating, welding and cooling phases using selected electrofusion welding parameters
		3.3	Monitor and record achieved electrofusion weld parameters for each joint according to enterprise procedures
		3.4	Clean up equipment when completed according to enterprise procedures
		3.5	Clean up work site, dispose of scrap materials according to operational procedures
4	Assess quality of completed electrofusion joints	4.1	Identify quality requirements for electrofusion joints according to specifications
		4.2	Assess joints against specification requirements and report results
		4.3	Identify and report non-conformances according to enterprise requirements

5	Identify compatibility of commercial electrofusion control systems	5.1	Identify electrofusion welding control unit type and operating data
		5.2	Identify pipe material and dimension compatibility with electrofusion fittings
		5.3	Identify control unit compatibility with electrofusion fitting control

Foundation Skills

This section describes those required skills (language, literacy and numeracy) that are essential to performance.

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

This field allows for different work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included.

Regulatory framework The latest version of all legislation, regulations, industry codes of practice and Australian/international standards, or the version specified by the local regulatory authority, must be used.

Applicable legislation, regulations, standards and codes of practice include:

- health, safety and environmental (HSE) legislation, regulations and codes of practice relevant to the workplace, manual handling and hazardous materials
- Australian/international standards relevant to the materials being used and products being made, including one or more of:
 - AS/NZS 4129:2000 Fittings for polyethylene (PE) pipes for pressure applications, or its replacement
 - AS/NZS 4130:2009 Polyethylene (PE) pipes for pressure applications, or its replacement
 - AS/NZS 4131:2010 Polyethylene (PE) compounds for pressure pipes and fittings, or its replacement
 - AS/NZS 4401:2006 Plastics piping systems for soil and waste

discharge (low and high temperature) inside buildings - Polyethylene (PE), or its replacement

- ISO 21307:2011 Plastics pipes and fittings -- Butt fusion jointing procedures for polyethylene (PE) pipes and fittings used in the construction of gas and water distribution systems, or its replacement
- any relevant licence and certification requirements.

All operations to which this unit applies are subject to stringent HSE requirements, which may be imposed through state/territory or federal legislation, and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and such requirements the legislative requirements take precedence.

Procedures All operations must be performed in accordance with relevant procedures.

Procedures are written, verbal, visual, computer-based or in some other form, and include one or any combination of:

- emergency procedures
- work instructions
- standard operating procedures (SOPs)
- safe work method statements (SWMS)
- formulas/recipes
- batch sheets
- temporary instructions
- any similar instructions provided for the smooth running of the plant.

Tools and equipment

Tools and equipment include:

- calibrated output electrofusion control units
- pipe clamp supports
- measurement devices, including one or more of:
 - timers
 - temperature probes
 - callipers
 - computer-based output monitors
- cleaning equipment
- spray equipment.

Additional tools and equipment will be selected as required from:

- hand tools used in this process

- hoists/lifting equipment not requiring any special permits or licences
- manual handling aids, such as hand carts and trolleys
- relevant personal protective equipment (PPE).

Hazards

Hazards must be identified and controlled. Identifying hazards requires consideration of:

- power tools, leads and power supplies
- hazardous products and materials
- cutting equipment
- sharp edges, swarf and scrap
- protrusions or obstructions
- slippery surfaces, spills or leaks
- rotational equipment or vibration
- smoke, dust, vapours or other atmospheric hazards
- high temperatures
- electricity
- gas
- gases and liquids under pressure
- structural hazards
- equipment failures
- machinery, equipment and product mass
- other hazards that might arise.

Problems

Routine and non-routine problems must be resolved.

Non-routine problems must be resolved by applying operational knowledge to develop new solutions, either individually or in collaboration with relevant experts, to:

- determine problems needing action
- determine possible fault causes
- develop solutions to problems which do not have a known solution
- follow through items initiated until final resolution has occurred
- report problems outside area of responsibility to designated person.

Non-routine problems are unexpected problems or variations of previous problems and include one or more of:

- variations in quality
- emergency situations
- intermittent faults.

Operational knowledge includes one or more of:

- procedures
- training
- technical information, such as journals and engineering specifications
- remembered experience
- relevant knowledge obtained from appropriate people.

Routine problems are predictable and have known solutions and include one or more of:

- variable PE materials and pipes as supplied
- equipment malfunction or wear and tear
- variable field site conditions.

Unit Mapping Information

Release 1. Supersedes and is equivalent to PMBWELD302B Electrofusion weld polyethylene pipelines

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=932aacef-7947-4c80-acc6-593719fe4090>

Assessment Requirements for PMBWELD302 Electrofusion weld polyethylene pipelines

Modification History

Release 1. Supersedes and is equivalent to PMBWELD302B Electrofusion weld polyethylene pipelines

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy the requirements of the elements and performance criteria and demonstrate the ability to:

- read and interpret designs, plans, patterns, procedures, job specifications, instruments/control panels, material labels and safety data sheets (SDS)
- plan the welding process and sequence tasks
- set up electrofusion welding equipment and materials/components to meet specifications
- prepare electrofusion joint assemblies
- operate the electrofusion control unit to weld the materials/components
- monitor key variables, including:
 - voltage
 - fusion time
 - cooling time
 - alignment
 - product output rate
 - product integrity and general conformance to specification
- maintain and calibrate equipment according to procedures
- identify hazards and apply relevant hazard controls
- apply safety procedures
- apply housekeeping procedures
- apply waste management procedures
- recognise early warning signs of equipment/processes needing attention or with potential problems
- distinguish between causes of problems, including:
 - operational problems
 - instrument failure/malfunction
 - electrical failure/malfunction
 - mechanical failure/malfunction
 - wrong readings
 - materials properties
 - process variables
 - raw material variations/contamination

- procedural errors
- recognise and prioritise problems requiring action
- resolve routine and non-routine problems
- communicate effectively with team/work group and supervisors
- complete workplace records
- do basic arithmetical manipulations, including additions, subtractions, divisions, fractions and percentages.

Knowledge Evidence

Must provide evidence that demonstrates knowledge relevant to their job sufficient to operate independently and to solve routine and non-routine problems, including knowledge of:

- function and operating principles of electrofusion welding equipment, components and ancillary equipment
- impact of variations in welding process variables and raw materials on product quality and production output
- factors which may affect product quality or production output and appropriate remedies
- characteristics of materials and their behaviour in relation to welding process variables and stages of production
- quality requirements at each production stage
- common adjustments in process variables and their impact on product quality and production output
- routine and non-routine problems that may arise, the range of possible causes and appropriate actions
- organisation procedures relevant to the work environment/job role
- hierarchy of control
- hazards that may arise in the job/work environment and:
 - their possible causes
 - potential consequences
 - appropriate risk controls.

Assessment Conditions

- The unit should be assessed holistically and the judgement of competence shall be based on a holistic assessment of the evidence.
- In all plants it may be appropriate to assess this unit concurrently with units such as:
 - teamwork
 - communication.
- The collection of performance evidence:
 - should occur over a range of situations which include typical disruptions to normal, smooth operation of an operating plant

- will typically include a supervisor/third-party report or other evidence, focusing on consistent performance and problem recognition and solving. A supervisor/third-party report must be prepared by someone who has a direct, relevant, current relationship with the person being assessed and who is in a position to form a judgement on workplace performance relevant to the unit of competency
- must include the use of an appropriate industrial item of equipment requiring demonstration of operation, start and stop procedures and responding to problems
- may use industry-based simulation for all or part of the unit particularly where safety, lack of opportunity or significant cost is an issue.
- Assessment should occur in operational workplace situations. Where this is not possible or where personal safety or environmental damage are limiting factors assessment must occur in a sufficiently rigorous simulated environment that reflects realistic operational workplace conditions. This must cover all aspects of workplace performance, including environment, task skills, task management skills, contingency management skills and job role environment skills.
- Assessment in a simulated environment should use evidence collected from demonstration of skills and one or more of:
 - walk-throughs
 - pilot plant operation
 - industry-based case studies/scenarios
 - 'what ifs'.
- Knowledge evidence may be collected concurrently with performance evidence or through an independent process, such as workbooks, written assessments or interviews.
- Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.
- Conditions for assessment must include access to all tools, equipment, materials and documentation required, including relevant workplace procedures, product and manufacturing specifications associated with this unit.
- The regulatory framework will be reflected in workplace policies and procedures and is not required to be independently assessed.
- Foundation skills are integral to competent performance of the unit and should not be assessed separately.
- Assessors must satisfy the assessor competency requirements that are in place at the time of the assessment as set by the VET regulator.
- In addition the assessor or anyone acting in subject matter expert role in assessment shall demonstrate both technical competency and currency. If the assessor cannot demonstrate technical competency and currency they shall assess with a subject matter expert who does meet these requirements.
- Technical competence can be demonstrated through one or more of:
 - relevant VET or other qualification/Statement of Attainment
 - appropriate workplace experience undertaking the type of work being assessed under routine and non-routine conditions
 - appropriate workplace experience supervising/evaluating the type of work being assessed under routine and non-routine conditions

- Currency can be demonstrated through one or more of:
 - being currently employed undertaking the type of work being assessed
 - being employed by the organisation undertaking the type of work being assessed and having maintained currency in accordance with that organisation's policies and procedures
 - having consulted/had contact with an organisation undertaking the type of work being assessed within the last twelve months, the consultation/contact being related to assessment
 - conducting on the job training/assessments of the type of work being assessed
 - being an active member of a relevant professional body and participating in activities relevant to the assessment of this type of work.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=932aacef-7947-4c80-acc6-593719fe4090>

PMBWELD305 Install polyethylene plastic pressure pipelines

Modification History

Release 1. Supersedes and is equivalent to PMBWELD305B Install polyethylene plastic pressure pipelines

Application

This unit of competency covers skills and knowledge required to install polyethylene (PE) plastic pressure pipes and pipeline components in the field. Pipelines may be used for drainage, waste transmission and vent installations above and below ground.

This unit of competency applies to experienced operators who are required to confirm that materials are suitable for the specific pressure applications; prepare for and perform jointing, repairs and service of PE plastic pressure pipes and pipeline components; and solve problems within area of responsibility.

This unit of competency applies to an experienced operator demonstrating theoretical and technical knowledge and well developed skills in situations that require some discretion and judgement. The operator may work alone or as a member of a team or group and will work in liaison with other shift team members, team leader and supervisor, as appropriate.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Nil

Competency Field

Welding

Unit Sector

Not applicable

Elements and Performance Criteria

Elements describe the Performance criteria describe the performance needed to

essential outcomes.		demonstrate achievement of the element.	
1	Identify suitable PE pipe materials for specific pressure applications	1.1	Identify materials as PE grades from national standards, job specifications and work site instructions
		1.2	Determine PE materials properties from national standards and material data sheets
		1.3	Identify job needs from work site instructions and specifications
2	Identify applications for alternative jointing technologies	2.1	Identify properties and limitations of mechanical jointing systems
		2.2	Identify properties and limitations of thermal welding jointing systems
		2.3	Identify properties and limitations of chemical bonding jointing systems
		2.4	Perform trial jointing for mechanical jointing and thermal fusion methods, identify non-conformance, report and rectify
		2.5	Assess quality against specification requirements
3	Determine methods for working with PE pipeline components	3.1	Identify requirements for handling and transport of PE materials
		3.2	Determine requirements for long-term storage
		3.3	Determine requirements for installation, including additional materials
4	Perform appropriate service connection and repair techniques	4.1	Determine service connection requirements
		4.2	Identify alternative service connection methods to meet requirements
		4.3	Perform service connection to meet requirements
		4.4	Determine repair requirements
		4.5	Identify alternative repair options

		4.6	Repair installation to meet requirements
5	Assess quality of completed installation by determining appropriate testing and commissioning procedures	5.1	Test installation
		5.2	Identify alternative test procedures to meet requirements
		5.3	Assess quality of completed installation
		5.4	Refer problems outside area of responsibility to appropriate person
		5.5	Solve problems within area of responsibility
		5.6	Maintain quality records

Foundation Skills

This section describes those required skills (language, literacy and numeracy) that are essential to performance.

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

This field allows for different work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included.

Regulatory framework includes	The latest version of all legislation, regulations, industry codes of practice and Australian/international standards, or the version specified by the local regulatory authority, must be used.

Applicable legislation, regulations, standards and codes of practice include:

- health, safety and environmental (HSE) legislation, regulations and codes of practice relevant to the workplace, manual handling and hazardous materials
- Australian/international standards relevant to the materials being used and products being made including one or more of:
 - AS/NZS 4129:2008/Amdt 1:2013 Fittings for polyethylene (PE)

- pipes for pressure applications, or its replacement
- AS/NZS 4130:2009/Amdt 1:2009 Polyethylene (PE) pipes for pressure applications, or its replacement
- AS/NZS 2566.2:2002 Buried flexible pipelines – Installation, or its replacement
- AS/NZS 2033:2008/Amdt 2:2009 Installation of polyethylene pipe systems, or its replacement
- any relevant licence and certification requirements.

All operations to which this unit applies are subject to stringent HSE requirements, which may be imposed through state/territory or federal legislation, and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and such requirements the legislative requirements take precedence.

Joining methods Joining methods for installers include one or more of:

- mechanical
- thermal
- chemical bond.

Installation Installation can be one or more of:

- above ground
- below ground.

Procedures All operations must be performed in accordance with relevant procedures.

Procedures are written, verbal, visual, computer-based or in some other form, and include one or any combination of:

- emergency procedures
- work instructions
- standard operating procedures (SOPs)
- safe work method statements (SWMS)
- formulas/recipes
- batch sheets
- temporary instructions
- any similar instructions provided for the smooth running of the plant.

Tools and equipment

Tools and equipment include one or more of:

- jointing equipment
- service connection and repair equipment
- jigs and fixtures
- calculators
- hand tools used in this process
- hoists/lifting equipment not requiring any special permits or licences
- manual handling aids such as hand carts and trolleys
- relevant safety equipment
- relevant personal protective equipment (PPE).

Measurement devices

Measurement devices include one or more of:

- pressure gauges
- timers
- callipers
- temperature probes
- computer-based monitors.

Hazards

Hazards must be identified and controlled. Identifying hazards requires consideration of:

- pipe material handling
- heavy stationary and moving machinery
- cutting and heating equipment
- hazardous products and materials
- sharp edges, swarf and scrap
- protrusions or obstructions
- slippery surfaces, spills or leaks
- rotational equipment or vibration
- smoke, dust, vapours or other atmospheric hazards
- high temperatures
- electricity
- gas
- gases and liquids under pressure
- structural hazards
- equipment failures
- machinery, equipment and product mass
- other hazards that might arise.

Problems

Problems include one or more of:

- variable PE materials, pipes and components as supplied
- equipment malfunction or wear and tear
- variable field site conditions
- limitations in available data on specific job requirements
- variations in quality
- emergency situations
- intermittent faults.

Unit Mapping Information

Release 1. Supersedes and is equivalent to PMBWELD305B Install polyethylene plastic pressure pipelines

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=932aacef-7947-4c80-acc6-593719fe4090>

Assessment Requirements for PMBWELD305 Install polyethylene plastic pressure pipelines

Modification History

Release 1. Supersedes and is equivalent to PMBWELD305B Install polyethylene plastic pressure pipelines

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy the requirements of the elements and performance criteria and demonstrate the ability to:

- read and interpret procedures, national standards, job specifications, material labels and safety data sheets (SDS)
- identify materials being used in the installation as being suitable for specific applications
- identify applications for alternative jointing technologies
- determine appropriate methods of handling, storage and transport of polyethylene (PE) plastics components
- perform trial jointing
- monitor key variables, including:
 - alignment
 - materials and conditions for joint
 - integrity of joint
 - general conformance to specification
- determine service connection requirements and make connections
- determine repair requirements and make repairs
- make adjustments to remedy faults and non-conformity
- apply safety procedures
- apply housekeeping procedures
- apply waste management procedures
- recognise early warning signs of equipment/processes needing attention or with potential problems
- distinguish between causes of problems, including:
 - operational problems
 - materials properties
 - process variables
 - procedural errors
- recognise and prioritise problems requiring action
- resolve routine and non-routine problems
- communicate effectively with team/work group and supervisors

- assess quality of completed installations by following appropriate testing and commissioning procedures.

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy the requirements of the elements and performance criteria and demonstrate knowledge of:

- safe working requirements
- types of materials and components being used
- range of methods, relevant to types of materials/components for:
 - mechanical jointing
 - chemical bonding
 - service connections
 - repairs
- factors which may affect product quality or production output and appropriate remedies
- storage, handling and transport procedures for PE equipment
- quality requirements and tests
- routine and non-routine problems that may arise, the range of possible causes and appropriate actions
- organisation procedures relevant to the work environment/job role
- hierarchy of control
- hazards that may arise in the job/work environment the range of possible causes, potential consequences and appropriate risk controls.

Assessment Conditions

- The unit should be assessed holistically and the judgement of competence shall be based on a holistic assessment of the evidence.
- The collection of performance evidence:
 - should occur over a range of situations
 - will typically include a supervisor/third-party report or other evidence, focusing on consistent performance and problem recognition and solving. A supervisor/third-party report must be prepared by someone who has a direct, relevant, current relationship with the person being assessed and who is in a position to form a judgement on workplace performance relevant to the unit of competency
 - must include the use of appropriate industrial equipment requiring demonstration of operation, start and stop procedures and responding to problems
 - may use industry-based simulation for all or part of the unit particularly where safety, lack of opportunity or significant cost is an issue.

- Assessment should occur in operational workplace situations. Where this is not possible or where personal safety or environmental damage are limiting factors assessment must occur in a sufficiently rigorous simulated environment that reflects realistic operational workplace conditions. This must cover all aspects of workplace performance, including environment, task skills, task management skills, contingency management skills and job role environment skills.
- Knowledge evidence may be collected concurrently with performance evidence or through an independent process, such as workbooks, written assessments or interviews.
- Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.
- Conditions for assessment must include access to all tools, equipment, materials and documentation required, including relevant workplace procedures, product and manufacturing specifications associated with this unit.
- The regulatory framework will be reflected in workplace policies and procedures and is not required to be independently assessed.
- Foundation skills are integral to competent performance of the unit and should not be assessed separately.
- Assessors must satisfy the assessor competency requirements that are in place at the time of the assessment as set by the VET regulator.
- In addition the assessor or anyone acting in subject matter expert role in assessment shall demonstrate both technical competency and currency. If the assessor cannot demonstrate technical competency and currency they shall assess with a subject matter expert who does meet these requirements.
- Technical competence can be demonstrated through one or more of:
 - relevant VET or other qualification/Statement of Attainment
 - appropriate workplace experience
 - appropriate workplace experience supervising/evaluating the type of work being assessed
- Currency can be demonstrated through one or more of:
 - being currently employed undertaking the type of work being assessed
 - being employed by the organisation undertaking the type of work being assessed and having maintained currency
 - having consulted/had contact with an organisation undertaking the type of work being assessed within the last twelve months, the consultation/contact being related to assessment
 - conducting on the job training/assessments of the type of work being assessed.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=932aacef-7947-4c80-acc6-593719fe4090>

PMBWELD308 Install PVC plastic pressure pipelines

Modification History

Release 1. Supersedes and is equivalent to PMBWELD308B Install PVC plastic pressure pipelines

Application

This unit of competency covers the skills and knowledge required to install polyvinylchloride (PVC) plastic pressure pipes and pipeline components in the field. It applies to PVC in the form of UPVC, MPVC or OPVC. Pipelines may be used for transmission of gaseous and water based fluids.

This unit of competency applies to experienced operators who are required to confirm that materials are suitable for the specific pressure applications; prepare for and perform chemical and mechanical jointing, repairs and service connections; and solve problems within area of responsibility.

This unit of competency applies to an experienced operator demonstrating theoretical and technical knowledge and well developed skills in situations that require some discretion and judgement. The operator may work alone or as a member of a team or group and will work in liaison with other shift team members, team leader and supervisor, as appropriate.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Nil

Competency Field

Welding

Unit Sector

Not applicable

Elements and Performance Criteria

Elements describe the essential outcomes.

Performance criteria describe the performance needed to demonstrate achievement of the element.

1	Identify applications for alternative jointing technologies	1.1	Identify properties and limitations of mechanical jointing systems
		1.2	Identify properties and limitations of chemical bonding jointing systems
		1.3	Perform trial jointing for all methods, identify non-conformance, report and rectify
		1.4	Assess quality against specification requirements.
2	Determine methods for handling, storage, transport and installation of PVC pipeline components	2.1	Identify requirements for handling and transport of PVC materials
		2.2	Determine requirements for long-term storage
		2.3	Determine requirements for installation, including additional materials
3	Identify appropriate service connection and repair techniques	3.1	Determine service connection requirements
		3.2	Identify alternative service connection methods to meet requirements
		3.3	Perform service connection to meet requirements
		3.4	Determine repair requirements
		3.5	Identify alternative repair options
		3.6	Perform repair installation to meet requirements
4	Assess quality of completed installation by determining appropriate testing and commissioning	4.1	Determine specific installation test requirements
		4.2	Identify alternative test procedures to meet requirements
		4.3	Assess quality of completed installation
		4.4	Refer problems outside area of responsibility to

procedures

appropriate person

4.5 Solve problems within area of responsibility

4.6 Maintain quality records

Foundation Skills

This section describes those required skills (language, literacy and numeracy) that are essential to performance.

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

This field allows for different work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included.

Regulatory framework The latest version of all legislation, regulations, industry codes of practice and Australian/international standards, or the version specified by the local regulatory authority, must be used.

Applicable legislation, regulations, standards and codes of practice include:

- health, safety and environmental (HSE) legislation, regulations and codes of practice relevant to the workplace, manual handling and hazardous materials
- Australian/international standards relevant to the materials being used and products being made including one or more of:
 - AS/NZS 1477:2006 PVC pipes and fittings for pressure applications, or its replacement
 - AS/NZS 4441:2008 Oriented PVC (PVC-O) pipes for pressure applications, or its replacement
 - AS/NZS 4765:2007 Modified PVC (PVC-M) pipes for pressure applications, or its replacement
 - AS/NZS 2566.2:2002 Buried flexible pipelines – Installation, or its replacement
 - AS/NZS 2032:2006 Installation of PVC pipe systems ,or its replacement
- any relevant licence and certification requirements.

All operations to which this unit applies are subject to stringent HSE requirements, which may be imposed through state/territory or federal legislation, and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and such requirements the legislative requirements take precedence.

Procedures All operations must be performed in accordance with relevant procedures.

Procedures are written, verbal, visual, computer-based or in some other form, and include one or any combination of:

- emergency procedures
- work instructions
- standard operating procedures (SOPs)
- safe work method statements (SWMS)
- formulas/recipes
- batch sheets
- temporary instructions
- any similar instructions provided for the smooth running of the plant.

Tools and equipment

Tools and equipment include:

- mechanical and chemical bond jointing equipment
- service connection and repair equipment
- jigs and fixtures
- measurement devices, including one or more of:
- pressure gauges
- timers
- callipers
- computer-based monitors.

Additional tools and equipment will be selected as required from:

- calculators
- hand tools used in this process
- hoists/lifting equipment not requiring any special permits or licences
- manual handling, aids such as hand carts and trolleys
- relevant personal protective equipment (PPE).

Hazards Hazards must be identified and controlled. Identifying hazards requires consideration of:

- hazardous products and materials
- cutting equipment
- sharp edges, swarf and scrap
- protrusions or obstructions
- slippery surfaces, spills or leaks
- rotational equipment or vibration
- smoke, dust, vapours or other atmospheric hazards
- high temperatures
- electricity
- gas
- gases and liquids under pressure
- structural hazards
- equipment failures
- machinery, equipment and product mass
- other hazards that might arise.

Problems Routine and non-routine problems must be resolved.

Non-routine problems must be resolved by applying operational knowledge to develop new solutions, either individually or in collaboration with relevant experts, to:

- determine problems needing action
- determine possible fault causes
- develop solutions to problems which do not have a known solution
- follow through items initiated until final resolution has occurred
- report problems outside area of responsibility to designated person.

Non-routine problems are unexpected problems or variations of previous problems and include one or more of:

- variations in quality
- emergency situations
- intermittent faults.

Operational knowledge includes one or more of:

- procedures
- training
- technical information, such as journals and engineering specifications

- remembered experience
- relevant knowledge obtained from appropriate people.

Routine problems are predictable and have known solutions and include one or more of:

- variable materials, pipes and components as supplied
- equipment malfunction or wear and tear
- variable field site conditions
- limitations in available data on specific job requirements.

Unit Mapping Information

Release 1. Supersedes and is equivalent to PMBWELD308B Install PVC plastic pressure pipelines

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=932aacef-7947-4c80-acc6-593719fe4090>

Assessment Requirements for PMBWELD308 Install PVC plastic pressure pipelines

Modification History

Release 1. Supersedes and is equivalent to PMBWELD308B Install PVC plastic pressure pipelines

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy the requirements of the elements and performance criteria and demonstrate the ability to:

- read and interpret procedures, national standards, job specifications, material labels and safety data sheets (SDS)
- distinguish between UPVC, MPVC, OPVC and identify alternative jointing methods appropriate to the materials
- select and perform mechanical and chemical jointing methods to meet specifications
- perform trial jointing
- monitor key variables, including:
 - alignment
 - materials and conditions for joint
 - integrity of joint
 - general conformance to specification
- determine service connection requirements and make connections
- determine repair requirements and make repairs
- assess quality of completed installation
- make adjustments to remedy faults and non-conformity
- set up and maintain storage, handling, and transport instructions
- identify hazards and apply relevant hazard controls
- apply safety procedures
- apply housekeeping procedures
- apply waste management procedures
- recognise early warning signs of equipment/processes needing attention or with potential problems
- distinguish between causes of problems, including:
 - operational problems
 - materials properties
 - process variables
 - raw material/component variations
 - raw material contamination
 - procedural errors

- recognise and prioritise problems requiring action
- resolve routine and non-routine problems
- communicate effectively with team/work group and supervisors
- complete workplace records
- do basic arithmetical manipulations, including additions, subtractions, divisions, fractions and percentages.

Knowledge Evidence

Must provide evidence that demonstrates knowledge relevant to their job sufficient to operate independently and to solve routine and non-routine problems including knowledge of:

- UPVC, MPVC, OPVC materials/components and distinguishing characteristics
- range of methods, relevant to types of materials/components, for:
 - mechanical jointing
 - chemical bonding
 - service connections
 - repairs
- factors which may affect product quality or production output and appropriate remedies
- quality requirements and tests
- routine and non-routine problems that may arise, the range of possible causes and appropriate actions
- organisation procedures relevant to the work environment/job role
- hierarchy of control
- hazards that may arise in the job/work environment and:
 - their possible causes
 - potential consequences
 - appropriate risk controls.
-

Assessment Conditions

- The unit should be assessed holistically and the judgement of competence shall be based on a holistic assessment of the evidence.
- In all plants it may be appropriate to assess this unit concurrently with units such as:
 - teamwork
 - communication.
- The collection of performance evidence:
 - should occur over a range of situations which include typical disruptions to normal, smooth operation of an operating plant

- will typically include a supervisor/third-party report or other evidence, focusing on consistent performance and problem recognition and solving. A supervisor/third-party report must be prepared by someone who has a direct, relevant, current relationship with the person being assessed and who is in a position to form a judgement on workplace performance relevant to the unit of competency
- must include the use of an appropriate industrial item of equipment requiring demonstration of operation, start and stop procedures and responding to problems
- may use industry-based simulation for all or part of the unit particularly where safety, lack of opportunity or significant cost is an issue.
- Assessment should occur in operational workplace situations. Where this is not possible or where personal safety or environmental damage are limiting factors assessment must occur in a sufficiently rigorous simulated environment that reflects realistic operational workplace conditions. This must cover all aspects of workplace performance, including environment, task skills, task management skills, contingency management skills and job role environment skills.
- Assessment in a simulated environment should use evidence collected from demonstration of skills and one or more of:
 - walk-throughs
 - pilot plant operation
 - industry-based case studies/scenarios
 - 'what ifs'.
- Knowledge evidence may be collected concurrently with performance evidence or through an independent process, such as workbooks, written assessments or interviews.
- Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.
- Conditions for assessment must include access to all tools, equipment, materials and documentation required, including relevant workplace procedures, product and manufacturing specifications associated with this unit.
- The regulatory framework will be reflected in workplace policies and procedures and is not required to be independently assessed.
- Foundation skills are integral to competent performance of the unit and should not be assessed separately.
- Assessors must satisfy the assessor competency requirements that are in place at the time of the assessment as set by the VET regulator.
- In addition the assessor or anyone acting in subject matter expert role in assessment shall demonstrate both technical competency and currency. If the assessor cannot demonstrate technical competency and currency they shall assess with a subject matter expert who does meet these requirements.
- Technical competence can be demonstrated through one or more of:
 - relevant VET or other qualification/Statement of Attainment
 - appropriate workplace experience undertaking the type of work being assessed under routine and non-routine conditions
 - appropriate workplace experience supervising/evaluating the type of work being assessed under routine and non-routine conditions

- Currency can be demonstrated through one or more of:
 - being currently employed undertaking the type of work being assessed
 - being employed by the organisation undertaking the type of work being assessed and having maintained currency in accordance with that organisation's policies and procedures
 - having consulted/had contact with an organisation undertaking the type of work being assessed within the last twelve months, the consultation/contact being related to assessment
 - conducting on the job training/assessments of the type of work being assessed
 - being an active member of a relevant professional body and participating in activities relevant to the assessment of this type of work.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=932aacef-7947-4c80-acc6-593719fe4090>

PSPPCM011 Plan to manage a contract

Modification History

Release	Comments
1	This unit was released in PSP Public Sector Training Package release 1.0 and meets the Standards for Training Packages. This unit supersedes and is equivalent to PSPPROC506A Plan to manage a contract. • Unit code updated • Content and formatting updated to comply with new standards • All PC transitioned from passive to active voice

Application

This unit describes the skills required to establish arrangements for contract management. It includes confirming contract requirements, preparing a contract management plan, developing stakeholder relationships and implementing contract strategies and contractual arrangements.

This unit applies to those working in roles involving procurement contract management.

The skills and knowledge described in this unit must be applied within the legislative, regulatory and policy environment in which they are carried out. Organisational policies and procedures must be consulted and adhered to.

Those undertaking this unit would work autonomously while performing complex tasks, in familiar contexts.

No licensing, legislative or certification requirements apply to unit at the time of publication.

Competency Field

Procurement

Elements and Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA
Elements describe the essential outcomes	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the range of conditions section.
1. Confirm contract requirements	1.1 Identify legislation, public sector standards and organisational requirements relating to probity, financial management, approvals and other considerations for inclusion in the contract management plan. 1.2 Re-confirm contract requirements with all parties. 1.3 Determine obligations to the contractor, limits of authority and delegations according to contractual arrangements. 1.4 Confirm start-up or transition arrangements.
2. Prepare contract management plan	2.1 Identify contract risks and develop a risk management plan. 2.2 Determine procedures to identify, receive and address contract variations. 2.3 Determine procedures to investigate, resolve or refer disputes or complaints. 2.4 Develop and negotiate key performance indicators and identify and approve administrative processes for the life of the contract. 2.5 Document, obtain approval on and maintain a contract management plan that addresses key elements. 2.6 Apply expected standards of behaviour, probity and privacy principles to all elements of contract management plan. 2.7 Apply environmental, sustainability and corporate social responsibility principles to all elements of contract management plan.
3. Develop stakeholder relationships	3.1 Identify stakeholder networks and relationships. 3.2 Use networking strategies to establish, develop and maintain working relationships to promote benefits to the contract requirements. 3.3 Develop and maintain confidence of stakeholders through high standards of behaviour and ethical conduct. 3.4 Use negotiation strategies to achieve positive outcomes when difficult situations arise. 3.5 Identify and confirm communication requirements in line with contractual obligations and stakeholder needs.
4. Implement contract strategies	4.1 Identify requirements of confidentiality and freedom of information for the contract. 4.2 Develop communication and/or information strategy that matches needs of the organisation, the contract and the contractor's

	business environment. 4.3 Establish contract review requirements with stakeholders. 4.4 Develop contract review strategy to review management of the contract, contractor performance and user satisfaction.
5. Implement contractual arrangements	5.1 Establish and manage business relationship with contractor. 5.2 Implement start-up or transition arrangements. 5.3 Establish financial, administrative and information management processes. 5.4 Implement contractual arrangements according to contract management plan. 5.5 Maintain appropriate records for the life of the contract.

Foundation Skills

Foundation skills are embedded within the elements and performance criteria of this unit.

Unit Mapping Information

This unit supersedes and is equivalent to PSPPROC506A Plan to manage a contract.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=bebbece7-ff48-4d2c-8876-405679019623>

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=bebbece7-ff48-4d2c-8876-405679019623>

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Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=bebbece7-ff48-4d2c-8876-405679019623>

Assessment Requirements for PSPPCM011 Plan to manage a contract

Modification History

Release	Comments
1	These Assessment Requirements were released in PSP Public Sector Training Package release 1.0 and meet the Standards for Training Packages. Assessment Requirements created drawing upon specified assessment information from superseded unit

Performance Evidence

Evidence required to demonstrate competence must satisfy all of the requirements of the elements and performance criteria. If not otherwise specified the candidate must demonstrate evidence of performance of the following on at least one occasion.

- networking, consulting and negotiating with contractors and stakeholders
- developing a written contract management plan and sub-plans
- reading and applying complex documents, including contracts, legislation and guidelines
- provide feedback
- modelling effective team management approaches
- referring issues to the correct person
- applying understanding of supplier issues and supply chain management in the context of procurement risk management
- planning and organising skills to manage and update the contract management plan and sub-plans
- maintaining currency of best practice examples in procurement practice and relevant procurement legislation, policies and procedures
- use electronic procurement templates

Knowledge Evidence

Evidence required to demonstrate competence must satisfy all of the requirements of the elements and performance criteria. If not otherwise specified the depth of knowledge demonstrated must be appropriate to the job context of the candidate.

- Commonwealth, state or territory, and local government legislation, policies, practices and guidelines relating to contract management, including environmental purchasing, sustainability and corporate social responsibility guidance relevant to the contract
- organisational procurement policies, practices and approval processes

- contract management planning for diverse contractual situations
- privacy and confidentiality issues
- codes of conduct, codes of practice and standards of individual behaviour relating to management of contracts and relationships with contractors
- financial and accounting issues relevant to the contract

Assessment Conditions

This unit contains no specific industry-mandated assessment conditions. Guidance on suggested and recommended conditions and methods can be found in the Implementation Guide.

Assessors must satisfy the NVR/AQTF mandatory competency requirements for assessors.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=bebbece7-ff48-4d2c-8876-405679019623>

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=bebbece7-ff48-4d2c-8876-405679019623>

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=bebbece7-ff48-4d2c-8876-405679019623>

PUAEMR007 Develop emergency management plans

Modification History

Release 1. This is the first release of this unit of competency in the PUA Public Safety Training Package.

Application

This unit of competency involves the skills and knowledge required to develop new or revised emergency management plans within an organisation. These plans may focus on one or more aspects of emergency management i.e. prevention, preparedness, response and/or recovery.

It includes establishing and planning context and framework, developing agreed processes and methodology and undertaking risk research and analysis. It also includes developing and refining planning parameters, documenting emergency plans, validating and implementing planning outcomes as well as monitoring and reviewing planning processes and outcomes.

The unit applies to personnel responsible for developing emergency management plans within an organisation.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

Emergency Management

Unit Sector

Not applicable

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Establish planning context and framework

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Authority to plan is confirmed by legislation, direction, organisational or other managerial agreement

- 1.2 Planning environment is clarified by analysing emergency management plan drivers and risk assessments
 - 1.3 Legislative, regulatory and organisational requirements, policy, procedures, existing arrangements and plans impacting on the planning framework are identified and analysed
 - 1.4 Interests, sensitivities, roles and responsibilities of key stakeholders are identified
 - 1.5 Planning purpose, aims, objectives and governance frameworks are developed and refined with stakeholders
- 2 **Develop agreed planning processes and methodology**
 - 2.1 A project scope is developed considering emergency management plan constraints
 - 2.2 Processes for negotiating outcomes, making decisions, reporting, monitoring progress and quality are agreed, in accordance with organisational procedures
 - 2.3 Consultation and communication plan is developed and implemented, in accordance with organisational procedures
 - 2.4 Sources of expertise are identified to contribute specialised information and analysis, as required
 - 2.5 Emergency management plan structure is agreed in consultation with stakeholders, in accordance with organisational procedures
 - 2.6 Project plan is prepared and approved in consultation with stakeholders, in accordance with organisational procedures
- 3 **Undertake risk research and analysis**
 - 3.1 Project scope is reviewed in response to new information or changes in resources and planning environment
 - 3.2 Analysis and research tools are used in developing emergency management plan
 - 3.3 Emergency risk information register is built or updated using credible emergency management sources
 - 3.4 Emergency risk management strategies are assessed

	3.5	Organisational vulnerability is determined by analysing susceptibility and resilience to risks
	3.6	Emergency management plan is confirmed as appropriate risk treatment
4 Develop and/or refine planning parameters	4.1	Emergency management plan arrangements are reviewed or developed to identify potential gaps or duplication in roles and responsibilities
	4.2	Emergency management plan strategies and tactics are identified and confirmed, in consultation with stakeholders
	4.3	Resources and services including potential critical shortfalls are identified
	4.4	Financial and contractual arrangements for accessing or acquiring resources and services are developed, in accordance with organisational procedures
	4.5	Arrangements for the command, control and coordination of emergency response or recovery operations are confirmed
	4.6	Contingencies to address potential problems are developed with relevant organisations and service providers, in accordance with organisational policies and procedures
	4.7	Organisational implications of new or revised plans are identified and assessed
5 Document emergency plan	5.1	Emergency management plan is iteratively developed in consultation with stakeholders
	5.2	Emergency management plan is prepared, in accordance with organisational procedures and industry standards and is consistent with broader jurisdictional emergency management arrangements
	5.3	Language used is clear, concise and appropriate for documentation purpose and audience
	5.4	Planning records, supporting documentation and contact information is maintained, in accordance with organisational procedures and industry standards
6 Validate and implement	6.1	Compatibility, links and interactions between the

planning outcomes	emergency management plan and other organisational documentation is reviewed
	6.2 Specific benefits of the emergency management plan are promoted to stakeholders and other organisations to establish support
7 Monitor and review planning process and outcomes	7.1 Maintenance and audit schedule is implemented, in accordance with organisational policies and procedures
	7.2 Deficiencies identified during audit, activation or implementation of the emergency management plan are analysed and are reported to authorised personnel
	7.3 Emergency management plan amendments are negotiated, documented and authorised, in accordance with organisational procedures
	7.4 Opportunities for improving emergency planning processes are reported to authorised personnel

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to PUAEMR028 Develop emergency management plans.

Links

PUA Training Package Companion Volume Implementation Guide is found in VETNet - <https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=3eca5672-6d5a-410b-8942-810d0ba05bbf>

Assessment Requirements for PUAEMR007 Develop emergency management plans

Modification History

Release 1. This is the first release of this unit of competency in the PUA Public Safety Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least two occasions and includes

- developing or refining planning parameters
- developing emergency planning processes in cooperation with stakeholders
- documenting and applying emergency response plans
- establishing planning context and framework
- following organisational policies and procedures including Work, Health and Safety (WHS)/Occupational Health and Safety (OHS) requirements
- explaining planning process and promoting its benefits to stakeholders and communities
- locating and interpreting risk information
- monitoring and reviewing planning process and outcomes including evaluating planning processes and outcomes with stakeholders
- negotiating outcomes
- providing risk management information, advice and opinions
- recognising and working with emergency management plan constraints
- undertaking risk research and analysis including using emergency risk information registers and emergency management research tools
- validating and implementing planning outcomes
- working cooperatively and with stakeholders in developing plans

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of

- emergency response plans
- emergency management drivers
- emergency risk management plan constraints including
 - arrangements, roles and responsibilities set down in existing emergency management plans
 - availability of technical expertise, technology and equipment
 - budgets, time, availability and capability of personnel

- land use planning, building codes and other regulations
- legislation covering emergency management, environmental management, safety standards and local government regulations
- limited organisational knowledge of emergency risk management processes and benefits
- emergency risk management terminology, concepts and principles
- emergency risk management tools
- fundamentals of emergency management planning
- fundamentals of risk management and risk mitigation including industry standards
- group dynamics and strategies for team building and stakeholder liaison
- legislative and regulatory obligations
- organisational documentation, policies and procedures including Work, Health and Safety (WHS)/Occupational Health and Safety (OHS) requirements
- potential stakeholders
- research tools and risk analysis techniques including risk management registers

Assessment Conditions

As a minimum, assessors must satisfy applicable regulatory requirements, which include requirements in the Standards for Registered Training Organisations current at the time of assessment.

As a minimum, assessment must satisfy applicable regulatory requirements, which include requirements in the Standards for Registered Training Organisations current at the time of assessment.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Competency should be demonstrated in at least two different contexts throughout the life of an emergency planning project or during components of a number of projects, one of which may be simulated.

Resources for assessment must include access to

- a range of relevant exercises, case studies and/or simulations
- relevant and appropriate materials, equipment, tools and personal protective clothing and equipment currently used in industry
- applicable documentation including organisational procedures, industry standards, equipment specifications, regulations, codes of practice and operational manuals.

Links

PUA Training Package Companion Volume Implementation Guide is found in VETNet - <https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=3eca5672-6d5a-410b-8942-810d0ba05bbf>

RIICBS310E Conduct patching operations

Modification History

This unit replaces RIICBS310E Conduct patching operations. Minor endorseable amendments have been made to Elements, Performance Criteria, Foundation Skills, Performance Evidence and Knowledge Evidence to better reflect current industry practices and clarify training outcomes.

Application

This unit describes the skills and knowledge required to conduct patching operations in civil construction.

It applies to those working in operational roles. The individual is generally a skilled operator and may provide theoretical advice and support a team.

Licensing, legislative, regulatory and certification requirements that apply to this unit can vary between states, territories, and industry sectors. Relevant information must be sourced prior to application of the unit.

Unit Sector

Civil construction

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Plan and prepare for patching operations	1.1 Obtain, interpret and confirm work requirements 1.2 Access, interpret and apply patching operations documentation and confirm the work activity is compliant 1.3 Identify environmental issues and potential hazards, and assess and address risks within scope of own role and according to workplace procedures 1.4 Select and wear personal protective equipment required for work activities 1.5 Select plant, tools and equipment required for tasks, check for faults, and report or rectify in scope of own role 1.6 Confirm and comply with environmental protection, safety and traffic management signage requirements 1.7 Obtain and interpret emergency procedures and identify

ELEMENT	PERFORMANCE CRITERIA
	steps required in case of fire, accident and other emergencies
2. Set up patching truck	2.1 Carry out pre-operational checks according to workplace requirements 2.2 Check tank for prevention of contamination 2.3 Fill tank with the required materials for repair operations 2.4 Determine standard mix of emulsion ready for application to surfaces
3. Repair damaged surfaces	3.1 Carry out start-up, park, shutdown and secure equipment procedures 3.2 Drive and operate truck according to job requirements 3.3 Position truck according to the range of the boom 3.4 Position boom manually and automatically as required over the damaged surface to be repaired 3.5 Blow area to be repaired free of dust and debris 3.6 Apply patching material to the defective area under the pressure of compressed air according to job requirements and workplace procedures 3.7 Measure, calculate and record material quantities and additives for each site 3.8 Conduct, control and monitor patching work and confirm materials are placed to specification
4. Carry out operator maintenance	4.1 Prepare machine for maintenance according to workplace procedures 4.2 Conduct inspection and fault finding 4.3 Carry out scheduled maintenance tasks according to workplace procedures 4.4 Process written maintenance records according to workplace procedures
5. Clean up	5.1 Clear work area and dispose of and recycle materials as required according to workplace procedures and environmental requirements 5.2 Clean, check, perform maintenance on in scope of own role, and store plant, tools and equipment 5.3 Carry out housekeeping to workplace requirements

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance but not explicit in the performance criteria.

Skill	Description
Reading	Identifies and interprets information from workplace procedures, documentation, legislation and regulations
Self-management	Monitors and minimises exposure to worksite hazards during activities
Oral communication	Uses a range of communication techniques and systems to communicate with others

Unit Mapping Information

Supersedes and is equivalent to RIICBS310D Conduct patching operations.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=88a61002-9a21-4386-aaf8-69c76e675272>

Assessment Requirements for RIICBS310E Conduct patching operations

Modification History

This unit replaces RIICBS310E Conduct patching operations. Minor endorseable amendments have been made to Elements, Performance Criteria, Foundation Skills, Performance Evidence and Knowledge Evidence to better reflect current industry practices and clarify training outcomes.

Performance Evidence

The candidate must demonstrate the ability to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit; including evidence of the ability to:

- conduct patching operations on at least two occasions, including:
 - completing patching operations for a minimum of 20m² of road surface defects by loading and mixing the specified materials and patching the damaged areas to specification.

During the above, the candidate must:

- locate and apply legislation, documentation, policies and procedures required for conducting patching operations
- work with others to undertake and conduct patching operations that meet all of the required outcomes, including:
 - organising work activities to meet all task requirements
 - communicating with others to receive and clarify work instructions
 - using a range of communication techniques and systems
 - using signage to advise others of work activity and exclusion zone
- complete all records of patching work undertaken and materials used for each site
- clean, check, perform maintenance on and store equipment
- complete housekeeping activities.

Knowledge Evidence

The candidate must be able to demonstrate knowledge to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including knowledge of:

- on site processes and responsibilities relating to site isolation and traffic control
- processes for calculating material requirements and application rates
- safety data sheet (SDS) compliance processes
- key components of job safety analyses (JSAs)/job safety environmental analyses (JSEAs)/safe work method statements (SWMSs)
- key legislation for conducting patching operations

- key policies, procedures and established requirements for conducting patching operations, including those for:
 - site and equipment safety
 - work quality
 - bitumen patching
 - identifying pavement defects
 - establishing exclusion zones
 - housekeeping
 - operating and maintaining equipment
 - environmental protection, including waste disposal and recycling
- key factors affecting work activities described in performance evidence above, including:
 - characteristics of bituminous materials
 - aggregate properties and conformance
 - equipment types, characteristics, technical capabilities and limitations.

Assessment Conditions

Mandatory conditions for assessment of this unit are stipulated below. The assessment must:

- include access to:
 - patching equipment
 - personal protective equipment
- be conducted in a safe environment; and,
- be assessed in context of this sector's work environment; and,
- be assessed in compliance with legislation/regulation and using policies, procedures, processes and operational manuals directly related to the industry sector for which it is being assessed; and,
- confirm consistent performance can be applied in a range of relevant workplace circumstances.
- Where personal safety or environmental damage are limiting factors, assessment may occur in a simulated work environment* provided it is realistic and sufficiently rigorous to cover all aspects of this sectors workplace performance, including environment, task skills, task management skills, contingency management skills and job role environment skills.

Assessor Requirements

Assessors must be able to clearly demonstrate current and relevant industry knowledge and experience to satisfy the mandatory competency standards as set out in the Standards for Registered Training Organisations (RTOs) 2015/AQTF mandatory requirements for assessors current at the time of assessment and any relevant licensing and certification requirements. This includes:

- vocational competencies at least to the level being delivered and assessed
- current industry skills directly relevant to the training and assessment being provided

- current knowledge and skills in vocational training and learning that informs their training and assessment
- formal relevant qualifications in training and assessment
- having knowledge of and/or experience using the latest techniques and processes
- possessing a high level of RII training product knowledge
- having an understanding and knowledge of legislations and regulations relevant to the industry and to employment and workplaces
- demonstrating the performance evidence, and knowledge evidence as outlined in this unit of competency, and
- the minimum years of current** work experience after competency has been obtained as specified below in an industry sector relevant to the outcomes of the unit.

It is also acceptable for the appropriately qualified assessor to work with an industry expert to conduct assessment together and for the industry expert to be involved in the assessment judgement. The industry expert must hold the relevant vocational competencies and have current industry skills directly relevant to the training and assessment being provided and must work alongside a trainer and/or assessor to conduct the assessment. This means the industry subject matter expert should hold the unit being assessed (or an equivalent unit), and must also demonstrate skills and knowledge from the minimum years of current work experience after competency has been obtained as specified below, including time spent in roles related to the unit being assessed:

Industry sector	AQF** level	Required assessor or industry subject matter expert experience
Drilling, Metalliferous Mining, Coal Mining, Extractive (Quarrying) and Civil Construction	1	1 Year
	2	2 Years
Drilling, Coal Mining and Extractive (Quarrying)	3-6	3 Years
Metalliferous Mining and Civil Construction	3-6	5 Years
Other sectors	Where this unit of competency is being assessed outside of the resources and infrastructure sectors assessor and/or industry subject matter expert experience should be in-line with industry standards for the sector in which it is being assessed and where no industry standard is specified should comply with any relevant regulation.	

*Guidance on simulated environments has been stipulated in the RII Companion Volume Implementation Guide located on VETNet.

******Assessors can demonstrate current work experience through employment within industry in a role relevant to the outcomes of the unit; or, for external assessors this can be demonstrated through exposure to industry by conducting a minimum number of site assessments as determined by the relevant industry sector, across various locations.

******* While a unit of competency does not have an AQF level, where a unit is being delivered outside of a qualification the first numeric character in the unit code should be considered as the AQF indicator level for assessment purposes.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=88a61002-9a21-4386-aaf8-69c76e675272>

RIICCM205E Carry out manual excavation

Modification History

Release	Comment
1	This unit replaces RIICCM205D Carry out manual excavation. Performance evidence removed 'using concreting tools, plant and equipment. Added mapping table.

Application

This unit describes a participant's skills and knowledge required to carry out manual excavation in Civil construction.

This unit is appropriate for those working in operational roles.

Licensing, legislative, regulatory and certification requirements that apply to this unit can vary between states, territories, and industry sectors. Relevant information must be sourced prior to application of the unit.

Unit Sector

Civil construction

Elements and Performance Criteria

1. Plan and prepare for manual excavation	1.1 Access, interpret and apply manual excavation documentation, and ensure the work activity is compliant 1.2 Obtain, read, interpret, clarify and confirm work requirements 1.3 Identify and address potential risks, hazards and environmental issues, and implement control measures 1.4 Select and wear personal protective equipment appropriate for work activities 1.5 Identify, obtain and implement traffic signage requirements 1.6 Select, and check for faults, equipment and/or attachments for work activities 1.7 Obtain and interpret emergency procedures, and be prepared for fire/accident/emergency
2. Dig small	2.1 Confirm the location and specifications of the intended

excavations by hand	excavation 2.2 Identify service markers/taped areas 2.3 Determine and confirm location of underground services and avoid damage/interference 2.4 Use hand tools, and dig post holes, small pits and trenches to the required dimensions 2.5 Undertake trench collapse prevention procedures, where excavation is in unstable ground 2.6 Place barricades around the excavation
3. Complete and isolate the excavation	3.1 Clean loose material out of excavation using hand tools 3.2 Check excavation complies with the specification/work instruction 3.3 Clear loose material away from the edge of excavation
4. Conduct housekeeping activities	4.1 Clear work area and dispose of or recycle materials 4.2 Clean and maintain condition of equipment, ensure suitability for use, and address/report issues 4.3 Manage/report hazards, and maintain a safe working environment 4.4 Process written records

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit. Further information is available in the Resources and Infrastructure Industry Training Package Companion Volume.

Unit Mapping Information

Code and title current version	Code and title previous version	Comments	Equivalence status
RIICCM205E Carry out manual excavation	RIICCM205D Carry out manual excavation	Performance evidence removed 'using concreting tools, plant and equipment. Added mapping table.	Equivalent

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=88a61002-9a21-4386-aaf8-69c76e675272>

Assessment Requirements for RIICCM205E Carry out manual excavation

Modification History

Release	Comment
1	This unit replaces RIICCM205D Carry out manual excavation. Performance evidence removed 'using concreting tools, plant and equipment. Added mapping table.

Performance Evidence

Evidence is required to be collected that demonstrates a candidate's competency in this unit. Evidence must be relevant to the roles within this sector's work operations and satisfy all of the requirements of the performance criteria of this unit and include evidence that the candidate:

- locates and applies applicable documentation, policies and procedures
- implements the requirements, procedures and techniques for the safe, effective and efficient completion of manual excavation including:
 - using manual excavation tools
 - communicating effectively to receive and clarify work instructions
- works effectively with others to undertake and complete the manual excavation in a way that meets all of the required outcomes including:
 - using a range of communications techniques and equipment to convey information to others
 - complying with written and verbal reporting requirements and procedures
- demonstrates completion of manual excavation that safely, effectively and efficiently meets all of the required outcomes on more than one (1) occasion including:
 - identifying the location of underground services
 - digging post holes, small pits and trenches to the required dimensions
 - applying trench collapse prevention procedures in unstable ground

Knowledge Evidence

The candidate must demonstrate knowledge of the following when carrying out manual excavation:

- organisation and site requirements and procedures for:
 - using job safety analyses/safe work methods
 - achieving project quality outcomes

- identifying and reporting on hazards related to the worksite and work activity
- organisation of work activities
- relevant tools and equipment safely
- types, uses, limitations and maintenance requirements of manual excavation tools
- basic principles of soil technology for civil works
- basic trench collapse prevention techniques including benching and battering
- site isolation and traffic control responsibilities and authorities
- Civil construction terminology
- housekeeping activities

Assessment Conditions

- Assessors must satisfy the Standards for Registered Training Organisations (RTOs) 2015/AQTF mandatory competency requirements for assessors.; and industry regulations for certification and licensing; and,
- this unit is best assessed in the context of this sector's work environment;
- where personal safety or environmental damage are limiting factors, assessment may occur in a simulated environment provided it is realistic and sufficiently rigorous to cover all aspects of this sector's workplace performance, including environment, task skills, task management skills, contingency management skills and job role environment skills; and,
- this unit must be assessed in compliance with relevant legislation/regulation and using policies, procedures, processes and operational manuals directly related to the industry sector for which it is being assessed; and,
- assessment may be conducted in conjunction with the assessment of other units of competency; and,
- assessment must confirm consistent performance can be applied in a range of relevant workplace circumstances; and,
- assessors must demonstrate the performance evidence, and knowledge evidence as outlined in this unit of competency, and through the minimum years of current* work experience specified below in an industry sector relevant to the outcomes of the unit; or,
- where the assessor does not meet experience requirements a co-assessment or partnership arrangement must exist between the qualified assessor and an industry subject matter expert. The industry subject matter expert should hold the unit being assessed (or an equivalent unit) and/or demonstrate equivalence of skills and knowledge at the unit level. An industry technical expert must also demonstrate skills and knowledge from the minimum years of current work experience specified below in the industry sector, including time spent in roles related to the unit being assessed; and,
- assessor and industry subject matter expert requirements differ depending on the Australian Qualifications Framework Level (AQF) of the qualification being assessed and/or industry sector as follows:

Industry sector	AQF** Level	Required assessor or industry subject matter expert experience
Drilling, Metalliferous Mining, Coal	1	1 Year

Mining, Extractive (Quarrying) and Civil Construction	2	2 Years
Drilling, Coal Mining and Extractive (Quarrying)	3-6	3 Years
Metalliferous Mining and Civil Construction	3-6	5 Years
Other sectors	Where this unit is being assessed outside of the Resources and Infrastructure Sectors, assessor and/or industry subject matter expert experience should be in-line with industry standards for the sector in which it is being assessed and, where no industry standard is specified, should comply with any relevant regulation.	

*Assessors can demonstrate current work experience through employment within industry in a role relevant to the outcomes of the unit; or, for external assessors this can be demonstrated through exposure to industry by conducting frequent site assessments across various locations.

**Where a unit is being delivered outside of a qualification the first numeric character in the Unit code should be considered to indicate the AQF level

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=88a61002-9a21-4386-aaf8-69c76e675272>

RIICCM207D Spread and compact materials manually

Modification History

Release	Comment
1	This unit replaces RIICCM207A Spread and compact materials manually.
2	Editorial corrections Amended Performance Evidence.
3	Required frequency and volume of evidence amended in Performance evidence. Substantial amendments made in Assessment Conditions field, including: references to Industry Sectors, assessor and subject matter expert experience requirements, how assessment should be conducted and what it should confirm.

Application

This unit describes a participant's skills and knowledge required to spread and compact materials manually in Civil construction.

This unit is appropriate for those working in operational roles.

Licensing, legislative, regulatory and certification requirements that apply to this unit can vary between states, territories, and Industry sectors. Relevant information must be sourced prior to application of the unit.

Unit Sector

Civil construction

Elements and Performance Criteria

1. Plan and prepare for manually spreading and compacting materials	1.1 Access, interpret and apply spreading and compacting materials documentation, and ensure the work activity is compliant 1.2 Obtain, read, interpret, clarify and confirm work requirements 1.3 Identify and address potential risks, hazards and environmental issues, and implement control measures 1.4 Select and wear personal protective equipment appropriate for work activities 1.5 Identify, obtain and implement traffic signage requirements

	1.6 Select, and check for faults, equipment and/or attachments for work activities 1.7 Obtain and interpret emergency procedures, and be prepared for fire/accident/emergency
2. Conduct compaction machine operational checks	2.1 Carry out pre-start, start-up and shutdown procedures 2.2 Check machine controls and functions for serviceability, and rectify or report any faults
3. Spread and compact materials	3.1 Conduct basic field identification test and identify material type 3.2 Direct trucks to required location for loading/dumping 3.3 Direct delivered/relocated materials to correct location 3.4 Check manufactured material for segregation 3.5 Conduct field test to ensure material moisture is suitable 3.6 Direct machine operator to spread materials to specified levels 3.7 Finish materials by hand to specified levels 3.8 Operate mechanical compaction equipment and consolidate materials into layers 3.9 Conduct field test to ensure compaction has been achieved in restricted locations
4. Conduct housekeeping activities	4.1 Clear work area and dispose of or recycle materials 4.2 Clean and maintain condition of equipment, ensure suitability for use, and address/report issues 4.3 Manage/report hazards, and maintain a safe working environment 4.4 Process written records

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit. Further information is available in the Resources and Infrastructure Industry Training Package Companion Volume.

Unit Mapping Information

RIICCM207A Spread and compact materials manually

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=88a61002-9a21-4386-aaf8-69c76e675272>

Assessment Requirements for RIICCM207D Spread and compact materials manually

Modification History

Release	Comment
1	This unit replaces RIICCM207A Spread and compact materials manually.
2	Editorial corrections Amended Performance Evidence.
3	Required frequency and volume of evidence amended in Performance evidence. Substantial amendments made in Assessment Conditions field, including: references to Industry Sectors, assessor and subject matter expert experience requirements, how assessment should be conducted and what it should confirm.

Performance Evidence

Evidence is required to be collected that demonstrates a candidate's competency in this unit. Evidence must be relevant to the roles within this sector's work operations and satisfy all of the requirements of the performance criteria of this unit and include evidence that the candidate:

- locates and applies applicable documentation, policies and procedures
- implements the requirements, procedures and techniques for the safe, effective and efficient completion of the manual spreading and compacting of materials including:
 - selecting and using relevant tools/equipment
 - carrying out equipment pre-start, start-up and shutdown
 - conducting practical field tests for moisture content, shrinkage and compaction
 - communicating effectively to direct operators
- works effectively with others to undertake and complete the manual spreading and compacting of materials that meets all of the required outcomes including:
 - using a range of communications techniques and equipment to convey information to others
 - complying with written and verbal reporting requirements and procedures
- demonstrates completion of manually spreading and compacting materials that safely, effectively and efficiently meets all of the required outcomes on more than one (1) occasion including:
 - completing the hand spreading and the mechanical (hand operated) compaction of two (2) different material types to site specification

Knowledge Evidence

The candidate must demonstrate knowledge of the following when spreading and compacting materials manually:

- accessing, interpreting and applying the organisation and site requirements and procedures for:
 - using JSAs/JSEA/safe work methods
 - achieving project quality outcomes
 - identifying and reporting on hazards related to the worksite and work activity
 - applying materials handling methods and using safety data sheets
- organising work activities
- using relevant tools and equipment safely
- identifying hand operated mechanical compaction machine types, characteristics, technical capabilities and limitations
- applying basic principles of soil technology for civil works
- identifying basic soil compaction theory including the effects of moisture and mechanical interlock
- identifying site isolation and traffic control responsibilities and authorities
- using civil construction terminology
- completing housekeeping activities

Assessment Conditions

- An assessor of this unit must satisfy the requirements of the NVR/AQTF or their successors; and Industry regulations for certification and licensing; and,
- this unit is best assessed in the context of this sector's work environment;
- where personal safety or environmental damage are limiting factors, assessment may occur in a simulated environment provided it is realistic and sufficiently rigorous to cover all aspects of this sector's workplace performance, including environment, task skills, task management skills, contingency management skills and job role environment skills; and,
- this unit must be assessed in compliance with relevant legislation/regulation and using policies, procedures, processes and operational manuals directly related to the industry sector for which it is being assessed; and,
- assessment may be conducted in conjunction with the assessment of other Units of Competency; and,
- assessment must confirm consistent performance can be applied in a range of relevant workplace circumstances; and,
- assessors must demonstrate the performance evidence, and knowledge evidence as outlined in this Unit of Competency, and through the minimum years of current* work experience specified below in an Industry sector relevant to the outcomes of the unit; or,

- where the assessor does not meet experience requirements a co-assessment or partnership arrangement must exist between the qualified assessor and an Industry subject matter expert. The Industry subject matter expert should hold the unit being assessed (or an equivalent unit) and/or demonstrate equivalence of skills and knowledge at the unit level. An Industry technical expert must also demonstrate skills and knowledge from the minimum years of current work experience specified below in the Industry sector, including time spent in roles related to the unit being assessed; and,
- assessor and Industry subject matter expert requirements differ depending on the Australian Qualifications Framework Level (AQF) of the qualification being assessed and/or Industry Sector as follows:

Industry sector	AQF** Level	Required assessor or Industry subject matter expert experience
Drilling, Metalliferous Mining, Coal Mining, Extractive (Quarrying) and Civil Construction	1	1 Year
	2	2 Years
Drilling, Coal Mining and Extractive (Quarrying)	3-6	3 Years
Metalliferous Mining and Civil Construction	3-6	5 Years
Other sectors	Where this Unit is being assessed outside of the Resources and Infrastructure Sectors assessor and/or Industry subject matter expert experience should be in-line with industry standards for the sector in which it is being assessed and where no Industry standard is specified should comply with any relevant regulation.	

*Assessors can demonstrate current work experience through employment within Industry in a role relevant to the outcomes of the Unit; or, for external assessors this can be demonstrated through exposure to Industry by conducting frequent site assessments across various locations.

**Where a unit is being delivered outside of a Qualification the first numeric character in the Unit code should be considered to indicate the AQF level

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=88a61002-9a21-4386-aaf8-69c76e675272>

RIICCM208D Carry out basic levelling

Modification History

Release	Comment
1	This unit replaces RIICCM208A Carry out basic levelling.
2	Editorial corrections Amended Performance Evidence.
3	Required frequency and volume of evidence amended in Performance evidence. Substantial amendments made in Assessment Conditions field, including: references to Industry Sectors, assessor and subject matter expert experience requirements, how assessment should be conducted and what it should confirm.

Application

This unit describes a participant's skills and knowledge required to carry out basic levelling in Civil construction.

This unit is appropriate for those working in operational roles.

Licensing, legislative, regulatory and certification requirements that apply to this unit can vary between states, territories, and Industry sectors. Relevant information must be sourced prior to application of the unit.

Unit Sector

Civil construction

Elements and Performance Criteria

1. Plan and prepare for basic levelling	1.1 Access, interpret and apply basic levelling documentation, and ensure the work activity is complaint 1.2 Obtain, read, interpret, clarify and confirm work requirements 1.3 Identify and address potential risks, hazards and environmental issues, and implement control measures 1.4 Select and wear personal protective equipment appropriate for work activities

	1.5 Identify, obtain and implement traffic signage requirements 1.6 Select equipment and/or attachments for work activities, and check for faults and serviceability within specified tolerances 1.7 Identify environmental protection requirements 1.8 Obtain and interpret emergency procedures, and be prepared for fire/accident/emergency
2. Establish offsets to plans and drawings	2.1 Establish offset and recovery pegs from survey controls to specified plans and drawings 2.2 Re-establish earthwork and pavement control lines from offsets and/or recovery pegs 2.3 Establish drainage offsets from survey control
3. Set up and use levelling device	3.1 Identify heights to be transferred/established from project plans or instructions 3.2 Set up and use levelling instruments, and complete levelling 3.3 Transfer heights from the known to the required 3.4 Document results of levelling procedure
4. Conduct housekeeping activities	4.1 Clear work area and dispose of or recycle materials 4.2 Clean and maintain condition of equipment, ensure suitability for use, and address/report issues 4.3 Manage/report hazards, and maintain a safe working environment 4.4 Process written records

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit. Further information is available in the Resources and Infrastructure Industry Training Package Companion Volume.

Unit Mapping Information

RIICCM208A Carry out basic levelling

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=88a61002-9a21-4386-aaf8-69c76e675272>

Assessment Requirements for RIICCM208D Carry out basic levelling

Modification History

Release	Comment
1	This unit replaces RIICCM208A Carry out basic levelling.
2	Editorial corrections Amended Performance Evidence.
3	Required frequency and volume of evidence amended in Performance evidence. Substantial amendments made in Assessment Conditions field, including: references to Industry Sectors, assessor and subject matter expert experience requirements, how assessment should be conducted and what it should confirm.

Performance Evidence

Evidence is required to be collected that demonstrates a candidate's competency in this unit. Evidence must be relevant to the roles within this sector's work operations and satisfy all of the requirements of the performance criteria of this unit and include evidence that the candidate:

- locates and applies applicable documentation, policies and procedures
- implements the requirements, procedures and techniques for the safe, effective and efficient completion of basic levelling including:
 - selecting and using relevant tools/equipment
 - carrying out basic leveling mathematics
 - following basic civil construction processes
 - communicating effectively to confirm work requirements/plans/drawings
- works effectively with others to undertake and complete the basic levelling in a way that meets all of the required outcomes, including:
 - using a range of communications techniques and equipment to convey information to others
 - complying with written and verbal reporting requirements and procedures
- demonstrates completion of carrying out basic levelling that safely, effectively and efficiently meets all of the required outcomes on more than one (1) occasion including:
 - conducting different levelling tasks, at least one (1) utilising an automatic level. One (1) of the tasks must include closed traverse utilising **either** the height of instrument **or** rise and fall method of reduction

- conducting a peg test with an automatic level, to confirm instrument meets manufacturer's tolerances
- accurately recording of the results of each levelling procedure to organisational requirements

Knowledge Evidence

The candidate must demonstrate knowledge of the following when carrying out basic levelling:

- accessing, interpreting and applying the organisation and site requirements and procedures for:
 - using JSAs/JSEA/safe work methods
 - achieving project quality outcomes
 - identifying and reporting on hazards related to the worksite and work activity
 - applying materials handling methods and using safety data sheets
- organising work activities
- using relevant tools and equipment safely
- identifying leveling devices, characteristics, technical capabilities and limitations
- read, interpret and applying civil construction plan, symbols and construction terminology
- identifying site isolation and traffic control responsibilities and authorities
- completing housekeeping activities

Assessment Conditions

- An assessor of this unit must satisfy the requirements of the NVR/AQTF or their successors; and Industry regulations for certification and licensing; and,
- this unit is best assessed in the context of this sector's work environment;
- where personal safety or environmental damage are limiting factors, assessment may occur in a simulated environment provided it is realistic and sufficiently rigorous to cover all aspects of this sector's workplace performance, including environment, task skills, task management skills, contingency management skills and job role environment skills; and,
- this unit must be assessed in compliance with relevant legislation/regulation and using policies, procedures, processes and operational manuals directly related to the industry sector for which it is being assessed; and,
- assessment may be conducted in conjunction with the assessment of other Units of Competency; and,
- assessment must confirm consistent performance can be applied in a range of relevant workplace circumstances; and,
- assessors must demonstrate the performance evidence, and knowledge evidence as outlined in this Unit of Competency, and through the minimum years of current* work experience specified below in an Industry sector relevant to the outcomes of the unit; or,

- where the assessor does not meet experience requirements a co-assessment or partnership arrangement must exist between the qualified assessor and an Industry subject matter expert. The Industry subject matter expert should hold the unit being assessed (or an equivalent unit) and/or demonstrate equivalence of skills and knowledge at the unit level. An Industry technical expert must also demonstrate skills and knowledge from the minimum years of current work experience specified below in the Industry sector, including time spent in roles related to the unit being assessed; and,
- assessor and Industry subject matter expert requirements differ depending on the Australian Qualifications Framework Level (AQF) of the qualification being assessed and/or Industry Sector as follows:

Industry sector	AQF** Level	Required assessor or Industry subject matter expert experience
Drilling, Metalliferous Mining, Coal Mining, Extractive (Quarrying) and Civil Construction	1	1 Year
	2	2 Years
Drilling, Coal Mining and Extractive (Quarrying)	3-6	3 Years
Metalliferous Mining and Civil Construction	3-6	5 Years
Other sectors	Where this Unit is being assessed outside of the Resources and Infrastructure Sectors assessor and/or Industry subject matter expert experience should be in-line with industry standards for the sector in which it is being assessed and where no Industry standard is specified should comply with any relevant regulation.	

*Assessors can demonstrate current work experience through employment within Industry in a role relevant to the outcomes of the Unit; or, for external assessors this can be demonstrated through exposure to Industry by conducting frequent site assessments across various locations.

**Where a unit is being delivered outside of a Qualification the first numeric character in the Unit code should be considered to indicate the AQF level

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=88a61002-9a21-4386-aaf8-69c76e675272>

RIICCM209D Carry out concrete work

Modification History

Release	Comment
1	This unit replaces RIICCM209A Carry out concrete work.
2	Editorial corrections Amended Performance Evidence.
3	Required frequency and volume of evidence amended in Performance evidence. Substantial amendments made in Assessment Conditions field, including: references to Industry Sectors, assessor and subject matter expert experience requirements, how assessment should be conducted and what it should confirm.

Application

This unit describes a participant's skills and knowledge required to carry out concrete work in Civil Construction.

This unit is appropriate for those working in operational roles.

Licensing, legislative, regulatory and certification requirements that apply to this unit can vary between states, territories, and Industry sectors. Relevant information must be sourced prior to application of the unit.

Unit Sector

Civil construction

Elements and Performance Criteria

1. Plan and prepare for concrete work	1.1 Access, interpret and apply concrete work documentation, and ensure the work activity is compliant 1.2 Obtain, read, interpret, clarify and confirm work requirements 1.3 Identify and address potential risks, hazards and environmental issues, and implement control measures 1.4 Select and wear personal protective equipment appropriate for work activities

	1.5 Identify, obtain and implement traffic signage requirements 1.6 Select, and check for faults, equipment and/or attachments for work activities 1.7 Identify environmental protection requirements 1.8 Obtain and interpret emergency procedures, and be prepared for fire/accident/emergency
2. Select materials	2.1 Determine location requirements of steel reinforcement and formwork 2.2 Confirm reinforcement requirements 2.3 Select formwork components/materials 2.4 Select and use fixing/fasteners
3. Set out for concrete work	3.1 Set string lines accurately from existing pegs 3.2 Check grades and ensure correct fall 3.3 Identify services, protect and prevent damage
4. Construct and fit reinforcement	4.1 Cut and bend reinforcing fabric and bars 4.2 Tie/fix fabric and bars to configuration 4.3 Attach stiffening rods to panels as required to facilitate handling 4.4 Locate reinforcement material in formwork, and place it on bar chairs/spacers, and confirm clearance from formwork 4.5 Locate and secure cast-ins
5. Erect formwork	5.1 Clear work area and prepare surface for erection of formwork 5.2 Set out formwork 5.3 Assemble/erect and brace formwork 5.4 Position expansion joints to specification and to relevant Australian standard 5.5 Position dowel joints 5.6 Remove debris, sawdust and other waste material from formwork 5.7 Apply release agent to manufacturer's specifications
6. Carry out concrete work	6.1 Place concrete to specified levels and grades and avoid segregation 6.2 Compact concrete using immersion vibrator or other specified method

	6.3	Screed, finish and apply curing process to concrete
	6.4	Cover and protect concrete surface
7. Strip formwork	7.1	Remove edge boxing and braces sequentially
	7.2	Denail, clean, store/stack timber components
	7.3	Clean, oil, store/stack steel components
	7.4	Discard damaged formwork components after stripping
	7.5	Clean screens before movement
8. Conduct housekeeping activities	8.1	Clear work area and dispose of or recycle materials
	8.2	Clean and maintain condition of equipment, ensure suitability for use, and address/report issues
	8.3	Manage/report hazards, and maintain a safe working environment
	8.4	Process written records

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit. Further information is available in the Resources and Infrastructure Industry Training Package Companion Volume.

Unit Mapping Information

RIICCM209A Carry out concrete work

Links

Companion Volume implementation guides are found in VETNet - <https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=88a61002-9a21-4386-aaf8-69c76e675272>

Assessment Requirements for RIICCM209D Carry out concrete work

Modification History

Release	Comment
1	This unit replaces RIICCM209A Carry out concrete work.
2	Editorial corrections Amended Performance Evidence.
3	Required frequency and volume of evidence amended in Performance evidence. Substantial amendments made in Assessment Conditions field, including: references to Industry Sectors, assessor and subject matter expert experience requirements, how assessment should be conducted and what it should confirm.

Performance Evidence

Evidence is required to be collected that demonstrates a candidate's competency in this unit. Evidence must be relevant to the roles within this sector's work operations and satisfy all of the requirements of the performance criteria of this unit and include evidence that the candidate:

- locates and applies applicable documentation, policies and procedures
- implements the requirements, procedures and techniques for the safe, effective and efficient completion of concrete work including:
 - selecting and using relevant tools/equipment
 - carrying out steel reinforcement
 - completing formwork
 - communicating effectively to confirm work requirements/drawings/specifications
- works effectively with others to undertake and complete concrete work that meets all of the required outcomes including:
 - using a range of communications techniques and equipment to convey information to others
 - complying with written and verbal reporting requirements and procedures
- demonstrates completion of carrying out concrete work that safely, effectively and efficiently meets all of the required outcomes on more than one (1) occasion including:
 - set up string lines, framework and reinforcements
 - position expansion and dowel joints
 - place concrete according to job specifications

- compact concrete
- screed/finish concrete surface

Knowledge Evidence

The candidate must demonstrate knowledge of the following when carrying out concrete work:

- accessing, interpreting and applying the organisation and site requirements and procedures for:
 - using JSAs/JSEA/safe work methods
 - achieving project quality outcomes
 - identifying and reporting on hazards related to the worksite and work activity
 - applying materials handling methods and using safety data sheets
- organising work activities
- using relevant tools and equipment safely
- identifying equipment types, characteristics, technical capabilities and limitations
- identifying site isolation and traffic control responsibilities and authorities
- identifying concrete characteristics and properties
- using concreting principles
- using structural technology
- using civil construction terminology
- completing housekeeping activities

Assessment Conditions

- An assessor of this unit must satisfy the requirements of the NVR/AQTF or their successors; and Industry regulations for certification and licensing; and,
- this unit is best assessed in the context of this sector's work environment;
- where personal safety or environmental damage are limiting factors, assessment may occur in a simulated environment provided it is realistic and sufficiently rigorous to cover all aspects of this sector's workplace performance, including environment, task skills, task management skills, contingency management skills and job role environment skills; and,
- this unit must be assessed in compliance with relevant legislation/regulation and using policies, procedures, processes and operational manuals directly related to the industry sector for which it is being assessed; and,
- assessment may be conducted in conjunction with the assessment of other Units of Competency; and,
- assessment must confirm consistent performance can be applied in a range of relevant workplace circumstances; and,
- assessors must demonstrate the performance evidence, and knowledge evidence as outlined in this Unit of Competency, and through the minimum years of current* work experience specified below in an Industry sector relevant to the outcomes of the unit; or,

- where the assessor does not meet experience requirements a co-assessment or partnership arrangement must exist between the qualified assessor and an Industry subject matter expert. The Industry subject matter expert should hold the unit being assessed (or an equivalent unit) and/or demonstrate equivalence of skills and knowledge at the unit level. An Industry technical expert must also demonstrate skills and knowledge from the minimum years of current work experience specified below in the Industry sector, including time spent in roles related to the unit being assessed; and,
- assessor and Industry subject matter expert requirements differ depending on the Australian Qualifications Framework Level (AQF) of the qualification being assessed and/or Industry Sector as follows:

Industry sector	AQF** Level	Required assessor or Industry subject matter expert experience
Drilling, Metalliferous Mining, Coal Mining, Extractive (Quarrying) and Civil Construction	1	1 Year
	2	2 Years
Drilling, Coal Mining and Extractive (Quarrying)	3-6	3 Years
Metalliferous Mining and Civil Construction	3-6	5 Years
Other sectors	Where this Unit is being assessed outside of the Resources and Infrastructure Sectors assessor and/or Industry subject matter expert experience should be in-line with industry standards for the sector in which it is being assessed and where no Industry standard is specified should comply with any relevant regulation.	

*Assessors can demonstrate current work experience through employment within Industry in a role relevant to the outcomes of the Unit; or, for external assessors this can be demonstrated through exposure to Industry by conducting frequent site assessments across various locations.

**Where a unit is being delivered outside of a Qualification the first numeric character in the Unit code should be considered to indicate the AQF level

Links

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RIICCM210D Install trench support

Modification History

Release	Comment
1	This unit replaces RIICCM210A Install trench support.
2	Editorial corrections Amended Performance Evidence.
3	Required frequency and volume of evidence amended in Performance evidence. Substantial amendments made in Assessment Conditions field, including: references to Industry Sectors, assessor and subject matter expert experience requirements, how assessment should be conducted and what it should confirm.

Application

This unit describes a participant's skills and knowledge required to install trench support in Civil construction.

This unit is appropriate for those working in operational roles.

Licensing, legislative, regulatory and certification requirements that apply to this unit can vary between states, territories, and Industry sectors. Relevant information must be sourced prior to application of the unit.

Unit Sector

Civil construction

Elements and Performance Criteria

1. Plan and prepare for installing trench support	1.1 Access, interpret and apply trench support documentation, and ensure the work activity is compliant 1.2 Obtain, read, interpret, clarify and confirm work requirements 1.3 Identify and address potential risks, hazards and environmental issues, and implement control measures 1.4 Select and wear personal protective equipment appropriate for work activities

	1.5 Identify, obtain and implement traffic signage requirements 1.6 Select, and check for faults, equipment and/or attachments for work activities 1.7 Obtain and interpret emergency procedures, and be prepared for fire/accident/emergency
2. Install trench shoring	2.1 Communicate with plant operator and ensure the excavation of trenches complies with site plan, line and depth 2.2 Determine and prepare shoring method 2.3 Set out positioning of shoring 2.4 Position/erect shoring within the trench 2.5 Secure shoring in position and ensure structural conformity with regulations 2.6 Clean out excavation 2.7 Locate ladders for safe access and egress
3. Remove trench shoring	3.1 Release jacking mechanisms and remove ladders 3.2 Check shoring and prepare it for lifting from the trench 3.3 Remove shoring from trench and store it
4. Conduct housekeeping activities	4.1 Clear work area and dispose of or recycle materials 4.2 Clean and maintain condition of equipment, ensure suitability for use, and address/report issues 4.3 Manage/report hazards, and maintain a safe working environment 4.4 Process written records

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit. Further information is available in the Resources and Infrastructure Industry Training Package Companion Volume.

Unit Mapping Information

RIICCM210A Install trench support

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=88a61002-9a21-4386-aaf8-69c76e675272>

Assessment Requirements for RIICCM210D Install trench support

Modification History

Release	Comment
1	This unit replaces RIICCM210A Install trench support.
2	Editorial corrections Amended Performance Evidence.
3	Required frequency and volume of evidence amended in Performance evidence. Substantial amendments made in Assessment Conditions field, including: references to Industry Sectors, assessor and subject matter expert experience requirements, how assessment should be conducted and what it should confirm.

Performance Evidence

Evidence is required to be collected that demonstrates a candidate's competency in this unit. Evidence must be relevant to the roles within this sector's work operations and satisfy all of the requirements of the performance criteria of this unit and include evidence that the candidate:

- locates and applies applicable documentation, policies and procedures
- implements the requirements, procedures and techniques for the safe, effective and efficient completion of trench support installation including:
 - selecting and using relevant tools/equipment
 - using shoring methods and systems
 - working in confined spaces
 - communicating effectively to confirm work requirements
- works effectively with others to undertake and complete the installation of trench support in a way that meets all of the required outcomes including:
 - using a range of communications techniques and equipment to convey information to others
 - complying with written and verbal reporting requirements and procedures
- demonstrates completion of installing trench support that safely, effectively and efficiently meets all of the required outcomes on more than one (1) occasion including:
 - installation of trench support in trenches deeper than 1.5 metres requiring the trench support to be installed, moved along or within the trench, and removed from the trench

Knowledge Evidence

The candidate must demonstrate knowledge of the following when installing trench support:

- accessing, interpreting and applying the organisation and site requirements and procedures for:
 - using JSAs/JSEA/safe work methods
 - achieving project quality outcomes
 - identifying and reporting on hazards related to the worksite and work activity
 - applying materials handling methods and using safety data sheets
- organising work activities
- using relevant tools and equipment safely
- equipment types, characteristics, technical capabilities and limitations
- excavation techniques
- construction techniques
- site isolation and traffic control responsibilities and authorities
- using civil construction terminology
- completing housekeeping activities

Assessment Conditions

- An assessor of this unit must satisfy the requirements of the NVR/AQTF or their successors; and Industry regulations for certification and licensing; and,
- this unit is best assessed in the context of this sector's work environment;
- where personal safety or environmental damage are limiting factors, assessment may occur in a simulated environment provided it is realistic and sufficiently rigorous to cover all aspects of this sector's workplace performance, including environment, task skills, task management skills, contingency management skills and job role environment skills; and,
- this unit must be assessed in compliance with relevant legislation/regulation and using policies, procedures, processes and operational manuals directly related to the industry sector for which it is being assessed; and,
- assessment may be conducted in conjunction with the assessment of other Units of Competency; and,
- assessment must confirm consistent performance can be applied in a range of relevant workplace circumstances; and,
- assessors must demonstrate the performance evidence, and knowledge evidence as outlined in this Unit of Competency, and through the minimum years of current* work experience specified below in an Industry sector relevant to the outcomes of the unit; or,
- where the assessor does not meet experience requirements a co-assessment or partnership arrangement must exist between the qualified assessor and an Industry subject matter expert. The Industry subject matter expert should hold the unit being assessed (or an equivalent unit) and/or demonstrate equivalence of skills and knowledge at the unit level. An Industry technical expert must also demonstrate skills and knowledge from the minimum years of current work experience specified below in the Industry sector, including time spent in roles related to the unit being assessed; and,

- assessor and Industry subject matter expert requirements differ depending on the Australian Qualifications Framework Level (AQF) of the qualification being assessed and/or Industry Sector as follows:

Industry sector	AQF** Level	Required assessor or Industry subject matter expert experience
Drilling, Metalliferous Mining, Coal Mining, Extractive (Quarrying) and Civil Construction	1	1 Year
	2	2 Years
Drilling, Coal Mining and Extractive (Quarrying)	3-6	3 Years
Metalliferous Mining and Civil Construction	3-6	5 Years
Other sectors	Where this Unit is being assessed outside of the Resources and Infrastructure Sectors assessor and/or Industry subject matter expert experience should be in-line with industry standards for the sector in which it is being assessed and where no Industry standard is specified should comply with any relevant regulation.	

*Assessors can demonstrate current work experience through employment within Industry in a role relevant to the outcomes of the Unit; or, for external assessors this can be demonstrated through exposure to Industry by conducting frequent site assessments across various locations.

**Where a unit is being delivered outside of a Qualification the first numeric character in the Unit code should be considered to indicate the AQF level

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=88a61002-9a21-4386-aaf8-69c76e675272>

RIICCM211D Erect and dismantle temporary fencing and gates

Modification History

Release	Comment
1	This unit replaces RIICCM211A Erect and dismantle temporary fencing and gates.
2	Editorial corrections.
3	Required frequency and volume of evidence amended in Performance evidence. Substantial amendments made in Assessment Conditions field, including: references to Industry Sectors, assessor and subject matter expert experience requirements, how assessment should be conducted and what it should confirm.

Application

This unit describes a participant's skills and knowledge required to erect and dismantle temporary fencing and gates in Civil Construction.

This unit is appropriate for those working in operational roles.

Licensing, legislative, regulatory and certification requirements that apply to this unit can vary between states, territories, and Industry sectors. Relevant information must be sourced prior to application of the unit.

Unit Sector

Civil construction

Elements and Performance Criteria

1. Plan and prepare for erecting and dismantling temporary fencing and gates	1.1 Access, interpret and apply temporary fencing and gates documentation, and ensure the work activity is compliant 1.2 Obtain, read, interpret, clarify and confirm work requirements 1.3 Identify and address potential risks, hazards and environmental issues, and implement control measures 1.4 Select and wear personal protective equipment appropriate for work activities 1.5 Identify, obtain and implement traffic signage requirements

	1.6 Select, and check for faults, equipment and/or attachments for work activities 1.7 Obtain and interpret emergency procedures, and be prepared for fire/accident/emergency
2. Erect fencing	2.1 Set out fence line and anchoring structure positions 2.2 Erect fence posts in place and plumb to alignment 2.3 Fix fence rails and cladding/mesh to posts 2.4 Finish fencing to completed construction requirements
3. Erect gates and signage	3.1 Fit and secure gates 3.2 Install signage at entry gates
4. Remove and make good	4.1 Dismantle gates and fencing and remove from site 4.2 Make area good to work specification
5. Conduct housekeeping activities	5.1 Clear work area and dispose of or recycle materials 5.2 Clean and maintain condition of equipment, ensure suitability for use, and address/report issues 5.3 Manage/report hazards, and maintain a safe working environment 5.4 Process written records

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit. Further information is available in the Resources and Infrastructure Industry Training Package Companion Volume.

Unit Mapping Information

RIICCM211A Erect and dismantle temporary fencing and gates

Links

Companion Volume implementation guides are found in VETNet - <https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=88a61002-9a21-4386-aaf8-69c76e675272>

Assessment Requirements for RIICCM211D Erect and dismantle temporary fencing and gates

Modification History

Release	Comment
1	This unit replaces RIICCM211A Erect and dismantle temporary fencing and gates.
2	Editorial corrections.
3	Required frequency and volume of evidence amended in Performance evidence. Substantial amendments made in Assessment Conditions field, including: references to Industry Sectors, assessor and subject matter expert experience requirements, how assessment should be conducted and what it should confirm.

Performance Evidence

Evidence is required to be collected that demonstrates a candidate's competency in this unit. Evidence must be relevant to the roles within this sector's work operations and satisfy all of the requirements of the performance criteria of this unit and include evidence that the candidate:

- locates and applies applicable documentation, policies and procedures
- implements the requirements, procedures and techniques for the safe, effective and efficient completion of the erection and dismantling of temporary fencing and gates including:
 - selecting and using relevant tools/equipment
 - using fencing construction systems
 - using anchoring systems
 - communicating effectively to clarify work/plans/specifications
- works effectively with others to undertake and complete the erection and dismantling of temporary fences and gates in a way that meets all of the required outcomes including:
 - using a range of communications techniques and equipment to convey information to others
 - complying with written and verbal reporting requirements and procedures
- demonstrates completion of erecting and dismantling temporary fencing and gates that safely, effectively and efficiently meets all of the required outcomes on more than one (1) occasion including:
 - completion of the erection and dismantling of temporary fencing to enclose an area of at least 100m² including at least one (1) gate to specifications

Knowledge Evidence

The candidate must demonstrate knowledge of the following when erecting and dismantling temporary fencing and gates:

- accessing, interpreting and applying the organisation and site requirements and procedures for:
 - using JSAs/JSEA/safe work methods
 - achieving project quality outcomes
 - identifying and reporting on hazards related to the worksite and work activity
 - applying materials handling methods and using safety data sheets
- organising work activities
- using relevant tools and equipment safely
- equipment types, characteristics, technical capabilities and limitations
- site safety and security isolation techniques
- site isolation and traffic control responsibilities and authorities
- using civil construction terminology
- different fencing and anchoring systems
- completing housekeeping activities

Assessment Conditions

- An assessor of this unit must satisfy the requirements of the NVR/AQTF or their successors; and Industry regulations for certification and licensing; and,
- this unit is best assessed in the context of this sector's work environment;
- where personal safety or environmental damage are limiting factors, assessment may occur in a simulated environment provided it is realistic and sufficiently rigorous to cover all aspects of this sector's workplace performance, including environment, task skills, task management skills, contingency management skills and job role environment skills; and,
- this unit must be assessed in compliance with relevant legislation/regulation and using policies, procedures, processes and operational manuals directly related to the industry sector for which it is being assessed; and,
- assessment may be conducted in conjunction with the assessment of other Units of Competency; and,
- assessment must confirm consistent performance can be applied in a range of relevant workplace circumstances; and,
- assessors must demonstrate the performance evidence, and knowledge evidence as outlined in this Unit of Competency, and through the minimum years of current* work experience specified below in an Industry sector relevant to the outcomes of the unit; or,
- where the assessor does not meet experience requirements a co-assessment or partnership arrangement must exist between the qualified assessor and an Industry subject matter expert. The Industry subject matter expert should hold the unit being assessed (or an equivalent unit) and/or demonstrate equivalence of skills and knowledge at the unit level. An Industry technical expert must also demonstrate skills and knowledge from the minimum years of current work experience specified below in the Industry sector, including time spent in roles related to the unit being assessed; and,

- assessor and Industry subject matter expert requirements differ depending on the Australian Qualifications Framework Level (AQF) of the qualification being assessed and/or Industry Sector as follows:

Industry sector	AQF** Level	Required assessor or Industry subject matter expert experience
Drilling, Metalliferous Mining, Coal Mining, Extractive (Quarrying) and Civil Construction	1	1 Year
	2	2 Years
Drilling, Coal Mining and Extractive (Quarrying)	3-6	3 Years
Metalliferous Mining and Civil Construction	3-6	5 Years
Other sectors	Where this Unit is being assessed outside of the Resources and Infrastructure Sectors assessor and/or Industry subject matter expert experience should be in-line with industry standards for the sector in which it is being assessed and where no Industry standard is specified should comply with any relevant regulation.	

*Assessors can demonstrate current work experience through employment within Industry in a role relevant to the outcomes of the Unit; or, for external assessors this can be demonstrated through exposure to Industry by conducting frequent site assessments across various locations.

**Where a unit is being delivered outside of a Qualification the first numeric character in the Unit code should be considered to indicate the AQF level

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=88a61002-9a21-4386-aaf8-69c76e675272>

RIICCM301D Construct and dismantle fences and gates

Modification History

Release	Comment
1	This unit replaces RIICCM301A Construct and dismantle fences and gates.
2	Editorial corrections.
3	Required frequency and volume of evidence amended in Performance evidence. Substantial amendments made in Assessment Conditions field, including: references to Industry Sectors, assessor and subject matter expert experience requirements, how assessment should be conducted and what it should confirm.

Application

This unit describes a participant's skills and knowledge required to construct and dismantle fences and gates in Civil Construction.

This unit is appropriate for those working in operational roles.

Licensing, legislative, regulatory and certification requirements that apply to this unit can vary between states, territories, and Industry sectors. Relevant information must be sourced prior to application of the unit.

Unit Sector

Civil construction

Elements and Performance Criteria

1. Plan and prepare for constructing and dismantling fences and gates	1.1 Access, interpret and apply fences and gates documentation, and ensure the work activity is compliant 1.2 Obtain, read, interpret, clarify and confirm work requirements 1.3 Identify and address potential risks, hazards and environmental issues, and implement control measures 1.4 Select and wear personal protective equipment appropriate for work activities 1.5 Identify, obtain and implement traffic signage

	1.6 Select, and check for faults, equipment and/or attachments for work activities 1.7 Identify environmental protection requirements 1.8 Obtain and interpret emergency procedures, and be prepared for fire/accident/emergency
2. Erect fences	2.1 Set out fence line and post positions 2.2 Erect fence posts in place and plumb to alignment 2.3 Fix fence rails/wire, cladding or mesh to posts 2.4 Finish fencing to completed construction condition requirements
3. Erect gates and signage	3.1 Fit and secure gates 3.2 Install signage at entry gates
4. Remove and make good	4.1 Dismantle fences and gates and remove them from site 4.2 Make area good to work specification
5. Conduct housekeeping activities	5.1 Clear work area and dispose of or recycle materials 5.2 Clean and maintain condition of equipment, ensure suitability for use, and address/report issues 5.3 Manage/report hazards, and maintain a safe working environment 5.4 Process written records

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit. Further information is available in the Resources and Infrastructure Industry Training Package Companion Volume.

Unit Mapping Information

RIICCM301A Construct and dismantle fences and gates

Links

Companion Volume implementation guides are found in VETNet - <https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=88a61002-9a21-4386-aaf8-69c76e675272>

Assessment Requirements for RIICCM301D Construct and dismantle fences and gates

Modification History

Release	Comment
1	This unit replaces RIICCM301A Construct and dismantle fences and gates.
2	Editorial corrections.
3	Required frequency and volume of evidence amended in Performance evidence. Substantial amendments made in Assessment Conditions field, including: references to Industry Sectors, assessor and subject matter expert experience requirements, how assessment should be conducted and what it should confirm.

Performance Evidence

Evidence is required to be collected that demonstrates a candidate's competency in this unit. Evidence must be relevant to the roles within this sector's work operations and satisfy all of the requirements of the performance criteria of this unit and include evidence that the candidate:

- locates and applies applicable documentation, policies and procedures
- implements the requirements, procedures and techniques for the safe, effective and efficient completion of the construction and dismantling of fences and gates including:
 - selecting and using relevant tools/equipment
 - using fencing construction systems
 - using anchoring systems
 - communicating effectively to clarify work/plans/specifications
- works effectively with others to undertake and complete the construction and dismantling of fences and gates in a way that meets all of the required outcomes including:
 - using a range of communications techniques and equipment to convey information to others
 - complying with written and verbal reporting requirements and procedures
- demonstrates completion of constructing and dismantling fences and gates that safely, effectively and efficiently meets all of the required outcomes on more than one (1) occasion including:
 - completion of the erection and dismantling of fencing to enclose an area of at least 100m² including at least one (1) gate to specifications

Knowledge Evidence

The candidate must demonstrate knowledge of the following when constructing and dismantling fences and gates:

- accessing, interpreting and applying the organisation and site requirements and procedures for:
 - using JSAs/JSEA/safe work methods
 - achieving project quality outcomes
 - identifying and reporting on hazards related to the worksite and work activity
 - applying materials handling methods and using safety data sheets
- organising work activities
- using relevant tools and equipment safely
- equipment types, characteristics, technical capabilities and limitations
- site safety and security isolation techniques
- site isolation and traffic control responsibilities and authorities
- using civil construction terminology
- different fencing and anchoring systems
- completing housekeeping activities

Assessment Conditions

- An assessor of this unit must satisfy the requirements of the NVR/AQTF or their successors; and Industry regulations for certification and licensing; and,
- this unit is best assessed in the context of this sector's work environment;
- where personal safety or environmental damage are limiting factors, assessment may occur in a simulated environment provided it is realistic and sufficiently rigorous to cover all aspects of this sector's workplace performance, including environment, task skills, task management skills, contingency management skills and job role environment skills; and,
- this unit must be assessed in compliance with relevant legislation/regulation and using policies, procedures, processes and operational manuals directly related to the industry sector for which it is being assessed; and,
- assessment may be conducted in conjunction with the assessment of other Units of Competency; and,
- assessment must confirm consistent performance can be applied in a range of relevant workplace circumstances; and,
- assessors must demonstrate the performance evidence, and knowledge evidence as outlined in this Unit of Competency, and through the minimum years of current* work experience specified below in an Industry sector relevant to the outcomes of the unit; or,
- where the assessor does not meet experience requirements a co-assessment or partnership arrangement must exist between the qualified assessor and an Industry subject matter expert. The Industry subject matter expert should hold the unit being assessed (or an equivalent unit) and/or demonstrate equivalence of skills and knowledge at the unit level. An Industry technical expert must also demonstrate skills and knowledge from the minimum years of current work experience specified below in the Industry sector, including time spent in roles related to the unit being assessed; and,

- assessor and Industry subject matter expert requirements differ depending on the Australian Qualifications Framework Level (AQF) of the qualification being assessed and/or Industry Sector as follows:

Industry sector	AQF** Level	Required assessor or Industry subject matter expert experience
Drilling, Metalliferous Mining, Coal Mining, Extractive (Quarrying) and Civil Construction	1	1 Year
	2	2 Years
Drilling, Coal Mining and Extractive (Quarrying)	3-6	3 Years
Metalliferous Mining and Civil Construction	3-6	5 Years
Other sectors	Where this Unit is being assessed outside of the Resources and Infrastructure Sectors assessor and/or Industry subject matter expert experience should be in-line with industry standards for the sector in which it is being assessed and where no Industry standard is specified should comply with any relevant regulation.	

*Assessors can demonstrate current work experience through employment within Industry in a role relevant to the outcomes of the Unit; or, for external assessors this can be demonstrated through exposure to Industry by conducting frequent site assessments across various locations.

**Where a unit is being delivered outside of a Qualification the first numeric character in the Unit code should be considered to indicate the AQF level

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=88a61002-9a21-4386-aaf8-69c76e675272>

RIICOM201E Communicate in the workplace

Modification History

Release	Comments
Release 1	This version first released with RII Resources and Infrastructure Industry Training Package Version 5.0.

Application

This unit describes the skills and knowledge required to communicate in the workplace in the resources and infrastructure industries and other industries with relevant work practices and procedures.

It applies to those working in operational roles. They generally work under supervision to undertake a prescribed range of functions involving known routines and procedures and take some responsibility for the quality of own work outcomes.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Plan and prepare for workplace communication using equipment and systems	1.1 Obtain, interpret and confirm work requirements 1.2 Access, interpret and apply documentation and procedures 1.3 Identify and access communication equipment and system components 1.4 Establish and maintain communication with others 1.5 Access and apply communication equipment and systems safety procedures
2. Communicate using communication equipment and systems	2.1 Identify and select the most appropriate method of communication 2.2 Use communication equipment and systems 2.3 Acknowledge and respond to communication 2.4 Pass on communications to others in a clear and concise manner 2.5 Follow safety procedures, including the passing of reports and observance of local communications and emergency procedures

ELEMENT	PERFORMANCE CRITERIA
	2.6 Identify and report faults in communication equipment
3. Carry out face-to-face routine communication	3.1 Speak clearly and listen carefully to promote understanding 3.2 Ask questions of the audience and confirm meaning of information 3.3 Maintain communication processes with others to assist flow of work activities 3.4 Use site approved signalling methods to convey information 3.5 Participate in discussion to obtain information and clarify meaning 3.6 Communicate cooperatively and effectively with others
4. Complete written documentation	4.1 Complete written documentation clearly, concisely and on time 4.2 Use approved documents according to workplace procedures 4.3 Pass on written information to others

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance but not explicit in the performance criteria.

SKILL	DESCRIPTION
Writing	Produces and completes written documents required for workplace procedures
Self-management	Monitors and minimises own exposure to worksite risks and hazards during activities

Unit Mapping Information

Supersedes and is equivalent to RIICOM201D Communicate in the workplace.

Links

Companion Volume implementation guides is found on VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=88a61002-9a21-4386-aaf8-69c76e675272>

Assessment Requirements for RIICOM201E Communicate in the workplace

Modification History

Release	Comments
Release 1	This version first released with RII Resources and Infrastructure Industry Training Package Version 5.0.

Performance Evidence

The candidate must demonstrate the ability to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including evidence of the ability to:

- communicate in the workplace on at least two occasions, including:
 - identifying communication strategies and systems
 - operating communications systems and equipment to convey meaning to others
 - communicating clearly and promptly to others to convey information and meaning
 - listening carefully to instructions and information
 - participating in group discussions and engage with group members respectfully
 - asking questions to clarify meaning
 - communicating concisely both written and verbally
 - interpreting communications devices
 - identifying and reporting communication faults and deficiencies.

Knowledge Evidence

The candidate must be able to demonstrate knowledge to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including knowledge of:

- key policies, procedures and documentation required to communicate in the workplace, including:
 - work health and safety procedures
 - emergency communication procedures.
- communication systems and equipment types, characteristics, technical capabilities and limitations, including:
 - safety requirements
 - common faults
 - maintenance records.
- key communications devices, including:

- flags
- lights
- signs
- bells
- whistles
- alarms
- sirens.

Assessment Conditions

Mandatory conditions for assessment of this unit are stipulated below. The assessment must:

- include access to:
 - personal protective equipment
 - equipment related to communicating in the workplace
 - relevant documentation
- be conducted in a safe environment; and,
- be assessed in the context of this sector's work environment; and,
- be assessed in compliance with relevant legislation/regulation and using policies, procedures and processes directly related to the industry sector for which it is being assessed; and,
- confirm consistent performance can be applied in a range of relevant workplace circumstances.

Where personal safety or environmental damage are limiting factors, assessment may occur in a simulated work environment* provided it is realistic and sufficiently rigorous to cover all aspects of this sector's workplace performance, including environment, task skills, task management skills, contingency management skills and job role environment skills.

Assessor requirements

Assessors must be able to clearly demonstrate current and relevant industry knowledge and experience to satisfy the mandatory regulatory standards as set out in the Standards for Registered Training Organisations (RTOs) 2015/Australian Quality Training Framework mandatory requirements for assessors current at the time of assessment and any relevant licensing and certification requirements. This includes:

- vocational competencies at least to the level being delivered and assessed
- current industry skills directly relevant to the training and assessment being provided
- current knowledge and skills in vocational training and learning that informs their training and assessment
- formal relevant qualifications in training and assessment
- having knowledge of and/or experience using the latest techniques and processes
- possessing the required level of RII training product knowledge
- having an understanding and knowledge of legislation and regulations relevant to the industry and to employment and workplaces

- demonstrating the performance evidence, and knowledge evidence outlined in this unit of competency, and
- the minimum years of current** work experience after competency has been obtained as specified below in an industry sector relevant to the outcomes of the unit.

It is also acceptable for the appropriately qualified assessor to work with an industry expert to conduct assessment together and for the industry expert to be involved in the assessment judgement. The industry expert must have current industry skills directly relevant to the training and assessment being provided. This means the industry subject matter expert must demonstrate skills and knowledge from the minimum years of current work experience after competency has been obtained as specified below, including time spent in roles related to the unit being assessed:

Industry sector	AQF indicator level***	Required assessor or industry subject matter expert experience
Drilling, Metalliferous Mining, Coal Mining, Extractive (Quarrying) and Civil Infrastructure	1	1 year
	2	2 years
Drilling, Coal Mining, Extractive (Quarrying), Metalliferous Mining and Civil Infrastructure	3-6	3 years
Other sectors	Where this unit is being assessed outside of the resources and infrastructure sectors assessor and/or industry subject matter expert experience should be in-line with industry standards for the sector in which it is being assessed and where no industry standard is specified should comply with any relevant regulation.	

*Guidance on simulated environments has been stipulated in the RII implementation guide located on VETNet.

**Assessors can demonstrate current work experience through employment within industry in a role relevant to the outcomes of the unit; or, for external assessors this can be demonstrated through exposure to industry by conducting a minimum number of site assessments as determined by the relevant industry sector, across various locations.

*** While a unit of competency does not have an AQF level, where a unit is being delivered outside of a qualification the first numeric character in the unit code should be considered as the AQF indicator level for assessment purposes.

Links

Companion Volume implementation guides is found on VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=88a61002-9a21-4386-aaf8-69c76e675272>

RIICPL302D Install stormwater systems

Modification History

Release	Comment
1	This unit replaces RIICPL302A Install stormwater systems
2	Required frequency and volume of evidence amended in Performance evidence. Substantial amendments made in Assessment Conditions field, including: references to Industry Sectors, assessor and subject matter expert experience requirements, how assessment should be conducted and what it should confirm.

Application

This unit describes a participant's skills and knowledge required to install stormwater systems in Civil Construction.

This unit is appropriate for those working in operational roles.

Licensing, legislative, regulatory and certification requirements that apply to this unit can vary between states, territories, and Industry sectors. Relevant information must be sourced prior to application of the unit.

Unit Sector

Civil construction

Elements and Performance Criteria

1. Plan and prepare for installing stormwater systems	1.1 Access, interpret and apply stormwater systems documentation and ensure the work activity is compliant 1.2 Obtain, interpret, clarify and confirm work/plans/specifications requirements 1.3 Identify, obtain and implement traffic signage requirements 1.4 Select, and check for faults, equipment/tools for work activities 1.5 Identify, confirm and apply environmental protection requirements 1.6 Select and wear personal protective equipment appropriate for

	work activities 1.7 Identify, address and report potential hazards and risks 1.8 Obtain and interpret emergency procedures, and be prepared for fire/accident/emergency
2. Set out and excavate	2.1 Prepare work area and materials 2.2 Determine and apply dewatering requirements 2.3 Determine location, alignment direction, level and grade of stormwater system 2.4 Set out works to specification 2.5 Advise plant operator of excavation requirements and monitor levels 2.6 Install stormwater system bedding
3. Install stormwater system	3.1 Lower pipes and place in position 3.2 Join pipes correctly 3.3 Continuously check alignment level and grade continuously for conformance 3.4 Position side support and/or overlay beside the pipes 3.5 Fit inspection openings 3.6 Monitor backfill procedure and ensure work is completed to requirements
4. Test stormwater system	4.1 Perform stormwater system test procedures establishing functionality and serviceability 4.2 Record and report test results
5. Clean up	5.1 Clear work area and dispose of or recycle materials 5.2 Clean, check, maintain and store plant, tools and equipment

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit. Further information is available in the Resources and Infrastructure Industry Training Package Companion Volume.

Unit Mapping Information

RIICPL302A Install stormwater systems

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=88a61002-9a21-4386-aaf8-69c76e675272>

Assessment Requirements for RIICPL302D Install stormwater systems

Modification History

Release	Comment
1	This unit replaces RIICPL302A Install stormwater systems
2	Required frequency and volume of evidence amended in Performance evidence. Substantial amendments made in Assessment Conditions field, including: references to Industry Sectors, assessor and subject matter expert experience requirements, how assessment should be conducted and what it should confirm.

Performance Evidence

Evidence is required to be collected that demonstrates a candidate's competency in this unit. Evidence must be relevant to the roles within this sector's work operations and satisfy all of the requirements of the performance criteria of this unit and include evidence that the candidate:

- locates and applies applicable legislation, documentation, policies and procedures
- implements the requirements, procedures and techniques for the safe, effective and efficient completion of installation of stormwater systems including:
 - applying problem solving and troubleshooting techniques
 - applying diagnostic techniques
- works effectively with others to undertake and complete the installation of stormwater systems that meets all of the required outcomes including:
 - communicating to confirm work/plans/specifications
 - using a range of communications techniques and equipment to convey information to others
- demonstrates completion of installing stormwater systems that safely, effectively and efficiently meets all of the required outcomes on more than one (1) occasion including:
 - determining location, alignment direction level and grade of stormwater system
 - installing stormwater system bedding
 - installing a minimum of 100 metres of stormwater pipe
 - completing pipe joins
 - performing test procedures, establishing functionality and serviceability
 - maintaining written and verbal reporting requirements and procedures

Knowledge Evidence

The candidate must demonstrate knowledge in installing stormwater systems through:

- accessing, interpreting and applying the legislative, organisation and site requirements and procedures for;
 - hazard identification, risk assessment and response
 - using JSA/JSEA/safe work method statements
 - project quality measures
 - using tools/equipment
 - maintaining excavation/trench safety
 - confined space entry
 - site dewatering
- using safety data sheets and materials handling methods
- using civil construction terminology
- using pipe systems and installation procedures
- identifying mains pipe and utility services
- using concrete and concrete fabrication
- using sedimentation and erosion controls
- reading and interpreting engineering drawings
- identifying equipment types, characteristics, technical capabilities and limitations
- identifying valves and flow control devices
- construction of water reticulation
- calculating pipeline grades and percentages
- identifying site isolation and traffic control responsibilities and authorities

Assessment Conditions

- An assessor of this unit must satisfy the requirements of the NVR/AQTF or their successors; and Industry regulations for certification and licensing; and,
- this unit must be assessed in the context of this sector's work environment; and,
- this unit must be assessed in compliance with relevant legislation/regulation and using policies, procedures, processes and operational manuals directly related to the industry sector for which it is being assessed; and,
- assessment may be conducted in conjunction with the assessment of other Units of Competency; and,
- assessment must confirm consistent performance can be applied in a range of relevant workplace circumstances; and,
- assessors must demonstrate the performance evidence, and knowledge evidence as outlined in this Unit of Competency, and through the minimum years of current* work experience specified below in an Industry sector relevant to the outcomes of the unit; or,

- where the assessor does not meet experience requirements a co-assessment or partnership arrangement must exist between the qualified assessor and an Industry subject matter expert. The Industry subject matter expert should hold the unit being assessed (or an equivalent unit) and/or demonstrate equivalence of skills and knowledge at the unit level. An Industry technical expert must also demonstrate skills and knowledge from the minimum years of current work experience specified below in the Industry sector, including time spent in roles related to the unit being assessed; and,
- assessor and Industry subject matter expert requirements differ depending on the Australian Qualifications Framework Level (AQF) of the qualification being assessed and/or Industry Sector as follows:

Industry sector	AQF** Level	Required assessor or Industry subject matter expert experience
Drilling, Metalliferous Mining, Coal Mining, Extractive (Quarrying) and Civil Construction	1	1 Year
	2	2 Years
Drilling, Coal Mining and Extractive (Quarrying)	3-6	3 Years
Metalliferous Mining and Civil Construction	3-6	5 Years
Other sectors	Where this Unit is being assessed outside of the Resources and Infrastructure Sectors assessor and/or Industry subject matter expert experience should be in-line with industry standards for the sector in which it is being assessed and where no Industry standard is specified should comply with any relevant regulation.	

*Assessors can demonstrate current work experience through employment within Industry in a role relevant to the outcomes of the Unit; or, for external assessors this can be demonstrated through exposure to Industry by conducting frequent site assessments across various locations.

**Where a unit is being delivered outside of a Qualification the first numeric character in the Unit code should be considered to indicate the AQF level

Links

Companion Volume implementation guides are found in VETNet -

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RIICPL304D Install pre-cast gully pits

Modification History

Release	Comment
1	This unit replaces RIICPL304A Install pre-cast gully pits
2	Required frequency and volume of evidence amended in Performance evidence. Substantial amendments made in Assessment Conditions field, including: references to Industry Sectors, assessor and subject matter expert experience requirements, how assessment should be conducted and what it should confirm.

Application

This unit describes a participant's skills and knowledge required to install pre-cast gully pits in Civil Construction.

This unit is appropriate for those working in operational roles.

Licensing, legislative, regulatory and certification requirements that apply to this unit can vary between states, territories, and Industry sectors. Relevant information must be sourced prior to application of the unit.

Unit Sector

Civil construction

Elements and Performance Criteria

1. Plan and prepare for installing pre-cast gully pits	1.1 Access, interpret and apply pre-cast gully pits documentation and ensure the work activity is compliant 1.2 Obtain, interpret, clarify and confirm work/plans/specifications requirements 1.3 Identify, obtain and implement traffic signage requirements 1.4 Select, and check for faults, equipment/tools for work activities 1.5 Identify, confirm and apply environmental protection requirements 1.6 Select and wear correct personal protective equipment

	appropriate for work activities 1.7 Identify, address and report potential hazards and risks 1.8 Obtain and interpret emergency procedures, and be prepared for fire/accident/emergency
2. Install gully pits	2.1 Advise plant operator of excavation and base preparation requirements 2.2 Determine location and positioning of gully pits 2.3 Set out work area safely to design specifications 2.4 Control ingress of water by dewatering 2.5 Position, fabricate or install main components of the pre-cast unit 2.6 Seal finished surface by rendering where specified 2.7 Position and attach auxiliary components or modifications to pre-cast unit 2.8 Inspect and repair new and existing gully pits
3. Clean up	3.1 Clear work area and dispose of or recycle materials 3.2 Clean, check, maintain and store plant, tools and equipment

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit. Further information is available in the Resources and Infrastructure Industry Training Package Companion Volume.

Unit Mapping Information

RIICPL304A Install pre-cast gully pits

Links

Companion Volume implementation guides are found in VETNet - <https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=88a61002-9a21-4386-aaf8-69c76e675272>

Assessment Requirements for RIICPL304D Install pre-cast gully pits

Modification History

Release	Comment
1	This unit replaces RIICPL304A Install pre-cast gully pits
2	Required frequency and volume of evidence amended in Performance evidence. Substantial amendments made in Assessment Conditions field, including: references to Industry Sectors, assessor and subject matter expert experience requirements, how assessment should be conducted and what it should confirm.

Performance Evidence

Evidence is required to be collected that demonstrates a candidate's competency in this unit. Evidence must be relevant to the roles within this sector's work operations and satisfy all of the requirements of the performance criteria of this unit and include evidence that the candidate:

- locates and applies applicable legislation, documentation, policies and procedures
- implements the requirements, procedures and techniques for the safe, effective and efficient completion of installation of pre-cast gully pits including:
 - applying problem solving and troubleshooting techniques
 - applying diagnostic techniques
- works effectively with others to undertake and complete the installation of pre-cast gully pits that meets all of the required outcomes including:
 - communicating clearly and concisely with others to confirm work/plans/specifications
 - using a range of communications techniques and equipment to convey information to others
- demonstrates completion of installing pre-cast gully pits that safely, effectively and efficiently meets all of the required outcomes on more than one (1) occasion including:
 - determining location and positioning of gully pits
 - installing gully pits for stormwater systems
 - maintaining written and verbal reporting requirements and procedures

Knowledge Evidence

The candidate must demonstrate knowledge in installing pre-cast gully pits through:

- accessing, interpreting and applying the legislative, organisation and site requirements and procedures for;
 - hazard identification, risk assessment and response
 - using JSA/JSEA/safe work method statements
 - project quality measures
 - using tools/equipment
 - maintaining excavation/trench safety
 - confined space entry
 - site dewatering
- using safety data sheets and materials handling methods
- using civil construction terminology
- using gully pit systems and installation procedures
- identifying mains pipe and utility services
- using concrete and concrete fabrication
- using sedimentation and erosion controls
- working with storm-water systems
- reading and interpreting engineering drawings
- identifying equipment types, characteristics, technical capabilities and limitations
- identifying site isolation and traffic control responsibilities and authorities

Assessment Conditions

- An assessor of this unit must satisfy the requirements of the NVR/AQTF or their successors; and Industry regulations for certification and licensing; and,
- this unit must be assessed in the context of this sector's work environment; and,
- this unit must be assessed in compliance with relevant legislation/regulation and using policies, procedures, processes and operational manuals directly related to the industry sector for which it is being assessed; and,
- assessment may be conducted in conjunction with the assessment of other Units of Competency; and,
- assessment must confirm consistent performance can be applied in a range of relevant workplace circumstances; and,
- assessors must demonstrate the performance evidence, and knowledge evidence as outlined in this Unit of Competency, and through the minimum years of current* work experience specified below in an Industry sector relevant to the outcomes of the unit; or,
- where the assessor does not meet experience requirements a co-assessment or partnership arrangement must exist between the qualified assessor and an Industry subject matter expert. The Industry subject matter expert should hold the unit being assessed (or an equivalent unit) and/or demonstrate equivalence of skills and knowledge at the unit level. An Industry technical expert must also demonstrate skills and knowledge from the minimum years of current work experience specified below in the Industry sector, including time spent in roles related to the unit being assessed; and,

- assessor and Industry subject matter expert requirements differ depending on the Australian Qualifications Framework Level (AQF) of the qualification being assessed and/or Industry Sector as follows:

Industry sector	AQF** Level	Required assessor or Industry subject matter expert experience
Drilling, Metalliferous Mining, Coal Mining, Extractive (Quarrying) and Civil Construction	1	1 Year
	2	2 Years
Drilling, Coal Mining and Extractive (Quarrying)	3-6	3 Years
Metalliferous Mining and Civil Construction	3-6	5 Years
Other sectors	Where this Unit is being assessed outside of the Resources and Infrastructure Sectors assessor and/or Industry subject matter expert experience should be in-line with industry standards for the sector in which it is being assessed and where no Industry standard is specified should comply with any relevant regulation.	

*Assessors can demonstrate current work experience through employment within Industry in a role relevant to the outcomes of the Unit; or, for external assessors this can be demonstrated through exposure to Industry by conducting frequent site assessments across various locations.

**Where a unit is being delivered outside of a Qualification the first numeric character in the Unit code should be considered to indicate the AQF level

Links

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RIICPL305D Install pre-cast access chambers

Modification History

Release	Comment
1	This unit replaces RIICPL305A Install pre-cast access chambers
2	Required frequency and volume of evidence amended in Performance evidence. Substantial amendments made in Assessment Conditions field, including: references to Industry Sectors, assessor and subject matter expert experience requirements, how assessment should be conducted and what it should confirm.

Application

This unit describes a participant's skills and knowledge required to install pre-cast access chambers in Civil Construction.

This unit is appropriate for those working in operational roles.

Licensing, legislative, regulatory and certification requirements that apply to this unit can vary between states, territories, and Industry sectors. Relevant information must be sourced prior to application of the unit.

Unit Sector

Civil construction

Elements and Performance Criteria

1. Plan and prepare for installing pre-cast access chambers	1.1 Access, interpret and apply pre-cast access chambers documentation and ensure the work activity is compliant 1.2 Obtain, interpret, clarify and confirm work/plans/specifications requirements 1.3 Identify, obtain and implement traffic signage requirements 1.4 Select, and check for faults, equipment/tools for work activities 1.5 Identify, confirm and apply environmental protection requirements 1.6 Select and wear correct personal protective equipment

	appropriate for work activities 1.7 Identify, address and report potential hazards and risks 1.8 Obtain and interpret emergency procedures, and be prepared for fire/accident/emergency
2. Install access chambers	2.1 Advise plant operator of excavation and base preparation requirements 2.2 Determine location and positioning of access chamber 2.3 Set out work area to design specifications 2.4 Control ingress of water by dewatering 2.5 Position, fabricate or install main components of the pre-cast unit 2.6 Seal by rendering finished surface where specified 2.7 Position auxiliary components or modifications and attach to pre-cast unit 2.8 Inspect and repair new and existing access chambers
3. Clean up	3.1 Clear work area and dispose of or recycle materials 3.2 Clean, check, maintain and store plant, tools and equipment

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit. Further information is available in the Resources and Infrastructure Industry Training Package Companion Volume.

Unit Mapping Information

RIICPL305A Install pre-cast access chambers

Links

Companion Volume implementation guides are found in VETNet - <https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=88a61002-9a21-4386-aaf8-69c76e675272>

Assessment Requirements for RIICPL305D Install pre-cast access chambers

Modification History

Release	Comment
1	This unit replaces RIICPL305A Install pre-cast access chambers
2	Required frequency and volume of evidence amended in Performance evidence. Substantial amendments made in Assessment Conditions field, including: references to Industry Sectors, assessor and subject matter expert experience requirements, how assessment should be conducted and what it should confirm.

Performance Evidence

Evidence is required to be collected that demonstrates a candidate's competency in this unit. Evidence must be relevant to the roles within this sector's work operations and satisfy all of the requirements of the performance criteria of this unit and include evidence that the candidate:

- locates and applies applicable legislation, documentation, policies and procedures
- implements the requirements, procedures and techniques for the safe, effective and efficient completion of installation of pre-cast access chambers including:
 - applying problem solving and troubleshooting techniques
 - applying diagnostic techniques
- works effectively with others to undertake and complete the installation of pre-cast access chambers that meets all of the required outcomes including:
 - communicating clearly and concisely with others to confirm work/plans/specifications
 - using a range of communications techniques and equipment to convey information to others
- demonstrates completion of installing pre-cast access chambers that safely, effectively and efficiently meets all of the required outcomes on more than one (1) occasion including:
 - determining location and positioning of access chamber
 - installing access chambers

Knowledge Evidence

The candidate must demonstrate knowledge in installing pre-cast access chambers through:

- accessing, interpreting and applying the legislative, organisation and site requirements and procedures for;

- hazard identification, risk assessment and response
- using JSA/JSEA/safe work method statements
- project quality measures
- using tools/equipment
- maintaining excavation/trench safety
- confined space entry
- site dewatering
- using safety data sheets and materials handling methods
- using civil construction terminology
- using pre-cast access chambers systems and installation procedures
- identifying mains pipe and utility services
- using concrete and concrete fabrication
- using sedimentation and erosion controls
- working with storm-water systems
- working with sewerage systems
- reading and interpreting engineering drawings
- identifying equipment types, characteristics, technical capabilities and limitations
- identifying site isolation and traffic control responsibilities and authorities

Assessment Conditions

- An assessor of this unit must satisfy the requirements of the NVR/AQTF or their successors; and Industry regulations for certification and licensing; and,
- this unit must be assessed in the context of this sector's work environment; and,
- this unit must be assessed in compliance with relevant legislation/regulation and using policies, procedures, processes and operational manuals directly related to the industry sector for which it is being assessed; and,
- assessment may be conducted in conjunction with the assessment of other Units of Competency; and,
- assessment must confirm consistent performance can be applied in a range of relevant workplace circumstances; and,
- assessors must demonstrate the performance evidence, and knowledge evidence as outlined in this Unit of Competency, and through the minimum years of current* work experience specified below in an Industry sector relevant to the outcomes of the unit; or,
- where the assessor does not meet experience requirements a co-assessment or partnership arrangement must exist between the qualified assessor and an Industry subject matter expert. The Industry subject matter expert should hold the unit being assessed (or an equivalent unit) and/or demonstrate equivalence of skills and knowledge at the unit level. An Industry technical expert must also demonstrate skills and knowledge from the minimum years of current work experience specified below in the Industry sector, including time spent in roles related to the unit being assessed; and,

- assessor and Industry subject matter expert requirements differ depending on the Australian Qualifications Framework Level (AQF) of the qualification being assessed and/or Industry Sector as follows:

Industry sector	AQF** Level	Required assessor or Industry subject matter expert experience
Drilling, Metalliferous Mining, Coal Mining, Extractive (Quarrying) and Civil Construction	1	1 Year
	2	2 Years
Drilling, Coal Mining and Extractive (Quarrying)	3-6	3 Years
Metalliferous Mining and Civil Construction	3-6	5 Years
Other sectors	Where this Unit is being assessed outside of the Resources and Infrastructure Sectors assessor and/or Industry subject matter expert experience should be in-line with industry standards for the sector in which it is being assessed and where no Industry standard is specified should comply with any relevant regulation.	

*Assessors can demonstrate current work experience through employment within Industry in a role relevant to the outcomes of the Unit; or, for external assessors this can be demonstrated through exposure to Industry by conducting frequent site assessments across various locations.

**Where a unit is being delivered outside of a Qualification the first numeric character in the Unit code should be considered to indicate the AQF level

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=88a61002-9a21-4386-aaf8-69c76e675272>

RIICRC202D Install signs

Modification History

Release	Comment
1	This unit replaces RIICRC202A Install signs
2	Required frequency and volume of evidence amended in Performance evidence. Substantial amendments made in Assessment Conditions field, including: references to Industry Sectors, assessor and subject matter expert experience requirements, how assessment should be conducted and what it should confirm.

Application

This unit describes a participant's skills and knowledge required to install signs in Civil Construction.

This unit is appropriate for those working in operational roles.

Licensing, legislative, regulatory and certification requirements that apply to this unit can vary between states, territories, and Industry sectors. Relevant information must be sourced prior to application of this unit.

Unit Sector

Civil construction

Elements and Performance Criteria

1. Plan and prepare for installing signs	1.1 Access, interpret and apply sign installation documentation and ensure the work activity is compliant 1.2 Obtain, read, interpret, clarify and confirm work requirements 1.3 Identify and address potential risks, hazards and environmental issues, and implement control measures 1.4 Select and wear correct personal protective equipment appropriate for work activities 1.5 Identify, obtain, confirm and implement signage requirements 1.6 Select and check for faults all plant, tools and equipment to

	carry out tasks 1.7 Clarify and confirm permits and clearances in accordance with regulatory authority requirements
2. Transport sign and materials to the site	2.1 Survey location of the site in accordance with job drawings and specifications 2.2 Arrange site access in accordance with safe working procedures 2.3 Prepare delivery site for risk control 2.4 Determine availability of loading/unloading equipment 2.5 Arrange transportation of signage 2.6 Protect signs appropriately and pack them securely for transportation 2.7 Load, transport and off-load signs and equipment correctly
3. Assemble sign	3.1 Lay out and check sign components prior to assembly 3.2 Confirm correct signage against specifications 3.3 Assemble sign on or off site as appropriate
4. Erect sign	4.1 Determine method of erection according to job requirements 4.2 Prepare support materials according to drawings and specifications 4.3 Install fastenings to manufacturer's recommendations 4.4 Brace support structure safely 4.5 Erect sign efficiently and safely
5. Clean up	5.1 Clear work area and recycle or dispose of materials 5.2 Clean, check, maintain and store plant and equipment

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit. Further information is available in the Resources and Infrastructure Industry Training Package Companion Volume.

Unit Mapping Information

RIICRC202A Install signs

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=88a61002-9a21-4386-aaf8-69c76e675272>

Assessment Requirements for RIICRC202D Install signs

Modification History

Release	Comment
1	This unit replaces RIICRC202A Install signs
2	Required frequency and volume of evidence amended in Performance evidence. Substantial amendments made in Assessment Conditions field, including: references to Industry Sectors, assessor and subject matter expert experience requirements, how assessment should be conducted and what it should confirm.

Performance Evidence

Evidence is required to be collected that demonstrates a candidate's competency in this unit. Evidence must be relevant to the roles within this sector's work operations and satisfy all of the requirements of the performance criteria of this unit and include evidence that the candidate:

- locates and applies applicable, documentation, policies and procedures
- implements the requirements, procedures and techniques for the safe, effective and efficient completion of installing signs including:
 - identifying and applying relevant drawings and job specifications
 - identifying, addressing and reporting potential hazards and risks
 - identifying, obtaining, confirming and implementing signage requirements and availability of signs
 - selecting and checking for faults, tools and equipment to carry out tasks surveying location of the site in accordance with job drawings and specifications
 - arranging site access in accordance with safe working procedures
 - preparing delivery site for risk control
 - determining availability of loading/unloading equipment
 - arranging transportation of signage
 - protecting signs appropriately and pack them securely for transportation
 - loading, transporting and off-loading signs and equipment correctly
- works effectively with others to undertake and complete the installation of signs in a way that meets all required outcomes including:
 - preparing for and organising work activities to meet all task requirements
 - communicating clearly and concisely with others to receive and clarify work instructions

- using a range of communication techniques and aids to advise others of work activity and exclusion zones
- monitoring hazards and identifying and communicating changes to the work environment during the work process
- demonstrates completion of installing signs that safely, effectively and efficiently meets all of the required outcomes on more than one (1) occasion including:
 - laying out and checking sign components prior to assembly
 - confirming correct signage against specifications
 - assembling sign on or off site as appropriate
 - determining method of erection according to job requirements
 - preparing support materials according to drawings and specifications
 - installing fastenings to manufacturer's recommendations
 - bracing support structure safely
 - erecting sign efficiently and safely
 - clearing work area and recycling or disposing of materials
 - cleaning, checking, maintaining and storing plant and equipment
 - the loading, transportation, unloading and installation of a minimum of three different free standing signs with at least one (1) being a free standing sign requiring the installation of dual supports

Knowledge Evidence

The candidate must demonstrate knowledge in installing signs through:

- accessing, interpreting and applying, organisation and site requirements and procedures for:
 - for installing designated signs
 - identifying and managing risks
 - clarifying and confirming permits and clearances in accordance with regulatory authority requirements
 - identifying, addressing and reporting environmental issues and ground conditions
 - setting up work activity
 - site isolation and traffic control responsibilities
 - work health and safety
 - arranging site access
 - arranging transport and loading activities
 - managing waste
- selecting and checking for faults, tools and equipment to carry out tasks carrying out work to specifications
- applying effective sign installation techniques

Assessment Conditions

- An assessor of this unit must satisfy the requirements of the NVR/AQTF or their successors; and Industry regulations for certification and licensing; and,
- this unit must be assessed in the context of this sector's work environment; and,
- this unit must be assessed in compliance with relevant legislation/regulation and using policies, procedures, processes and operational manuals directly related to the industry sector for which it is being assessed; and,
- assessment may be conducted in conjunction with the assessment of other Units of Competency; and,
- assessment must confirm consistent performance can be applied in a range of relevant workplace circumstances; and,
- assessors must demonstrate the performance evidence, and knowledge evidence as outlined in this Unit of Competency, and through the minimum years of current* work experience specified below in an Industry sector relevant to the outcomes of the unit; or,
- where the assessor does not meet experience requirements a co-assessment or partnership arrangement must exist between the qualified assessor and an Industry subject matter expert. The Industry subject matter expert should hold the unit being assessed (or an equivalent unit) and/or demonstrate equivalence of skills and knowledge at the unit level. An Industry technical expert must also demonstrate skills and knowledge from the minimum years of current work experience specified below in the Industry sector, including time spent in roles related to the unit being assessed; and,
- assessor and Industry subject matter expert requirements differ depending on the Australian Qualifications Framework Level (AQF) of the qualification being assessed and/or Industry Sector as follows:

Industry sector	AQF** Level	Required assessor or Industry subject matter expert experience
Drilling, Metalliferous Mining, Coal Mining, Extractive (Quarrying) and Civil Construction	1	1 Year
	2	2 Years
Drilling, Coal Mining and Extractive (Quarrying)	3-6	3 Years
Metalliferous Mining and Civil Construction	3-6	5 Years
Other sectors	Where this Unit is being assessed outside of the Resources and Infrastructure Sectors assessor and/or Industry subject matter expert experience should be in-line with industry standards for the sector in which it is being assessed and where no Industry standard is specified should comply with any relevant regulation.	

*Assessors can demonstrate current work experience through employment within Industry in a role relevant to the outcomes of the Unit; or, for external assessors this can be demonstrated through exposure to Industry by conducting frequent site assessments across various locations.

**Where a unit is being delivered outside of a Qualification the first numeric character in the Unit code should be considered to indicate the AQF level

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=88a61002-9a21-4386-aaf8-69c76e675272>

RIICRC301D Maintain drainage systems

Modification History

Release	Comment
1	This unit replaces RIICRC301A Maintain drainage systems
2	Required frequency and volume of evidence amended in Performance evidence. Substantial amendments made in Assessment Conditions field, including: references to Industry Sectors, assessor and subject matter expert experience requirements, how assessment should be conducted and what it should confirm.

Application

This unit describes a participant's skills and knowledge required to maintain drainage systems in Civil Construction.

This unit is appropriate for those working in operational roles

Licensing, legislative, regulatory and certification requirements that apply to this unit can vary between states, territories, and Industry sectors. Relevant information must be sourced prior to application of the unit.

Unit Sector

Civil construction

Elements and Performance Criteria

1. Plan and prepare to maintain drainage systems	1.1 Access, interpret and apply drainage systems maintenance documentation and ensure the work activity is compliant 1.2 Obtain, read, interpret, clarify and confirm work requirements 1.3 Identify and address potential risks, hazards and environmental issues, and implement control measures 1.4 Select and wear correct personal protective equipment appropriate for work activities 1.5 Locate initial design specifications and/or engineer's redesign 1.6 Locate drainage maintenance schedule and records of maintenance history 1.7 Determine temporary stormwater diversion requirement in

	accordance with existing drainage outlets, site requirements and planned schedule of construction
2. Maintain drainage components	2.1 Regularly inspect and maintain drainage components and rectify or report faults 2.2 Repair drainage components as per initial design specifications and/or engineer's redesign 2.3 Flush out drainage system to clear blockages and provide clear flows of fluid
3. Excavate and repair drainage systems	3.1 Determine location of repairs from work order and survey site 3.2 Carry out excavation in accordance with task specifications 3.3 Prepare pipes and accessories in accordance with design method of repair 3.4 Replace pipe sections and join and align to line and specified fall 3.5 Install packing to maintain alignment of pipeline 3.6 Make joints to pipe section junctions in accordance with specification requirements 3.7 Backfill required section 3.8 Conduct inspection and testing of repaired drainage system to determine effectiveness of repairs
4. Maintain open drains	4.1 Maintain open drains to correct line and fall specifications 4.2 Finish surfaces adjoining open drains allowing ease of run off 4.3 Undertake adequate erosion control methods
5. Inspect, clear and repair culverts	5.1 Identify faults in culverts and determine appropriate repair requirements and specifications 5.2 Repair/replace sections and joint to levels and design specifications 5.3 Repair/maintain inlets and outlets in accordance with culvert design and specifications 5.4 Compact backfill
6. Clean up	6.1 Clear work area and dispose of or recycle materials 6.2 Seal and store/pack unused materials 6.3 Clean, check, maintain and store plant, tools and equipment

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit. Further information is available in the Resources and Infrastructure Industry Training Package Companion Volume.

Unit Mapping Information

RIICRC301A Maintain drainage systems

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=88a61002-9a21-4386-aaf8-69c76e675272>

Assessment Requirements for RIICRC301D Maintain drainage systems

Modification History

Release	Comment
1	This unit replaces RIICRC301A Maintain drainage systems
2	Required frequency and volume of evidence amended in Performance evidence. Substantial amendments made in Assessment Conditions field, including: references to Industry Sectors, assessor and subject matter expert experience requirements, how assessment should be conducted and what it should confirm.

Performance Evidence

Evidence is required to be collected that demonstrates a candidate's competency in this unit. Evidence must be relevant to the roles within this sector's work operations and satisfy all of the requirements of the performance criteria of this unit and include evidence that the candidate:

- locates and applies applicable documentation, policies and procedures
- implements the requirements, procedures and techniques for safe, effective and efficient drainage system maintenance including:
 - accessing, interpreting and applying documentation relevant to the maintenance of drainage systems
 - identifying and applying relevant drawings and job specifications to all work activities
 - identifying, addressing and reporting potential hazards and risks
 - identifying, obtaining, confirming and implementing signage requirements
 - selecting and checking for faults all plant, tools and equipment to carry out tasks
 - identifying, addressing and reporting environmental issues and ground conditions
 - determining temporary stormwater diversion requirements
- works effectively with others to undertake and complete the maintenance of drainage systems that meets all of the required outcomes including:
 - preparing for and organising work activities to meet all task requirements
 - communicating clearly and concisely with others to receive and clarify work instructions
 - using a range of communication techniques and aids to advise others of work activity and exclusion zones
 - monitoring hazards and identifying and communicating changes to the work environment during the work process

- demonstrates completion of maintaining drainage systems that safely, effectively and efficiently meets all of the required outcomes on more than one (1) occasion including:
 - maintaining drainage components to design specifications and functional requirements
 - applying techniques for locating faults in drainage systems
 - excavating and repairing drainage systems
 - conducting inspection and testing of repaired drainage system
 - maintaining open drains to correct line and fall
 - finishing surfaces adjoining open drains for ease of run off
 - undertaking adequate erosion control methods
 - inspecting, clearing and repairing culverts
 - clearing work area and disposing of, recycling or storing materials
 - sealing and storing/packing unused materials

Knowledge Evidence

The candidate must demonstrate knowledge of maintaining drainage systems through:

- accessing, interpreting and applying organisation and site requirements and procedures for:
 - identifying and managing risks
 - identifying, addressing and reporting environmental issues and ground conditions
 - setting up work activity
 - site isolation and traffic control responsibilities
 - work health and safety
 - managing waste
 - selecting and checking for faults, tools and equipment to carry out tasks
 - carrying out work to drawings and specifications
 - applying effective maintain drainage systems techniques

Assessment Conditions

- An assessor of this unit must satisfy the requirements of the NVR/AQTF or their successors; and Industry regulations for certification and licensing; and,
- this unit must be assessed in the context of this sector's work environment; and,
- this unit must be assessed in compliance with relevant legislation/regulation and using policies, procedures, processes and operational manuals directly related to the industry sector for which it is being assessed; and,
- assessment may be conducted in conjunction with the assessment of other Units of Competency; and,
- assessment must confirm consistent performance can be applied in a range of relevant workplace circumstances; and,

- assessors must demonstrate the performance evidence, and knowledge evidence as outlined in this Unit of Competency, and through the minimum years of current* work experience specified below in an Industry sector relevant to the outcomes of the unit; or,
- where the assessor does not meet experience requirements a co-assessment or partnership arrangement must exist between the qualified assessor and an Industry subject matter expert. The Industry subject matter expert should hold the unit being assessed (or an equivalent unit) and/or demonstrate equivalence of skills and knowledge at the unit level. An Industry technical expert must also demonstrate skills and knowledge from the minimum years of current work experience specified below in the Industry sector, including time spent in roles related to the unit being assessed; and,
- assessor and Industry subject matter expert requirements differ depending on the Australian Qualifications Framework Level (AQF) of the qualification being assessed and/or Industry Sector as follows:

Industry sector	AQF** Level	Required assessor or Industry subject matter expert experience
Drilling, Metalliferous Mining, Coal Mining, Extractive (Quarrying) and Civil Construction	1	1 Year
	2	2 Years
Drilling, Coal Mining and Extractive (Quarrying)	3-6	3 Years
Metalliferous Mining and Civil Construction	3-6	5 Years
Other sectors	Where this Unit is being assessed outside of the Resources and Infrastructure Sectors assessor and/or Industry subject matter expert experience should be in-line with industry standards for the sector in which it is being assessed and where no Industry standard is specified should comply with any relevant regulation.	

*Assessors can demonstrate current work experience through employment within Industry in a role relevant to the outcomes of the Unit; or, for external assessors this can be demonstrated through exposure to Industry by conducting frequent site assessments across various locations.

**Where a unit is being delivered outside of a Qualification the first numeric character in the Unit code should be considered to indicate the AQF level

Links

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RIICRC303D Lay pavers

Modification History

Release	Comment
1	This unit replaces RIICRC303A Lay pavers
2	Required frequency and volume of evidence amended in Performance evidence. Substantial amendments made in Assessment Conditions field, including: references to Industry Sectors, assessor and subject matter expert experience requirements, how assessment should be conducted and what it should confirm.

Application

This unit describes a participant's skills and knowledge required to lay pavers in Civil Construction.

This unit is appropriate for those working in operational roles.

Licensing, legislative, regulatory and certification requirements that apply to this unit can vary between states, territories, and Industry sectors. Relevant information must be sourced prior to application of the unit.

Unit Sector

Civil construction

Elements and Performance Criteria

1. Plan and prepare for work to lay pavers	1.1 Access, interpret and apply paver laying documentation and ensure the work activity is compliant 1.2 Obtain, read, interpret, clarify and confirm work requirements 1.3 Identify and address potential risks, hazards and environmental issues, and implement control measures 1.4 Select and wear correct personal protective equipment appropriate for work activities 1.5 Identify, obtain, confirm and implement signage and barrier requirements 1.6 Select and check for faults all plant, tools and equipment to

	carry out tasks 1.7 Identify and survey area and location of paving from job drawings 1.8 Calculate paving requirements and select material to meet required finish of surface and pattern 1.9 Stockpile materials safely and within proximity to the work area
2. Prepare to lay paving	2.1 Set out location and shape of paving area to dimensions from job drawings 2.2 Carry out excavation to specified depth, allowing for base and thickness of unit 2.3 Position drainage pipes in sub-soil to local regulations 2.4 Prepare sub-soil and footing in accordance with specifications 2.5 Select base material in accordance with manufacturer's specifications for identified substrate 2.6 Clean surface free of loose material and dust where paving is to be bonded to substrate
3. Lay pavers	3.1 Position edge boards to set out and specifications 3.2 Spread sand and aggregate, and compact to specifications 3.3 Grade paving surface, where drainage is necessary, to fall evenly without ponding to outlets or surface run off system provided 3.4 Mix mortar for masonry paving to specifications 3.5 Cut pavers to form edges ensuring fit and minimum wastage of material 3.6 Lay paving units to designed pattern and required fall 3.7 Complete edges to specification 3.8 Complete compaction, mortaring and sweeping work to specifications 3.9 Maintain finish level across junctions between different levels
4. Clean up	4.1 Finish paving clean to requirements 4.2 Clear work area and dispose of or recycle materials 4.3 Clean, check, maintain and store tools and equipment

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit. Further information is available in the Resources and Infrastructure Industry Training Package Companion Volume.

Unit Mapping Information

RIICRC303A Lay pavers

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=88a61002-9a21-4386-aaf8-69c76e675272>

Assessment Requirements for RIICRC303D Lay pavers

Modification History

Release	Comment
1	This unit replaces RIICRC303A Lay pavers
2	Required frequency and volume of evidence amended in Performance evidence. Substantial amendments made in Assessment Conditions field, including: references to Industry Sectors, assessor and subject matter expert experience requirements, how assessment should be conducted and what it should confirm.

Performance Evidence

Evidence is required to be collected that demonstrates a candidate's competency in this unit. Evidence must be relevant to the roles within this sector's work operations and satisfy all of the requirements of the performance criteria of this unit and include evidence that the candidate:

- locates and applies applicable documentation, policies and procedures
- implements the requirements, procedures and techniques for the safe, effective and efficient completion of paver laying including:
 - accessing, interpreting and applying documentation relevant to the laying pavers
 - identifying and applying relevant drawings and job specifications to all work activities
 - identifying, addressing and reporting potential hazards and risks
 - identifying, obtaining, confirming and implementing signage and barriers requirements
 - selecting and checking for faults all plant, tools and equipment to carry out tasks
 - identifying, addressing and reporting environmental issues and ground conditions
- works effectively with others to undertake and complete the laying of pavers that meets all of the required outcomes including:
 - preparing for and organising work activities to meet all task requirements
 - communicating clearly and concisely with others to receive and clarify work instructions
 - using a range of communication techniques and aids to advise others of work activity and exclusion zones
 - monitoring hazards and identifying and communicating changes to the work environment during the work process
- demonstrates completion of laying pavers that safely, effectively and efficiently meets all of the required outcomes on more than one (1) occasion including:

- preparing the location to lay paving and cleaning the surface free of loose material and dust where paving is to be bonded to substrate
- laying paving to specification and design pattern with accurate levels
- clearing work area and disposing of, recycling or storing materials
- monitoring hazards and identifying and communicating changes to the work environment during the work process
- the laying of pavers (preparation, laying and finishing) which is to include a minimum of three (3) separate jobs and cover a minimum of:
 - two (2) different paver shapes
 - two (2) different laying patterns
 - one (1) with curved edges
 - one (1) being a large area, and one (1) being in a small restrictive space

Knowledge Evidence

The candidate must demonstrate knowledge in laying pavers through:

- accessing, interpreting and applying organisation and site requirements and procedures for:
 - identifying and managing risks
 - identifying, addressing and reporting environmental issues and ground conditions
 - setting up work activity
 - site isolation, signage and traffic control
 - work health and safety
 - managing waste
 - selecting and checking for faults, tools and equipment to carry out tasks
 - carrying out work to drawings and specifications
 - applying effective paver laying techniques

Assessment Conditions

- An assessor of this unit must satisfy the requirements of the NVR/AQTF or their successors; and Industry regulations for certification and licensing; and,
- this unit must be assessed in the context of this sector's work environment; and,
- this unit must be assessed in compliance with relevant legislation/regulation and using policies, procedures, processes and operational manuals directly related to the industry sector for which it is being assessed; and,
- assessment may be conducted in conjunction with the assessment of other Units of Competency; and,
- assessment must confirm consistent performance can be applied in a range of relevant workplace circumstances; and,
- assessors must demonstrate the performance evidence, and knowledge evidence as outlined in this Unit of Competency, and through the minimum years of current* work experience specified below in an Industry sector relevant to the outcomes of the unit; or,

- where the assessor does not meet experience requirements a co-assessment or partnership arrangement must exist between the qualified assessor and an Industry subject matter expert. The Industry subject matter expert should hold the unit being assessed (or an equivalent unit) and/or demonstrate equivalence of skills and knowledge at the unit level. An Industry technical expert must also demonstrate skills and knowledge from the minimum years of current work experience specified below in the Industry sector, including time spent in roles related to the unit being assessed; and,
- assessor and Industry subject matter expert requirements differ depending on the Australian Qualifications Framework Level (AQF) of the qualification being assessed and/or Industry Sector as follows:

Industry sector	AQF** Level	Required assessor or Industry subject matter expert experience
Drilling, Metalliferous Mining, Coal Mining, Extractive (Quarrying) and Civil Construction	1	1 Year
	2	2 Years
Drilling, Coal Mining and Extractive (Quarrying)	3-6	3 Years
Metalliferous Mining and Civil Construction	3-6	5 Years
Other sectors	Where this Unit is being assessed outside of the Resources and Infrastructure Sectors assessor and/or Industry subject matter expert experience should be in-line with industry standards for the sector in which it is being assessed and where no Industry standard is specified should comply with any relevant regulation.	

*Assessors can demonstrate current work experience through employment within Industry in a role relevant to the outcomes of the Unit; or, for external assessors this can be demonstrated through exposure to Industry by conducting frequent site assessments across various locations.

**Where a unit is being delivered outside of a Qualification the first numeric character in the Unit code should be considered to indicate the AQF level

Links

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RIICRC314D Handle concrete materials

Modification History

Release	Comment
1	This unit replaces RIICRC314 Handle concrete materials
2	Required frequency and volume of evidence amended in Performance evidence. Substantial amendments made in Assessment Conditions field, including: references to Industry Sectors, assessor and subject matter expert experience requirements, how assessment should be conducted and what it should confirm.

Application

This unit describes a participant's skills and knowledge required to handle concrete materials in Civil Construction.

This unit is appropriate for those working in operational roles.

No licensing, legislation or certification requirements apply to this unit at the time of publication.

Unit Sector

Civil construction

Elements and Performance Criteria

1. Plan and prepare for handling concrete materials	1.1 Access, interpret and apply concrete materials handling documentation and ensure the work activity is compliant 1.2 Obtain, read, interpret, clarify and confirm work requirements 1.3 Identify and address potential risks, hazards and environmental issues, and implement control measures 1.4 Select and wear correct personal protective equipment appropriate for work activities 1.5 Obtain, interpret, clarify and apply relevant drawings, job specifications and work instruction prior to proceeding 1.6 Identify, obtain, confirm and implement signage requirements 1.7 Select and check for faults all plant, tools and equipment to

	carry out tasks
2. Handle and sort concrete materials and components	2.1 Identify and check on-site delivery of concrete materials and components for conformity to material schedule, plans and specifications 2.2 Move concrete materials to specified location applying safe manual handling procedures 2.3 Stack and stockpile concrete materials and components for ease of identification and retrieve for task sequence and job location 2.4 Protect concrete materials and components against physical and water damage, and store clear of access ways, for ease of identification, retrieval and distribution 2.5 Handle and position components ready for installation
3. Handle and remove concrete materials and components on completion	3.1 Handle materials safely 3.2 Identify hazardous material for separate handling 3.3 Use dust suppression procedures to minimise health risk to work personnel and others 3.4 Provide protection of materials 3.5 Store materials safely and effectively
4. Clean up	4.1 Clear work area and dispose of, reuse or recycle material 4.2 Identify hazardous material for separate handling 4.3 Remove non-toxic materials using correct procedures 4.4 Use dust suppression procedures to minimise health risk to work personnel and others 4.5 Clean, check, maintain and store tools and equipment

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit. Further information is available in the Resources and Infrastructure Industry Training Package Companion Volume

Unit Mapping Information

RIICRC314A Handle concrete materials

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=88a61002-9a21-4386-aaf8-69c76e675272>

Assessment Requirements for RIICRC314D Handle concrete materials

Modification History

Release	Comment
1	This unit replaces RIICRC314 Handle concrete materials
2	Required frequency and volume of evidence amended in Performance evidence. Substantial amendments made in Assessment Conditions field, including: references to Industry Sectors, assessor and subject matter expert experience requirements, how assessment should be conducted and what it should confirm.

Performance Evidence

Evidence is required to be collected that demonstrates a candidate's competency in this unit. Evidence must be relevant to the roles within this sector's work operations and satisfy all of the requirements of the performance criteria of this unit and include evidence that the candidate:

- locates and applies applicable documentation, policies and procedures
- implements the requirements, procedures and techniques for the safe, effective and efficient completion of handling concrete materials including:
 - accessing, interpreting and applying documentation relevant to handling concrete materials
 - identifying and applying relevant material schedule, plans and specifications to all work activities
 - identifying, addressing and reporting potential hazards and risks
 - identifying, obtaining, confirming and implementing signage requirements
 - selecting and checking for faults all plant, tools and equipment to carry out tasks
 - identifying, addressing and reporting environmental issues
- works effectively with others to undertake and complete handling concrete materials in a way that meets all of the required outcomes including:
 - preparing for and organising work activities to meet all task requirements
 - communicating clearly and concisely with others to receive and clarify work instructions
 - using a range of communication techniques and aids to advise others of work activity and exclusion zones
 - monitoring movements and hazards and identifying and communicating changes to the work environment during the work process

- demonstrates completion of the handling of concrete materials that safely, effectively and efficiently meets all of the required outcomes on more than one (1) occasion including:
 - handling and sorting concrete materials and components according to the material schedule, manufacturer recommendations, plans and specifications
 - safely and efficiently handling and removing concrete materials and components on completion
 - clearing work area and disposing of, recycling or storing materials
 - cleaning, checking, maintaining and storing plant, tools and equipment

Knowledge Evidence

The candidate must demonstrate knowledge in handling concrete materials through:

- accessing, interpreting and applying the organisation and site requirements and procedures for:
 - identifying and managing risks
 - identifying, addressing and reporting environmental issues
 - setting up work activity
 - signage, erecting barriers and traffic control
 - work health and safety
 - managing waste
 - selecting and checking for faults, all tools and equipment to carry out tasks
 - carrying out work to specifications
 - manufacturer's design specifications
 - applying effective techniques for handling concrete materials

Assessment Conditions

- An assessor of this unit must satisfy the requirements of the NVR/AQTF or their successors; and Industry regulations for certification and licensing; and,
- this unit must be assessed in the context of this sector's work environment; and,
- this unit must be assessed in compliance with relevant legislation/regulation and using policies, procedures, processes and operational manuals directly related to the industry sector for which it is being assessed; and,
- assessment may be conducted in conjunction with the assessment of other Units of Competency; and,
- assessment must confirm consistent performance can be applied in a range of relevant workplace circumstances; and,
- assessors must demonstrate the performance evidence, and knowledge evidence as outlined in this Unit of Competency, and through the minimum years of current* work experience specified below in an Industry sector relevant to the outcomes of the unit; or,

- where the assessor does not meet experience requirements a co-assessment or partnership arrangement must exist between the qualified assessor and an Industry subject matter expert. The Industry subject matter expert should hold the unit being assessed (or an equivalent unit) and/or demonstrate equivalence of skills and knowledge at the unit level. An Industry technical expert must also demonstrate skills and knowledge from the minimum years of current work experience specified below in the Industry sector, including time spent in roles related to the unit being assessed; and,
- assessor and Industry subject matter expert requirements differ depending on the Australian Qualifications Framework Level (AQF) of the qualification being assessed and/or Industry Sector as follows:

Industry sector	AQF** Level	Required assessor or Industry subject matter expert experience
Drilling, Metalliferous Mining, Coal Mining, Extractive (Quarrying) and Civil Construction	1	1 Year
	2	2 Years
Drilling, Coal Mining and Extractive (Quarrying)	3-6	3 Years
Metalliferous Mining and Civil Construction	3-6	5 Years
Other sectors	Where this Unit is being assessed outside of the Resources and Infrastructure Sectors assessor and/or Industry subject matter expert experience should be in-line with industry standards for the sector in which it is being assessed and where no Industry standard is specified should comply with any relevant regulation.	

*Assessors can demonstrate current work experience through employment within Industry in a role relevant to the outcomes of the Unit; or, for external assessors this can be demonstrated through exposure to Industry by conducting frequent site assessments across various locations.

**Where a unit is being delivered outside of a Qualification the first numeric character in the Unit code should be considered to indicate the AQF level

Links

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RIICRC315D Use concreting materials and equipment

Modification History

Release	Comment
1	This unit replaces RIICRC315 Use concreting materials and equipment
2	Required frequency and volume of evidence amended in Performance evidence. Substantial amendments made in Assessment Conditions field, including: references to Industry Sectors, assessor and subject matter expert experience requirements, how assessment should be conducted and what it should confirm.

Application

This unit describes a participant's skills and knowledge required to use concreting materials and equipment in Civil Construction.

This unit is appropriate for those working in operational roles.

No licensing, legislation, or certification requirements apply to this unit at the time of publication.

Unit Sector

Civil construction

Elements and Performance Criteria

1. Plan and prepare to use concreting materials and equipment	1.1 Access, interpret and apply concrete materials and equipment documentation and ensure the work activity is compliant 1.2 Obtain, read, interpret, clarify and confirm work requirements 1.3 Identify and address potential risks, hazards and environmental issues, and implement control measures 1.4 Select and wear correct personal protective equipment appropriate for work activities 1.5 Identify, obtain, confirm and implement signage requirements 1.6 Select and check for faults all plant, tools and equipment to carry out tasks

2. Identify and select hand and power tools	2.1 Identify and select hand and power tools, according to their functions, operations, limitations and ability to meet the job requirement 2.2 Check lubricants, hydraulic fluid and water 2.3 Check tools, including leads and hoses, for tags, serviceability and safety, and report any faults 2.4 Check and maintain power tool guards, retaining bolts, couplings, gauges and controls in accordance with manufacturer recommendations 2.5 Select equipment to hold or support material during operation
3. Use tools	3.1 Use hand tools appropriate to the task and materials 3.2 Use power tools for their intended purpose safely and effectively 3.3 Sharpen and maintain tools
4. Identify, select and use plant and equipment	4.1 Check plant and equipment for safety and report faults 4.2 Select and use plant and equipment matched to the work task 4.3 Check lubricants, hydraulic fluid and water 4.4 Maintain plant and equipment
5. Clean up	5.1 Clear the work area and dispose of, reuse or recycle material 5.2 Clean, check, maintain and store plant, tools and equipment in accordance with manufacturer recommendations and standard work practices

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit. Further information is available in the Resources and Infrastructure Industry Training Package Companion Volume.

Unit Mapping Information

RIICRC315A Use concreting materials and equipment

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=88a61002-9a21-4386-aaf8-69c76e675272>

Assessment Requirements for RIICRC315D Use concreting materials and equipment

Modification History

Release	Comment
1	This unit replaces RIICRC315 Use concreting materials and equipment
2	Required frequency and volume of evidence amended in Performance evidence. Substantial amendments made in Assessment Conditions field, including: references to Industry Sectors, assessor and subject matter expert experience requirements, how assessment should be conducted and what it should confirm.

Performance Evidence

Evidence is required to be collected that demonstrates a candidate's competency in this unit. Evidence must be relevant to the roles within this sector's work operations and satisfy all of the requirements of the performance criteria of this unit and include evidence that the candidate:

- locates and applies applicable documentation, policies and procedures
- implements the requirements, procedures and techniques for the safe, effective and efficient use of concrete materials and equipment including:
 - accessing, interpreting and applying documentation relevant to using concreting materials and equipment
 - identifying and applying relevant specifications to all work activities
 - identifying, addressing and reporting potential hazards and risks
 - identifying, obtaining, confirming and implementing signage requirements
 - selecting and checking for faults all plant, tools and equipment to carry out tasks
 - identifying, addressing and reporting environmental issues
- works effectively with others to undertake and complete the use of concrete materials and equipment in a way that meets all of the required outcomes including:
 - preparing for and organising work activities to meet all task requirements
 - communicating clearly and concisely with others to receive and clarify work instructions
 - using a range of communication techniques and aids to advise others of work activity and exclusion zones
 - monitoring movements and hazards and identifying and communicating changes to the work environment during the work process

- demonstrates completion of the use of concrete materials and equipment that safely, effectively and efficiently meets all of the required outcomes on more than one (1) occasion including:
 - identifying and verifying use for concrete materials including:
 - aggregates
 - cement
 - form release agents
 - non-toxic materials, including general concreting materials
 - sand
 - water
 - identifying and verifying concrete material components including:
 - bar chairs
 - bracing
 - plastic membrane
 - reinforcement mesh
 - spacers
 - steel and timber formwork
 - identifying and using the correct handling procedures for the following:
 - calculation of quantities
 - manual handling, including:
 - carrying materials using correct lifting techniques
 - control of waste
 - using pallets
 - Safety Data Sheets (SDS)
 - protection of materials
 - stacking and storing of materials
 - identifying, selecting and using concrete tools and carrying out required checks prior to use including:
 - floats
 - shovels
 - screeds
 - vibrating equipment
 - using relevant tools appropriate to the task and materials
 - identifying, selecting and using and maintaining plant and equipment
 - clearing work area and disposing of, recycling or storing materials cleaning, checking, maintaining and storing plant, tools and equipment

Knowledge Evidence

The candidate must demonstrate knowledge in using concreting materials and equipment through:

- accessing, interpreting and applying the organisation and site requirements and procedures for:
 - identifying and managing risks
 - identifying, addressing and reporting environmental issues
 - setting up work activity
 - signage, erecting barriers and traffic control
 - work health and safety
 - managing waste
 - selecting and checking for faults, tools and equipment to carry out tasks
 - carrying out work to specifications
 - manufacturer's design specifications
 - applying effective techniques for the use of concreting materials and equipment

Assessment Conditions

- An assessor of this unit must satisfy the requirements of the NVR/AQTF or their successors; and Industry regulations for certification and licensing; and,
- this unit must be assessed in the context of this sector's work environment; and,
- this unit must be assessed in compliance with relevant legislation/regulation and using policies, procedures, processes and operational manuals directly related to the industry sector for which it is being assessed; and,
- assessment may be conducted in conjunction with the assessment of other Units of Competency; and,
- assessment must confirm consistent performance can be applied in a range of relevant workplace circumstances; and,
- assessors must demonstrate the performance evidence, and knowledge evidence as outlined in this Unit of Competency, and through the minimum years of current* work experience specified below in an Industry sector relevant to the outcomes of the unit; or,
- where the assessor does not meet experience requirements a co-assessment or partnership arrangement must exist between the qualified assessor and an Industry subject matter expert. The Industry subject matter expert should hold the unit being assessed (or an equivalent unit) and/or demonstrate equivalence of skills and knowledge at the unit level. An Industry technical expert must also demonstrate skills and knowledge from the minimum years of current work experience specified below in the Industry sector, including time spent in roles related to the unit being assessed; and,
- assessor and Industry subject matter expert requirements differ depending on the Australian Qualifications Framework Level (AQF) of the qualification being assessed and/or Industry Sector as follows:

Industry sector	AQF** Level	Required assessor or Industry subject matter expert experience
Drilling, Metalliferous Mining, Coal	1	1 Year

Mining, Extractive (Quarrying) and Civil Construction	2	2 Years
Drilling, Coal Mining and Extractive (Quarrying)	3-6	3 Years
Metalliferous Mining and Civil Construction	3-6	5 Years
Other sectors	Where this Unit is being assessed outside of the Resources and Infrastructure Sectors assessor and/or Industry subject matter expert experience should be in-line with industry standards for the sector in which it is being assessed and where no Industry standard is specified should comply with any relevant regulation.	

*Assessors can demonstrate current work experience through employment within Industry in a role relevant to the outcomes of the Unit; or, for external assessors this can be demonstrated through exposure to Industry by conducting frequent site assessments across various locations.

**Where a unit is being delivered outside of a Qualification the first numeric character in the Unit code should be considered to indicate the AQF level

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=88a61002-9a21-4386-aaf8-69c76e675272>

RIICRC323D Insert tie bars in fresh concrete

Modification History

Release	Comment
1	This unit replaces RIICRC323 Insert tie bars in fresh concrete
2	Required frequency and volume of evidence amended in Performance evidence. Substantial amendments made in Assessment Conditions field, including: references to Industry Sectors, assessor and subject matter expert experience requirements, how assessment should be conducted and what it should confirm.

Application

This unit describes a participant's skills and knowledge required to insert tie bars in fresh concrete in Civil Construction.

This unit is appropriate for those working in operational roles.

No licensing, legislation or certification requirements apply to this unit at the time of publication.

Unit Sector

Civil construction

Elements and Performance Criteria

1. Plan and prepare to insert tie bars in fresh concrete	1.1 Access, interpret and apply insert tie bars documentation and ensure the work activity is compliant 1.2 Obtain, read, interpret, clarify and confirm work requirements 1.3 Identify and address potential risks, hazards and environmental issues, and implement control measures 1.4 Select and wear correct personal protective equipment appropriate for work activities 1.5 Identify, obtain and implement signage requirements 1.6 Select and check for faults to plant, tools and equipment, to carry out tasks

2. Setup operations	2.1 Verify quantity of bars required for the task 2.2 Inspect and confirm bars are fit for purpose 2.3 Inspect and confirm saw cut locations are marked out or programmed into paving computer as per site specifications 2.4 Check automatic program spacing 2.5 Check tie bar spacing and variations conform to plans 2.6 Check for safe operations and confirm operation of emergency stops
3. Operate tie bar system	3.1 Maintain safe working area around tie bar inserter 3.2 Maintain adequate stock of bars at tie bar inserter 3.3 Operate and monitor mechanical or manual tie bar insertion for correct location, alignment and depth (if sidebars) 3.4 Report missed bars or jamming immediately 3.5 Ensure location of any missed or noncompliant insertion is recorded 3.6 Ensure concrete is fully compacted around the tie bar 3.7 Ensure magazine is sufficiently loaded at all times 3.8 Operate hiab (if fitted) to load magazine safely and accurately 3.9 Load magazine by hand according to correct procedures 3.10 Monitor movements and hazards and identify and communicate changes to the work environment during the work process
4. Clean Up	4.1 Clear work area and dispose of, reuse or recycle materials 4.2 Clean, check, maintain and store machinery, tools and equipment Return unused stock bars to store

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit. Further information is available in the Resources and Infrastructure Industry Training Package Companion Volume.

Unit Mapping Information

RIICRC323A Insert tie bars in fresh concrete

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=88a61002-9a21-4386-aaf8-69c76e675272>

Assessment Requirements for RIICRC323D Insert tie bars in fresh concrete

Modification History

Release	Comment
1	This unit replaces RIICRC323 Insert tie bars in fresh concrete
2	Required frequency and volume of evidence amended in Performance evidence. Substantial amendments made in Assessment Conditions field, including: references to Industry Sectors, assessor and subject matter expert experience requirements, how assessment should be conducted and what it should confirm.

Performance Evidence

Evidence is required to be collected that demonstrates a candidate's competency in this unit. Evidence must be relevant to the roles within this sector's work operations and satisfy all of the requirements of the performance criteria of this unit and include evidence that the candidate:

- locates and applies applicable documentation, policies and procedures
- implements the requirements, procedures and techniques for the safe, effective and efficient insertion of tie bars into fresh concrete including:
 - accessing, interpreting and applying documentation for inserting tie bars into fresh concrete
 - identifying and applying relevant specifications to all work activities
 - identifying, addressing and reporting potential hazards and risks
 - identifying, obtaining, confirming and implementing signage and barrier requirements
 - selecting and checking for faults all plant, tools and equipment to carry out tasks
 - identifying, addressing and reporting environmental issues
- works effectively with others to undertake the insertion of tie bars into fresh concrete that meets all of the required outcomes including:
 - preparing for and organising work activities to meet all task requirements
 - communicating clearly and concisely with others to receive and clarify work instructions
 - using a range of communication techniques and aids to advise others of work activity
 - monitoring movements and hazards and identifying and communicating changes to the work environment during the work process
- demonstrates completion of inserting tie bars in fresh concrete that safely, effectively and efficiently meets all of the required outcomes on more than one (1) occasion including:

- setting up for safe operations
- operating tie bar system to specifications
- clearing work area and disposing of, recycling or storing materials
- cleaning, checking, maintaining and storing plant, tools and equipment
- identify and correctly mark onsite changes in tie bar spacing from the plans
- Conduct insertion and compaction of tie bars to correct depth over seventy-five (75) linear metres on a minimum of three (3) occasions
- load a magazine on at least one occasion in accordance with manufacturer's procedures
- set out manually inserted tie bars and corresponding saw cuts

Knowledge Evidence

The candidate must demonstrate knowledge in inserting tie bars in fresh concrete through:

- accessing, interpreting and applying the organisation and site requirements and procedures for conducting road construction paver screeding operations for:
 - identifying and managing risks
 - identifying, addressing and reporting environmental issues
 - setting up work activity
 - site isolation, signage and erecting barriers
 - work health and safety
 - managing waste
 - tools and equipment operations and capabilities
 - selecting and checking for faults, tools and equipment to carry out tasks
 - carrying out work to specifications
 - applying effective techniques for inserting tie bars into fresh concrete

Assessment Conditions

- An assessor of this unit must satisfy the requirements of the NVR/AQTF or their successors; and Industry regulations for certification and licensing; and,
- this unit must be assessed in the context of this sector's work environment; and,
- this unit must be assessed in compliance with relevant legislation/regulation and using policies, procedures, processes and operational manuals directly related to the industry sector for which it is being assessed; and,
- assessment may be conducted in conjunction with the assessment of other Units of Competency; and,
- assessment must confirm consistent performance can be applied in a range of relevant workplace circumstances; and,
- assessors must demonstrate the performance evidence, and knowledge evidence as outlined in this Unit of Competency, and through the minimum years of current* work experience specified below in an Industry sector relevant to the outcomes of the unit; or,

- where the assessor does not meet experience requirements a co-assessment or partnership arrangement must exist between the qualified assessor and an Industry subject matter expert. The Industry subject matter expert should hold the unit being assessed (or an equivalent unit) and/or demonstrate equivalence of skills and knowledge at the unit level. An Industry technical expert must also demonstrate skills and knowledge from the minimum years of current work experience specified below in the Industry sector, including time spent in roles related to the unit being assessed; and,
- assessor and Industry subject matter expert requirements differ depending on the Australian Qualifications Framework Level (AQF) of the qualification being assessed and/or Industry Sector as follows:

Industry sector	AQF** Level	Required assessor or Industry subject matter expert experience
Drilling, Metalliferous Mining, Coal Mining, Extractive (Quarrying) and Civil Construction	1	1 Year
	2	2 Years
Drilling, Coal Mining and Extractive (Quarrying)	3-6	3 Years
Metalliferous Mining and Civil Construction	3-6	5 Years
Other sectors	Where this Unit is being assessed outside of the Resources and Infrastructure Sectors assessor and/or Industry subject matter expert experience should be in-line with industry standards for the sector in which it is being assessed and where no Industry standard is specified should comply with any relevant regulation.	

*Assessors can demonstrate current work experience through employment within Industry in a role relevant to the outcomes of the Unit; or, for external assessors this can be demonstrated through exposure to Industry by conducting frequent site assessments across various locations.

**Where a unit is being delivered outside of a Qualification the first numeric character in the Unit code should be considered to indicate the AQF level

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=88a61002-9a21-4386-aaf8-69c76e675272>

RIICTT401D Apply the principles for the installation of underground services using trenchless technology

Modification History

Release	Comment
1	This unit replaces RIICTT401A Apply the principles for the installation of underground services using trenchless technology
2	Required frequency and volume of evidence amended in Performance evidence. Substantial amendments made in Assessment Conditions field, including: references to Industry Sectors, assessor and subject matter expert experience requirements, how assessment should be conducted and what it should confirm.

Application

This unit describes a participant's skills and knowledge required to apply the principles for the installation of underground services using trenchless technology in Civil Construction.

This unit is appropriate for those working in supervisory or technical specialist roles.

No licensing, legislation or certification requirements apply to this unit at the time of publication.

Unit Sector

Civil construction

Elements and Performance Criteria

1. Plan and prepare for the installation of underground services using trenchless technology	1.1 Access, interpret and apply documentation for the installation of underground services using trenchless technology and ensure the work activity is compliant 1.2 Obtain, read, interpret, clarify and confirm work requirements 1.3 Identify and address potential risks, hazards and environmental issues and implement control measures 1.4 Select and wear personal protective equipment appropriate for work activities 1.5 Access, interpret and clarify the specific and relevant task

	information and requirements 1.6 Ensure a job plan is available which makes best use of the available resources
2. Ensure appropriate initiation of tasks	2.1 Confirm that the necessary resources are available 2.2 Ensure clear and timely instructions are communicated to team members and others involved 2.3 Identify and allocate tasks
3. Oversee the execution of tasks	3.1 Monitor asphalt paving and compaction task performance 3.2 Initiate adjustments to work practice or the job plan 3.3 Ensure plant, equipment and tools maintenance is carried out and recorded
4. Report on the execution of tasks	4.1 Complete and submit written reports 4.2 Recommend changes to improve the safety, efficiency and effectiveness of the execution of tasks

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit. Further information is available in the Resources and Infrastructure Industry Training Package Companion Volume.

Unit Mapping Information

RIICTT401A Apply the principles for the installation of underground services using trenchless technology

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=88a61002-9a21-4386-aaf8-69c76e675272>

Assessment Requirements for RIICTT401D Apply the principles for the installation of underground services using trenchless technology

Modification History

Release	Comment
1	This unit replaces RIICTT401A Apply the principles for the installation of underground services using trenchless technology
2	Required frequency and volume of evidence amended in Performance evidence. Substantial amendments made in Assessment Conditions field, including: references to Industry Sectors, assessor and subject matter expert experience requirements, how assessment should be conducted and what it should confirm.

Performance Evidence

Evidence is required to be collected that demonstrates a candidate's competency in this unit. Evidence must be relevant to the roles within this sector's work operations and satisfy all of the requirements of the performance criteria of this unit and include evidence that the candidate:

- locates and applies applicable documentation, policies and procedures
- implements the requirements, procedures and techniques for the safe, effective and efficient supervision of installing underground services using trenchless technology including:
 - accessing or developing the job plan and making it available to team members
 - monitoring asphalt paving and compaction task performance
 - ensuring maintenance is carried out and recorded
- works effectively with others to supervise the installation of underground service using trenchless technology that meets all the required outcomes including:
 - providing clear and timely written and verbal instructions
 - maintaining written and verbal reporting requirements and procedures
 - preparing for and conducting briefings, toolbox and site meetings
 - organising work activities to meet all task requirements
- demonstrates completion of the principles for the installation of underground services using trenchless technology that safely, effectively and efficiently meets all of the required outcomes on more than one (1) occasion including:
 - ensuring completion of the installation of underground services operations
 - monitoring and adjusting work programs where required to achieve outcomes

- recommending improvements for safety and efficiency
- applying operational techniques, including a minimum of one (1) of the following methods:
 - impact moling
 - ramming
 - augering
 - fluid assisted directional boring
 - micro tunnelling
 - pipe jacking

Knowledge Evidence

for the installation of underground services using trenchless technology through:

- manufacturer's requirements and procedures
- project site soil and geological data
- soil and rock types
- meteorological data
- drainage issues
- material properties and test results
- project site geotechnical data
- project site hydrological data
- project engineering survey information
- project plans and drawings
- job reports
- supervisory and leadership techniques
- performance monitoring techniques
- set up and use of levelling devices techniques
- construction offsets
- workplace relationships
- individuals and the team
- quantities for the execution of tasks, including:
 - volumes
 - grades
 - percentages
 - areas
- resource consumption figures, including required supply rates trenchless technology underground service installation plant and equipment capabilities and application
- relationships between various areas of civil works
- engineering survey principles
- mentoring techniques
- estimating principles
- civil works construction sequencing techniques

Assessment Conditions

- An assessor of this unit must satisfy the requirements of the NVR/AQTF or their successors; and Industry regulations for certification and licensing; and,
- this unit must be assessed in the context of this sector's work environment; and,
- this unit must be assessed in compliance with relevant legislation/regulation and using policies, procedures, processes and operational manuals directly related to the industry sector for which it is being assessed; and,
- assessment may be conducted in conjunction with the assessment of other Units of Competency; and,
- assessment must confirm consistent performance can be applied in a range of relevant workplace circumstances; and,
- assessors must demonstrate the performance evidence, and knowledge evidence as outlined in this Unit of Competency, and through the minimum years of current* work experience specified below in an Industry sector relevant to the outcomes of the unit; or,
- where the assessor does not meet experience requirements a co-assessment or partnership arrangement must exist between the qualified assessor and an Industry subject matter expert. The Industry subject matter expert should hold the unit being assessed (or an equivalent unit) and/or demonstrate equivalence of skills and knowledge at the unit level. An Industry technical expert must also demonstrate skills and knowledge from the minimum years of current work experience specified below in the Industry sector, including time spent in roles related to the unit being assessed; and,
- assessor and Industry subject matter expert requirements differ depending on the Australian Qualifications Framework Level (AQF) of the qualification being assessed and/or Industry Sector as follows:

Industry sector	AQF** Level	Required assessor or Industry subject matter expert experience
Drilling, Metalliferous Mining, Coal Mining, Extractive (Quarrying) and Civil Construction	1	1 Year
	2	2 Years
Drilling, Coal Mining and Extractive (Quarrying)	3-6	3 Years
Metalliferous Mining and Civil Construction	3-6	5 Years
Other sectors	Where this Unit is being assessed outside of the Resources and Infrastructure Sectors assessor and/or Industry subject matter expert experience should be in-line with industry standards for the sector in which it is being assessed and where no Industry standard is specified should comply with any relevant	

	regulation.

*Assessors can demonstrate current work experience through employment within Industry in a role relevant to the outcomes of the Unit; or, for external assessors this can be demonstrated through exposure to Industry by conducting frequent site assessments across various locations.

**Where a unit is being delivered outside of a Qualification the first numeric character in the Unit code should be considered to indicate the AQF level

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=88a61002-9a21-4386-aaf8-69c76e675272>

RIICTT402D Apply principles for repair & rehabilitation of underground services using trenchless technology

Modification History

Release	Comment
1	This unit replaces RIICTT402A Apply the principles for the repair and rehabilitation of underground services using trenchless technology
2	Required frequency and volume of evidence amended in Performance evidence. Substantial amendments made in Assessment Conditions field, including: references to Industry Sectors, assessor and subject matter expert experience requirements, how assessment should be conducted and what it should confirm.

Application

This unit describes a participant's skills and knowledge required to apply the principles for the repair and rehabilitation of underground services using trenchless technology in Civil Construction.

This unit is appropriate for those working in supervisory or technical specialist roles.

No licensing, legislation or certification requirements apply to this unit at the time of publication.

Unit Sector

Civil construction

Elements and Performance Criteria

1. Plan and prepare to for the repair and rehabilitation of underground services using trenchless technology	1.1 Access, interpret and apply repair and rehabilitation of underground services using trenchless technology documentation and ensure the work activity is compliant 1.2 Obtain, read, interpret, clarify and confirm work requirements 1.3 Identify and address potential risks, hazards and environmental issues and implement control measures 1.4 Select and wear personal protective equipment appropriate for work activities

	1.5 Access, interpret and clarify the specific and relevant task information and requirements 1.6 Ensure a job plan is available which makes best use of the available resources
2. Ensure appropriate initiation of tasks	2.1 Confirm that the necessary resources are available 2.2 Ensure clear and timely instructions are communicated to team members and others involved 2.3 Identify and allocate tasks
3. Oversee the execution of tasks	3.1 Monitor task performance 3.2 Initiate adjustments to work practice or the job plan 3.3 Ensure plant equipment and tools maintenance is carried out and recorded
4. Report on the execution of tasks	4.1 Complete and submit written reports 4.2 Recommend changes to improve the safety, efficiency and effectiveness of the execution of tasks

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit. Further information is available in the Resources and Infrastructure Industry Training Package Companion Volume.

Unit Mapping Information

RIICTT402A Apply the principles for the repair and rehabilitation of underground services using trenchless technology

Links

Companion Volume implementation guides are found in VETNet - <https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=88a61002-9a21-4386-aaf8-69c76e675272>

Assessment Requirements for RIICTT402D Apply principles for repair & rehabilitation of underground services using trenchless technology

Modification History

Release	Comment
1	This unit replaces RIICTT402A Apply the principles for the repair and rehabilitation of underground services using trenchless technology
2	Required frequency and volume of evidence amended in Performance evidence. Substantial amendments made in Assessment Conditions field, including: references to Industry Sectors, assessor and subject matter expert experience requirements, how assessment should be conducted and what it should confirm.

Performance Evidence

Evidence is required to be collected that demonstrates a candidate's competency in this unit. Evidence must be relevant to the roles within this sector's work operations and satisfy all of the requirements of the performance criteria of this unit and include evidence that the candidate:

- locates and applies applicable documentation, policies and procedures
- implements the requirements, procedures and techniques for the safe, effective and efficient supervision of the repair and rehabilitation of underground service using trenchless technology tasks including:
 - accessing or developing the job plan and making it available to team members
 - monitoring task performance
 - ensuring maintenance is carried out and recorded
- works effectively with others to supervise the repair and rehabilitation of underground service using trenchless technology that meets all the required outcomes including:
 - providing clear and timely written and verbal instructions
 - maintaining written and verbal reporting requirements and procedures
 - preparing for and conducting briefings, toolbox and site meetings
 - organising work activities to meet all task requirements
- demonstrates completion of the principles for the repair and rehabilitation of underground services using trenchless technology that safely, effectively and efficiently meets all of the required outcomes on more than one (1) occasion including:
 - ensuring completion of the repair and rehabilitation of underground services operations

- monitoring and adjusting work programs where required to achieve outcomes
- recommending improvements for safety and efficiency
- applying operational techniques, including a minimum of one (1) of the following methods:
 - on-line replacement
 - localised repair and sealing
 - cure in-place lining
 - spray lining
 - slip lining

Knowledge Evidence

The candidate must demonstrate knowledge in applying the principles for the repair and rehabilitation of underground services using trenchless technology through:

- manufacturer's requirements and procedures
- project site soil and geological data
- soil and rock types
- meteorological data
- drainage issues
- material properties and test results
- project site geotechnical data
- project site hydrological data
- project engineering survey information
- project plans and drawings
- job reports
- supervisory and leadership techniques
- performance monitoring techniques
- set up and use of levelling devices techniques
- construction offsets developing workplace relationships
- individuals and the team
- quantities for the execution of tasks, including:
 - volumes
 - grades
 - percentages
 - areas
 - resource consumption figures, including required supply rates
- renovation of large diameter pipes and chambers techniques
- engineering survey principles
- relationships between various areas of civil works
- mentoring techniques
- estimating principles

- civil works construction sequencing techniques
- works planning techniques

Assessment Conditions

- An assessor of this unit must satisfy the requirements of the NVR/AQTF or their successors; and Industry regulations for certification and licensing; and,
- this unit must be assessed in the context of this sector's work environment; and,
- this unit must be assessed in compliance with relevant legislation/regulation and using policies, procedures, processes and operational manuals directly related to the industry sector for which it is being assessed; and,
- assessment may be conducted in conjunction with the assessment of other Units of Competency; and,
- assessment must confirm consistent performance can be applied in a range of relevant workplace circumstances; and,
- assessors must demonstrate the performance evidence, and knowledge evidence as outlined in this Unit of Competency, and through the minimum years of current* work experience specified below in an Industry sector relevant to the outcomes of the unit; or,
- where the assessor does not meet experience requirements a co-assessment or partnership arrangement must exist between the qualified assessor and an Industry subject matter expert. The Industry subject matter expert should hold the unit being assessed (or an equivalent unit) and/or demonstrate equivalence of skills and knowledge at the unit level. An Industry technical expert must also demonstrate skills and knowledge from the minimum years of current work experience specified below in the Industry sector, including time spent in roles related to the unit being assessed; and,
- assessor and Industry subject matter expert requirements differ depending on the Australian Qualifications Framework Level (AQF) of the qualification being assessed and/or Industry Sector as follows:

Industry sector	AQF** Level	Required assessor or Industry subject matter expert experience
Drilling, Metalliferous Mining, Coal Mining, Extractive (Quarrying) and Civil Construction	1	1 Year
	2	2 Years
Drilling, Coal Mining and Extractive (Quarrying)	3-6	3 Years
Metalliferous Mining and Civil Construction	3-6	5 Years
Other sectors	Where this Unit is being assessed outside of the Resources and Infrastructure Sectors assessor and/or Industry subject matter expert experience should be in-line with industry standards for the sector in which it is being	

	assessed and where no Industry standard is specified should comply with any relevant regulation.

*Assessors can demonstrate current work experience through employment within Industry in a role relevant to the outcomes of the Unit; or, for external assessors this can be demonstrated through exposure to Industry by conducting frequent site assessments across various locations.

**Where a unit is being delivered outside of a Qualification the first numeric character in the Unit code should be considered to indicate the AQF level

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=88a61002-9a21-4386-aaf8-69c76e675272>

RIICWM501D Implement civil construction plan

Modification History

Release	Comment
1	This unit replaces RIICWM501A Implement civil construction plan
2	Required frequency and volume of evidence amended in Performance evidence. Substantial amendments made in Assessment Conditions field, including: references to Industry Sectors, assessor and subject matter expert experience requirements, how assessment should be conducted and what it should confirm.

Application

This unit describes a participant's skills and knowledge required to implement a civil construction plan in Civil construction.

This unit is appropriate for those working in supervisory or technical specialist roles.

No licensing or certification requirements apply to this unit at the time of publication.

Unit Sector

Civil construction

Elements and Performance Criteria

1. Plan and prepare to implement a civil construction plan	1.1 Access, interpret and apply civil construction plan documentation and ensure the work activity is compliant 1.2 Identify hazards and environmental issues associated with the work, evaluate risks and apply controls 1.3 Confirm the availability and accuracy of the project information 1.4 Prepare the scope of work required for the safe effective and efficient implementation 1.5 Identify and schedule resources required to complete the task
2. Prepare the detailed civil	2.1 Identify the viable available options for the implementation of the civil construction plan

construction plan	2.2 Select the preferred option and draft the implementation program in consultation with relevant team members and ensure best use of the available resources that meet the civil construction plan requirements 2.3 Identify contingency requirements to be allowed for in the execution of the plan 2.4 Monitor and coordinate the progress of other team members involved in the planning process 2.5 Identify the key performance indicators to be used to monitor and assess the project performance 2.6 Identify and clarify the construction milestones required 2.7 Prepare an accurate estimate of the cost of execution in consultation with relevant team members 2.8 Gain approval for the implementation plan 2.9 Document the implementation plan
3. Initiate civil construction implementation plans	3.1 Acquire and make available the necessary resources 3.2 Issue clear and timely instructions to team members and others involved, and ensure the safe, effective and efficient conduct of the plan
4. Monitor, adjust and report on the implementation of civil construction plan	4.1 Monitor the civil construction implementation plan performance and ensure it achieves the required outcomes 4.2 Initiate adjustments to achieve required outcomes 4.3 Provide ongoing clarification and advice to those applying the plan to ensure the successful completion of the project 4.4 Complete and submit written and verbal reports 4.5 Conduct a performance review of the implementation plan 4.6 Recommend improvements to the safety, efficiency and effectiveness

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit. Further information is available in the Resources and Infrastructure Industry Training Package Companion Volume.

Unit Mapping Information

RIICWM501A Implement civil construction plan

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=88a61002-9a21-4386-aaf8-69c76e675272>

Assessment Requirements for RIICWM501D Implement civil construction plan

Modification History

Release	Comment
1	This unit replaces RIICWM501A Implement civil construction plan
2	Required frequency and volume of evidence amended in Performance evidence. Substantial amendments made in Assessment Conditions field, including: references to Industry Sectors, assessor and subject matter expert experience requirements, how assessment should be conducted and what it should confirm.

Performance Evidence

Evidence is required to be collected that demonstrates a candidate's competency in this unit. Evidence must be relevant to the roles within this sector's work operations and satisfy all of the requirements of the performance criteria of this unit and include evidence that the candidate:

- locates and applies relevant legislation, documentation, policies and procedures
- implements appropriate procedures and techniques for the safe, effective and efficient implementation of civil construction plans including:
 - project plans and drawings
 - project specifications
 - project construction briefs
 - project engineering survey information
 - project hydrological data
 - meteorological data
 - project geotechnical data
- works effectively with others to implement a civil construction plan that meets all the required outcomes including:
 - providing clear and timely instruction and supervision using a range of communication techniques to those involved
 - preparing for and conducting briefings, toolbox and site meetings
 - maintaining clear and legible written records and the reporting systems
 - consulting with stakeholders
- demonstrates completion of implementing civil construction plan that safely, effectively and efficiently meets all of the required outcomes on more than one (1) occasion including:

- determining viable options and selection of civil construction plans
- confirming availability and accuracy of the project information from one (1) of the following sources:
 - consultation with the client
 - consultation with others within the organisation
 - obtaining further site data including:
 - geological data
 - survey data
 - hydrological data
 - meteorological data
- successful implementation of a civil construction plan

Knowledge Evidence

The candidate must demonstrate knowledge in the implementation of a civil construction plan through:

- accessing, interpreting and applying legislative, organisation and site requirements and procedures for:
 - risk assessment and management
 - statutory compliance
 - the development of a construction implementation plan
 - work, health and safety
 - environmental management
 - quality management
- communication
- sources of information on innovation and new technology
- contract management
- team leadership
- cost estimation
- recording and reporting
- organisational and site operational obligations
- materials quality and delivery requirements and procedures
- principles of road user behaviour

Assessment Conditions

- An assessor of this unit must satisfy the requirements of the NVR/AQTF or their successors; and Industry regulations for certification and licensing; and,
- this unit must be assessed in the context of this sector's work environment; and,
- this unit must be assessed in compliance with relevant legislation/regulation and using policies, procedures, processes and operational manuals directly related to the industry sector for which it is being assessed; and,

- assessment may be conducted in conjunction with the assessment of other Units of Competency; and,
- assessment must confirm consistent performance can be applied in a range of relevant workplace circumstances; and,
- assessors must demonstrate the performance evidence, and knowledge evidence as outlined in this Unit of Competency, and through the minimum years of current* work experience specified below in an Industry sector relevant to the outcomes of the unit; or,
- where the assessor does not meet experience requirements a co-assessment or partnership arrangement must exist between the qualified assessor and an Industry subject matter expert. The Industry subject matter expert should hold the unit being assessed (or an equivalent unit) and/or demonstrate equivalence of skills and knowledge at the unit level. An Industry technical expert must also demonstrate skills and knowledge from the minimum years of current work experience specified below in the Industry sector, including time spent in roles related to the unit being assessed; and,
- assessor and Industry subject matter expert requirements differ depending on the Australian Qualifications Framework Level (AQF) of the qualification being assessed and/or Industry Sector as follows:

Industry sector	AQF** Level	Required assessor or Industry subject matter expert experience
Drilling, Metalliferous Mining, Coal Mining, Extractive (Quarrying) and Civil Construction	1	1 Year
	2	2 Years
Drilling, Coal Mining and Extractive (Quarrying)	3-6	3 Years
Metalliferous Mining and Civil Construction	3-6	5 Years
Other sectors	Where this Unit is being assessed outside of the Resources and Infrastructure Sectors assessor and/or Industry subject matter expert experience should be in-line with industry standards for the sector in which it is being assessed and where no Industry standard is specified should comply with any relevant regulation.	

*Assessors can demonstrate current work experience through employment within Industry in a role relevant to the outcomes of the Unit; or, for external assessors this can be demonstrated through exposure to Industry by conducting frequent site assessments across various locations.

**Where a unit is being delivered outside of a Qualification the first numeric character in the Unit code should be considered to indicate the AQF level

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=88a61002-9a21-4386-aaf8-69c76e675272>

RIIHAN211D Conduct basic scaffolding operations

Modification History

Release	Comment
1	This unit replaces RIIHAN211A Conduct basic scaffolding operations.
2	Amend reference to Licensing requirements in Unit Application; Editorial corrections
3	Required frequency and volume of evidence amended in Performance evidence. Substantial amendments made in Assessment Conditions field, including: references to Industry Sectors, assessor and subject matter expert experience requirements, how assessment should be conducted and what it should confirm.

Application

This unit describes a participant's skills and knowledge required to conduct basic scaffolding operations in the Resources and Infrastructure Industries.

This unit is appropriate for those working in operational roles.

The work required in this unit relates to the National Standard for High Risk Work.

Licensing, legislative, regulatory and certification requirements that apply to this unit can vary between states, territories and industry sectors. Relevant information must be sourced prior to application of the unit.

Elements and Performance Criteria

1. Plan and prepare for basic scaffolding operations	1.1 Access, interpret and apply scaffolding documentation and ensure the work activity is compliant 1.2 Obtain, read, interpret, clarify and confirm work requirements and safety information before proceeding 1.3 Select and wear personal protective equipment appropriate for work activities 1.4 Develop the preliminary scaffolding plan 1.5 Confirm site preparation with appropriate personnel and identify and address potential risks, hazards and environmental issues, and implement control measures 1.6 Identify and select equipment

	1.7 Check equipment is ready for use and report verbally or in writing, label and repair any defects within functional responsibility 1.8 Confirm scaffolding plan
2. Erect and maintain basic scaffolding	2.1 Erect scaffolding 2.2 Adhere to safety requirements at heights, on incomplete structures and in confined spaces 2.3 Install static lines 2.4 Assemble and erect lifting device 2.5 Inspect critical structural and safety areas and equipment periodically while in use, identify any variation from the plan and record in writing inspection in inspection log 2.6 Perform alteration or repair to critical structural and safety areas and equipment
3. Dismantle basic scaffolding	3.1 Isolate scaffolding and appropriately sign and barricade 3.2 Inspect, classify, label and dismantle scaffolding using the reverse procedure for erection 3.3 Clear work area and dispose of used and recycled materials 3.4 Clean, check and store equipment and tools

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit. Further information is available in the Resources and Infrastructure Industry Training Package Companion Volume.

Unit Mapping Information

RIIHAN211B Conduct basic scaffolding operations

Links

Companion Volume implementation guides are found in VETNet - <https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=88a61002-9a21-4386-aaf8-69c76e675272>

Assessment Requirements for RIIHAN211D Conduct basic scaffolding operations

Modification History

Release	Comment
1	This unit replaces RIIHAN211A Conduct basic scaffolding operations.
2	Amend reference to Licensing requirements in Unit Application; Editorial corrections
3	Required frequency and volume of evidence amended in Performance evidence. Substantial amendments made in Assessment Conditions field, including: references to Industry Sectors, assessor and subject matter expert experience requirements, how assessment should be conducted and what it should confirm.

Performance Evidence

Evidence is required to be collected that demonstrates a candidate's competency in this unit. Evidence must be relevant to the roles within this sector's work operations and satisfy all of the requirements of the performance criteria of this unit and include evidence that the candidate:

- locates and applies relevant documentation, policies and procedures
- implements the requirements, procedures and techniques for the safe, effective and efficient conduct of basic scaffolding operations including:
 - access, interpret and apply technical scaffolding information
 - planning and preparing for scaffolding operations
- works effectively with others to undertake and complete the conduct of basic scaffolding operations that meets all of the required outcomes including:
 - maintaining written and verbal reporting requirements and procedures
 - using a range of communication techniques and equipment to convey information to others
- demonstrates completion of conducting basic scaffolding operations that safely, effectively and efficiently meets all of the required outcomes on more than one (1) occasion including:
 - erecting, altering and maintaining scaffolding including:
 - installation of static lines
 - inspection of critical structures
 - dismantling scaffolding including:
 - installation of signage and barricading

- inspection, classification and labelling of scaffolding
- clean, check and store equipment and tools

Knowledge Evidence

The candidate must demonstrate knowledge of the following when conducting basic scaffolding operations:

- National standard for High Risk Work
- plant, tools and equipment types, characteristics, uses, limitations and relevance to scaffolding
- materials safety data sheet
- scaffolding plans, drawings and specifications
- using scaffolding lifting devices

Assessment Conditions

- An assessor of this unit must satisfy the requirements of the NVR/AQTF or their successors; and Industry regulations for certification and licensing; and,
- this unit is best assessed in the context of this sector's work environment;
- where personal safety or environmental damage are limiting factors, assessment may occur in a simulated environment provided it is realistic and sufficiently rigorous to cover all aspects of this sector's workplace performance, including environment, task skills, task management skills, contingency management skills and job role environment skills; and,
- this unit must be assessed in compliance with relevant legislation/regulation and using policies, procedures, processes and operational manuals directly related to the industry sector for which it is being assessed; and,
- assessment may be conducted in conjunction with the assessment of other Units of Competency; and,
- assessment must confirm consistent performance can be applied in a range of relevant workplace circumstances; and,
- assessors must demonstrate the performance evidence, and knowledge evidence as outlined in this Unit of Competency, and through the minimum years of current* work experience specified below in an Industry sector relevant to the outcomes of the unit; or,
- where the assessor does not meet experience requirements a co-assessment or partnership arrangement must exist between the qualified assessor and an Industry subject matter expert. The Industry subject matter expert should hold the unit being assessed (or an equivalent unit) and/or demonstrate equivalence of skills and knowledge at the unit level. An Industry technical expert must also demonstrate skills and knowledge from the minimum years of current work experience specified below in the Industry sector, including time spent in roles related to the unit being assessed; and,
- assessor and Industry subject matter expert requirements differ depending on the Australian Qualifications Framework Level (AQF) of the qualification being assessed and/or Industry Sector as follows:

Industry sector	AQF** Level	Required assessor or Industry subject matter expert

		experience
Drilling, Metalliferous Mining, Coal Mining, Extractive (Quarrying) and Civil Construction	1	1 Year
	2	2 Years
Drilling, Coal Mining and Extractive (Quarrying)	3-6	3 Years
Metalliferous Mining and Civil Construction	3-6	5 Years
Other sectors	Where this Unit is being assessed outside of the Resources and Infrastructure Sectors assessor and/or Industry subject matter expert experience should be in-line with industry standards for the sector in which it is being assessed and where no Industry standard is specified should comply with any relevant regulation.	

*Assessors can demonstrate current work experience through employment within Industry in a role relevant to the outcomes of the Unit; or, for external assessors this can be demonstrated through exposure to Industry by conducting frequent site assessments across various locations.

**Where a unit is being delivered outside of a Qualification the first numeric character in the Unit code should be considered to indicate the AQF level

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=88a61002-9a21-4386-aaf8-69c76e675272>

RIIHAN308F Load and unload plant

Modification History

Release	Comments
Release 1	This version first released with RII Resources and Infrastructure Industry Training Package Version 3.0.

Application

This unit describes the skills and knowledge required to load and unload plant.

This unit applies to those working in site-based roles.

Prior to performing this activity, skills and knowledge should be developed for the individual plant. This can be achieved through completing the equivalent operator unit or being assisted by someone who has this knowledge. Refer to the Implementation Guide for further details.

Licensing, legislative, regulatory and certification requirements that apply to this unit can vary between states, territories and industry sectors, and must be sourced from state jurisdictions prior to applying this unit.

Unit Sector

Coal mining

Extractive

Drilling

Metalliferous mining

Civil infrastructure

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Prepare to load and unload plant	1.1 Access, interpret and apply load handling documentation to ensure work activity is compliant 1.2 Obtain, interpret, clarify and confirm work requirements 1.3 Identify hazards and environmental issues, assess the risks and

ELEMENT	PERFORMANCE CRITERIA
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
	implement control measures in line with workplace policies 1.4 Select and wear personal protective equipment required for work activities 1.5 Obtain and display signage, and erect barriers to isolate the loading and unloading site from general traffic flow in line with safe work practices
2. Load the plant in line with established requirements	2.1 Confirm the dimensions and capacity of the float or trailer to safely carry the plant 2.2 Select tools and loading equipment in line with work requirements 2.3 Identify faults, and rectify or report prior to commencement of work, within scope of own responsibility and according to workplace procedures 2.4 Confirm preparation procedures of the plant for transportation has been completed 2.5 Place and secure loading aids in line with workplace procedures 2.6 Confirm the loading procedure with operator and/or guide before loading commences 2.7 Move the plant item onto the trailer or float and halt at the designated position as per workplace procedures 2.8 Secure plant to trailer or float in line with workplace procedures
3. Unload the plant in line with established requirements	3.1 Confirm the unloading procedure with operator and guide before unloading commences 3.2 Place and secure unloading aids, including ramps, in accordance with the trailer or float specifications 3.3 Slacken securing devices and remove according to workplace procedures 3.4 Move the plant item off the trailer or float and halt at the designated position 3.5 Stow loading aids including ramps, bridging materials and securing devices as per workplace procedures

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance.

Skill	Description
Reading	Identifies and interprets relevant information from workplace procedures, documentation, legislation and regulations
Numeracy	Identifies and comprehends relevant mathematical information in relation to equipment operating capacities

Unit Mapping Information

Code and title current version	Code and title previous version	Comments	Equivalence status
RIIHAN308F Load and unload plant (Release 1)	RIIHAN308E Load and unload plant (Release 1)	Minor updates to all sections to reflect operator's role.	Equivalent

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=88a61002-9a21-4386-aaf8-69c76e675272>

Assessment Requirements for RIIHAN308F Load and unload plant

Modification History

Release	Comments
Release 1	This version first released with RII Resources and Infrastructure Industry Training Package Version 3.0.

Performance Evidence

The candidate must demonstrate the ability to complete the tasks outlined in the elements and performance criteria of this unit.

The candidate must demonstrate completion of loading and unloading plant that safely, effectively and efficiently follows workplace procedures to carry out work activity on at least two occasions, and include:

- displaying signage and erecting barriers to isolate work site
- calculating volume and weight of loads
- placing and securing loading and unloading aids
- moving plant onto and off trailer or float, halting at designated position
- securing plant to trailer or float
- slackening securing devices and removing in a safe sequence
- stowing loading aids

In the course of the above work, the candidate must also:

- select, check and use required loading tools and equipment
- select and wear personal protective equipment required for work activities
- apply safe work practices and identify and report potential hazards and environmental issues, and assess risks
- apply fault finding techniques
- locate and apply required documentation, policies and procedures
- meet written and verbal reporting requirements and procedures associated with loading and unloading plant
- apply operational safety
- maintain equipment records

Knowledge Evidence

The candidate must demonstrate knowledge of the following when loading and unloading plant:

Key policies, procedures and relevant standards for loading and unloading plant, including those relating to:

- National Standard for high risk work
- site and equipment safety
- techniques and processes for preparing plant for transportation
- environmental requirements
- work health safety
- chain of responsibility for loading and unloading of equipment

Key site information, including:

- understanding of required hand signals
- site isolation and traffic control responsibilities and authorities
- materials safety data sheet

Key factors affecting work activities described in performance evidence above, including

- basic motion and restraint theory related to heavy plant on floats or trailers
- basic centre of gravity and balance theory related to heavy plant on floats or trailers
- types, operation, uses and limitations of load securing equipment

Assessment Conditions

Mandatory conditions for assessment of this unit are stipulated below. The assessment must:

- include access to:
 - plant to load and unload
 - trailer or float
 - signage and barriers
 - loading aids and securing devices
 - personal protective equipment
- be conducted in a safe environment
- be assessed in context of this sector's work environment
- be assessed in compliance with relevant legislation/regulation and using policies, procedures, processes and operational manuals directly related to the industry sector for which it is being assessed; and,
- confirm consistent performance can be applied in a range of relevant workplace circumstances.

Where personal safety or environmental damage are limiting factors, assessment may occur in a simulated work environment* provided it is realistic and sufficiently rigorous to cover all aspects of this sector's workplace performance, including environment, task skills, task management skills, contingency management skills and job role environment skills.

Assessor requirements

Assessors must be able to clearly demonstrate current and relevant industry knowledge and experience to satisfy the mandatory regulatory standards as set out in the Standards for Registered Training Organisations (RTOs) 2015/AQTF mandatory requirements for assessors current at the time of assessment and any relevant licensing and certification requirements. This includes:

- vocational competencies at least to the level being delivered and assessed
- current industry skills directly relevant to the training and assessment being provided
- current knowledge and skills in vocational training and learning that informs their training and assessment
- formal relevant qualifications in training and assessment
- having knowledge of and/or experience using the latest techniques and processes
- possessing a high level of RII training product knowledge
- having an understanding and knowledge of legislation and regulation relevant to the industry and to employment and workplaces
- demonstrating the performance evidence, and knowledge evidence as outlined in this Unit of Competency, and
- the minimum years of current** work experience after competency has been obtained as specified below in an industry sector relevant to the outcomes of the unit.

It is also acceptable for the appropriately qualified assessor to work with an industry expert to conduct assessment together and for the industry expert to be involved in the assessment judgement. The industry expert must hold the relevant vocational competencies and have current industry skills directly relevant to the training and assessment being provided, and must work alongside a trainer and/or assessor to conduct the assessment. This means the industry subject matter expert should hold the unit being assessed (or an equivalent unit) and must also demonstrate skills and knowledge from the minimum years of current work experience after competency has been obtained as specified below, including time spent in roles related to the unit being assessed.

Industry sector	AQF indicator level***	Required assessor or industry subject matter expert experience
Drilling, Metalliferous Mining, Coal Mining, Extractive (Quarrying) and Civil Infrastructure	1	1 Year
	2	2 Years
Drilling, Coal Mining, Extractive (Quarrying), Metalliferous Mining and Civil Infrastructure	3-6	3 Years
Other sectors	Where this unit is being assessed outside of the resources and infrastructure sectors, assessor and/or industry subject matter expert experience should be in-line with industry standards for the sector in which it is being assessed and, where no industry standard is specified, should comply with any relevant	

	regulation.

*Guidance on simulated environments has been stipulated in the RII implementation guide located on VETNet.

**Assessors can demonstrate current work experience through employment within industry in a role relevant to the outcomes of the unit; or, for external assessors this can be demonstrated through exposure to industry by conducting a minimum number of site assessments as determined by the relevant industry sector, across various locations.

*** While a Unit of Competency does not have an AQF level, where a unit is being delivered outside of a qualification the first numeric character in the unit code should be considered as the AQF indicator level for assessment purposes.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=88a61002-9a21-4386-aaf8-69c76e675272>

RIIMPO327E Conduct pipe layer operations

Modification History

Release	Comments
Release 1	This version first released with RII Resources and Infrastructure Industry Training Package Version 3.0.

Application

This unit describes the skills and knowledge required to operate and lay pipe using a pipe layer

This unit applies to those working in site based roles.

Licensing, legislative, regulatory and certification requirements that apply to this unit can vary between states, territories, and industry sectors, and must be sourced from state jurisdictions prior to applying this unit.

This unit alone does not provide sufficient skill to independently load and unload equipment. To perform this activity safely, personnel must either complete or be assisted by someone who has completed RIIHAN308F Load and Unload Plant or equivalent.

Unit Sector

Civil infrastructure

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Plan and prepare for pipe layer operations	1.1 Access, interpret and apply pipe layer operations documentation 1.2 Obtain, interpret clarify and confirm work instructions 1.3 Identify hazards and environmental issues, assess the risks and implement control measures 1.4 Select and wear personal protective equipment required for work activities 1.5 Identify, obtain and implement traffic management signage

ELEMENT	PERFORMANCE CRITERIA
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
	according to workplace procedures 1.6 Select equipment and/or attachments and confirm suitability for work activities 1.7 Obtain and interpret emergency procedures for pipe layer, and be prepared for fires, accidents and emergencies 1.8 Coordinate and communicate planned activities with others at the site prior to commencement of work activity
2. Operate pipe layer in line with establisher requirements	2.1 Carry out equipment prestart and start-up checks in line with workplace procedures 2.2 Identify faults or defects and rectify or report within scope of own responsibility and according to workplace procedures 2.3 Drive and operate using pipe layer techniques suited to equipment capabilities, site and work conditions, and according to workplace procedures 2.4 Monitor hazards and risks during operations, and ensure safety of self, other personnel, plant and equipment 2.5 Monitor and manage equipment performance using indicators and alarms
3. Attach, carry and place pipe to complete work activity	3.1 Establish weight of load and ensure it is within safe operational limits of the machine 3.2 Position machinery to ensure stable and effective shift of materials according to work requirements 3.3 Use lifting gear within safe working load requirements and in line with workplace procedures 3.4 Shift pipe and place safely, using hand, audible and communication signals, in line with workplace procedures 3.5 Park up, shut down, secure and carry out post operational inspection of equipment in line with workplace procedures
4. Transport pipe layer	4.1 Prepare pipe layer for relocation 4.2 Move pipe layer safely between worksites, observing relevant codes and traffic management requirements 4.3 Assist loading and unloading machine from float/trailer in line with workplace procedures
5. Conduct	5.1 Clear work area and dispose of or recycle materials according to

ELEMENT	PERFORMANCE CRITERIA
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
housekeeping activities	workplace procedures 5.2 Manage and/or report hazards to maintain a safe working environment 5.3 Complete and file or distribute documentation

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance.

Skill	Description
Reading	Identifies and interprets relevant information from workplace procedures, documentation, legislation and regulations
Numeracy	Uses equipment operating capacity schedule to confirm safe weight load limits

Unit Mapping Information

Code and title current version	Code and title previous version	Comments	Equivalence status
RIIMPO327E Conduct pipe layer operations (Release 1)	RIIMPO327D Conduct pipe later operations (Release 3)	Minor updates to reflect changes to operator maintenance and relocation activities, and the use of lifting gear	Equivalent unit

Links

Companion Volume implementation guides are found in VETNet - <https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=88a61002-9a21-4386-aaf8-69c76e675272>

Assessment Requirements for RIIMPO327E Conduct pipe layer operations

Modification History

Release	Comments
Release 1	This version first released with RII Resources and Infrastructure Industry Training Package Version 3.0.

Performance Evidence

The candidate must demonstrate the ability to complete the tasks outlined in the elements and performance criteria of this unit.

The candidate must demonstrate completion of pipe layer operations that safely, effectively and efficiently follows workplace procedures to carry out work activity on at least two occasions, and include:

- conducting prestart checks prior to commencing operations and shutdown procedures on completion of operations
- driving and operating pipe layer and adjusting techniques to suit site conditions
- establishing weight of load and ensuring it is within equipment operating capacities
- completion of laying a minimum of nine pipe lengths, where the size of the pipes are to be greater than 50% of the authorised working load of the pipe layer machine
- completion of operations in level, sloping and broken surface ground conditions
- parking and securing equipment
- assisting with loading and unloading skid steer loader from float/trailer

In the course of the above work the candidate must also:

- locate and apply relevant documentation, policies and procedures
- select and wear personal protective equipment required for work activities
- carry out vehicle refuelling requirements and procedures where applicable
- apply safe work practices and identify and report all potential hazards, risks and environmental issues
- apply problem solving and troubleshooting techniques
- apply pipe layer and attachment operating techniques related to essential tasks
- select and use the required tools and equipment
- work safely around other machines and personnel
- apply methods of changing machine attachments
- manage changes in the loads centre of gravity during transportation
- use a range of communications techniques and equipment essential to the safe completion of work instruction, including hand, audible and other signals

- meet written and verbal reporting requirements and procedures with pipe layer operations
-

Knowledge Evidence

The candidate must be able to demonstrate knowledge to complete the tasks outlined in the elements and performance criteria of this unit. This includes:

Key policies and procedures, legislation and established requirements for pipe layer operation without attachments, including those relating to:

- fire, accidents and emergencies
- work health and safety, including signs of operator fatigue and how it should be managed
- site isolation
- project quality requirements
- maintenance and basic diagnostics
- housekeeping activities
- recycling materials
- chain of responsibility for loading and unloading of equipment

Key factors affecting work activities described in performance evidence above, including:

- technical capabilities and limitations
- equipment specifications
- ground conditions
- materials characteristics

Key features associated with civil construction works, including:

- terminology
- activity sequences of road construction, earthworks and drainage
- basic earthworks calculations
- principles of materials technology and materials compaction
- drawings and sketches
-

Assessment Conditions

Mandatory conditions for assessment of this unit are stipulated below. The assessment must:

- include access to:
 - a pipe layer
 - pipes
 - personal protective equipment
- be conducted in a safe environment; and,
- be assessed in context of this sector's work environment; and,

- be assessed in compliance with relevant legislation/regulation and using policies, procedures, processes and operational manuals directly related to the industry sector for which it is being assessed; and,
- confirm consistent performance can be applied in a range of relevant workplace circumstances

Where personal safety or environmental damage are limiting factors, assessment may occur in a simulated work environment* provided it is realistic and sufficiently rigorous to cover all aspects of this sector's workplace performance, including environment, task skills, task management skills, contingency management skills and job role environment skills.

Assessor requirements

Assessors must be able to clearly demonstrate current and relevant industry knowledge and experience to satisfy the mandatory competency standards as set out in the Standards for Registered Training Organisations (RTOs) 2015/AQTF mandatory requirements for assessors current at the time of assessment and any relevant licensing and certification requirements. This includes:

- vocational competencies at least to the level being delivered and assessed
- current industry skills directly relevant to the training and assessment being provided
- current knowledge and skills in vocational training and learning that informs their training and assessment
- formal relevant qualifications in training and assessment
- having knowledge of and/or experience using the latest techniques and processes
- possessing a high level of RII training product knowledge
- having an understanding and knowledge of legislations and regulations relevant to the industry and to employment and workplaces
- demonstrating the performance evidence, and knowledge evidence as outlined in this Unit of Competency, and
- the minimum years of current** work experience after competency has been obtained as specified below in an industry sector relevant to the outcomes of the unit.

It is also acceptable for the appropriately qualified assessor to work with an industry expert to conduct assessment together and for the industry expert to be involved in the assessment judgement. The industry expert must hold the relevant vocational competencies and have current industry skills directly relevant to the training and assessment being provided and must work alongside a trainer and/or assessor to conduct the assessment. This means the industry subject matter expert should hold the unit being assessed (or an equivalent unit), and must also demonstrate skills and knowledge from the minimum years of current work experience after competency has been obtained as specified below, including time spent in roles related to the unit being assessed:

Industry sector	AQF indicator level***	Required assessor or industry subject matter expert experience
Drilling, Metalliferous Mining, Coal Mining, Extractive (Quarrying) and Civil Infrastructure	1	1 Year
	2	2 Years

Drilling, Coal Mining, Extractive (Quarrying), Metalliferous Mining and Civil Infrastructure	3-6	3 Years
Other sectors	Where this unit is being assessed outside of the resources and infrastructure sectors assessor and/or industry subject matter expert experience should be in-line with industry standards for the sector in which it is being assessed and where no industry standard is specified should comply with any relevant regulation.	

*Guidance on simulated environments has been stipulated in the RII implementation guide located on VETNet.

**Assessors can demonstrate current work experience through employment within industry in a role relevant to the outcomes of the unit; or, for external assessors this can be demonstrated through exposure to industry by conducting a minimum number of site assessments as determined by the relevant industry sector, across various locations.

*** While a Unit of Competency does not have an AQF level, where a unit is being delivered outside of a qualification the first numeric character in the unit code should be considered as the AQF indicator level for assessment purposes.

Links

Companion Volume implementation guides are found in VETNet -
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RIIRIS202E Respond to site based spills

Modification History

Release	Comments
Release 1	This version first released with RII Resources and Infrastructure Industry Training Package Version 5.0.

Application

This unit describes the skills and knowledge required to respond to site based spills in the resources and infrastructure industries.

It applies to those working in operational roles. They generally work under supervision to undertake a prescribed range of functions involving known routines and procedures and take responsibility for the quality of work outcomes.

Licensing, legislative and certification requirements may apply to this unit and can vary between states, territories and industry sectors. Users must check requirements with relevant body before applying the unit.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Plan and prepare for responding to site based spills	1.1 Obtain, interpret and confirm work requirements 1.2 Access, interpret and apply documentation required to respond to site based spills 1.3 Coordinate activities with others and establish communication systems to be used during spills 1.4 Identify and address potential risks, hazards and environmental issues, and implement control measures according to workplace procedures 1.5 Select and wear personal protective equipment appropriate for work activities 1.6 Identify effective handling procedures for general and hazardous waste 1.7 Identify and communicate team responsibilities when managing a spill with others as required and according to

ELEMENT	PERFORMANCE CRITERIA
	workplace procedures 1.8 Identify reporting responsibilities when a spill occurs 1.9 Obtain and interpret emergency procedures, and be prepared for emergency situations
2. Assess and identify spill type	2.1 Identify chemicals or products involved in the spill according to workplace procedures 2.2 Locate, read and interpret safety data sheets to identify required action to manage the spill 2.3 Identify hazardous chemicals and their effects 2.4 Determine the potential volume and size of spill according to workplace procedures 2.5 Determine the potential risk to the environment according to workplace procedures
3. Conduct the spill response	3.1 Determine the appropriate method and resources required to control the spill 3.2 Select and wear personal protective equipment appropriate to manage the spill 3.3 Control and contain the spill relative to spill type and size according to workplace procedures 3.4 Communicate and seek assistance from relevant personnel if unable to handle spill independently 3.5 Clean up spill according to job requirements and workplace procedures 3.6 Apply processes for managing and disposing of hazardous waste according to workplace procedures
4. Complete written documentation and reporting requirements	4.1 Communicate spill response to relevant personnel 4.2 Complete written records and reports for spill response according to workplace procedures 4.3 Record and report use of spill response kits for replenishment

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance but not explicit in the performance criteria.

SKILL	DESCRIPTION
Reading	Identifies and interprets information from workplace procedures, documentation and regulations

SKILL	DESCRIPTION
Writing	• Produces and completes written documents required for workplace procedures and regulatory requirements
Self-management	• Monitors and minimises own exposure to worksite risks and hazards during activities

Unit Mapping Information

Supersedes and is equivalent to RIIRIS202D Respond to site based spills.

Links

Companion Volume implementation guides is found on VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=88a61002-9a21-4386-aaf8-69c76e675272>

Assessment Requirements for RIIRIS202E Respond to site based spills

Modification History

Release	Comments
Release 1	This version first released with RII Resources and Infrastructure Industry Training Package Version 5.0.

Performance Evidence

The candidate must demonstrate the ability to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including evidence of the ability to:

- respond to site based spills on at least two occasions, including:
 - determining the spill type, including minor, medium or major spills
 - locating, interpreting and communicating safety data sheet requirements for spill products
 - implementing spill control measures using spill kits or available resources
 - communicating the spill and likely impact to others
 - coordinating the spill clean-up activity with others
 - controlling and containing the spill
 - implementing clean up and disposal of waste
 - preparing a written report on spill response activity and spill kit resource usage.

During the above, the candidate must:

- locate and apply relevant documentation, policies and procedures and confirm that the work activity is compliant
- implement the requirements, procedures and techniques for responding to site based spills
- work effectively with others to respond to site based spills in a way that meets all required outcomes
- communicate clearly and concisely with others to receive and clarify work instructions and to determine coordination requirements prior to commencing and during work activities.

Knowledge Evidence

The candidate must be able to demonstrate knowledge to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including knowledge of:

- key legislation required to respond to site based spills
- key policies, procedures and documentation required to respond to site based spills, including:
 - safety data sheet information
 - site procedures for minor, medium and major spills
 - worksite communication, reporting and recording procedures
- principles and techniques for responding to site based spills, including:
 - spill characteristics
 - spill types
 - spill kit usage
 - risks of site based storage
- principles and techniques for identifying relevant hazards and emergencies
- techniques for coordinating and communicating job activities with others.

Assessment Conditions

Mandatory conditions for assessment of this unit are stipulated below. The assessment must:

- include access to:
 - personal protective equipment
 - equipment related to responding to site based spills
 - relevant documentation
- be conducted in a safe environment; and,
- be assessed in the context of this sector's work environment; and,
- be assessed in compliance with relevant legislation/regulation and using policies, procedures and processes directly related to the industry sector for which it is being assessed; and,
- confirm consistent performance can be applied in a range of relevant workplace circumstances.

Where personal safety or environmental damage are limiting factors, assessment may occur in a simulated work environment* provided it is realistic and sufficiently rigorous to cover all aspects of this sector's workplace performance, including environment, task skills, task management skills, contingency management skills and job role environment skills.

Assessor requirements

Assessors must be able to clearly demonstrate current and relevant industry knowledge and experience to satisfy the mandatory regulatory standards as set out in the Standards for Registered Training Organisations (RTOs) 2015/Australian Quality Training Framework mandatory requirements for assessors current at the time of assessment and any relevant licensing and certification requirements. This includes:

- vocational competencies at least to the level being delivered and assessed
- current industry skills directly relevant to the training and assessment being provided
- current knowledge and skills in vocational training and learning that informs their training and assessment

- formal relevant qualifications in training and assessment
- having knowledge of and/or experience using the latest techniques and processes
- possessing the required level of RII training product knowledge
- having an understanding and knowledge of legislation and regulations relevant to the industry and to employment and workplaces
- demonstrating the performance evidence, and knowledge evidence outlined in this unit of competency, and
- the minimum years of current** work experience after competency has been obtained as specified below in an industry sector relevant to the outcomes of the unit.

It is also acceptable for the appropriately qualified assessor to work with an industry expert to conduct assessment together and for the industry expert to be involved in the assessment judgement. The industry expert must have current industry skills directly relevant to the training and assessment being provided. This means the industry subject matter expert must demonstrate skills and knowledge from the minimum years of current work experience after competency has been obtained as specified below, including time spent in roles related to the unit being assessed:

Industry sector	AQF indicator level***	Required assessor or industry subject matter expert experience
Drilling, Metalliferous Mining, Coal Mining, Extractive (Quarrying) and Civil Infrastructure	1	1 year
	2	2 years
Drilling, Coal Mining, Extractive (Quarrying), Metalliferous Mining and Civil Infrastructure	3-6	3 years
Other sectors	Where this unit is being assessed outside of the resources and infrastructure sectors assessor and/or industry subject matter expert experience should be in-line with industry standards for the sector in which it is being assessed and where no industry standard is specified should comply with any relevant regulation.	

*Guidance on simulated environments has been stipulated in the Companion Volume Implementation Guide located on VETNet.

**Assessors can demonstrate current work experience through employment within industry in a role relevant to the outcomes of the unit; or, for external assessors this can be demonstrated through exposure to industry by conducting a minimum number of site assessments as determined by the relevant industry sector, across various locations.

*** While a unit of competency does not have an AQF level, where a unit is being delivered outside of a qualification the first numeric character in the unit code should be considered as the AQF indicator level for assessment purposes.

Links

Companion Volume implementation guides is found on VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=88a61002-9a21-4386-aaf8-69c76e675272>

RIISAM203D Use hand and power tools

Modification History

Release	Comment
1	This unit replaces RIISAM203B Use hand and power tools
2	Corrected wording in Element 1.
3	Required frequency and volume of evidence amended in Performance evidence. Substantial amendments made in Assessment Conditions field, including: references to Industry Sectors, assessor and subject matter expert experience requirements, how assessment should be conducted and what it should confirm.

Application

This unit describes a participant's skills and knowledge required to use hand and power tools in the Resources and Infrastructure Industry.

This unit is appropriate for those working in operational roles.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Elements and Performance Criteria

1. Plan and prepare to use hand and power tools	1.1 Access, interpret and apply hand and power tools documentation to ensure the work activity is compliant 1.2 Obtain, read, interpret, clarify and confirm work requirements 1.3 Identify and address potential risks, hazards and environmental issues, and implement control measures 1.4 Select and wear personal protective equipment appropriate for work activity 1.5 Obtain and interpret emergency procedures, and be prepared for fire/accident/emergency
2. Select and use hand tools	2.1 Select hand tools appropriate for the work activity 2.2 Check tools for serviceability and safety, and report faults 2.3 Clamp or fix materials in position

	2.4 Use hand tools safely and effectively according to their intended use
	2.5 Locate hand tools safely when not in immediate use
3. Select and use power tools	3.1 Select power tools and equipment appropriate for the work activity 3.2 Inspect tools for serviceability and safety, and report faults 3.3 Visually check power leads/hoses for serviceability/safety and report faults 3.4 Clear route for safe placement and connection of leads/hoses 3.5 Clamp or fix material in position for power tool application where applicable 3.6 Use power tools safely and effectively in application processes 3.7 Locate power tools safely when not in immediate use
4. Conduct housekeeping activities	4.1 Clear work area and dispose of or recycle materials 4.2 Clean and maintain condition of equipment, ensure suitability for use, and address/report issues 4.3 Process written records and reports

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit. Further information is available in the Resources and Infrastructure Industry Training Package Companion Volume.

Unit Mapping Information

RIISAM203B Use hand and power tools

Links

Companion Volume implementation guides are found in VETNet - <https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=88a61002-9a21-4386-aaf8-69c76e675272>

Assessment Requirements for RIISAM203D Use hand and power tools

Modification History

Release	Comment
1	This unit replaces RIISAM203B Use hand and power tools
2	Corrected wording in Element 1.
3	Required frequency and volume of evidence amended in Performance evidence. Substantial amendments made in Assessment Conditions field, including: references to Industry Sectors, assessor and subject matter expert experience requirements, how assessment should be conducted and what it should confirm.

Performance Evidence

Evidence is required to be collected that demonstrates a candidate's competency in this unit. Evidence must be relevant to the roles within this sector's work operations and satisfy all of the requirements of the performance criteria of this unit and include evidence that the candidate:

- locates and applies relevant legislation documentation, policies and procedures
- demonstrates completion of using hand and power tools that safely, effectively and efficiently meets all of the required outcomes on more than one (1) occasion including:
 - selecting and checking for serviceability of hand tools
 - selecting and checking for serviceability of power tools
 - clamping or fixing material
 - ensuring leads and cords are safely placed
 - using hand and power tools appropriately for the task/activity
 - locating hand and power tools appropriately when not in use
 - clearing work area
 - cleaning and maintaining equipment

Knowledge Evidence

The candidate must demonstrate knowledge in using hand and power tools through:

- identifying hand tools and their application
- identifying portable power tools and their application
- identifying energy/power sources

- identifying and applying materials associated with use
- identifying equipment types, characteristics, technical capabilities and limitations
- interpreting safety data sheets (SDS) and materials handling methods
- interpreting and applying Industry and worksite terminology

Assessment Conditions

- An assessor of this unit must satisfy the requirements of the NVR/AQTF or their successors; and Industry regulations for certification and licensing; and,
- this unit is best assessed in the context of this sector's work environment;
- where personal safety or environmental damage are limiting factors, assessment may occur in a simulated environment provided it is realistic and sufficiently rigorous to cover all aspects of this sector's workplace performance, including environment, task skills, task management skills, contingency management skills and job role environment skills; and,
- this unit must be assessed in compliance with relevant legislation/regulation and using policies, procedures, processes and operational manuals directly related to the industry sector for which it is being assessed; and,
- assessment may be conducted in conjunction with the assessment of other Units of Competency; and,
- assessment must confirm consistent performance can be applied in a range of relevant workplace circumstances; and,
- assessors must demonstrate the performance evidence, and knowledge evidence as outlined in this Unit of Competency, and through the minimum years of current* work experience specified below in an Industry sector relevant to the outcomes of the unit; or,
- where the assessor does not meet experience requirements a co-assessment or partnership arrangement must exist between the qualified assessor and an Industry subject matter expert. The Industry subject matter expert should hold the unit being assessed (or an equivalent unit) and/or demonstrate equivalence of skills and knowledge at the unit level. An Industry technical expert must also demonstrate skills and knowledge from the minimum years of current work experience specified below in the Industry sector, including time spent in roles related to the unit being assessed; and,
- assessor and Industry subject matter expert requirements differ depending on the Australian Qualifications Framework Level (AQF) of the qualification being assessed and/or Industry Sector as follows:

Industry sector	AQF** Level	Required assessor or Industry subject matter expert experience
Drilling, Metalliferous Mining, Coal Mining, Extractive (Quarrying) and Civil Construction	1	1 Year
	2	2 Years
Drilling, Coal Mining and Extractive (Quarrying)	3-6	3 Years
Metalliferous Mining and Civil	3-6	5 Years

Construction		
Other sectors	Where this Unit is being assessed outside of the Resources and Infrastructure Sectors assessor and/or Industry subject matter expert experience should be in-line with industry standards for the sector in which it is being assessed and where no Industry standard is specified should comply with any relevant regulation.	

*Assessors can demonstrate current work experience through employment within Industry in a role relevant to the outcomes of the Unit; or, for external assessors this can be demonstrated through exposure to Industry by conducting frequent site assessments across various locations.

**Where a unit is being delivered outside of a Qualification the first numeric character in the Unit code should be considered to indicate the AQF level

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=88a61002-9a21-4386-aaf8-69c76e675272>

RIISAM203E Use hand and power tools

Modification History

Release	Comments
Release 1	This version first released with RII Resources and Infrastructure Industry Training Package Version 5.0.

Application

This unit describes the skills and knowledge required to use hand and power tools in the resources and infrastructure industries.

It applies to those working in operational roles. They generally work under supervision to undertake a prescribed range of functions involving known routines and procedures and take responsibility for the quality of own work outcomes.

Licensing, legislative and certification requirements may apply to this unit and can vary between states, territories and industry sectors. Users must check requirements with relevant body before applying the unit.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Plan and prepare to use hand and power tools	1.1 Obtain, interpret, and confirm work requirements 1.2 Access, interpret and apply documentation and procedures 1.3 Identify and address potential risks, hazards and environmental issues, and implement control measures according to workplace procedures 1.4 Select and wear personal protective equipment required for work activity 1.5 Obtain and interpret emergency procedures, and be prepared for emergency situations
2. Select and use hand tools	2.1 Select hand tools appropriate for the work activity 2.2 Inspect tools for serviceability and report faults 2.3 Clamp or fix materials in position for hand tool application according to workplace procedures 2.4 Use hand tools safely and correctly

ELEMENT	PERFORMANCE CRITERIA
	2.5 Store hand tools safely when not in immediate use
3. Select and use power tools	3.1 Select power tools and equipment appropriate for the work activity 3.2 Inspect tools for serviceability and report faults 3.3 Inspect power leads and hoses for serviceability and report faults 3.4 Establish a clear route for the safe placement and connection of power leads and hoses 3.5 Clamp or fix material in position for power tool application according to workplace procedures 3.6 Use power tools safely and correctly 3.7 Store power tools safely when not in immediate use
4. Conduct housekeeping activities	4.1 Clear work area and dispose of materials 4.2 Clean, maintain and inspect the serviceability of the equipment, and address and report any issues to relevant personnel 4.3 Complete written records and reports according to workplace procedures

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance but not explicit in the performance criteria.

SKILL	DESCRIPTION
Numeracy	Calculates resource requirements, including use of basic addition, subtraction, multiplication and division
Self-management	Monitors and minimises own exposure to worksite risks and hazards during activities

Unit Mapping Information

Supersedes and is equivalent to RIISAM203D Use hand and power tools.

Links

Companion Volume Implementation Guides is found on VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=88a61002-9a21-4386-aaf8-69c76e675272>

Assessment Requirements for RIISAM203E Use hand and power tools

Modification History

Release	Comments
Release 1	This version first released with RII Resources and Infrastructure Industry Training Package Version 5.0.

Performance Evidence

The candidate must demonstrate the ability to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including evidence of the ability to:

- use hand and power tools on at least two occasions, including:
 - selecting and checking hand tools and power tools for serviceability
 - clamping or fixing material
 - ensuring power leads and cords are safely placed
 - using hand and power tools appropriately for the job activity
 - storing the hand and power tools appropriately when not in use
 - clearing the work area
 - cleaning and maintaining equipment.

During the above, the candidate must:

- locate and apply relevant documentation, policies and procedures and confirm that the work activity is compliant
- implement the requirements, procedures and techniques required to use hand and power tools
- work with others to undertake the use of hand and power tools
- communicate with others to receive and clarify work instructions and to determine coordination requirements prior to commencing and during work activities.

Knowledge Evidence

The candidate must be able to demonstrate knowledge to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including knowledge of:

- key policies, procedures and documentation required to use hand and power tools, including those relating to:
 - work health and safety procedures

- environmental issues
- emergency procedures
- compliance with safety data sheets and required records
- equipment types, characteristics, technical capabilities and limitations, including:
 - hand tools, including:
 - cutting tools
 - tightening tools
 - impact tools
 - digging tools
 - measuring tools
 - clamping tools
 - portable power tools, including:
 - hammers
 - saws
 - drills
 - screwdrivers
 - grinders
 - wrenches
 - planers
 - sanders
 - scalers
 - associated materials with hand and power tool use
- energy and power sources
- use of industry and worksite terminology.

Assessment Conditions

Mandatory conditions for assessment of this unit are stipulated below. The assessment must:

- include access to:
 - personal and protective equipment
 - equipment required to use hand and power tools
 - relevant documentation
- be conducted in a safe environment; and,
- be assessed in the context of this sector's work environment; and,
- be assessed in compliance with relevant legislation/regulation and using policies, procedures and processes directly related to the industry sector for which it is being assessed; and,
- confirm consistent performance can be applied in a range of relevant workplace circumstances.

Where personal safety or environmental damage are limiting factors, assessment may occur in a simulated work environment* provided it is realistic and sufficiently rigorous to cover all aspects of this sector's workplace performance, including environment, task skills, task management skills, contingency management skills and job role environment skills.

Assessor requirements

Assessors must be able to clearly demonstrate current and relevant industry knowledge and experience to satisfy the mandatory regulatory standards as set out in the Standards for Registered Training Organisations (RTOs) 2015/Australian Quality Training Framework mandatory requirements for assessors current at the time of assessment and any relevant licensing and certification requirements. This includes:

- vocational competencies at least to the level being delivered and assessed
- current industry skills directly relevant to the training and assessment being provided
- current knowledge and skills in vocational training and learning that informs their training and assessment
- formal relevant qualifications in training and assessment
- having knowledge of and/or experience using the latest techniques and processes
- possessing the required level of RII training product knowledge
- having an understanding and knowledge of legislation and regulations relevant to the industry and to employment and workplaces
- demonstrating the performance evidence, and knowledge evidence outlined in this unit of competency, and
- the minimum years of current** work experience after competency has been obtained as specified below in an industry sector relevant to the outcomes of the unit.

It is also acceptable for the appropriately qualified assessor to work with an industry expert to conduct assessment together and for the industry expert to be involved in the assessment judgement. The industry expert must have current industry skills directly relevant to the training and assessment being provided. This means the industry subject matter expert must demonstrate skills and knowledge from the minimum years of current work experience after competency has been obtained as specified below, including time spent in roles related to the unit being assessed:

Industry sector	AQF indicator level***	Required assessor or industry subject matter expert experience
Drilling, Metalliferous Mining, Coal Mining, Extractive (Quarrying) and Civil Infrastructure	1	1 year
	2	2 years
Drilling, Coal Mining, Extractive (Quarrying), Metalliferous Mining and Civil Infrastructure	3-6	3 years
Other sectors	Where this unit is being assessed outside of the resources and infrastructure sectors assessor and/or industry subject matter expert experience should	

Industry sector	AQF indicator level***	Required assessor or industry subject matter expert experience
		be in-line with industry standards for the sector in which it is being assessed and where no industry standard is specified should comply with any relevant regulation.

*Guidance on simulated environments has been stipulated in the Companion Volume Implementation Guide located on VETNet.

**Assessors can demonstrate current work experience through employment within industry in a role relevant to the outcomes of the unit; or, for external assessors this can be demonstrated through exposure to industry by conducting a minimum number of site assessments as determined by the relevant industry sector, across various locations.

*** While a unit of competency does not have an AQF level, where a unit is being delivered outside of a qualification the first numeric character in the unit code should be considered as the AQF indicator level for assessment purposes.

Links

Companion Volume Implementation Guides is found on VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=88a61002-9a21-4386-aaf8-69c76e675272>

RIISAM204E Operate small plant and equipment

Modification History

Release	Comments
Release 1	This version first released with RII Resources and Infrastructure Industry Training Package Version 5.0.

Application

This unit describes the skills and knowledge required to operate small plant and equipment in the resources and infrastructure industries.

It applies to those working in operational roles. They generally work under supervision to undertake a prescribed range of functions involving known routines and procedures and take responsibility for the quality of own work outcomes.

Licensing, legislative and certification requirements may apply to this unit and can vary between states, territories and industry sectors. Users must check requirements with relevant body before applying the unit.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Prepare for operating small plant and equipment	1.1 Obtain, interpret, and confirm work requirements 1.2 Access, interpret and apply documentation and procedures 1.3 Identify and address potential risks, hazards and environmental issues, and implement control measures according to workplace procedures 1.4 Select and wear personal protective equipment required for work activities 1.5 Select and check for faults in plant, tools and equipment, and confirm they are appropriate for the work activity 1.6 Obtain and interpret emergency procedures and be prepared for emergency situations

ELEMENT	PERFORMANCE CRITERIA
2. Conduct pre-operational checks	2.1 Select and use fuel and lubricants according to workplace procedures 2.2 Check and adjust fuel, oil, hydraulic fluid and water levels 2.3 Inspect, secure and maintain bolts, nuts, guards and attachment couplings 2.4 Check and adjust the function of controls and gauges 2.5 Conduct start up and shut down procedures according to workplace procedures
3. Use small plant and equipment	3.1 Identify hazards during work and establish appropriate risk management controls 3.2 Identify and apply operating techniques to achieve optimum output while maintaining specified tolerances 3.3 Operate plant and equipment to produce results within specified workplace tolerances 3.4 Store plant and equipment safely when not in immediate use
4. Carry out operator maintenance	4.1 Prepare machine for maintenance 4.2 Conduct inspection and check plant and equipment for serviceability, identify, and rectify and report any faults 4.3 Carry out scheduled maintenance tasks
5. Conduct housekeeping activities	5.1 Clear work area and dispose of materials 5.2 Clean and maintain condition of equipment, ensure suitability for use, and address and report issues 5.3 Complete written records and reports

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance but not explicit in the performance criteria.

SKILL	DESCRIPTION
Writing	Produces and completes written documents required for workplace procedures
Numeracy	Calculates resource requirements, including use of basic addition, subtraction, multiplication and division
Self-management	Monitors and minimises own exposure to worksite risks and hazards during activities

Unit Mapping Information

Supersedes and is equivalent to RIISAM204D Operate small plant and equipment.

Links

Companion Volume implementation guides is found on VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=88a61002-9a21-4386-aaf8-69c76e675272>

Assessment Requirements for RIISAM204E Operate small plant and equipment

Modification History

Release	Comments
Release 1	This version first released with RII Resources and Infrastructure Industry Training Package Version 5.0.

Performance Evidence

The candidate must demonstrate the ability to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including evidence of the ability to:

- operate small plant and equipment on at least two different occasions, including:
 - conducting pre-operational checks
 - identifying and managing site hazards
 - identifying and using correct operating techniques to achieve optimum output while maintaining specified tolerances
 - correctly storing equipment
 - completing operator maintenance
 - clearing the work area.

During the above, the candidate must:

- locate and apply required documentation, policies and procedures and confirm that the work activity is compliant
- implement the requirements, procedures and techniques required to operate small plant and equipment
- work with others to undertake the operation of small plant and equipment
- communicate with others to receive and clarify work instructions and to determine coordination requirements prior to commencing and during work activities.

Knowledge Evidence

The candidate must be able to demonstrate knowledge to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including knowledge of:

- key policies, procedures and documentation required to operate small plant and equipment, including those related to:
 - work health and safety procedures

- environmental issues
- emergency procedures
- complying with safety data sheets
- records and reports
- small plant and equipment types, characteristics, technical capabilities and limitations, including:
 - power sources
 - compaction equipment
 - concrete equipment
 - excavation equipment
 - maintenance equipment
 - water equipment
 - lighting equipment
 - lifting materials
 - key operating techniques
- material types, characteristics, technical capabilities and limitations, including:
 - water
 - bituminous mixes
 - timber
 - fuels and oils
 - power leads
- applications of small plant and equipment working with:
 - clay
 - silts
 - stone
 - gravel
 - mud
 - rock sand
 - topsoil
- key industry and site specific terminology.

Assessment Conditions

Mandatory conditions for assessment of this unit are stipulated below. The assessment must:

- include access to:
 - personal protective equipment
 - equipment required to operate small plant and equipment
 - relevant documentation
- be conducted in a safe environment; and,
- be assessed in the context of this sector's work environment; and,

- be assessed in compliance with relevant legislation/regulation and using policies, procedures and processes directly related to the industry sector for which it is being assessed; and,
- confirm consistent performance can be applied in a range of relevant workplace circumstances.

Where personal safety or environmental damage are limiting factors, assessment may occur in a simulated work environment* provided it is realistic and sufficiently rigorous to cover all aspects of this sector's workplace performance, including environment, task skills, task management skills, contingency management skills and job role environment skills.

Assessor requirements

Assessors must be able to clearly demonstrate current and relevant industry knowledge and experience to satisfy the mandatory regulatory standards as set out in the Standards for Registered Training Organisations (RTOs) 2015/Australian Quality Training Framework mandatory requirements for assessors current at the time of assessment and any relevant licensing and certification requirements. This includes:

- vocational competencies at least to the level being delivered and assessed
- current industry skills directly relevant to the training and assessment being provided
- current knowledge and skills in vocational training and learning that informs their training and assessment
- formal relevant qualifications in training and assessment
- having knowledge of and/or experience using the latest techniques and processes
- possessing the required level of RII training product knowledge
- having an understanding and knowledge of legislation and regulations relevant to the industry and to employment and workplaces
- demonstrating the performance evidence, and knowledge evidence outlined in this unit of competency, and
- the minimum years of current** work experience after competency has been obtained as specified below in an industry sector relevant to the outcomes of the unit.

It is also acceptable for the appropriately qualified assessor to work with an industry expert to conduct assessment together and for the industry expert to be involved in the assessment judgement. The industry expert must have current industry skills directly relevant to the training and assessment being provided. This means the industry subject matter expert must demonstrate skills and knowledge from the minimum years of current work experience after competency has been obtained as specified below, including time spent in roles related to the unit being assessed:

Industry sector	AQF indicator level***	Required assessor or industry subject matter expert experience
Drilling, Metalliferous Mining, Coal Mining, Extractive (Quarrying) and Civil Infrastructure	1	1 year
	2	2 years

Industry sector	AQF indicator level***	Required assessor or industry subject matter expert experience
Drilling, Coal Mining, Extractive (Quarrying), Metalliferous Mining and Civil Infrastructure	3-6	3 years
Other sectors	Where this unit is being assessed outside of the resources and infrastructure sectors assessor and/or industry subject matter expert experience should be in-line with industry standards for the sector in which it is being assessed and where no industry standard is specified should comply with any relevant regulation.	

*Guidance on simulated environments has been stipulated in the Companion Volume Implementation Guide located on VETNet.

**Assessors can demonstrate current work experience through employment within industry in a role relevant to the outcomes of the unit; or, for external assessors this can be demonstrated through exposure to industry by conducting a minimum number of site assessments as determined by the relevant industry sector, across various locations.

*** While a unit of competency does not have an AQF level, where a unit is being delivered outside of a qualification the first numeric character in the unit code should be considered as the AQF indicator level for assessment purposes.

Links

Companion Volume implementation guides is found on VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=88a61002-9a21-4386-aaf8-69c76e675272>

RIISAM601D Establish and maintain plant, equipment and infrastructure maintenance system

Modification History

Release	Comment
1	This unit replaces RIISAM601A Establish and maintain plant, equipment and infrastructure maintenance system
2	Required frequency and volume of evidence amended in Performance evidence. Substantial amendments made in Assessment Conditions field, including: references to Industry Sectors, assessor and subject matter expert experience requirements, how assessment should be conducted and what it should confirm.

Application

This unit describes a participant's skills and knowledge required to establish and maintain plant, equipment and infrastructure maintenance systems in the Resources and Infrastructure Industries.

This unit is appropriate for those working in management roles.

No licensing, legislation or certification requirements apply to this unit at the time of publication.

Elements and Performance Criteria

1. Plan and prepare to establish and maintain installation and commissioning procedures	1.1 Access, interpret and apply service and maintenance documentation and ensure the work activity is compliant 1.2 Obtain, read, interpret, clarify and confirm work requirements 1.3 Identify, address and establish procedures to manage potential risks, hazards and environmental issues, determine acceptable levels of risk and implement control measures 1.4 Ensure the integration of new and existing tools, plant, equipment and processes is planned to minimise downtime 1.5 Design and implement safe operating procedures and systems 1.6 Design and implement plant and equipment installation and commissioning/re-commissioning procedures 1.7 Design and implement infrastructure construction/fabrication

	and commissioning/re-commissioning procedures 1.8 Identify training needs of individuals and work groups, develop and implement training plans Develop, implement and maintain emergency response and evacuation plans and
2. Develop systems for the maintenance of plant and equipment	2.1 Develop, review and gain approval for the implementation of plant and equipment maintenance procedures and systems 2.2 Develop and implement operational procedures for plant and equipment usage 2.3 Develop and implement plant and equipment maintenance systems documentation 2.4 Design and implement procedures for reviewing and modifying maintenance work processes 2.5 Process written records and reports
3. Establish and maintain systems for the maintenance of worksite infrastructure	3.1 Develop, review and gain approval for the implementation of infrastructure maintenance procedures and systems Develop and maintain operational procedures for worksite infrastructure usage 3.2 Develop and implement infrastructure maintenance systems documentation 3.3 Design and implement procedures for reviewing and modifying work processes 3.4 Process written records and reports
4. Establish and maintain systems for audit and review of maintenance system	4.1 Develop, implement and maintain procedures to evaluate and confirm plant, equipment and infrastructure maintenance compliance are developed and implemented 4.2 Ensure future plant, equipment and infrastructure systems and equipment requirements are identified, assessed and incorporated into planning processes 4.3 Develop and implement procedures to confirm the currency and compliance of plant, equipment and infrastructure maintenance and safety standards 4.4 Develop and implement systems for recording and reporting plant, equipment and infrastructure information 4.5 Design and implement procedures for incorporating feedback into the audit/review system 4.6 Design and implement procedures to confirm the currency, relevance and compliance of the training program 4.7 Ensure procedures for response to instances of non-compliance or other discrepancies or deficiencies are developed and implemented

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit. Further information is available in the Resources and Infrastructure Industry Training Package Companion Volume.

Unit Mapping Information

RIISAM601B Establish and maintain plant, equipment and infrastructure maintenance system

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=88a61002-9a21-4386-aaf8-69c76e675272>

Assessment Requirements for RIISAM601D Establish and maintain plant, equipment and infrastructure maintenance system

Modification History

Release	Comment
1	This unit replaces RIISAM601A Establish and maintain plant, equipment and infrastructure maintenance system
2	Required frequency and volume of evidence amended in Performance evidence. Substantial amendments made in Assessment Conditions field, including: references to Industry Sectors, assessor and subject matter expert experience requirements, how assessment should be conducted and what it should confirm.

Performance Evidence

Evidence is required to be collected that demonstrates a candidate's competency in this unit. Evidence must be relevant to the roles within this sector's work operations and satisfy all of the requirements of the performance criteria of this unit and include that the candidate:

- locates and applies relevant legislation, documentation, policies and procedures
- implements the requirements, procedures and techniques for the safe, effective and efficient establishment and maintenance of the plant, equipment and infrastructure maintenance systems including:
 - accessing, interpreting and applying technical information
 - ensuring plant, equipment and infrastructure are maintained
 - identifying, assessing and addressing training needs
- works effectively with others to establish and maintain plant, equipment and infrastructure maintenance systems that meets all the required outcomes including:
 - complying with written and verbal reporting requirements and procedures
 - communicating clearly and concisely with others to receive and clarify work instructions
 - communicating clearly and concisely with others to coordinate work activities
 - preparing written reports communicating policies and procedures
- demonstrates completion of establishment and maintenance of the plant, equipment and infrastructure maintenance systems that safely, effectively and efficiently meets all of the required outcomes on more than one (1) occasion including:
 - developing and obtaining approval for the organisation's maintenance policy and strategies

- ensuring operational procedures for plant and equipment usage are developed
- ensuring maintenance systems documentation is developed
- ensuring procedures for reviewing and modifying work processes are developed and implemented
- identifying training needs and preparing training plans

Knowledge Evidence

The candidate must demonstrate knowledge of the following in establishing and maintaining plant, equipment and infrastructure maintenance system through:

- accessing, interpreting and applying legislative, organisation and site requirements and procedures for:
 - hazard and risk identification and management
 - statutory compliance
 - work health and safety
 - environmental issues
 - policy management
 - equipment maintenance
- maintenance programs planning techniques
- providing leadership in the workplace
- specifications for fixed plant and infrastructure
- audit processes
- training programs
- maintenance surveys techniques
- work planning and coordination techniques

Assessment Conditions

- An assessor of this unit must satisfy the requirements of the NVR/AQTF or their successors; and Industry regulations for certification and licensing; and,
- this unit is best assessed in the context of this sector's work environment;
- where personal safety or environmental damage are limiting factors, assessment may occur in a simulated environment provided it is realistic and sufficiently rigorous to cover all aspects of this sector's workplace performance, including environment, task skills, task management skills, contingency management skills and job role environment skills; and,
- this unit must be assessed in compliance with relevant legislation/regulation and using policies, procedures, processes and operational manuals directly related to the industry sector for which it is being assessed; and,
- assessment may be conducted in conjunction with the assessment of other Units of Competency; and,
- assessment must confirm consistent performance can be applied in a range of relevant workplace circumstances; and,

- assessors must demonstrate the performance evidence, and knowledge evidence as outlined in this Unit of Competency, and through the minimum years of current* work experience specified below in an Industry sector relevant to the outcomes of the unit; or,
- where the assessor does not meet experience requirements a co-assessment or partnership arrangement must exist between the qualified assessor and an Industry subject matter expert. The Industry subject matter expert should hold the unit being assessed (or an equivalent unit) and/or demonstrate equivalence of skills and knowledge at the unit level. An Industry technical expert must also demonstrate skills and knowledge from the minimum years of current work experience specified below in the Industry sector, including time spent in roles related to the unit being assessed; and,
- assessor and Industry subject matter expert requirements differ depending on the Australian Qualifications Framework Level (AQF) of the qualification being assessed and/or Industry Sector as follows:

Industry sector	AQF** Level	Required assessor or Industry subject matter expert experience
Drilling, Metalliferous Mining, Coal Mining, Extractive (Quarrying) and Civil Construction	1	1 Year
	2	2 Years
Drilling, Coal Mining and Extractive (Quarrying)	3-6	3 Years
Metalliferous Mining and Civil Construction	3-6	5 Years
Other sectors	Where this Unit is being assessed outside of the Resources and Infrastructure Sectors assessor and/or Industry subject matter expert experience should be in-line with industry standards for the sector in which it is being assessed and where no Industry standard is specified should comply with any relevant regulation.	

*Assessors can demonstrate current work experience through employment within Industry in a role relevant to the outcomes of the Unit; or, for external assessors this can be demonstrated through exposure to Industry by conducting frequent site assessments across various locations.

**Where a unit is being delivered outside of a Qualification the first numeric character in the Unit code should be considered to indicate the AQF level

Links

Companion Volume implementation guides are found in VETNet - <https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=88a61002-9a21-4386-aaf8-69c76e675272>

RIIWHS201E Work safely and follow WHS policies and procedures

Modification History

Release	Comments
Release 1	This version first released with RII Resources and Infrastructure Industry Training Package Version 5.0.

Application

This unit describes the skills and knowledge required to work safely and follow work health and safety (WHS) policies and procedures in the resources and infrastructure industries.

It applies to those working in operational roles. They generally work under supervision to undertake a prescribed range of functions involving known routines and procedures and take responsibility for the quality of own work outcomes.

Licensing, legislative and certification requirements that apply to this unit can vary between states, territories and industry sectors. Users must check requirements with relevant body before applying the unit.

Note: The terms Occupational Health and Safety (OHS) and Work Health and Safety (WHS) are equivalent and generally either can be used in the workplace. In jurisdictions where the National Model WHS Legislation has not been implemented RTOs are advised to contextualise the unit of competency by referring to the existing State/Territory OHS legislative requirements.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Access and apply site safety procedures	1.1 Obtain, interpret and confirm work requirements 1.2 Access, interpret and apply documentation and procedures 1.3 Interpret and apply site plans, transport rules and signage to locate destinations 1.4 Identify, act on and report breaches of worksite safety
2. Apply personal safety measures	2.1 Select and wear personal protective equipment 2.2 Establish and maintain a clean, tidy and safe working area

ELEMENT	PERFORMANCE CRITERIA
	2.3 Obtain permits and clearances before work is carried out 2.4 Apply safe manual handling procedures 2.5 Identify and apply site procedures
3. Apply operational safety measures	3.1 Recognise and respond to alarms 3.2 Carry out isolation of energy sources and immobilisation of potential energy sources 3.3 Identify and clarify responsibility when responding to emergency situations 3.4 Apply basic firefighting techniques 3.5 Identify emergency escape routes and procedures
4. Maintain personal wellbeing	4.1 Identify risks to personal wellbeing and recognise preventative strategies 4.2 Identify, address and report situations which may endanger others 4.3 Comply with all work health and safety policies
5. Identify and report incidents	5.1 Recognise and report incidents and injuries to relevant personnel 5.2 Prepare written records of incidents and injuries according to workplace procedures 5.3 Contribute to workplace incident investigations

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance but not explicit in the performance criteria.

SKILL	DESCRIPTION
Reading	Identifies and interprets information from workplace procedures, documentation, legislation and regulations
Writing	Produces and completes written documents required for workplace procedures and legislative requirements
Self-management	Monitors and minimises own exposure to worksite risks and hazards during activities

Unit Mapping Information

Supersedes and is equivalent to RIIWHS201D Work safely and follow WHS policies and procedures.

Links

Companion Volume implementation guides is found on VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=88a61002-9a21-4386-aaf8-69c76e675272>

Assessment Requirements for RIIWHS201E Work safely and follow WHS policies and procedures

Modification History

Release	Comments
Release 1	This version first released with RII Resources and Infrastructure Industry Training Package Version 5.0.

Performance Evidence

The candidate must demonstrate the ability to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including evidence of the ability to:

- work safely and follow work health and safety (WHS) policies and procedures on at least two occasions, including:
 - sourcing, interpreting, clarifying and applying site safety information
 - recognising and following health and safety instructions and information
 - clarifying and responding to information and directions
 - carrying out work instructions that comply with WHS policies and procedures
 - selecting, wearing and maintaining personal protective equipment for all activities that require personal protective equipment
 - applying safe lifting and manual handling techniques
 - identifying and reporting on WHS issues to relevant personnel
 - identifying relevant work permits and clearances
 - responding to alarms according to workplace procedures
 - completing workplace reporting procedures.

During the above, the candidate must:

- locate and apply required documentation, policies and procedures and confirm that the work activity is compliant
- implement the requirements, procedures and techniques required to work safely and follow WHS policies and procedures
- work with others to undertake work safely and follow WHS policies and procedures
- communicate with others to receive and clarify work instructions and to determine coordination requirements prior to commencing and during work activities.

Knowledge Evidence

The candidate must be able to demonstrate knowledge to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including knowledge of:

- key legislation required to work safely and follow WHS policies and procedures
- key policies, procedures and documentation, including those related to:
 - complying with isolation procedures
 - site safety procedures
 - work health and safety procedures, including reporting requirements
 - equipment safety procedures
 - complying with safety data sheets
 - hazardous substance handling and techniques
 - fitness of duty policies, including:
 - smoking restrictions
 - alcohol impairment
 - improper use of drugs
 - illness
 - workplace management procedures, including:
 - consultation
 - safety representatives
 - committees
 - dispute resolution
 - emergency situations, including:
 - incident and injury
 - fire
 - evacuation
 - electrical shock
 - falls
 - explosions
 - fatigue
 - extreme weather
 - key emergency equipment
 - emergency escape routes
 - any situation that poses an immediate risk to health, life, property and environment
- use of personal protective equipment, including:
 - breathing protection
 - skin protection
 - hearing protection
 - eye protection
 - protective clothing and ensembles

- any other relevant protective equipment that will protect the wearer from injury
- use of permits and clearance, including:
 - working at height
 - confined spaces
 - vertical openings
 - scaffold set up
 - dig and penetration
- principles and techniques for manual and automated lifting
- biological effects that affect work activities, including:
 - sleep
 - alertness
 - fatigue
 - stress
 - heat stress
 - hypothermia.

Assessment Conditions

Mandatory conditions for assessment of this unit are stipulated below. The assessment must:

- include access to:
 - personal protective equipment
 - equipment related to working safely and follow WHS policies and procedures
 - relevant documentation
- be conducted in a safe environment; and,
- be assessed in the context of this sector's work environment; and,
- be assessed in compliance with relevant legislation/regulation and using policies, procedures and processes directly related to the industry sector for which it is being assessed; and,
- confirm consistent performance can be applied in a range of relevant workplace circumstances.

Where personal safety or environmental damage are limiting factors, assessment may occur in a simulated work environment* provided it is realistic and sufficiently rigorous to cover all aspects of this sector's workplace performance, including environment, task skills, task management skills, contingency management skills and job role environment skills.

Assessor requirements

Assessors must be able to clearly demonstrate current and relevant industry knowledge and experience to satisfy the mandatory regulatory standards as set out in the Standards for Registered Training Organisations (RTOs) 2015/Australian Quality Training Framework mandatory requirements for assessors current at the time of assessment and any relevant licensing and certification requirements. This includes:

- vocational competencies at least to the level being delivered and assessed

- current industry skills directly relevant to the training and assessment being provided
- current knowledge and skills in vocational training and learning that informs their training and assessment
- formal relevant qualifications in training and assessment
- having knowledge of and/or experience using the latest techniques and processes
- possessing the required level of RII training product knowledge
- having an understanding and knowledge of legislation and regulations relevant to the industry and to employment and workplaces
- demonstrating the performance evidence, and knowledge evidence outlined in this unit of competency, and
- the minimum years of current** work experience after competency has been obtained as specified below in an industry sector relevant to the outcomes of the unit.

It is also acceptable for the appropriately qualified assessor to work with an industry expert to conduct assessment together and for the industry expert to be involved in the assessment judgement. The industry expert must have current industry skills directly relevant to the training and assessment being provided. This means the industry subject matter expert must demonstrate skills and knowledge from the minimum years of current work experience after competency has been obtained as specified below, including time spent in roles related to the unit being assessed:

Industry sector	AQF indicator level***	Required assessor or industry subject matter expert experience
Drilling, Metalliferous Mining, Coal Mining, Extractive (Quarrying) and Civil Infrastructure	1	1 year
	2	2 years
Drilling, Coal Mining, Extractive (Quarrying), Metalliferous Mining and Civil Infrastructure	3-6	3 years
Other sectors	Where this unit is being assessed outside of the resources and infrastructure sectors assessor and/or industry subject matter expert experience should be in-line with industry standards for the sector in which it is being assessed and where no industry standard is specified should comply with any relevant regulation.	

*Guidance on simulated environments has been stipulated in the Companion Volume Implementation Guide located on VETNet.

**Assessors can demonstrate current work experience through employment within industry in a role relevant to the outcomes of the unit; or, for external assessors this can be demonstrated through exposure to industry by conducting a minimum number of site assessments as determined by the relevant industry sector, across various locations.

*** While a unit of competency does not have an AQF level, where a unit is being delivered outside of a qualification the first numeric character in the unit code should be considered as the AQF indicator level for assessment purposes.

Links

Companion Volume implementation guides is found on VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=88a61002-9a21-4386-aaf8-69c76e675272>

RIIWHS202D Enter and work in confined spaces

Modification History

Release	Comment
1	The unit replaces RIIOHS202A Enter and work in confined spaces.
2	Editorial corrections.
3	Amended Application field.
4	Required frequency and volume of evidence amended in Performance evidence. Substantial amendments made in Assessment Conditions field, including: references to Industry Sectors, assessor and subject matter expert experience requirements, how assessment should be conducted and what it should confirm.

Application

This unit describes a participant's skills and knowledge required to enter and work in confined spaces in the Resources and Infrastructure Industries.

This unit is appropriate for those working in operational roles undertaking work in confined spaces.

Licensing, legislative, regulatory and certification requirements that apply to this unit can vary between states, territories, and Industry sectors. Relevant information must be sourced prior to application of the unit.

Note: The terms Occupational Health and Safety (OHS) and Work Health and Safety (WHS) are equivalent and generally either can be used in the workplace. In jurisdictions where the National Model WHS Legislation has not been implemented RTOs are advised to contextualise the unit of competency by referring to the existing State/Territory OHS legislative requirements.

Elements and Performance Criteria

1 Plan and prepare for working in confined space	1.1 Access, interpret and apply procedures for confined space entry and the environmental management plan and ensure the work activity is compliant 1.2 Obtain, confirm, clarify and apply work instructions and agreed procedure 1.3 Obtain, confirm, clarify and apply safety requirements

	1.4 Obtain and confirm authorisation (entry permit) meets regulatory requirements 1.5 Confirm the emergency response procedure is with the stand-by person and understood 1.6 Identify, obtain and implement signage and barrier requirements 1.7 Select tools and equipment for the tasks, check for serviceability and rectify or report any faults 1.8 Identify, confirm and apply the environmental protection requirements 1.9 Position rescue equipment by the entry permit
2 Work in confined space	2.1 Gain access to confined space 2.2 Ensure that the atmosphere is tested and monitored for harmful elements 2.3 Correctly apply tagging and lock-out procedures 2.4 Enter the confined space correctly 2.5 Maintain ongoing communication with the stand-by person 2.6 Comply with entry permit requirements 2.7 Monitor and adhere to allocated entry time
3 Exit confined space	3.1 Exit confined space correctly 3.2 Recover tools, equipment and materials 3.3 Conduct inspection of the confined space 3.4 Secure access to the confined space 3.5 Remove tagging and lock-out 3.6 Accurately complete confined space entry permit
4 Clean up	4.1 Clear work area and dispose of or recycle materials 4.2 Clean, check, maintain and store tools and equipment 4.3 Remove, clean and store barriers and signs

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit. Further information is available in the Resources and Infrastructure Industry Training Package Companion Volume.

Unit Mapping Information

RIIOHS202A Entering and working in confined spaces

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=88a61002-9a21-4386-aaf8-69c76e675272>

Assessment Requirements for RIIWHS202D Enter and work in confined spaces

Modification History

Release	Comment
1	The unit replaces RIIOHS202A Enter and work in confined spaces.
2	Editorial corrections.
3	Amended Application field.
4	Required frequency and volume of evidence amended in Performance evidence. Substantial amendments made in Assessment Conditions field, including: references to Industry Sectors, assessor and subject matter expert experience requirements, how assessment should be conducted and what it should confirm.

Performance Evidence

Evidence is required to be collected that demonstrates a candidate's competency in this unit. Evidence must be relevant to the roles within this sector's work operations and satisfy all of the requirements of the performance criteria of this unit and include evidence that the candidate:

- locates and applies relevant documentation, policies and procedures
- demonstrates completion of entering and working in confined spaces that safely, effectively and efficiently meets all of the required outcomes on more than one (1) occasion including:
 - obtain appropriate entry permit and instructions for performing work in confined space
 - interpreting and applying safe work method statements
 - apply tagging and lock out
 - selecting, wearing and caring for personal protective equipment applicable to all tasks and environment identified
 - entering the confined space
 - using atmospheric monitoring devices prior to entering the confined space
 - working in the confined space
 - using atmospheric monitoring devices during confined space activity
 - applying safe materials handling methods
 - exiting the confined space
 - remove tagging and lock out

Knowledge Evidence

The candidate must demonstrate knowledge of enter and work in confined spaces through:

- identifying areas that constitute confined spaces
- complying with site and equipment safety requirements
- complying with the entry and exit procedures, risks and regulations
- types of air contaminants and toxic gases
- identifying the limitations of breathing apparatus
- identifying equipment types, characteristics, technical capabilities and limitations
- complying with site isolation and site control responsibilities and authorities
- locations of safety data sheets (SDS) information and application
- using confined space and Industry terminology

Assessment Conditions

- An assessor of this unit must satisfy the requirements of the NVR/AQTF or their successors; and Industry regulations for certification and licensing; and,
- this unit is best assessed in the context of this sector's work environment;
- where personal safety or environmental damage are limiting factors, assessment may occur in a simulated environment provided it is realistic and sufficiently rigorous to cover all aspects of this sector's workplace performance, including environment, task skills, task management skills, contingency management skills and job role environment skills; and,
- this unit must be assessed in compliance with relevant legislation/regulation and using policies, procedures, processes and operational manuals directly related to the industry sector for which it is being assessed; and,
- assessment may be conducted in conjunction with the assessment of other Units of Competency; and,
- assessment must confirm consistent performance can be applied in a range of relevant workplace circumstances; and,
- assessors must demonstrate the performance evidence, and knowledge evidence as outlined in this Unit of Competency, and through the minimum years of current* work experience specified below in an Industry sector relevant to the outcomes of the unit; or,
- where the assessor does not meet experience requirements a co-assessment or partnership arrangement must exist between the qualified assessor and an Industry subject matter expert. The Industry subject matter expert should hold the unit being assessed (or an equivalent unit) and/or demonstrate equivalence of skills and knowledge at the unit level. An Industry technical expert must also demonstrate skills and knowledge from the minimum years of current work experience specified below in the Industry sector, including time spent in roles related to the unit being assessed; and,
- assessor and Industry subject matter expert requirements differ depending on the Australian Qualifications Framework Level (AQF) of the qualification being assessed and/or Industry Sector as follows:

Industry sector	AQF** Level	Required assessor or Industry subject matter expert experience
Drilling, Metalliferous Mining, Coal Mining, Extractive (Quarrying) and Civil Construction	1	1 Year
	2	2 Years
Drilling, Coal Mining and Extractive (Quarrying)	3-6	3 Years
Metalliferous Mining and Civil Construction	3-6	5 Years
Other sectors	Where this Unit is being assessed outside of the Resources and Infrastructure Sectors assessor and/or Industry subject matter expert experience should be in-line with industry standards for the sector in which it is being assessed and where no Industry standard is specified should comply with any relevant regulation.	

*Assessors can demonstrate current work experience through employment within Industry in a role relevant to the outcomes of the Unit; or, for external assessors this can be demonstrated through exposure to Industry by conducting frequent site assessments across various locations.

**Where a unit is being delivered outside of a Qualification the first numeric character in the Unit code should be considered to indicate the AQF level

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=88a61002-9a21-4386-aaf8-69c76e675272>

RIIWHS202E Enter and work in confined spaces

Modification History

Release	Comments
Release 1	This version first released with RII Resources and Infrastructure Industry Training Package Version 5.0.

Application

This unit describes the skills and knowledge required to enter and work in confined spaces in the resources and infrastructure industries.

It applies to those working in operational roles. They generally work under supervision to undertake a prescribed range of functions involving known routines and procedures and take responsibility for the quality of work outcomes.

Licensing, legislative and certification requirements that apply to this unit can vary between states, territories and industry sectors. Users must check requirements with relevant body before applying the unit.

Note: The terms Occupational Health and Safety (OHS) and Work Health and Safety (WHS) are equivalent and generally either can be used in the workplace. In jurisdictions where the National Model WHS Legislation has not been implemented RTOs are advised to contextualise the unit of competency by referring to the existing State/Territory OHS legislative requirements.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Plan and prepare for working in confined space	1.1 Obtain, interpret and confirm work requirements 1.2 Access, interpret and apply documentation required to enter and work in confined spaces 1.3 Identify and address potential risks, hazards and environmental issues, and implement control measures according to workplace procedures 1.4 Obtain and confirm authorisation of a confined space entry permit that meets regulatory requirements 1.5 Select and wear appropriate personal protective equipment for

ELEMENT	PERFORMANCE CRITERIA
	planned work activities 1.6 Obtain and interpret emergency procedures with the stand-by person, and be prepared for emergency situations 1.7 Identify, obtain and implement signage and barrier requirements according to workplace procedures 1.8 Select tools and equipment for the tasks, check for serviceability and rectify or report any faults to relevant personnel 1.9 Position rescue equipment by the entry permit
2. Work in confined space	2.1 Gain access to confined space 2.2 Test and monitor the atmosphere for harmful elements according to workplace procedures 2.3 Correctly apply tagging and lock-out procedures 2.4 Enter the confined space according to workplace procedures 2.5 Maintain ongoing communication with the stand-by person 2.6 Comply with entry permit requirements 2.7 Monitor and adhere to allocated entry time
3. Exit confined space	3.1 Exit confined space according to workplace procedures 3.2 Recover tools, equipment and materials 3.3 Conduct inspection of the confined spaces according to workplace procedures 3.4 Remove tagging and lock-out procedures 3.5 Complete confined space entry permit requirements according to workplace procedures
4. Clean up	4.1 Clear work area and dispose of materials according to workplace procedures 4.2 Remove, clean and store barriers and signs 4.3 Conduct equipment inspections to identify faults according to manufacturer specifications and workplace procedures and report to relevant personnel 4.4 Conduct routine operational servicing, lubrication and housekeeping activities according to workplace procedures 4.5 Process written maintenance records according to workplace procedures

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance but not explicit in the performance criteria.

SKILL	DESCRIPTION
Reading	Identifies and interprets information from workplace procedures, documentation and regulations
Writing	Produces and completes written documents required for workplace procedures
Self-management	Monitors and minimises own exposure to worksite risks and hazards during activities
Oral communication	Uses a range of communication techniques and systems to communicate with others

Unit Mapping Information

Supersedes and is equivalent to RIIWHS202D Entering and working in confined spaces.

Links

Companion Volume implementation guides is found on VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=88a61002-9a21-4386-aaf8-69c76e675272>

Assessment Requirements for RIIWHS202E Enter and work in confined spaces

Modification History

Release	Comments
Release 1	This version first released with RII Resources and Infrastructure Industry Training Package Version 5.0.

Performance Evidence

The candidate must demonstrate the ability to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including evidence of the ability to:

- enter and work in confined spaces on at least two occasions, including:
 - obtaining the required entry permit and instructions for performing work in confined spaces
 - interpreting and applying workplace procedures
 - applying tagging and lock out procedures
 - selecting, wearing and caring for personal protective equipment
 - using atmospheric monitoring devices prior to entering the confined space
 - entering the confined space
 - working in the confined space
 - using atmospheric monitoring devices during confined space activity
 - applying safe materials handling methods
 - exiting the confined space
 - removing tagging and lock out.

During the above, the candidate must:

- locate and apply relevant legislation, documentation, policies and procedures and confirm that the work activity is compliant
- implement the requirements, procedures and techniques for entering and working in confined spaces
- work effectively with others to enter and work in confined spaces in a way that meets all required outcomes
- communicate clearly and concisely with others to receive and clarify work instructions and to determine coordination requirements prior to commencing and during work activities.

Knowledge Evidence

The candidate must be able to demonstrate knowledge to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including knowledge of:

- key legislation relevant to enter and work in confined spaces
- key policies, procedures and documentation required to enter and work in confined spaces, including:
 - entry and exit procedures, risks and regulations
 - site and equipment safety requirements
 - site isolation and site control responsibilities and authorities
 - safety data sheets
 - incidence and emergency response documentation
- principles and techniques for identifying and responding to:
 - areas that constitute confined spaces
 - types of air contaminants and toxic gases
 - limitations of breathing apparatus
 - relevant hazards and emergencies
- equipment types, characteristics, technical capabilities and limitations
- principles and techniques for using confined space and industry terminology
- techniques for coordinating and communicating job activities with others.

Assessment Conditions

Mandatory conditions for assessment of this unit are stipulated below. The assessment must:

- include access to:
 - personal protective equipment
 - equipment related to entering and working in confined spaces
 - relevant documentation
- be conducted in a safe environment; and,
- be assessed in the context of this sector's work environment; and,
- be assessed in compliance with relevant legislation/regulation and using policies, procedures and processes directly related to the industry sector for which it is being assessed; and,
- confirm consistent performance can be applied in a range of relevant workplace circumstances.

Where personal safety or environmental damage are limiting factors, assessment may occur in a simulated work environment* provided it is realistic and sufficiently rigorous to cover all aspects of this sector's workplace performance, including environment, task skills, task management skills, contingency management skills and job role environment skills.

Assessor requirements

Assessors must be able to clearly demonstrate current and relevant industry knowledge and experience to satisfy the mandatory regulatory standards as set out in the Standards for Registered Training Organisations (RTOs) 2015/Australian Quality Training Framework mandatory requirements for assessors current at the time of assessment and any relevant licensing and certification requirements. This includes:

- vocational competencies at least to the level being delivered and assessed
- current industry skills directly relevant to the training and assessment being provided
- current knowledge and skills in vocational training and learning that informs their training and assessment
- formal relevant qualifications in training and assessment
- having knowledge of and/or experience using the latest techniques and processes
- possessing the required level of RII training product knowledge
- having an understanding and knowledge of legislation and regulations relevant to the industry and to employment and workplaces
- demonstrating the performance evidence, and knowledge evidence outlined in this unit of competency, and
- the minimum years of current** work experience after competency has been obtained as specified below in an industry sector relevant to the outcomes of the unit.

It is also acceptable for the appropriately qualified assessor to work with an industry expert to conduct assessment together and for the industry expert to be involved in the assessment judgement. The industry expert must have current industry skills directly relevant to the training and assessment being provided. This means the industry subject matter expert must demonstrate skills and knowledge from the minimum years of current work experience after competency has been obtained as specified below, including time spent in roles related to the unit being assessed:

Industry sector	AQF indicator level***	Required assessor or industry subject matter expert experience
Drilling, Metalliferous Mining, Coal Mining, Extractive (Quarrying) and Civil Infrastructure	1	1 year
	2	2 years
Drilling, Coal Mining, Extractive (Quarrying), Metalliferous Mining and Civil Infrastructure	3-6	3 years
Other sectors	Where this unit is being assessed outside of the resources and infrastructure sectors assessor and/or industry subject matter expert experience should be in-line with industry standards for the sector in which it is being assessed and where no industry standard is specified should comply with any relevant regulation.	

*Guidance on simulated environments has been stipulated in the Companion Volume Implementation Guide located on VETNet.

**Assessors can demonstrate current work experience through employment within industry in a role relevant to the outcomes of the unit; or, for external assessors this can be demonstrated through exposure to industry by conducting a minimum number of site assessments as determined by the relevant industry sector, across various locations.

*** While a unit of competency does not have an AQF level, where a unit is being delivered outside of a qualification the first numeric character in the unit code should be considered as the AQF indicator level for assessment purposes.

Links

Companion Volume implementation guides is found on VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=88a61002-9a21-4386-aaf8-69c76e675272>

RIIWHS204E Work safely at heights

Modification History

Release	Comments
Release 1	This version first released with RII Resources and Infrastructure Industry Training Package Version 5.0.

Application

This unit describes the skills and knowledge required to work safely at heights in the resources and infrastructure industries.

It applies to those working in operational roles. They generally work under supervision to undertake a prescribed range of functions involving known routines and procedures and take responsibility for the quality of work outcomes.

Licensing, legislative and certification requirements that apply to this unit can vary between states, territories and industry sectors. Users must check requirements with relevant body before applying the unit.

Note: The terms Occupational Health and Safety (OHS) and Work Health and Safety (WHS) are equivalent and generally either can be used in the workplace. In jurisdictions where the National Model WHS Legislation has not been implemented RTOs are advised to contextualise the unit of competency by referring to the existing State/Territory OHS legislative requirements.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Identify work requirements	1.1 Obtain, interpret and confirm work requirements 1.2 Access, interpret and apply documentation required to work safely at heights 1.3 Identify and address potential risks, hazards and environmental issues, and implement control measures according to workplace procedures 1.4 Inspect worksite to determine layout and physical condition, condition of structures and equipment requirements 1.5 Adhere to legislative requirements

ELEMENT	PERFORMANCE CRITERIA
	1.6 Select appropriate plant, tools and equipment for the job, inspect them for serviceability and rectify or report any faults prior to commencement of work activities 1.7 Select and wear personal protective equipment appropriate for work activities 1.8 Obtain and interpret emergency procedures, and be prepared for emergency situations
2. Identify work procedures and instructions	2.1 Consult with relevant personnel to select materials, tools and equipment required for the work activities 2.2 Inspect and install fall protection and perimeter protection equipment 2.3 Identify methods of moving tools and equipment to the work area according to workplace procedures 2.4 Ensure the safety system has been installed according to workplace procedures 2.5 Select and install appropriate signs and barricades according to workplace procedures
3. Access and install equipment	3.1 Consult with relevant personnel to ensure anchor fall protection and associated equipment is fitted and adjusted according to workplace procedures 3.2 Ensure all required equipment is installed according to workplace procedures 3.3 Access work area for people, tools and equipment according to workplace procedures 3.4 Locate tools and materials to eliminate or minimise the risk of items being knocked down
4. Perform work at heights	4.1 Check access from ground to work area and ensure it is safe according to workplace procedures 4.2 Keep fall equipment in place and adjusted appropriately for movement during work 4.3 Undertake manual handling of materials and equipment according to workplace procedures 4.4 Locate materials and equipment ensuring that they are safely secured and distributed according to workplace procedures 4.5 Check safety system periodically for compliance 4.6 Monitor risk control measures to ensure that they are effective and appropriate according to workplace procedures 4.7 Reassess risk control measures, as required, in accordance with workplace procedures and undertake alterations
5. Clean up work area	5.1 Consult with relevant personnel to ensure safety system is dismantled and removed according to workplace procedures 5.2 Clear work area and dispose of materials

ELEMENT	PERFORMANCE CRITERIA
	5.3 Clean and maintain the plant and equipment, inspect for ensure serviceability and rectify or report any faults or issues to relevant personnel 5.4 Process written maintenance records according to workplace procedures

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance but not explicit in the performance criteria.

SKILL	DESCRIPTION
Reading	Identifies and interprets information from workplace procedures, documentation and regulations
Self-management	Monitors and minimises own exposure to worksite risks and hazards during activities
Oral communication	Uses a range of communication techniques and systems to communicate with others

Unit Mapping Information

Supersedes and is equivalent to RIIWHS204D Working safely at heights.

Links

Companion Volume implementation guides is found on VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=88a61002-9a21-4386-aaf8-69c76e675272>

Assessment Requirements for RIIWHS204E Work safely at heights

Modification History

Release	Comments
Release 1	This version first released with RII Resources and Infrastructure Industry Training Package Version 5.0.

Performance Evidence

The candidate must demonstrate the ability to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including evidence of the ability to:

- work safely at heights on at least two occasions, including:
 - accessing, interpreting and applying technical and safety information for working at heights
 - assessing hazards and risks associated with working at heights and implementing control methods
 - selecting, wearing and caring for personal protective equipment
 - identifying required safety systems including fall protection and associated equipment
 - checking the correct fitting, adjusting and anchoring of fall protection and associated equipment
 - performing work safely at heights.

During the above, the candidate must:

- locate and apply relevant documentation, policies and procedures and confirm that the work activity is compliant
- implement the requirements, procedures and techniques for working safely at heights
- work effectively with others to work safely at heights in a way that meets all required outcomes
- communicate clearly and concisely with others to receive and clarify work instructions and to determine coordination requirements prior to commencing and during work activities.

Knowledge Evidence

The candidate must be able to demonstrate knowledge to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including knowledge of:

- key legislation required to work safely at heights

- key policies, procedures and documentation required to work safely at heights, including:
 - statutory and regulatory authority requirements
- principles and techniques for work safely at heights, including:
 - heights safety systems
 - safe work methods
- principles and techniques for identifying names and functions of equipment, components and materials
- principles and techniques for complying with equipment manufacturer instructions and specifications
- safe shifting and handling of tools and materials
- principles and techniques for identifying relevant hazards and emergencies
- techniques for coordinating and communicating job activities with others.

Assessment Conditions

Mandatory conditions for assessment of this unit are stipulated below. The assessment must:

- include access to:
 - personal protective equipment
 - equipment related to working safely at heights
 - relevant documentation
- be conducted in a safe environment; and,
- be assessed in the context of this sector's work environment; and,
- be assessed in compliance with relevant legislation/regulation and using policies, procedures and processes directly related to the industry sector for which it is being assessed; and,
- confirm consistent performance can be applied in a range of relevant workplace circumstances.

Where personal safety or environmental damage are limiting factors, assessment may occur in a simulated work environment* provided it is realistic and sufficiently rigorous to cover all aspects of this sector's workplace performance, including environment, task skills, task management skills, contingency management skills and job role environment skills.

Assessor requirements

Assessors must be able to clearly demonstrate current and relevant industry knowledge and experience to satisfy the mandatory regulatory standards as set out in the Standards for Registered Training Organisations (RTOs) 2015/Australian Quality Training Framework mandatory requirements for assessors current at the time of assessment and any relevant licensing and certification requirements. This includes:

- vocational competencies at least to the level being delivered and assessed
- current industry skills directly relevant to the training and assessment being provided
- current knowledge and skills in vocational training and learning that informs their training and assessment
- formal relevant qualifications in training and assessment

- having knowledge of and/or experience using the latest techniques and processes
- possessing the required level of RII training product knowledge
- having an understanding and knowledge of legislation and regulations relevant to the industry and to employment and workplaces
- demonstrating the performance evidence, and knowledge evidence outlined in this unit of competency, and
- the minimum years of current** work experience after competency has been obtained as specified below in an industry sector relevant to the outcomes of the unit.

It is also acceptable for the appropriately qualified assessor to work with an industry expert to conduct assessment together and for the industry expert to be involved in the assessment judgement. The industry expert must have current industry skills directly relevant to the training and assessment being provided. This means the industry subject matter expert must demonstrate skills and knowledge from the minimum years of current work experience after competency has been obtained as specified below, including time spent in roles related to the unit being assessed:

Industry sector	AQF indicator level***	Required assessor or industry subject matter expert experience
Drilling, Metalliferous Mining, Coal Mining, Extractive (Quarrying) and Civil Infrastructure	1	1 year
	2	2 years
Drilling, Coal Mining, Extractive (Quarrying), Metalliferous Mining and Civil Infrastructure	3-6	3 years
Other sectors	Where this unit is being assessed outside of the resources and infrastructure sectors assessor and/or industry subject matter expert experience should be in-line with industry standards for the sector in which it is being assessed and where no industry standard is specified should comply with any relevant regulation.	

*Guidance on simulated environments has been stipulated in the Companion Volume Implementation Guide located on VETNet.

**Assessors can demonstrate current work experience through employment within industry in a role relevant to the outcomes of the unit; or, for external assessors this can be demonstrated through exposure to industry by conducting a minimum number of site assessments as determined by the relevant industry sector, across various locations.

*** While a unit of competency does not have an AQF level, where a unit is being delivered outside of a qualification the first numeric character in the unit code should be considered as the AQF indicator level for assessment purposes.

Links

Companion Volume implementation guides is found on VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=88a61002-9a21-4386-aaf8-69c76e675272>

RIIWHS302E Implement traffic management plans

Modification History

This unit replaces RIIWHS302D Implement traffic management plan. Significant endorseable amendments have been made to Elements, Performance Criteria, Foundation Skills, Performance Evidence and Knowledge Evidence to better reflect current industry practices and clarify training outcomes.

Application

This unit describes the skills and knowledge required to set out, monitor and close down traffic management plans and traffic guidance schemes in civil construction.

It applies to those working in supervisory roles. They generally work in teams in live traffic environments and hold some responsibility for the outcomes of others.

Licensing, legislative and certification requirements that apply to this unit can vary between states, territories, and industry sectors. Users must check requirements with relevant body before applying the unit.

Note: The terms Occupational Health and Safety (OHS) and Work Health and Safety (WHS) are equivalent and generally either can be used in the workplace. In jurisdictions where the National Model WHS Legislation has not been implemented registered training organisations are advised to contextualise the unit of competency by referring to the existing state/territory OHS legislative requirements.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Prepare to implement traffic management plan	1.1 Determine worksite requirements and scope of traffic management plan and traffic guidance scheme 1.2 Identify, address and report potential risks, hazards and environmental issues and determine control measures 1.3 Validate suitability of traffic management plan and traffic guidance scheme to site conditions, traffic volumes and work activities and confirm requirements are met 1.4 Resource personnel to implement traffic management plan and traffic guidance scheme according to workplace policies and procedures 1.5 Confirm required liaison and communication activities are

	carried out according to instructions 1.6 Provide traffic guidance scheme implementation instructions to traffic control personnel and clarify and confirm recipient understanding as required
2. Set out traffic guidance scheme	2.1 Check required signs and devices are positioned and installed according to traffic guidance scheme 2.2 Inspect traffic guidance scheme and authorise roadwork crew to proceed with work activities 2.3 Confirm roadwork crew are protected from work site hazards
3. Monitor traffic guidance scheme	3.1 Confirm traffic flow is being monitored by required personnel according to traffic guidance scheme 3.2 Apply adjustments to traffic guidance scheme as necessary to maintain required traffic flow and according to own job role 3.3 Monitor work activities and apply required measures to mitigate and address roadwork crew and road user non-conformance 3.4 Apply workplace policies and procedures to address offending road users as required
4. Close down work activities	4.1 Direct covering and required removal of equipment, signs and devices according to traffic guidance scheme 4.2 Confirm tools and equipment are cleaned, checked, maintained and stored according to workplace policies and procedures 4.3 Finalise traffic work zone close-down and complete required reporting

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance but not explicit in the performance criteria.

Skill	Description
Numeracy	Applies basic mathematical problem solving processes, including simple addition, subtraction, multiplication and division
Oral communication	- Presents information and provides assistance using industry specific vocabulary - Uses listening and questioning to clarify and confirm understanding
Reading	Identifies and interprets information from workplace procedures, documentation, legislation and regulations

Writing	• Produces and completes workplace reports, including risk management matrices, using appropriate vocabulary, grammatical structures and conventions

Unit Mapping Information

Supersedes and is equivalent to RIIWHS302D Implement traffic management plan.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=88a61002-9a21-4386-aaf8-69c76e675272>

Assessment Requirements for RIIWHS302E Implement traffic management plans

Modification History

This unit replaces RIIWHS302D Implement traffic management plan. Significant endorseable amendments have been made to Elements, Performance Criteria, Foundation Skills, Performance Evidence and Knowledge Evidence to better reflect current industry practices and clarify training outcomes.

Performance Evidence

The candidate must demonstrate the ability to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including evidence of the ability to:

- implement traffic management plans in a manner that is safe and follows workplace policies and procedures on at least three separate live traffic projects, including:
 - completing at least two of the following:
 - ~ lane closure
 - ~ lateral shift
 - ~ implementing a traffic management plan at an intersection
 - completing at least one project controlling site construction vehicles.

During the above, the candidate must:

- locate and apply required legislations, documentation, policies and procedures including documentation required for worksite projects and required traffic management
- work with traffic control personnel to implement and complete a traffic management plan and traffic guidance scheme that meets all required outcomes including:
 - confirming all necessary resources are available, including qualified personnel
 - confirming all personnel understand, and are able to implement, their roles, task requirements, safety requirements and reporting requirements
 - communicating with others to resolve resourcing and coordination requirements prior to and during work activities
 - confirming that unattended sites and shut-down procedures are completed according to traffic management plan and traffic guidance scheme
 - complying with written and verbal reporting requirements and procedures, including reporting offending road users.

Knowledge Evidence

The candidate must be able to demonstrate knowledge to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including knowledge of:

- required legislation, regulations, codes and procedures including Austroads Codes of Practice and WHS applicable to temporary traffic management

- temporary traffic management principles
- risk management principles and procedures for identifying, analysing and treating potential hazards and risks
- key principles for implementing WHS, including the role of Job Safety Analysis, Job Safety and Environmental Analysis and Safe Work Method statements.
- scope of authority to modify traffic management plan and traffic guidance scheme
- basic signalling procedures for temporary traffic management
- procedures for selecting, using and placing signs and devices, including sequences of installation and removal and provisions for unattended sites
- radio operations procedures and protocols
- equipment types, characteristics, technical capabilities and limitations, including for required specialist and externally-sourced equipment
- site isolation, traffic control and emergency responsibilities and authorities.

Assessment Conditions

Mandatory conditions for assessment of this unit are stipulated below. The assessment must:

- include access to:
 - traffic management plan
 - traffic guidance scheme
 - personal protective equipment
 - devices, equipment and signs specified in the performance criteria
- be conducted in a safe environment; and,
- be assessed in the context of this sector's work environment on a real live road setting under supervision; and,
- be assessed in compliance with relevant legislation/regulation and using policies, procedures and processes directly related to the industry sector for which it is being assessed; and,
- confirm consistent performance can be applied in a range of relevant workplace circumstances.

Where personal safety or environmental damage are limiting factors, assessment may occur in a simulated work environment* provided it is realistic and sufficiently rigorous to cover all aspects of this sector's workplace performance, including environment, task skills, task management skills, contingency management skills and job role environment skills.

Assessor Requirements

Assessors must be able to clearly demonstrate current and relevant industry knowledge and experience to satisfy the mandatory regulatory standards as set out in the Standards for Registered Training Organisations (RTOs) 2015/Australian Quality Training Framework mandatory requirements for assessors current at the time of assessment and any relevant licensing and certification requirements. This includes:

- vocational competencies at least to the level being delivered and assessed
- current industry skills directly relevant to the training and assessment being provided

- current knowledge and skills in vocational training and learning that informs their training and assessment
- formal relevant qualifications in training and assessment
- having knowledge of and/or experience using the latest techniques and processes
- possessing the required level of RII training product knowledge
- having an understanding and knowledge of legislation and regulations relevant to the industry and to employment and workplaces
- demonstrating the performance evidence, and knowledge evidence outlined in this unit of competency, and
- the minimum years of current** work experience after competency has been obtained as specified below in an industry sector relevant to the outcomes of the unit.

It is also acceptable for the appropriately qualified assessor to work with an industry expert to conduct assessment together and for the industry expert to be involved in the assessment judgement. The industry expert must have current industry skills directly relevant to the training and assessment being provided. This means the industry subject matter expert must demonstrate skills and knowledge from the minimum years of current work experience after competency has been obtained as specified below, including time spent in roles related to the unit being assessed:

Industry sector	AQF indicator level***	Required assessor or industry subject matter expert experience
Drilling, Metalliferous Mining, Coal Mining, Extractive (Quarrying) and Civil Infrastructure	1	1 year
	2	2 years
Drilling, Coal Mining, Extractive (Quarrying), Metalliferous Mining and Civil Infrastructure	3-6	3 years
Other sectors	Where this unit is being assessed outside of the resources and infrastructure sectors assessor and/or industry subject matter expert experience should be in-line with industry standards for the sector in which it is being assessed and where no industry standard is specified should comply with any relevant regulation.	

*Guidance on simulated environments has been stipulated in the RII Companion Volume Implementation Guide located on VETNet.

**Assessors can demonstrate current work experience through employment within industry in a role relevant to the outcomes of the unit; or, for external assessors this can be demonstrated through exposure to industry by conducting a minimum number of site assessments as determined by the relevant industry sector, across various locations.

*** While a unit of competency does not have an AQF level, where a unit is being delivered outside of a qualification the first numeric character in the unit code should be considered as the AQF indicator level for assessment purposes.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=88a61002-9a21-4386-aaf8-69c76e675272>

RIIWMG203D Drain and dewater civil construction site

Modification History

Release	Comment
1	The unit replaces RIIWMG203A Drain and dewater civil construction site
2	Editorial corrections.
3	Required frequency and volume of evidence amended in Performance evidence. Substantial amendments made in Assessment Conditions field, including: references to Industry Sectors, assessor and subject matter expert experience requirements, how assessment should be conducted and what it should confirm.

Application

This unit develops a participant's skills and knowledge required to drain and dewater civil construction sites in Civil construction.

This unit is appropriate for those working in operational roles.

No licensing, legislation or certification requirements apply to this unit at the time of publication.

Unit Sector

Civil construction

Elements and Performance Criteria

1. Plan and prepare for draining and dewatering	1.1 Access, interpret and apply drain and dewatering documentation and ensure the work activity is compliant 1.2 Obtain, read, interpret, clarify and confirm work requirements 1.3 Identify, obtain and implement traffic signage requirements 1.4 Select and inspect required plant, tools and equipment and rectify/report any faults 1.5 Identify, clarify and apply environmental protection requirements 1.6 Identify and address potential risks, hazards and

	environmental issues, and implement control measures 1.7 Select and wear personal protective equipment appropriate for work activities
2. Position sedimentation control	2.1 Position sedimentation controls 2.2 Construct sedimentation control barriers 2.3 Position geo-fabrics and/or woven wire
3. Remove surface water	3.1 Establish temporary drainage systems and drain or divert surface and sub-surface water to the storm water drainage system 3.2 Remove slab and site surface water and/or direct to the temporary drainage system 3.3 Fill surface holes and depressions 3.4 Drain surface water to drainage system using adequate fall
4. Construct sump/wells	4.1 Locate sump and/or well at the lowest point to be drained 4.2 Construct sumps and/or wells
5. Remove water from sumps/wells, trenches and pits	5.1 Install surface or submersible pumps 5.2 Locate surface pump as close as practicable to the sump or well 5.3 Pump water to temporary drainage system 5.4 Disperse discharged water
6. Clean up	6.1 Clear work area and dispose of or recycle materials 6.2 Clean, check, maintain and store plant, tools and equipment

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit. Further information is available in the Resources and Infrastructure Industry Training Package Companion Volume.

Unit Mapping Information

RIIWMG203A Drain and dewater civil construction site

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=88a61002-9a21-4386-aaf8-69c76e675272>

Assessment Requirements for RIIWMG203D Drain and dewater civil construction site

Modification History

Release	Comment
1	The unit replaces RIIWMG203A Drain and dewater civil construction site
2	Editorial corrections.
3	Required frequency and volume of evidence amended in Performance evidence. Substantial amendments made in Assessment Conditions field, including: references to Industry Sectors, assessor and subject matter expert experience requirements, how assessment should be conducted and what it should confirm.

Performance Evidence

Evidence is required to be collected that demonstrates a candidate's competency in this unit. Evidence must be relevant to the roles within this sector's work operations and satisfy all of the requirements of the performance criteria of this unit and include evidence that the candidate:

- locates and applies relevant documentation, policies and procedures
- implements the requirements, procedures and techniques for the safe, effective and efficient completion of the draining and dewatering of a civil construction site including:
 - selecting and using the required tools and equipment
 - interpreting and applying work instructions
 - draining surface water
 - constructing sumps and wells and removing water
- works effectively with others to undertake and complete the draining and dewatering of civil construction sites that meets all of the required outcomes including:
 - using a range of communication techniques to convey information to others
 - maintaining written and verbal reporting requirements and procedures
- demonstrates completion of draining and dewatering civil construction sites that safely, effectively and efficiently meets all of the required outcomes on more than one (1) occasion including:
 - dewatering a trench or pit using at least one type of pump
 - establishing sedimentation controls
 - constructing a sump
 - installing surface or submersible pumps

- pumping and dispersing water
- draining surface water from a site using surface drains

Knowledge Evidence

The candidate must demonstrate knowledge in draining and dewatering civil construction sites through:

- identifying and applying operational, maintenance and basic diagnostic procedures
- identifying and complying with construction principles
- interpreting engineering drawings
- identifying equipment types, characteristics, technical capabilities and limitations
- identifying and complying with site isolation and traffic control responsibilities
- using and interpreting civil construction terminology

Assessment Conditions

- An assessor of this unit must satisfy the requirements of the NVR/AQTF or their successors; and Industry regulations for certification and licensing; and,
- this unit must be assessed in the context of this sector's work environment; and,
- this unit must be assessed in compliance with relevant legislation/regulation and using policies, procedures, processes and operational manuals directly related to the industry sector for which it is being assessed; and,
- assessment may be conducted in conjunction with the assessment of other Units of Competency; and,
- assessment must confirm consistent performance can be applied in a range of relevant workplace circumstances; and,
- assessors must demonstrate the performance evidence, and knowledge evidence as outlined in this Unit of Competency, and through the minimum years of current* work experience specified below in an Industry sector relevant to the outcomes of the unit; or,
- where the assessor does not meet experience requirements a co-assessment or partnership arrangement must exist between the qualified assessor and an Industry subject matter expert. The Industry subject matter expert should hold the unit being assessed (or an equivalent unit) and/or demonstrate equivalence of skills and knowledge at the unit level. An Industry technical expert must also demonstrate skills and knowledge from the minimum years of current work experience specified below in the Industry sector, including time spent in roles related to the unit being assessed; and,
- assessor and Industry subject matter expert requirements differ depending on the Australian Qualifications Framework Level (AQF) of the qualification being assessed and/or Industry Sector as follows:

Industry sector	AQF** Level	Required assessor or Industry subject matter expert experience
Drilling, Metalliferous Mining, Coal	1	1 Year

Mining, Extractive (Quarrying) and Civil Construction	2	2 Years
Drilling, Coal Mining and Extractive (Quarrying)	3-6	3 Years
Metalliferous Mining and Civil Construction	3-6	5 Years
Other sectors	Where this Unit is being assessed outside of the Resources and Infrastructure Sectors assessor and/or Industry subject matter expert experience should be in-line with industry standards for the sector in which it is being assessed and where no Industry standard is specified should comply with any relevant regulation.	

*Assessors can demonstrate current work experience through employment within Industry in a role relevant to the outcomes of the Unit; or, for external assessors this can be demonstrated through exposure to Industry by conducting frequent site assessments across various locations.

**Where a unit is being delivered outside of a Qualification the first numeric character in the Unit code should be considered to indicate the AQF level

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=88a61002-9a21-4386-aaf8-69c76e675272>

TAEASS301 Contribute to assessment

Modification History

Release	Comments
Release 1	This version first released with <i>TAE Training and Education Training Package Version 2.0</i> .

Application

This unit describes the skills and knowledge required to contribute to the assessment process.

It applies to a person with technical or vocational expertise who is in a supervisory or mentoring/coaching work role, and for whom collecting the evidence for assessment is an adjunct to principal work responsibilities. The unit applies to those involved in collecting evidence for assessment against units of competency or accredited courses.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Unit Sector

Assessment

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>

ELEMENT	PERFORMANCE CRITERIA
1. Clarify role and responsibilities in the assessment process	1.1 Discuss and confirm the purpose of the assessment with relevant people 1.2 Discuss and confirm benchmarks for assessment with the qualified assessor 1.3 Access, read and clarify assessment plan with the qualified assessor 1.4 Discuss and agree with the qualified assessor specific responsibilities in gathering evidence, and the types of evidence to be gathered
2. Confirm organisational arrangements for evidence gathering	2.1 Access and confirm relevant assessment system policies and procedures, organisational, legal and ethical requirements, and other relevant advice on assessment 2.2 Clarify the nominated assessment tools and methods for collecting evidence with the qualified assessor, to ensure that the procedures to be followed, and the instruments to be used are clear 2.3 Discuss and confirm with the relevant people the assessment context, including the candidate's characteristics and any need for reasonable adjustments 2.4 Confirm and arrange resource requirements in consultation with relevant people
3. Collect evidence in accordance with the assessment plan	3.1 Explain the assessment process to the candidate, including the different responsibilities of the parties involved, and refer any candidate issues or concerns to the qualified assessor, prior to undertaking assessment activities 3.2 Use assessment instruments to gather quality evidence within the available time and resources, according to organisational, legal and ethical requirements
4. Record and report findings	4.1 Organise and provide evidence to the qualified assessor in a format suitable for analysis according to the assessment system's policies and procedures 4.2 Actively seek feedback from the qualified assessor on whether evidence-gathering activities meet the principles of assessment, and whether the evidence collected meets the rules of evidence 4.3 Document areas for improvement in collecting evidence for future assessment activities

Foundation Skills

This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.

Skill	Performance Criteria	Description
Learning	4.2	Seeks feedback to build knowledge to improve process and professional practice
Reading	1.3, 2.1, 2.2, 2.4, 3.2	Sources and interprets procedural, and compliance information
Writing	1.1, 1.2, 1.3, 2.1, 2.3, 2.4, 3.2, 4.1, 4.3	Completes workplace documentation accurately using the appropriate language
Oral Communication	1.1, 1.2, 1.3, 1.4, 2.1, 2.2, 2.3, 2.4, 3.1	- Communicates information and process requirements clearly, based on techniques appropriate to the audience and environment - Uses appropriate speaking and listening techniques to obtain specific information, and to support the assessment process
Navigate the world of work	2.1, 2.2, 3.2, 4.1	Accesses, confirms and takes responsibility for adherence to policies, procedures, and legal and ethical requirements
Interact with others	4.2	Asks questions to clarify understanding, and seeks feedback and further information
Get the work done	3.1, 4.1	Organises work according to defined requirements, taking some responsibility for decisions regarding the format of information

Unit Mapping Information

Code and title current version	Code and title previous version	Comments	Equivalence status
TAEASS301 Contribute to assessment	TAEASS301B Contribute to assessment	Updated to meet Standards for Training Packages	Equivalent unit

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=35337905-785d-4f93-8777-e9991ad4c6c3>

Assessment Requirements for TAEASS301 Contribute to assessment

Modification History

Release	Comments
Release 1	This version first released with <i>TAE Training and Education Training Package Version 2.0</i> .

Performance Evidence

The candidate must show evidence of the ability to complete tasks outlined in the elements and performance criteria of this unit, including:

- clarifying the role to be taken during the assessment
- clarifying the assessment plan with the qualified assessor, including agreement about:
 - what evidence will be collected
 - how the evidence will be collected
- carrying out a minimum of three evidence-gathering activities and, on each occasion:
 - document evidence in a clear and concise manner
 - document feedback from others involved in the assessment

reporting findings to the qualified assessor, including an explanation of how the assessment meets the rules of evidence on each of the three occasions.

Knowledge Evidence

The candidate must be able to demonstrate essential knowledge to effectively complete the task outlined in the elements and performance criteria of this unit. This includes knowledge of:

- competency-based assessment
- the principles of assessment
- the rules of evidence
- the different purposes of assessment
- the diversity of assessment contexts
- different types of evidence
- evidence-gathering methods
- the purpose and features of assessment tools, and assessment plans

- potential barriers and processes relating to evidence-gathering procedures, and assessment processes
- the organisational policies and procedures relevant to this unit of competency.

Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Conditions must be typical of those experienced in the training and assessment environment, and include access to qualified assessors for consultation.

Assessors must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=35337905-785d-4f93-8777-e9991ad4c6c3>

TAEDEL301 Provide work skill instruction

Modification History

Release	Comments
Release 1	This version first released with <i>TAE Training and Education Training Package Version 2.0</i> .

Application

This unit describes the skills and knowledge required to conduct individual and group instruction, demonstrate work skills and assess the success of training and one's own training performance, using existing learning resources in a safe and comfortable learning environment.

It emphasises the training as being driven by the work process and context, and applies to a person working under supervision as a work skill instructor in a wide range of settings not restricted to training organisations,

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Unit Sector

Delivery and facilitation

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Organise instruction and demonstration	1.1 Gather information about learner characteristics and learning needs 1.2 Confirm a safe learning environment 1.3 Gather and check instruction, demonstration objectives, and seek assistance if required 1.4 Access and review relevant learning resources and learning

ELEMENT	PERFORMANCE CRITERIA
	materials for suitability and relevance, and seek assistance to interpret the contextual application 1.5 Organise access to necessary equipment or physical resources required for instruction and demonstration 1.6 Notify learners of details regarding the implementation of the learning program and/or delivery plan
2. Conduct instruction and demonstration	2.1 Use interpersonal skills with learners to establish a safe and comfortable learning environment 2.2 Follow the learning program and/or delivery plan to cover all learning objectives 2.3 Brief learners on any workplace health and safety (WHS) procedures and requirements prior to, and during, training 2.4 Use delivery techniques to structure, pace and enhance learning 2.5 Apply coaching techniques to assist learning 2.6 Use communication skills to provide information, instruct learners and demonstrate relevant work skills 2.7 Provide opportunities for practice during instruction and through work activities 2.8 Provide and discuss feedback on learner performance to support learning
3. Check training performance	3.1 Use measures to ensure learners are acquiring, and can use, new technical and generic skills and knowledge 3.2 Monitor learner progress and outcomes in consultation with the learner 3.3 Review relationship between the trainer/coach and the learner, and adjust to suit learner needs
4. Review personal training performance	4.1 Reflect upon personal performance in providing instruction and demonstration, and document strategies for improvement 4.2 Maintain, store and secure learner records, according to organisational and legal requirements

Foundation Skills

This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.

Skill	Performance Criteria	Description
Learning	4.1	Reflects on practice to improve
Reading	1.1, 1.3, 1.4, 2.2	Sources and interprets processes and procedures, learning resources and information relevant to providing a work instruction and delivery
Writing	1.4, 1.6, 2.3, 2.6, 2.8, 3.2, 4.1, 4.2	Accurately maintains learner records and documentation appropriate to the learning context and audience
Oral Communication	1.1, 1.6, 2.3, 2.4, 2.6	Uses appropriate communication strategies to engage, build rapport, provide instruction, monitor progress and provide feedback to individuals or groups
Interact with others	1.2, 1.3, 2.1, 2.5, 2.8, 3.2	- Recognises the importance of consultation and negotiation while collaborating to confirm strategy and achieve required outcomes - Asks questions in order to clarify understanding, and to provide and seek feedback - Builds rapport to establish effective working relationships and to achieve effective outcomes
Get the work done	1.1-1.6, 2.1-2.8, 3.1-3.3, 4.1, 4.2	- Organises and completes work according to defined requirements, taking responsibility for some decisions and sequencing tasks to achieve efficient outcomes - Identifies and responds to potential risks, problems and opportunities for improvement and considers options for different approaches

Unit Mapping Information

Code and title current version	Code and title previous version	Comments	Equivalence status
TAEDEL301 Provide work skill instruction	TAEDEL301A Provide work skill instruction	Updated to meet Standards for Training Packages	Equivalent unit

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=35337905-785d-4f93-8777-e9991ad4c6c3>

Assessment Requirements for TAEDEL301 Provide work skill instruction

Modification History

Release	Comments
Release 1	This version first released with <i>TAE Training and Education Training Package Version 2.0</i> .

Performance Evidence

The candidate must show evidence of the ability to complete tasks outlined in the elements and performance criteria of this unit, including:

- carrying out a minimum of three training sessions, involving demonstrating and instructing particular work skills for at least two different individuals or small groups, with each session addressing:
 - different learning objectives
 - a range of delivery techniques and effective communication skills appropriate to the audience.

Knowledge Evidence

The candidate must be able to demonstrate essential knowledge to effectively complete the task outlined in the elements and performance criteria of this unit. This includes knowledge of:

- learner characteristics and needs
- the content and requirements of the relevant learning program, and/or the delivery plan
- the sources and availability of relevant learning resources and learning materials
- the content of relevant learning resources and learning materials
- training techniques that enhance learning, and when to use them
- introductory knowledge of learning principles and learning styles
- key workplace health and safety (WHS) issues in the learning environment, including:
 - roles and responsibilities of key personnel
 - responsibilities of learners
 - relevant policies and procedures, including hazard identification, risk assessment, reporting requirements, safe use of equipment and emergency procedures
 - risk controls for the specific learning environment.

Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Conditions must be typical of those experienced in the training and assessment environment and include access to any necessary workplace documents.

Assessors must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=35337905-785d-4f93-8777-e9991ad4c6c3>

TAEDEL402 Plan, organise and facilitate learning in the workplace

Modification History

Release	Comments
Release 2	This was first released with <i>TAE Training and Education Training Package Release 2.1</i> . Minor update to Assessment Conditions.
Release 1	This version first released with <i>TAE Training and Education Training Package Release 2.0</i> .

Application

This unit describes skills and knowledge required to plan, organise and facilitate learning for individuals in a workplace, using real work activities as the basis for learning.

It applies to a person working as an entry-level trainer, teacher or facilitator or an employee, team leader or workplace supervisor responsible for guiding learning through work.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Unit Sector

Delivery and facilitation

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Establish effective work environment for learning	1.1 Establish, and agree upon, the objectives and scope of the work-based learning 1.2 Analyse work practices and routines to determine their effectiveness in meeting established learning objectives

ELEMENT	PERFORMANCE CRITERIA
	1.3 Identify, and address any workplace health and safety (WHS) implications of using work as the basis for learning
2. Develop a work-based learning pathway	2.1 Address contractual requirements and responsibilities for learning at work 2.2 Arrange for the integration and monitoring of external learning activities with the work-based learning pathway 2.3 Obtain agreement from relevant personnel to implement the work-based learning pathway
3. Establish the learning-facilitation relationship	3.1 Identify the context for learning and the individual's learning style 3.2 Select an appropriate technique or process to facilitate learning, and explain the basis of the technique to the learner 3.3 Develop, document and discuss an individualised learning plan with the learner 3.4 Access, read and interpret documentation outlining the WHS responsibilities of the various parties in the learning environment 3.5 Monitor supervisory arrangements appropriate to learner's levels of knowledge, skill and experience to provide support and encouragement and ensure learner's health and safety
4. Implement the work-based learning pathway	4.1 Explain the objectives of work-based learning, and the processes involved, to the learner 4.2 Sequence the introduction of workplace tasks, activities and processes to reflect the agreed work-based learning pathway 4.3 Encourage learner to take responsibility for learning and to self-reflect 4.4 Develop techniques that facilitate the learner's transfer of skills and knowledge
5. Maintain and develop the learning-facilitation relationship	5.1 Prepare for each session 5.2 Structure learning activities to support and reinforce new learning, build on strengths, and identify areas for further development 5.3 Observe learner cues, and change approaches where necessary, in order to maintain momentum 5.4 Practise ethical behaviour at all times 5.5 Monitor the effectiveness of the learning/facilitation relationship through regular meetings between the parties

ELEMENT	PERFORMANCE CRITERIA
6. Close and evaluate the learning-facilitation relationship	6.1 Carry out the closure smoothly, using appropriate interpersonal and communication skills 6.2 Seek feedback from the learner on the outcomes achieved, and the value of the relationship 6.3 Evaluate effectiveness of the work-based pathway against the objectives, processes and techniques used 6.4 Recommend improvements to work-based practice in light of the review process

Foundation Skills

This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.

Skill	Performance Criteria	Description
Reading	1.2, 1.3, 2.1, 3.1, 3.4, 3.5, 6.3	Accesses and interprets compliance information, contractual information, WHS information, and documents relevant to learning in the workplace, in the context of consultation and continuous improvement, to apply relevance to requirements
Writing	1.1, 2.3, 3.3, 4.1, 6.3	Develops and maintains documentation relevant to workplace learning, including learning plans and evaluations, in accordance with organisational and workplace requirements
Oral Communication	2.2, 3.3, 4.2, 5.5, 6.1	- Uses oral communication techniques to identify needs, build rapport, agree on learning plans, facilitate effective learning and monitor practice - Selects appropriate vocabulary adjusting language, tone and pace to maintain effective interactions, and to build and maintain engagement with individuals or groups
Navigate the world of work	1.3, 2.1, 5.4	- Follows organisational protocols, policies and procedures in the management of records - Recognises and responds to contractual and ethical requirements associated with own role
Interact with others	1.1, 2.3, 3.5, 4.3, 6.2	- Asks questions to clarify understanding, and seeks feedback and further information - Cooperates and collaborates with others as part of

		routine activities to achieve team results, and to confirm outcomes meet requirements
Get the work done	1.1-1.3, 2.1-2.3, 3.1-3.5, 4.1-4.4, 5.1-5.3, 5.5, 6.1-6.3	- Organises and completes work according to defined requirements, taking responsibility for decisions and sequencing tasks to achieve efficient outcomes - Uses systematic, analytical processes in complex, routine and non-routine situations, gathering information, and identifying and evaluating options based on organisational needs - Identifies and responds to problems and opportunities for improvement, considering options for different approaches - Uses information and communications technology (ICT) based tools to design work processes and to complete work tasks

Unit Mapping Information

Code and title current version	Code and title previous version	Comments	Equivalence status
TAEDEL402 Plan, organise and facilitate learning in the workplace	TAEDEL402A Plan, organise and facilitate learning in the workplace	Updated to meet Standards for Training Packages	Equivalent unit

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=35337905-785d-4f93-8777-e9991ad4c6c3>

Assessment Requirements for TAEDEL402 Plan, organise and facilitate learning in the workplace

Modification History

Release	Comments
Release 2	This was first released with <i>TAE Training and Education Training Package Release 2.1</i> . Minor update to Assessment Conditions.
Release 1	This version first released with <i>TAE Training and Education Training Package Release 2.0</i> .

Performance Evidence

The candidate must show evidence of the ability to complete tasks outlined in the elements and performance criteria of this unit, including:

- preparing and facilitating work-based learning
- providing a minimum of two examples of developing work-based learning pathways, that include:
 - identifying needs for learning
 - analysing work practices, work environment and work activities
 - organising and allocating work in a way that reflects learning needs, and provides effective learning opportunities through work processes
- conducting a learning facilitation relationship:
 - with at least two individuals
 - demonstrating communication skills and flexibility
 - demonstrating one or more of the processes, or techniques, identified.

Knowledge Evidence

The candidate must be able to demonstrate essential knowledge to effectively complete the task outlined in the elements and performance criteria of this unit. This includes knowledge of:

- systems, processes and practices within the organisation where work-based learning is taking place
- systems for identifying skill needs within the workplace
- different learning styles, and how to encourage learning for those who learn in different ways

- workplace health and safety (WHS) relating to the work role, including:
 - hazards relating to the industry and specific workplace
 - reporting requirements for hazards and incidents
 - specific procedures for work tasks
 - safe use and maintenance of relevant equipment
 - emergency procedures
 - sources of WHS information.
-

Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Conditions must be typical of those experienced in the training and assessment environment, and include access to any documentation relating to workplace procedures required by the candidate.

Assessors must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=35337905-785d-4f93-8777-e9991ad4c6c3>

TAEDEL404 Mentor in the workplace

Modification History

Release	Comments
Release 1	This version first released with <i>TAE Training and Education Training Package Version 2.0</i> .

Application

This unit describes the skills and knowledge required to establish and develop a professional mentoring relationship with an individual in a workplace.

It applies to workplace supervisors or other work colleagues who work under limited supervision and who have responsibility for mentoring one or more individuals in the workplace. This may include, but is not limited to, those who mentor an apprentice or trainee employed by, or undertaking a work placement within, an organisation.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Unit Sector

Delivery and facilitation

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Develop a mentoring plan	1.1 Identify scope and boundaries of the mentoring relationship according to organisational procedures 1.2 Document mentoring plan in accordance with organisational requirements 1.3 Establish ground rules and negotiate realistic expectations 1.4 Establish and maintain confidentiality of the relationship in

ELEMENT	PERFORMANCE CRITERIA
	accordance with legislation, policy and procedures
2. Facilitate mentoring relationship	2.1 Develop learner's confidence, self-esteem, respect and trust in the mentoring relationship 2.2 Share personal experiences and knowledge with the person being mentored according to agreed objectives 2.3 Support the person being mentored to develop and use skills in problem solving and decision making 2.4 Use personal and professional networks to assist the person being mentored 2.5 Provide information, and guidance to enhance engagement in the workplace 2.6 Use techniques for resolving differences without damaging the relationship, and obtain assistance according to organisational policy and procedures
3. Monitor mentoring relationship	3.1 Provide planning assistance and guidance as requested by the person being mentored in a form and style to suit their requirements 3.2 Provide feedback to the person being mentored on progress towards achieving the expectations and goals of the mentoring process 3.3 Recognise and discuss changes in the mentoring relationship with appropriate stakeholders 3.4 Negotiate and manage closure of the mentoring arrangement once objectives have been met
4. Evaluate effectiveness of mentoring	4.1 Establish and discuss benefits gained from the mentoring process 4.2 Reflect on and articulate the personal benefits gained from providing mentoring 4.3 Identify and report the outcomes of the mentoring arrangement and the benefits to the organisation according to organisational policy and procedures to improve the mentoring system or program

Foundation Skills

This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.

Skill	Performance Criteria	Description
Reading	1.1, 1.4	Sources and interprets texts relevant to mentoring context, including organisational policies and learner information
Writing	1.1, 1.3, 2.5, 3.1, 3.2, 4.3	Develops content and documents information relevant to mentoring plan
Oral Communication	2.4, 3.3, 4.1, 4.2, 4.3	Uses appropriate communication techniques to build rapport, trust, engagement and provide guidance and feedback
Navigate the world of work	1.1, 1.4, 2.6, 4.3	Follows legislative requirements, organisational protocols, policies and procedures in workplace mentoring
Interact with others	1.2, 2.1-2.3, 2.5, 2.6, 3.1, 3.2, 3.4	- Builds rapport using collaboration with others to achieve joint outcomes and effective interaction - Provides mentoring and role modelling to achieve agreed outcomes - Cooperates and consults with others to clarify understanding and seek feedback
Get the work done	1.1-1.4, 2.1-2.6, 3.1-3.4, 4.1-4.3	- Plans, organises and completes work according to defined requirements taking responsibility for decisions and sequencing tasks to achieve efficient outcomes - Identifies and responds to problems, considering options for different approaches

Unit Mapping Information

Code and title current version	Code and title previous version	Comments	Equivalence status
TAEDEL404 Mentor in the workplace	TAEDEL404 A Mentor in the workplace	Updated to meet Standards for Training Packages	Equivalent unit

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=35337905-785d-4f93-8777-e9991ad4c6c3>

Assessment Requirements for TAEDEL404 Mentor in the workplace

Modification History

Release	Comments
Release1	This version first released with <i>TAE Training and Education Training Package Version 2.0</i> .

Performance Evidence

The candidate must show evidence of the ability to complete tasks outlined in elements and performance criteria of this unit, including:

- preparing a mentoring plan between the mentor and mentee that sets out clear objectives for a mentoring relationship that will last at least one year
- facilitating at least three mentoring sessions
- documenting information on sessions, including comments and notes from both mentor and mentee.
-

Knowledge Evidence

The candidate must be able to demonstrate essential knowledge to effectively complete the task outlined in the elements and performance criteria of this unit. This includes knowledge of:

- relevant policy, legislation, codes of practice and national standards likely to impact on the provision of workplace mentoring, including training contracts and responsibilities of employer, registered training organisation (RTO) and funding body where they exist
- mentoring methodologies and strategies
- learning theories in relation to mentoring
- strategies for working with a mentee including encouraging self reflection, confidence and the building of rapport
- acceptable behaviour in the mentoring relationship
- equal employment opportunity, equity and diversity principles
- how a mentor can support the mentee's employer to meet its WHS obligations for the mentee.
-

Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Conditions must be typical of those experienced in the training and assessment environment and include access to:

- documentation of any existing training plan or contract if applicable to the mentoring relationship.

Assessors must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=35337905-785d-4f93-8777-e9991ad4c6c3>

TLID2003 Handle dangerous goods/hazardous substances

Modification History

Release 1. This is the first release of this unit of competency in the TLI Transport and Logistics Training Package.

Application

This unit involves the skills and knowledge required to handle dangerous goods and hazardous substances in accordance with relevant work health safety (WHS)/occupational health and safety (OHS) regulations concerning the safe handling of dangerous goods and hazardous substances, within the transport and logistics industry.

It includes identifying requirements for working with dangerous goods and/or hazardous substances, confirming site incident procedures and selecting handling techniques.

Work is performed under general supervision.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

D – Load Handling

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to

essential outcomes.

demonstrate achievement of the element.

1 Identify requirements for working with dangerous goods and/or hazardous substances	1.1 Dangerous goods/hazardous substances are identified from information including class labels, manifests and other documentation 1.2 Job hazards are identified and required action is taken to minimise, control or eliminate identified hazards 1.3 Storage requirements for dangerous goods/hazardous substances are identified and applied 1.4 Legislative requirements for dangerous goods/hazardous substances are used to plan work activities 1.5 Handling procedures for different classes and characteristics of goods are observed 1.6 Confirmation is sought from relevant personnel where dangerous goods/hazardous materials do not appear to be appropriately marked
2 Confirm site incident procedures	2.1 Incident reporting processes are identified 2.2 Emergency equipment is located and checked in accordance with workplace procedures and statutory regulations 2.3 Emergency procedures are identified and confirmed
3 Select handling techniques	3.1 Load handling and shifting procedures are selected in accordance with identified requirements for particular goods 3.2 Handling equipment is checked for conformity with workplace requirements and manufacturer guidelines 3.3 Suitable signage or placards are checked for compliance with workplace procedures, as required

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions can be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to TLID2003A Handle dangerous goods/hazardous substances.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=df441c6e-213d-43e3-874c-0b3f7036d851>

Assessment Requirements for TLID2003 Handle dangerous goods/hazardous substances

Modification History

Release 1. This is the first release of this unit of competency in the TLI Transport and Logistics Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements and performance criteria on at least one occasion and include:

- communicating and working effectively with others
- completing relevant documentation
- determining required permits
- estimating weight and dimensions of load and any special requirements
- identifying and assessing handling and storage precautions and requirements for dangerous goods/hazardous substances
- identifying and selecting safety requirements for handling dangerous goods/hazardous substances
- identifying containers and goods coding, markings and emergency information panels for mode of transport storage selected
- identifying dangerous goods/hazardous substances using labels, International Maritime Dangerous Goods (IMDG) Code markings, HAZCHEM signs and other relevant identification criteria
- identifying job and site hazards, and planning work to minimise risks
- implementing contingency plans
- maintaining workplace records and documentation
- modifying activities depending on operational contingencies, risk situations and environments
- monitoring and prioritising work activities in terms of planned schedule, predicting consequences and identifying improvements
- operating and adapting to differences in equipment in accordance with standard operating procedures
- operating electronic communications equipment to required protocol
- reading, interpreting and following relevant instructions, procedures, regulations, information and signs
- recognising hazards and applying precautions and required action to minimise, control or eliminate recognised hazards
- reporting and/or rectifying identified problems, faults or malfunctions promptly, in accordance with regulatory requirements and workplace procedures

- selecting and using required personal protective equipment (PPE) conforming to industry and work health and safety (WHS)/occupational health and safety (OHS) standards
- selecting appropriate equipment and work systems including PPE
- working systematically with required attention to detail without injury to self or others, or damage to goods or equipment.

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements and performance criteria and include knowledge of:

- equipment applications, capacities, configurations, safety hazards and control mechanisms
- housekeeping standards and procedures
- permit and licence requirements
- problems that may arise when handling of dangerous goods and hazardous substances and actions that should be taken to prevent or solve these problems
- relevant aspects of current Australian Dangerous Goods (ADG) Code and relevant Australian Standards
- relevant regulations and codes concerning handling dangerous goods/hazardous substances
- risks when handling dangerous goods/hazardous substances and related precautions to control risk
- workplace procedures for handling and storing dangerous goods/hazardous substances.

Assessment Conditions

As a minimum, assessors must satisfy applicable regulatory requirements, which include requirements in the *Standards for Registered Training Organisations* current at the time of assessment.

As a minimum, assessment must satisfy applicable regulatory requirements, which include requirements in the *Standards for Registered Training Organisations* current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy

requirements of the work being performed and the needs of the candidate.

Resources for assessment include:

- a range of relevant exercises, case studies and/or simulations
- applicable documentation including workplace procedures, regulations, current ADG Code, codes of practice and operation manuals
- relevant materials, tools, equipment, and personal protective equipment currently used in industry.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=df441c6e-213d-43e3-874c-0b3f7036d851>

TLIF2010 Apply fatigue management strategies

Modification History

Release 1. This is the first release of this unit of competency in the TLI Transport and Logistics Training Package.

Application

This unit involves the skills and knowledge required to apply fatigue management strategies within the transport and logistics industry. Work is undertaken in compliance with relevant legislation, regulations, codes and guidelines.

It includes identifying and acting on signs of fatigue and implementing appropriate strategies to minimise fatigue during work activities, in particular when operating equipment, trains, vehicles, load shifting equipment, marine vessels and aircraft.

Work is performed under some supervision generally within a team environment.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

F – Safety Management

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

PERFORMANCE CRITERIA

Elements describe the essential outcomes.

Performance criteria describe the performance needed to demonstrate achievement of the element.

1 Identify and act on signs of fatigue

1.1 Potential causes of fatigue are identified and action is taken to minimise their effects in accordance with company procedures

- 1.2 Personal warning signs of fatigue are recognised and necessary steps are taken in accordance with workplace procedures, to ensure that effective work capability and alertness are maintained
- 2 Implement strategies to minimise fatigue**
 - 2.1 Workplace procedures are assessed to minimise fatigue
 - 2.2 Factors that increase the risk of fatigue-related accidents and incidents are minimised
 - 2.3 Fatigue management strategies are implemented in accordance with workplace policy
 - 2.4 Lifestyle choices are made that promote the effective long-term management of fatigue
 - 2.5 Effective practices in combating fatigue are adopted and applied
 - 2.6 Personal fatigue management strategies are communicated to relevant people
 - 2.7 Appropriate counter measures are planned to combat fatigue

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions can be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to TLIF2010A Apply fatigue management strategies.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=df441c6e-213d-43e3-874c-0b3f7036d851>

Assessment Requirements for TLIF2010 Apply fatigue management strategies

Modification History

Release 1. This is the first release of this unit of competency in the TLI Transport and Logistics Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements and performance criteria on at least one occasion and include:

- adapting to changes in rosters and standard operating procedures as they relate to fatigue management
- adjusting lifestyle patterns to ensure effective fatigue management during work activities
- applying precautions and required action to minimise and control the effects of fatigue when carrying out own work functions
- applying relevant legislation and workplace procedures
- communicating effectively with others when applying fatigue management strategies
- identifying and meeting own learning needs about fatigue management related matters
- modifying activities and taking appropriate initiatives to manage fatigue in the workplace depending on work contexts, risk situations and environments
- reading and interpreting instructions, procedures, regulations and signs related to fatigue management and applying them to work activities
- recognising symptoms of fatigue and taking appropriate action in accordance with fatigue management regulations and workplace procedures
- working collaboratively with others to manage and minimise the effects of fatigue during work activities.

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements and performance criteria and include knowledge of:

- causes and effects of fatigue on workers
- factors that increase fatigue-related accidents
- how fatigue affects workplace performance

- how fatigue contributes to workplace accidents
- lifestyles that promote effective long-term fatigue management
- relevant fatigue management codes, regulations, permit and licence requirements
- relevant work health and safety (WHS)/occupational health and safety (OHS) regulations as they relate to fatigue
- risks and hazards created by workplace fatigue
- sources of information on fatigue
- strategies and ways of managing fatigue
- ways of recognising fatigue
- workplace policies and procedures related to fatigue management and the control of factors that can contribute to fatigue and fatigue-related accidents.

Assessment Conditions

As a minimum, assessors must satisfy applicable regulatory requirements, which include requirements in the Standards for Registered Training Organisations, current at the time of assessment.

As a minimum, assessment must satisfy applicable regulatory requirements, which include requirements in the Standards for Registered Training Organisations, current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment include:

- a range of relevant exercises, case studies and/or other simulation
- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including workplace procedures, regulations, codes of practice and operation manuals.
-

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=df441c6e-213d-43e3-874c-0b3f7036d851>

TLIF4014 Develop and maintain a safe workplace

Modification History

Release 1. This is the first release of this unit of competency in the TLI Transport and Logistics Training Package.

Application

This unit involves the skills and knowledge required to develop and maintain a safe workplace in accordance with regulations.

It includes planning and implementing safety requirements; informing and training personnel on work health safety (WHS)/occupational health and safety (OHS) legislation, codes and standards; and establishing and maintaining procedures for assessing and controlling safety risks. It also includes monitoring, adjusting and reporting safety performance, and evaluating the WHS/OHS system and related policies, procedures and programs.

Work involves discretion and judgement in developing and maintaining a safe workplace.

Work is performed under minimum supervision with general guidance on progress and outcomes of work.

Work generally involves responsibility for resource coordination and allocation, and provides leadership of others individually or in teams.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

F – Safety Management

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

PERFORMANCE CRITERIA

Elements describe the essential outcomes.

Performance criteria describe the performance needed to demonstrate achievement of the element.

1 Plan and implement safety requirements

- 1.1 Health and safety risk assessments are made as part of production planning exercises
- 1.2 Policy and procedures are developed to implement requirements for a safe workplace
- 1.3 Work practices are planned with colleagues to ensure compliance with workplace and environmental legislation and standards
- 1.4 Safe operating procedures are documented and communicated
- 1.5 Work practices are implemented in accordance with requirements specified in legislation and standards for safe workplaces and environments
- 1.6 Effective induction and supervision is provided to support colleagues in managing their organisational responsibilities
- 1.7 Purchasing policy for providing goods and services is informed by WHS/OHS considerations

2 Inform and train personnel on WHS/OHS legislation, codes and standards

- 2.1 Legislation, standards and organisational policies and practices relevant to creating and maintaining a safe workplace and environment are made available to individuals/teams
- 2.2 Arrangements are made to provide information in a language, style and format that is understood by colleagues
- 2.3 WHS/OHS training program is developed and implemented to identify and fulfil employee WHS/OHS training needs as part of the organisational general training program
- 2.4 Individuals/teams are informed of their legal responsibility for maintaining a safe workplace and environment
- 2.5 Implications of an unsafe workplace and environment are made clear to all within the workplace

3 Establish and maintain

- 3.1 Safety risks presented by identified hazards are correctly

procedures for assessing and controlling safety risks	assessed in accordance with WHS/OHS legislation and codes of practice
	3.2 Activities are monitored to ensure procedure is adopted effectively throughout area of managerial responsibility
	3.3 Risk assessment is addressed at the planning, design and evaluation stages of any change within area of managerial responsibility to ensure risk is not increased
	3.4 Measures to control assessed safety risks are developed and implemented in accordance with the hierarchy of controls, relevant WHS/OHS legislation, codes of practice and trends identified from the WHS/OHS records system
	3.5 Activities are monitored to ensure risk control procedure is adopted effectively throughout area of managerial responsibility
	3.6 Risk control is addressed at the planning, design and evaluation stages of any change within area of managerial responsibility to ensure adequate risk control measures are included
4 Monitor, adjust and report safety performance	4.1 Hazards are identified, assessed and prioritised for action
	4.2 Controls are selected to minimise risks to health and safety
	4.3 Waste recycling, reduction and disposal is carried out within legislative and organisational requirements
	4.4 Recommendations for improvements to meet legislation and associated standards are submitted to designated persons/groups
	4.5 Individuals/teams are informed of improvements and alterations to WHS/OHS procedures in the workplace
	4.6 Systems, records and reporting procedures are maintained according to legislative requirements
5 Evaluate WHS/OHS system and related policies, procedures and programs	5.1 Effectiveness of WHS/OHS system and related policies, procedures and programs is assessed in accordance with workplace WHS/OHS aims
	5.2 Improvements to WHS/OHS system are developed and implemented to ensure more effective achievement

workplace WHS/OHS aims and organisational policies and objectives

- 5.3 Inadequacies in existing risk control measures are identified in accordance with the hierarchy of controls, and resources enabling implementation of new control measures are sought and/or provided in accordance with appropriate procedures

6 Investigate and report non-conformance

- 6.1 Conformance with WHS/OHS legislation and codes of practice is assessed to ensure that as a minimum, legal WHS/OHS standards are maintained
- 6.2 Non-conformance is investigated and dealt with in accordance with legislative requirements
- 6.3 Colleagues are supported to acquire and apply competencies to meet legislative requirements and associated standards
- 6.4 Changes to operations and practices are implemented to ensure non-conformance is not repeated

7 Establish and maintain a WHS/OHS records system

- 7.1 WHS/OHS record requirements are confirmed to identify patterns of occupational injury and disease within area of managerial responsibility
- 7.2 WHS/OHS records system is set up to meet WHS/OHS record requirements
- 7.3 Employees are trained in the use of the WHS/OHS records system
- 7.4 Changes are made to the WHS/OHS records system to ensure effective achievement of workplace WHS/OHS aims
- 7.3 WHS/OHS records are used as the basis for developing and submitting relevant workplace WHS/OHS reports to management

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions can be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to TLIF4014A Develop and maintain a safe workplace.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=df441c6e-213d-43e3-874c-0b3f7036d851>

Assessment Requirements for TLIF4014 Develop and maintain a safe workplace

Modification History

Release 1. This is the first release of this unit of competency in the TLI Transport and Logistics Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements and performance criteria on at least one occasion and include:

- analysing the working environment to identify hazards, assess risks, implement control measures, and design and implement appropriate WHS/OHS management systems
- applying fatigue management knowledge and techniques
- applying precautions and required action to minimise, control or eliminate identified hazards
- applying relevant legislation and workplace procedures
- communicating effectively with others when establishing a safe workplace
- completing relevant documentation when establishing a safe workplace
- designing and implementing appropriate WHS/OHS management systems
- interpreting and following operational instructions and prioritising work
- modifying activities depending on operational contingencies, risk situations and environments
- monitoring work activities in terms of planned schedule
- operating and adapting to differences in equipment in accordance with standard operating procedures
- operating electronic communications equipment to required protocols
- planning work activities, including predicting consequences and identifying improvements
- reading and interpreting relevant instructions, procedures, information, labels and signs
- reporting and/or rectifying identified problems that may arise, in accordance with regulatory requirements and workplace procedures
- selecting and appropriately applying technology, information systems and procedures to improve WHS/OHS conformance, information systems and reporting requirements
- selecting and using required personal protective equipment conforming to industry and WHS/OHS standards
- working collaboratively with others when developing and maintaining a safe

workplace

- working systematically with required attention to detail without injury to self or others, or damage to goods or equipment.

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements and performance criteria and include knowledge of:

- appropriate links to other management systems, for example contractors, maintenance and purchasing
- arrangements for participation and consultation over WHS/OHS
- considerations for choosing between different control measures
- elements of an effective WHS/OHS management system
- hazards and associated safety risks that exist in the workplace
- hierarchy of controls
- how to identify when expert advice is needed
- incident and accident investigation arrangements
- principles of risk management
- range of control measures available
- relevant WHS/OHS and environmental protection policies and procedures
- relevant regulatory and code requirements
- role of technical information and experts in designing risk control measures, monitoring systems and health surveillance procedures
- significance of other management systems and procedures for WHS/OHS
- systems of risk control, recognising the significance of WHS/OHS for effective workplace operation
- training, coaching and mentoring approaches appropriate for use in WHS/OHS training programs
- typical problems that can occur when managing WHS/OHS systems and related action that can be taken
- workplace business policies and plans related to WHS/OHS issues
- workplace protocols and procedures for managing personal work priorities and professional development.

Assessment Conditions

As a minimum, assessors must satisfy applicable regulatory requirements, which include requirements in the *Standards for Registered Training Organisations* current at the time of assessment.

As a minimum, assessment must satisfy applicable regulatory requirements, which include requirements in the *Standards for Registered Training Organisations* current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment include:

- a range of relevant exercises, case studies and/or simulations
- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including workplace procedures, regulations, codes of practice and operation manuals.
-

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=df441c6e-213d-43e3-874c-0b3f7036d851>

TLIL4059 Implement asset management systems

Modification History

Release 1. This is the first release of this unit of competency in the TLI Transport and Logistics Training Package.

Application

This unit involves the skills and knowledge required to implement asset management systems in various contexts within the transport and logistics industry.

It includes determining management control processes; implementing existing practices, procedures and systems; and reviewing service levels.

The unit generally applies to those who lead individuals or teams and have responsibility for implementing and monitoring asset management systems.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

L – Resource Management

Unit Sector

Not applicable.

Elements and Performance Criteria

Elements describe the essential outcomes.

Performance criteria describe the performance needed to demonstrate achievement of the element.

1 Determine management control process	1.1 Roles and responsibilities of business units or departments are clarified to ensure effective management of assets in accordance with organisational policy and procedures 1.2 Specific organisation reporting and monitoring standards are clarified as required and complied with 1.3 Information systems that provide the information necessary for effective and efficient asset management for all levels within the organisation are maintained 1.4 Regular audits are arranged, as required, to establish a continuous improvement cycle
2 Implement existing practices, procedures and systems	2.1 Assessments of current status of asset management activities within business units or departments are conducted regularly in accordance with asset management plan 2.2 Work group/s are supported to adhere to milestones and targets 2.3 Areas of difficulty are identified and strategies are followed to overcome identified difficulties
3 Review service levels	3.1 Current levels of service provided by asset stock are critically examined 3.2 Areas of possible improvement in the effectiveness and efficiencies of owning and operating assets are identified in consultation with relevant personnel 3.3 Appropriate benchmarking is undertaken to enable continuous improvement in asset management strategies and practices

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions can be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to TLIL4059A Implement asset management systems.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=df441c6e-213d-43e3-874c-0b3f7036d851>

Assessment Requirements for TLIL4059 Implement asset management systems

Modification History

Release 1. This is the first release of this unit of competency in the TLI Transport and Logistics Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements and performance criteria on at least one occasion and include:

- applying relevant legislation and workplace procedures
- communicating and working effectively with others
- completing relevant documentation
- consulting and liaising, as required, when working with a team
- implementing, monitoring and reviewing management systems
- interpreting and following operational instructions and prioritising work
- managing a team and encouraging team participation
- operating electronic communications equipment to required protocol
- using critical analysis to determine the best approach to asset management for the organisation
- using lateral thinking to solve problems as they arise or to generate ideas.

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements and performance criteria and include knowledge of:

- benchmarking practices
- characteristics of different types of information systems used to provide and assist in asset management
- code of practice for working collaboratively with others particularly with those involved in inputting data into asset management systems
- detail of different approaches to asset management, including theoretical knowledge
- organisational and industry functions
- procedures for identifying equipment defects and assessing for appropriate action

- procedures for operating electronic communications equipment
- quality management principles and procedures
- relevant sections of national and state/territory regulatory requirements and codes of practice
- requirements for completing relevant documentation including asset management reports.

Assessment Conditions

As a minimum, assessors must satisfy applicable regulatory requirements, which include requirements in the *Standards for Registered Training Organisations* current at the time of assessment.

As a minimum, assessment must satisfy applicable regulatory requirements, which include requirements in the *Standards for Registered Training Organisations* current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment include:

- a range of relevant exercises, case studies and/or simulations
- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including workplace procedures, regulations, codes of practice and operation manuals.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=df441c6e-213d-43e3-874c-0b3f7036d851>

TLILIC0013 Licence to operate a slewing mobile crane (up to 60 tonnes)

Modification History

Release 2. This is the second release of this unit of competency in the TLI Transport and Logistics Training Package:

- Minor statement changes in unit Application
- Minor statement changes in Assessment Conditions.

Release 1. This is a new release of this unit of competency in the TLI Transport and Logistics Training Package.

Application

This unit specifies the skills and knowledge required to safely operate a slewing mobile crane with a Maximum Rated Capacity (MRC) up to 60 tonnes, in accordance with all relevant legislative responsibilities. Competence in this unit, does not in itself result in a High Risk Work Licence (HRWL) to operate this plant.

A person undertaking this unit must hold:

- a current National HRWL to perform dogging or a current certification for a specific VET course for HRWL to perform dogging that has been issued by, or on behalf of a WHS Regulator.

Slewing mobile crane means a mobile crane incorporating a boom or jib that can be slewed, but does not include:

- a front-end loader or
- a backhoe or
- an excavator or
- other earth moving equipment, when configured for crane operation.

A person performing this work is required to hold a slewing mobile crane with an MRC up to 60 tonnes HRWL.

This unit requires a person operating a slewing mobile crane with an MRC up to 60 tonnes to:

- plan for the work/task
- prepare for the work/task
- perform work/task
- pack up

Licensing/Regulatory Information

Legislative and regulatory requirements are applicable to this unit of competency.

This unit is based on the licensing requirements of Part 4.5 of the Model Work Health and Safety (WHS) Regulations and meets Commonwealth, State and Territory HRWL requirements.

The National Assessment Instrument (NAI) is the mandated assessment for the HRWL to operate the relevant licencing class as detailed in this unit.

Pre-requisite Unit

Not applicable

Competency Field

LIC - Licencing Units

Unit Sector

Not applicable

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Plan work/task

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

- 1.1** Task requirements are identified from work orders or equivalent and a lift plan is confirmed with associated personnel and a site inspection is conducted in accordance with workplace procedures
- 1.2** Work area operating surface is confirmed to determine ground suitability for operational use of mobile crane in accordance with lift plan, safe work and workplace/s procedures
- 1.3** Mobile crane rated capacity (RC) and the lifting gear Working Load Limit (WLL) are established and suitable for the load/s and work/task requirements in accordance with manufacturer requirements and workplace procedures
- 1.4** Appropriate paths for operating the mobile crane and moving and placing load/s in work area are assessed and determined in accordance with workplace procedures
- 1.5** Relevant hazard identification and risk elimination/control measures are applied and advised to associated personnel in accordance with workplace

procedures

- 1.6** Traffic management plan implementation is confirmed in accordance with workplace procedures
 - 1.7** Appropriate communication procedures are identified with associated personnel in accordance with workplace procedures
 - 1.8** All crane and lifting operations are confirmed to ensure relevant work area requirements are correct in accordance with a lift plan and workplace procedures
- 2 Prepare for work/task**
- 2.1** Consultation with workplace personnel is established and maintained to ensure all crane and lifting operations are clear and consistent with site requirements in accordance with a lift plan and workplace procedures
 - 2.2** Risk control measures for hazards identified are checked for implementation in accordance with the lift plan and safe work procedures
 - 2.3** Mobile crane is accessed safely in accordance with manufacturer requirements and safe work procedures
 - 2.4** Pre-start mobile crane checks are carried out and any damage and defects are reported, recorded and appropriate action is taken in accordance with manufacturer requirements and safe work procedures
 - 2.5** Mobile crane is set up correctly with any lifting gear and stabilised as per the lift plan in accordance with relevant manufacturer requirements including load chart/s and safe work procedures
 - 2.6** Counterweight/s are set up as required in accordance with the lift plan, relevant manufacturer requirements and safe work procedures
 - 2.7** Fly jib and/or luffing fly are set up as required in accordance with specific manufacturer requirements and safe work procedures
 - 2.8** Operational checks are carried out and any damage and defects are reported, recorded and appropriate action is taken in accordance with manufacturer requirements and safe work procedures

- 2.9 Crane logbook is checked to confirm current compliance, is correct for the crane type, is completed and signed and required rectifications have been signed off in accordance with manufacturer requirements and safe work procedures
 - 2.10 Weather and work environment conditions are assessed to determine any impact on mobile crane operations in accordance with manufacturer requirements and safe work procedures
- 3 Perform work/task**
 - 3.1 Lifts are determined to be within the RC of the mobile crane in accordance with the load chart/s and lift plan
 - 3.2 Boom/jib and hook block is safely positioned over the load following directions from associated personnel in accordance with the lift plan and safe work procedures
 - 3.3 Main and/or auxiliary hook including any lifting gear, where required are connected to the load and used safely in accordance with the lift plan, safe work procedures and manufacturer requirements
 - 3.4 Test lift is carried out in accordance with dogging and safe work procedures
 - 3.5 Loads are transferred using relevant crane movements and tag lines as required, in accordance with lift plan and safe work procedures
 - 3.6 Load and crane movement is monitored constantly and crane is operated safely in accordance with lift plan and safe work procedures
 - 3.7 All required communication signals are correctly interpreted and followed whilst crane is operated in accordance with the lift plan and safe work procedures
 - 3.8 Load is lowered and landed safely in accordance with lift plan and safe work procedures
 - 3.9 Lifting gear is positioned for safe disconnection from the load and crane is positioned for next task in accordance with lift plan and safe work procedures
- 4 Pack up**
 - 4.1 Crane boom/jib, lifting gear and associated equipment is stowed and secured as required in accordance with manufacturer requirements and safe work procedures

- 4.2 Crane fly jib and/or luffing fly and counterweight/s is removed to storage position and secured as required in accordance with manufacturer requirements and safe work procedures
- 4.3 Relevant motion locks and brakes are applied as required in accordance with manufacturer requirements and safe work procedures
- 4.4 Outriggers, plates and/or packing are stowed and secured in accordance with manufacturer requirements and safe work procedures
- 4.5 Crane is shut down and secured to prevent unauthorised access/use in accordance with safe work procedures
- 4.6 Shut down crane checks are carried out in accordance with safe work procedures and manufacturer requirements

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non -essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to TLILIC4009 Licence to operate a slewing mobile crane (up to 60 tonnes)

Links

Companion Volume Implementation Guide -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=df441c6e-213d-43e3-874c-0b3f7036d851>

Assessment Requirements for TLILIC0013 Licence to operate a slewing mobile crane (up to 60 tonnes)

Modification History

Release 2. This is the second release of this unit of competency in the TLI Transport and Logistics Training Package:

- Minor statement changes in unit Application
- Minor statement changes in Assessment Conditions.

Release 1. This is a new release of this unit of competency in the TLI Transport and Logistics Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and must include:

- applying relevant mathematical calculations in conjunction with lift plan and load chart to determine radius requirements and relevant lifting gear to perform work/task to enable crane to be configured for load including:
 - boom
 - counterweight/s
 - fly-jib
 - line pull
 - outrigger positioning
 - type of hook
- applying relevant crane movements in crane operations including:
 - boom/jib up and down (luffing)
 - catching load swing appropriately
 - positioning and using main and auxiliary hook and lifting gear to connect to load safely
 - raise and lower hoist
 - slew boom/jib
 - telescoping in and out (where manufacturer requirements allow)
- conducting and applying hazard and risk assessment strategies including:
 - adequate lighting
 - asymmetric loads
 - confirming work area operating surface suitability based on crane and task requirements
 - dynamic loads
 - lifting and placing load
 - load swing

- overhead hazards
- overloading
- restricted and poorly ventilated areas
- risk of collision with people, moving plant and fixed structures
- tyre pressures or track condition
- weather conditions
- complying with Commonwealth, state and territory Work Health and Safety (WHS)/Occupational Health and Safety (OHS)/Occupational Safety and Health (OSH) legislation and safe work procedures
- communicating with other associated personnel through using appropriate workplace procedures which including:
 - 2-way radio
 - demonstrating and interpreting hand signals
 - questioning to confirm understanding
 - signage/visual aids
 - whistles
 - written instructions
- conducting the pre-start checks including:
 - boom wiring harness connection (where fitted)
 - checking for signs of paint separation and stressed welds indicating potential structural weakness
 - engine / mechanical fluid level checks as required by manufacturer requirements
 - ensure rungs / steps are free of hazards
 - fire extinguisher
 - fluid leaks
 - lights work effectively
 - locating, identifying and confirming all controls
 - mirrors and seat are adjusted appropriately for the operator
 - presence of correct logbook
 - safety equipment checks
 - signage and labels to ensure they are visible and legible
 - tyres and wheels for damage/wear and correct inflation
 - updating records as required
 - visual damage or equipment faults
- conducting operational checks ensuring:
 - all controls are located, identified and tested for functionality
 - all hydraulic functions are operated
 - hazard warning systems, safety, audible and visual warning devices are checked for to ensure they are functional including:
 - reversing beepers

- lights
- horns
- crane computer alarm (where fitted)
- anti-two block alarms (where fitted)
- confirming and following traffic management plan procedures relevant to their role in the work area
- lifting gear movements and control functions are smooth and comply with lift plan
- start-up is in accordance with manufacturer requirements and safe work procedures
- steering, transmission and brake functions comply with operating requirements
- there are no unusual noises
- determining any defects or faults with operation of crane, recording in relevant documentation and reporting to relevant person/s
- ensuring risk control measures within the work area are effective as per safe work procedures
- following directions of dogger or rigger
- inputting crane configuration into crane computer (where fitted) and checking operation to accurately reflect crane configuration
- interpreting and confirming relevant documentation for the work task and relevant area
- interpreting and acting on communications signals including:
 - hoist down - hand and whistle and 2-way radio
 - hoist up - hand and whistle and 2-way radio
 - luff boom down - hand and whistle and 2-way radio
 - luff boom up - hand and whistle and 2-way radio
 - slew left - hand and whistle and 2-way radio
 - slew right - hand and whistle and 2-way radio
 - stop - hand and whistle and 2-way radio
 - telescope in - hand and whistle and 2-way radio (where manufacturer requirements allow)
 - telescope out - hand and whistle and 2-way radio (where manufacturer requirements allow)
- monitoring load disconnection from hook is safe and ensuring no movement of crane operational controls
- maintaining three points of contact whilst accessing crane
- operating a slewing mobile crane configured with at least four parts of line greater than 20tonne and up to 60tonne to lift and move four different loads using the main hook through an obstacle course including a 180-degree minimum slew using all crane operational controls while the load is in full view of the crane operator. Loads must consist of:
 - a load of >50% of the Rated Capacity (RC) of the crane with a boom length of >75%, and
 - stillage containing at least ten scaffolding standards or containing a load of steel pipes of equivalent weight that requires a dogger to sling, and
 - an asymmetric load that requires a dogger to sling, and
 - a round load with a minimum diameter of 300 mm and minimum length of 3 m that requires a dogger to sling
- positioning the mobile crane as per the lift plan for safe operation for:

- application of the task/s
- manoeuvring in the workplace
- the stability of the mobile crane and the load
- recording and maintaining accurate information relating to crane operations
- reporting to relevant person/s on workplace control measures that are not in place or deficient
- setting up and validating an exclusion zone as per the lift plan
- shutting down a slewing mobile crane in accordance with manufacturer requirements and safe work procedures
- stabilising a slewing mobile crane for operation by:
 - correctly positioning plates or packing
 - deploying outriggers
 - establishing correct size plates or packing in accordance with the lift plan
 - levels are checked
- test-lifting load just clear of lifting plane to allow for checks to be safely made in consultation with associated personnel to ensure:
 - slinging is correct
 - all crane equipment is functioning properly
 - load centre of gravity is correct
 - loads of unusual shape or weight distribution are correctly slung
- test-lifting load just clear of lifting plane to allow for checks of crane computer (where fitted) to ensure:
 - load measuring equipment can be used to verify calculated weight of load
 - near capacity loads do not overload crane

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements and performance criteria and include knowledge of:

- appropriate workplace communication procedures including:
 - hand signals
 - questioning techniques
 - signage
 - two-way radios
 - written instructions
 - whistles
- characteristics and impact of factors affecting non-slewing articulated mobile crane stability whilst mobilising compared to slewing crane including:
 - articulation of crane
 - correct tyre pressure (inflation/condition)
 - driving safely on public and private roadways
 - unique handling characteristics of a mobile articulated crane and the emergency

- procedures in the event of loss of control as per manufacturer recommendations
- pick up and carry the load
- side slope derations
- characteristics and impact of factors affecting vehicle loading crane stability whilst mobiling compared to slewing crane including:
 - correct tyre pressure (inflation/condition)
 - emergency procedures in the event of incident
 - position of operator
 - use of stabilizers
- characteristics and impact of factors affecting reach stacker stability whilst mobiling compared to slewing crane including:
 - correct tyre pressure (inflation/condition)
 - driving safely on road ways
 - emergency procedures in the event of incident
 - impact of boom height and steering on stability
 - use of stabilizers
- crane configuration mathematical calculations to:
 - estimate loads
 - establish counterweight/s requirements
 - radius requirements
 - relevant lifting gear to perform work/task
- crane, lifting gear load chart/s and manufacturer requirements
- factors impacting lift including:
 - centre of gravity
 - dynamic nature of load
 - flex/deflection of boom
 - length of load
 - radius of boom during lift
 - weight
- hazards including:
 - erection and pack up
 - crane stability
 - ground stability and condition including recently filled trenches and slopes
 - insufficient lighting
 - obstacles or obstruction
 - other specific hazards and dangerous materials
 - overhead hazards including:
 - electric lines
 - service pipes
 - structures

- vegetation (trees)
- traffic including pedestrians, vehicles and other plant
- operations on unusual, uneven or difficult terrains
- manufacturer requirements on outrigger procedures
- manufacturer requirements and instructions on shutting down and packing up crane
- mobile slewing crane characteristics and capabilities to allow crane configuration to suit a range of loads
- prestart and operational checks required for a slewing mobile crane
- problems and appropriate response procedures to unplanned and/or unsafe situations and environmental conditions
- relevant workplace instructions, safety information, emergency procedures
- relevant documentation requirements and procedures for recording, reporting and maintaining workplace records and information
- risk assessment management and mitigation strategies including hierarchy of control:
 - elimination
 - substitution
 - isolation
 - engineering controls
 - administrative controls
 - personal protective equipment (PPE)
- roles and responsibilities of duty holders as per legislative obligations of Work Health and Safety (WHS)/Occupational Health and Safety (OHS)/Occupational Safety and Health (OSH) requirements, safe work and workplace procedures
- starting procedure of crane as per manufacturer requirements
- set up of:
 - jib
 - fly jib/luffing fly
 - counterweight/s
- stability of load and avoidance of hazards using best crane practice including:
 - allowing for boom deflection
 - boom/jib as low as possible
 - carrying load near to ground surface
 - crane stability
 - gently accelerating and braking on slew/boom to minimise load swing
 - lowering load safely onto appropriate dunnage taking into consideration swing and restrictions of area
 - minimum boom/jib length
 - minimum speed
 - using handheld taglines as required
 - identification of incorrect sling of load
- typical routine problems encountered operating a crane and equipment, and adjustments

required for correction

- weather bureau forecasts and environmental conditions that could impact operation including:
 - lightning
 - wind
 - water impacted ground
 - Ultra Violet (UV) exposure
- workplace standards, requirements, policies and procedures for conducting safe work operations for the mobile slewing crane
- work area suitability based on relevant ground reports including:
 - backfilled ground
 - bitumen
 - concrete
 - hard compacted soil
 - pre-contaminated soils
 - rock
 - rough uneven ground
 - soft soils

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Assessment must occur in workplace operational situations. Where this is not appropriate, assessment must occur in simulated workplace operational situations that reflect workplace conditions.

- Simulators must not be used in the assessment of this unit of competency.

Resources for assessment must include access to:

- slewing mobile crane with a MRC greater than 20 tonnes and up to 60 tonnes in safe/serviceable working order in accordance with manufacturers specifications
- appropriate loads as outlined in the performance evidence requirements
- appropriate personnel to sling and direct loads including:
 - dogger or rigger
- communications equipment including:
 - two-way radios

- whistles
- relevant personal protective equipment (PPE)
- relevant documentation for operating a slewing mobile crane with a MRC greater than 20 and up to 60 tonnes including:
 - approved codes of practice and relevant guidance material
 - relevant Australian technical standards
 - manufacturer guidelines (instructions, requirements or checklists), relevant industry standards and operating procedures (where applicable).

Links

Companion Volume Implementation Guide -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=df441c6e-213d-43e3-874c-0b3f7036d851>

TLIR5005 Manage a contract

Modification History

Release 1. This is the first release of this unit of competency in the TLI Transport and Logistics Training Package.

Application

This unit involves the skills and knowledge required to manage a contract in various contexts within the transport and logistics industry.

It includes confirming contract requirements, establishing a contract management system, and monitoring and evaluating the contract.

The unit generally applies to those who lead individuals or teams.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

R – Contract Procurement

Unit Sector

Not applicable.

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Confirm contract requirements

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Relevant parties are consulted to identify their contract requirements

1.2 Special provisions needed are identified

- 1.3 Need for specialist legal advice is identified and advice is obtained as required
- 1.4 Key performance outcomes and measures are specified for inclusion in contract
- 1.5 Relationship with contractor is established in accordance with organisational policies and procedures
- 2 Establish contract management system**
 - 2.1 Effective communication/information strategies are established
 - 2.2 Dispute and complaint system is established in accordance with organisational policies and procedures
 - 2.3 Consistent and accurate records of contract progress are maintained
 - 2.4 Management strategy is documented, monitored for effectiveness and adapted as required during the life of the contract
- 3 Monitor contract**
 - 3.1 Regular inspections of contract services are undertaken to ensure compliance with specifications
 - 3.2 Relationship with contractor is managed in accordance with organisational policies and procedures
 - 3.3 Regular planned progress meetings are conducted and documented between all contract personnel to ensure problems are identified, resolved early and documented
 - 3.4 Variations between specified scope of services and contract are identified and documented, and relevant personnel are notified without delay
 - 3.5 Contract costs are monitored on a regular basis to ensure service is carried out within financial and contractual requirements
 - 3.6 Payments for contract services are authorised in accordance with contract conditions and organisational contract administrative system
- 4 Evaluate contract**
 - 4.1 Evaluation of contract performance is undertaken relative to planned performance measures and in consultation with stakeholders and suppliers
 - 4.2 Conclusions are detailed against agreed criteria and a complete picture of supplier performance, organisational procurement processes and value for money is provided

- 4.3 Evaluation is documented in accordance with organisational requirements to assist improvement in future procurement activities
- 4.4 Relevant parties are advised of evaluation outcomes in a timely manner in accordance with organisational guidelines

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions can be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to TLIR5005A Manage a contract.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=df441c6e-213d-43e3-874c-0b3f7036d851>

Assessment Requirements for TLIR5005 Manage a contract

Modification History

Release 1. This is the first release of this unit of competency in the TLI Transport and Logistics Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements and performance criteria on at least one occasion and include:

- applying relevant legislation and workplace procedures
- communicating and communicating effectively with others when managing a contract
- completing documentation related to contract management, including reports relevant to deliverables of stages and completion
- modifying activities depending on operational contingencies, risk situations and environments, and negotiating modifications with the contractor or agent as required
- monitoring and prioritising work activities in terms of planned schedule
- negotiating solutions to problems as they arise during the contract timeframe
- operating electronic communications equipment to required protocol
- reading and interpreting instructions, procedures, information and the contract itself.

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements and performance criteria and include knowledge of:

- confidentiality issues in relation to contracted services such as intellectual property
- disposals considerations
- equal employment opportunity and anti-discrimination law
- ethical issues
- financial and accounting issues relevant to the contract
- financial management of a contract including negotiating price variations during the contract
- organisational purchasing policies and practices
- performance management in terms of identifying and managing contract compliance
- procedures for acceptance of goods or services

- procedures for operating electronic communications equipment
- procurement approval processes
- procurement negotiation practices, including legal aspects
- relevant sections of national and state/territory regulatory requirements and codes of practice related to procurement, including contract law, trade practices law and commercial law to a level sufficient to be able to manage the performance of a contractor
- requirements for completing relevant documentation.

Assessment Conditions

As a minimum, assessors must satisfy applicable regulatory requirements, which include requirements in the Standards for Registered Training Organisations, current at the time of assessment.

As a minimum, assessment must satisfy applicable regulatory requirements, which include requirements in the Standards for Registered Training Organisations, current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment include:

- a range of relevant exercises, case studies and/or other simulations
- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including workplace procedures, regulations, codes of practice and operation manuals.
-

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=df441c6e-213d-43e3-874c-0b3f7036d851>

TLIX4027 Assess maintenance spares and manage repairable items

Modification History

Release 1. This is the first release of this unit of competency in the TLI Transport and Logistics Training Package.

Application

This unit involves the skills and knowledge required to assess spares and manage repairable items in maintenance activities in accordance with relevant organisational policy and procedures, and relevant regulations.

This unit was developed for materiel sustainment specialists working within materiel logistics but is applicable to individuals in broader logistics roles.

Typically these individuals work independently or as part of a team under direct and/or indirect supervision, use discretion and judgement, and take responsibility for the quality of their outputs.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Not applicable.

Competency Field

X – Logistics

Unit Sector

Not applicable.

Elements and Performance Criteria

Elements describe the essential outcomes.

Performance criteria describe the performance needed to demonstrate achievement of the element.

1 Perform spares assessment activities

- 1.1 Organisation spares assessment and supply information systems are identified and applied
- 1.2 Maintenance data, spares usage data and trends are monitored, and required holdings of spares are varied as required
- 1.3 Spares availability problems are identified and strategies are determined to resolve problems
- 1.4 Acceptable sources of suitable substitute parts are identified and requirements for documentation are specified in accordance with organisational policy and procedures
- 1.5 Configuration management requirements are observed in spares assessing

2 Manage repairable items

- 2.1 Maintenance and reliability data is monitored and changes to maintenance programs are proposed as required
- 2.2 Documentation is raised to allocate repairable items to maintenance facilities in accordance with contractual requirements, and organisational policy and procedures
- 2.3 Specific investigation or additional maintenance requirements are determined

3 Maintain records

- 3.1 Data for input to integrated logistics support (ILS) records is provided as required
- 3.2 Systems, procedures and records associated with documenting performance are managed in accordance with organisational requirements

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions can be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to TLIX4027A Assess maintenance spares and manage repairable items.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=df441c6e-213d-43e3-874c-0b3f7036d851>

Assessment Requirements for TLIX4027 Assess maintenance spares and manage repairable items

Modification History

Release 1. This is the first release of this unit of competency in the TLI Transport and Logistics Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements and performance criteria on at least one occasion and include:

- adhering to relevant work health and safety (WHS)/occupational health and safety (OHS) requirements
- administering spares, services contracts and their deliverables effectively
- analysing and interpreting assessment information to determine where internal and external factors impact on assessing spares and managing repairable items
- communicating with stakeholders
- consulting and negotiating with internal and external stakeholders effectively and resolving potential areas of conflict or concern to ensure overall objectives are achieved
- drawing on information from a variety of sources using research, analysis and judgement to develop assessment requirements
- identifying relationships between organisational goals and recognising how own work contributes to achieving these goals
- initiating and efficiently monitoring processes
- initiating remedial action required
- managing materiel sustainment operations effectively and efficiently
- preparing and providing relevant reports and documentation
- undertaking procurement activities
- using appropriate information technology and software to assess and manage repairable items
- using organisational strategic objectives to identify long-term factors and external considerations.

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements and performance criteria and include knowledge of:

- codification and cataloguing processes
- configuration management
- industrial base capability
- integrated logistics support
- legislative and regulatory environment, including environmental and sustainability issues
- logistics governance
- logistics support analysis principles and processes
- management processes
- materiel sustainment
- organisational policy and procedures
- organisational role relevant to materiel sustainment
- performance measurement
- product knowledge related to systems and/or equipment in service in the organisation
- safety, legislative and statutory requirements, including relevant environmental and sustainability issues.

Assessment Conditions

As a minimum, assessors must satisfy applicable regulatory requirements, which include requirements in the *Standards for Registered Training Organisations* current at the time of assessment.

As a minimum, assessment must satisfy applicable regulatory requirements, which include requirements in the *Standards for Registered Training Organisations* current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment include:

- a range of relevant exercises, case studies and/or simulations
- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including workplace procedures, regulations, codes of practice and operation manuals

- computer and relevant software
- legislation, guidelines, procedures and protocols relating to spares and repairable items
- maintenance plans.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=df441c6e-213d-43e3-874c-0b3f7036d851>

UEERE0019 Maintain safety and tidiness of remote area power supply systems

Modification History

Release 1. This is the first release of this unit of competency in the UEE Electrotechnology Training Package.

Application

This unit involves the skills and knowledge required to maintain the safety and tidiness of remote area power supply (RAPS) systems.

It includes preparing to maintain safety and tidiness of RAPS system equipment, completing work and reporting issues.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

UEECD0007 Apply work health and safety regulations, codes and practices in the workplace

UEERE0023 Work safely with remote area power supply systems

Competency Field

Renewable Energy

Unit Sector

Electrotechnology

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Prepare to maintain safety and tidiness of RAPS system

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

1.1 Work health and safety (WHS)/ occupational health and safety (OHS) requirements and workplace procedures for relevant work area are identified and applied

1.2 Risk control measures are applied in accordance with

		workplace procedures prior to commencing work
	1.3	Risks/hazards are identified, assessed, reported to relevant person/s and control measures implemented
	1.4	Nature and location of the RAPS system is identified from work schedule and relevant person/s to determine the scope of work
	1.5	Advice on coordinating work with relevant personnel and the local community is obtained from relevant person/s and applied
	1.6	Tools and equipment required for cleaning work are obtained and checked for correct operation and safety
2	Maintain RAPS system	
	2.1	Workplace risk control measures and procedures are applied
	2.2	Need to test or measure live electrical work is determined in accordance with WHS/OHS requirements and conducted in accordance with workplace procedures
	2.3	Circuits/machines/system are isolated in accordance with WHS/OHS requirements and workplace procedures
	2.4	RAPS system and area are cleaned in accordance with workplace procedures
	2.5	Cleaning is completed minimising waste of materials, energy, damage to apparatus, circuits, the surrounding environment and services
	2.6	Quality checks are conducted in accordance with workplace procedures
3	Complete work and report outcomes	
	3.1	Workplace risk control measures and procedures are applied
	3.2	Cleaning and tidiness issues are reported to the local community in accordance with workplace procedures
	3.3	Cleaning work is completed and issues are reported to relevant person/s in accordance with workplace procedures

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of

competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the UEE Electrotechnology Training Package Companion Volume Implementation Guide.

RAPS system must incorporate a battery bank and at least two of the following:

- generator set
- photovoltaic (PV) array
- RAPS system
- wind generator

Unit Mapping Information

This unit replaces and is equivalent to UEENEEK101A Maintain safety and tidiness of remote area power supply systems.

Links

Companion Volume implementation guides are found in VETNet - -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b8a8f136-5421-4ce1-92e0-2b50341431b6>

Assessment Requirements for UEERE0019 Maintain safety and tidiness of remote area power supply systems

Modification History

Release 1. This is the first release of this unit of competency in the UEE Electrotechnology Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements, performance criteria and range of conditions on at least one occasion and include:

- removing non-remote area power supply (RAPS) equipment
- safely removing insects, spiders and any animals
- safely removing dust and dirt from floors and equipment
- identifying and reporting at least two safety issues
- dealing with unplanned events
- applying relevant work health and safety (WHS)/occupational health and safety (OHS) requirements and workplace procedures and practices, including:
 - applying relevant risk identification, assessment, reporting and control requirements
 - checking isolation of circuits/machines/system
- completing reporting requirements to relevant person/s and local community
- conducting quality checks
- coordinating work with relevant person/s and the local community
- determining live testing/measurement requirements
- maintaining safety and tidiness of RAPS system.

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements, performance criteria and range of conditions and include knowledge of:

- RAPS plant area cleaning, and maintaining RAPS systems, including:
 - need for a clean and tidy plant area
 - RAPS system components and associated equipment and their location within the plant area
 - manual fuel pump, if available
 - plant cleaning techniques:
 - fuel and oil

- acid spills
- removal of dust, insects, spiders and animals
- removal of non-RAPS equipment
- techniques for reporting and dealing with cleaning issues
- relevant safe work method statements (SWMS) or risk mitigation processes
- relevant WHS/OHS legislated requirements
- relevant workplace documentation, policies and procedures, including reporting requirements.

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in suitable workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in suitable simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- a range of relevant exercises, case studies and/or other simulations
- relevant and appropriate materials, tools, equipment and personal protective equipment (PPE) currently used in industry
- resources that reflect current industry practices in relation to maintaining safety and tidiness of a RAPS system
- applicable documentation, including workplace procedures, equipment specifications, regulations, codes of practice and operation manuals.

Links

Companion Volume implementation guides are found in VETNet - -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b8a8f136-5421-4ce1-92e0-2b50341431b6>

UEERE0023 Work safely with remote area power supply systems

Modification History

Release 1. This is the first release of this unit of competency in the UEE Electrotechnology Training Package.

Application

This unit involves the skills and knowledge required to work safely on remote area power supply (RAPS) systems.

It includes preparing to enter a RAPS system, applying safe working practices, and following workplace procedures for hazard identification and risk control in RAPS system areas.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

UEECD0007 Apply work health and safety regulations, codes and practices in the workplace

Competency Field

Renewable Energy

Unit Sector

Electrotechnology

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Prepare to enter a RAPS system

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

- 1.1** Hazards/risk control procedures for RAPS systems maintenance are identified and applied
- 1.2** System access permit is obtained from relevant person/s
- 1.3** Preparation for electrical and non-electrical isolation is completed in accordance with workplace procedures

	1.4	Tools and equipment required for work are checked for safety and correct functionality in accordance with workplace procedures
2	Apply safe working practices in RAPS system area	
	2.1	Workplace risk control measures and procedures are applied
	2.2	Safe work practices for RAPS system are applied in accordance with workplace procedures
	2.3	Circuits/machines/system are isolated in accordance with work health and safety (WHS)/occupational health and safety (OHS) requirements and workplace procedures
	2.4	Safe work practices in RAPS system are applied in accordance with workplace procedures
	2.5	Safe working practices are applied minimising waste of materials, energy, damage to apparatus, circuits, the surrounding environment and services
	2.6	Quality checks are conducted in accordance with workplace procedures
3	Follow workplace procedures for hazard identification and risk control in RAPS system areas	
	3.1	Risks/hazards are identified, assessed and control measures implemented and monitored through consultation with relevant person/s and the local community
	3.2	Workplace hazards are identified and reported to relevant person/s in accordance with workplace procedures
	3.3	WHS/OHS incident reports are completed in accordance with regulatory requirements and workplace procedures
	3.4	Instructions and training are applied in accordance with workplace procedures

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the UEE Electrotechnology Training Package Companion Volume Implementation Guide.

Working safely with RAPS system must include at least the following:

- two different systems incorporating the following:
 - battery bank
 - generator set
 - photovoltaic (PV) array
 - one RAPS system with the addition of a wind generator

Unit Mapping Information

This unit replaces and is equivalent to UEENEEK102A Work safely with remote area power supply systems.

Links

Companion Volume implementation guides are found in VETNet - -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b8a8f136-5421-4ce1-92e0-2b50341431b6>

Assessment Requirements for UEERE0023 Work safely with remote area power supply systems

Modification History

Release 1. This is the first release of this unit of competency in the UEE Electrotechnology Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements, performance criteria and range of conditions on at least one occasion and include:

- preparing to enter the remote area power supply (RAPS) system including, permission to enter the area and to isolate RAPS equipment
- applying work procedures and instructions as they apply to risk control measures
- dealing with accidents and emergencies
- participating in consultation processes, identifying hazards and implementing and monitoring control measures
- dealing with unplanned events
- applying relevant work health and safety (WHS)/occupational health and safety (OHS) requirements and workplace procedures and practices in RAPS system, including:
 - completing WHS/OHS incident reports
- conducting RAPS system quality checks
- obtaining and inspecting tools and equipment and reporting faults
- preparing for and checking isolation of circuits/machines/systems.

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements, performance criteria and range of conditions and include knowledge of:

- RAPS safe working practices, including:
 - general safety encompassing:
 - general safety
 - risk assessment
 - personal protective equipment (PPE)
 - WHS/OHS procedures
 - RAPS safety and risk assessment encompassing:
 - types of hazards in and around RAPS:

- rotating machines
- fuels and oils
- exhaust fumes
- acids and flammable gases from batteries
- measures for dealing with hazards in and around RAPS
- purpose and methods for isolation and de-energisation of power supplies
- correct isolation and de-energisation procedures encompassing:
 - processes for preventing generator from automatically starting
 - isolating photovoltaic (PV) arrays
 - isolating wind driven generators
 - isolating battery
 - isolating inverter power sources
- safety signage encompassing:
 - types of signs
 - location
 - condition
 - suitability
- access to system encompassing:
 - methods for limiting access to plant areas
- reporting
- access to RAPS, including:
 - obtaining access permit/s
- relevant manufacturer specifications
- relevant workplace documentation, policies and procedures.

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in suitable workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in suitable simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- a range of relevant exercises, case studies and/or other simulations
- relevant and appropriate materials, tools, equipment and PPE currently used in industry

- applicable documentation, including workplace procedures, equipment specifications, regulations, codes of practice and operation manuals.

Links

Companion Volume implementation guides are found in VETNet - -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b8a8f136-5421-4ce1-92e0-2b50341431b6>

UEPOPS347 Operate and monitor supervisory, control and data acquisition systems

Modification History

Release 1. This is the first release of this unit of competency in the UEP Generation Training Package.

Application

This unit involves the skills and knowledge required to undertake monitoring and operation of screen based Supervisory, Control and Data Acquisition (SCADA) systems.

SCADA is a control system that uses computers, networked data communications and graphic interfaces. It may also use other peripheral devices to interface with process plant and/or machinery in power generation facilities.

Competency in this unit requires the ability to operate SCADA, monitor and interpret information and enhance screen display. Individuals will, in general, work under supervision, in a power generation facility as an operator.

Power generation plant operators are typically trained and authorised to isolate, prepare plant and issue permits to work.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Note: Workplace practice

The application of the skills and knowledge described in this unit may require a licence or training permit to practice in the workplace where work is carried out on gas and electrical installations. Additional conditions may apply under state and territory legislative and regulatory licensing requirements.

Pre-requisite Unit

There are no prerequisite units.

Competency Field

Operations

Unit Sector

Electricity generation

Elements and Performance Criteria

ELEMENTS

PERFORMANCE CRITERIA

Elements describe the essential outcomes.

Performance criteria describe the performance needed to demonstrate achievement of the element.

1 Operate SCADA screen displays

- 1.1** Safety issues related to operating and monitoring a Supervisory Control and Data Acquisition (SCADA) system are identified, in accordance with workplace procedures and Work, Health and Safety (WHS)/Occupational Health and Safety (OHS) regulations and legislative requirements
- 1.2** SCADA system requirements are identified, in accordance with workplace procedures, from appropriate personnel and documentation
- 1.3** Screen displays and applications are identified and retrieved, in accordance with workplace procedures and SCADA system requirements
- 1.4** Functions available from the screen based equipment are identified and selected, in accordance with workplace procedures and SCADA system requirements
- 1.5** Functions available from screen based equipment are utilised, in accordance with workplace procedures and SCADA system requirements

2 Monitor and interpret SCADA information

- 2.1** Screen displays are monitored, in accordance with workplace procedures and SCADA system requirements
- 2.2** Abnormal values or faults are identified by analysis of information obtained from screen displays, in accordance with workplace procedures and SCADA system requirements
- 2.3** Corrective action is taken, in accordance with workplace procedures and SCADA system requirements
- 2.4** Alarms are acknowledged, prioritised and responded to in accordance with workplace procedures and SCADA system requirements

3 Enhance SCADA screen display

- 3.1** Requirements for the development of new screen displays are identified and confirmed, in accordance with workplace procedures and SCADA system requirements

- 3.2** New screen displays are researched, assessed and confirmed with appropriate personnel, in accordance with workplace procedures and SCADA system requirements

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to UEPOPS347B Operate and monitor supervisory, control and data acquisition systems.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=1715b9fa-e7bd-441c-bb8d-cf22c9c825a8>

Assessment Requirements for UEPOPS347 Operate and monitor supervisory, control and data acquisition systems

Modification History

Release 1. This is the first release of this unit of competency in the UEP Generation Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements, performance criteria and range of conditions on at least two separate occasions and includes:

- applying legislation, industry standards, codes of practice and regulations
- applying Work, Health and Safety (WHS)/Occupational Health and Safety (OHS) requirements including:
 - emergency procedures
 - risk control measures
 - safe work practices
- communicating with personnel
- enhancing screen display
- managing screen based equipment including the full range of applications
- monitoring and interpreting information from Supervisory Control and Data Acquisition (SCADA)
- operating screen displays
- responding and prioritising response to alarms
- using manufacturers' specifications and manuals

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements, performance criteria and range of conditions and includes knowledge of:

- alarm systems
- Distributed Control System (DCS)
- legislation, industry standards, codes of practice and regulations
- manufacturers' specifications and manuals
- remote telemetry and data acquisition
- Supervisory Control and Data Acquisition (SCADA) system
- Windows operating system
- WHS/OHS legislated requirements including:

- emergency procedures
- risk control measures
- safe work practices
- workplace documentation
- workplace policies and procedures

Assessment Conditions

As a minimum, assessors must satisfy applicable regulatory requirements, which include requirements in the Standards for Registered Training Organisations current at the time of assessment.

As a minimum, assessment must satisfy applicable regulatory requirements, which include requirements in the Standards for Registered Training Organisations current at the time of assessment.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Assessment must occur in workplace operational situations. Where this is not appropriate, assessment must occur in simulated workplace operational situations that reflect workplace conditions.

Resources for assessment must include access to:

- a range of relevant exercises, case studies and/or other simulations
- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including workplace procedures, industry standards, equipment specifications, regulations, codes of practice and operation manuals.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=1715b9fa-e7bd-441c-bb8d-cf22c9c825a8>

UEPOPS423 Plan a scheduled outage

Modification History

Release 1. This is the first release of this unit of competency in the UEP Generation Training Package.

Application

This unit involves the skills and knowledge required to plan for a scheduled outage of power generating plant.

A schedule is a plan of action detailing a series of tasks to be undertaken at or during a specified time. A forced outage is the shutdown of generation facility, transmission or distribution line when a generating unit is unavailable to produce power due to an unexpected breakdown.

Competency in this unit requires the ability to identify outage requirements, create outage plans, implement outage plans and complete documentation. Individuals will, in general, work as an operator with responsibility for quality control, in a power generation facility.

Power generation plant operators are typically trained and authorised to isolate, prepare plant and issue permits to work.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Note: Workplace practice

The application of the skills and knowledge described in this unit may require a licence or training permit to practice in the workplace where work is carried out on gas and electrical installations. Additional conditions may apply under state and territory legislative and regulatory licensing requirements.

Pre-requisite Unit

There are no prerequisite units.

Competency Field

Operations

Unit Sector

Electricity generation

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Identify outage requirements

2 Create outage plan

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

- 1.1** Outage requirements are identified from work orders and is clarified with the appropriate personnel or site inspection, in accordance with workplace procedures
- 1.2** Safety issues are identified, in accordance with Work, Health and Safety (WHS)/Occupational Health and Safety (OHS) and legislative requirements, industry standards and workplace procedures
- 1.3** Date, time and expected duration of outage is assessed and confirmed from relevant information and statistical records in accordance with workplace procedures
- 1.4** Schematic diagrams, drawings, plans or maps are consulted to determine area affected by outage, in accordance with workplace procedures
- 2.1** Impact of outage is ascertained, in accordance with workplace procedures
- 2.2** Key stakeholders and/or equipment affected by outage are identified, in accordance with workplace procedures
- 2.3** Status of plant and consumers affected by outage is identified and assessed, in accordance with workplace procedures
- 2.4** Key stakeholders are consulted to determine timetable and contingency plan, in accordance with workplace procedures
- 2.5** Disruptions to key consumers are minimised, in accordance with workplace procedures, by providing alternative routes of power generation supply
- 2.6** Scope of work to be carried out during outage is evaluated against allocated timeframes, in accordance with workplace procedures
- 2.7** Work permits required prior to and during outage are obtained, in accordance with workplace procedures

3 Implement outage plan	3.1 Work crews are notified of outage plan through the appropriate channels, in accordance with workplace procedures
	3.2 Notification of outage is communicated to all stakeholders, in accordance with workplace procedures
4 Complete documentation	4.1 Records are maintained, in accordance with workplace procedures
	4.2 Documentation is updated, in accordance with workplace procedures

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to UEPOPS423B Plan a scheduled outage.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=1715b9fa-e7bd-441c-bb8d-cf22c9c825a8>

Assessment Requirements for UEPOPS423 Plan a scheduled outage

Modification History

Release 1. This is the first release of this unit of competency in the UEP Generation Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements, performance criteria and range of conditions on at least two separate occasions and includes:

- advising and communicating with key stakeholders
- applying Work, Health and Safety (WHS)/Occupational Health and Safety (OHS) legislated requirements including:
 - emergency procedures
 - risk control measures
 - safe working practices
- communicating with personnel
- creating outage plans
- identifying outage requirements
- implementing legislation, industry standards, codes of practice and regulations
- interpreting manufacturers' specifications and manuals
- investigating implications of outage
- planning outage work
- recognising power generation plant status
- using documenting and recording procedures
- working with permit to work system

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements, performance criteria and range of conditions and includes knowledge of:

- communication and liaison techniques
- legislation, industry standards, codes of practices and regulations
- manufacturers' specifications and manuals
- outages and potential impact
- permit to work system

- power generation plant and equipment, its location and operating parameters
- power generation plant status
- scheduling methods and tools
- stakeholders
- types of schedules
- typical arrangements of power generation plant
- WHS/OHS policy and procedures including:
 - emergency procedures
 - risk control measures
 - safe working practices
- workplace documentation
- workplace policies and procedures

Assessment Conditions

As a minimum, assessors must satisfy applicable regulatory requirements, which include requirements in the Standards for Registered Training Organisations current at the time of assessment.

As a minimum, assessment must satisfy applicable regulatory requirements, which include requirements in the Standards for Registered Training Organisations current at the time of assessment.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Assessment must occur in workplace operational situations. Where this is not appropriate, assessment must occur in simulated workplace operational situations that reflect workplace conditions.

Resources for assessment must include access to:

- a range of relevant exercises, case studies and/or other simulations
- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including workplace procedures, industry standards, equipment specifications, regulations, codes of practice and operation manuals.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=1715b9fa-e7bd-441c-bb8d-cf22c9c825a8>

NWP National Water Training Package

Modification History

Version	Comments
1	Primary release to comply with new standards for NWP Water Training Package (replacing NWP07 V3 Water Training Package)

Credit Arrangements

Qualification Code	Qualification Title	Credit Arrangements
NWP20115	Certificate II in Water Industry Operations (Generalist/Treatment/Networks/Source/Irrigation)	At the time of endorsement of this training package no credit arrangements exist.
NWP30215	Certificate III in Water Industry Operations (Generalist/Hydrography/Networks/Source)	At the time of endorsement of this training package no credit arrangements exist.
NWP30315	Certificate III in Water Industry Treatment (Generalist/Drinking water/Wastewater)	At the time of endorsement of this training package no credit arrangements exist.
NWP30415	Certificate III in Water Industry Irrigation	At the time of endorsement of this training package no credit arrangements exist.
NWP40515	Certificate IV in Water Industry Operations (Generalist/Hydrography/Networks/Source/Trade Waste/Irrigation)	At the time of endorsement of this training package no credit arrangements exist.
NWP40615	Certificate IV in Water Industry Treatment	At the time of

	(Generalist/Drinking water/Wastewater)	endorsement of this training package no credit arrangements exist.
NWP50715	Diploma of Water Industry Operations (Generalist/Hydrography/Trade Waste)	At the time of endorsement of this training package no credit arrangements exist.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

NWPSS00001 Advanced certification bridging

Modification History

Release 2: This is the second release of this Skill Set in the NWP National Water Training Package with updated unit codes and details.

Release 1: This skill set was released in NWP Water Training Package release 1.0 and meets the Standards for Training Packages.

- New skill set composed of existing units.

Description

This skill set allows for the attainment of competencies to allow advanced staff possessing earlier versions of water qualifications to undertake bridging to meet the requirements of the Water Certification program. The skill set allows transition of existing advanced workers in the water industry into the requirements of the certification.

Pathways Information

These units may provide credit towards a range of qualifications in the Water Training Package.

Licensing/Regulatory Information

No licensing, legislative or certification requirements apply to this skill set at the time of publication.

Skill Set Requirements

A total of 3 units of competency must be attained.

NWPGEN017	Apply the risk management principles of the water industry standards, guidelines and legislation
NWPGEN020	Sample and test source or drinking water
NWPGEN022	Perform laboratory testing

Target Group

This skill set applies to those working as advanced staff who possess earlier versions of water qualifications.

Suggested words for Statement of Attainment

These competencies meet the industry standards for advanced water certification.

NWPSS00002 Catchment operations

Modification History

Release 3. This is the third release of this Skill Set in the NWP Water Training Package with updated unit codes and details.

Release 2. This is the second release of this Skill Set in the NWP Water Training Package with updated unit codes and details.

Release 1. This skill set was released in NWP Water Training Package release 1.0 and meets the Standards for Training Packages.

- New skill set composed of existing units.

Description

This Skill Set is for individuals who develop, monitor, implement and assess catchment operations.

Pathways Information

This Skill Set is part of the NWP Water Training Package.

Licensing/Regulatory Information

No licensing, legislative or certification requirements apply to this skill set at the time of publication.

Skill Set Requirements

A total of 6 units of competency must be attained:

NWPCAD005	Monitor, inspect and report catchment areas
NWPCAD023	Develop and implement catchment operational plans
NWPGEN006	Implement and manage environmental management policies
NWPGEN018	Follow environmental and licensing procedures
NWPGEN019	Assess, implement and report environmental procedures
NWPGEN030	Coordinate and monitor the application of environmental plans and procedures

Target Group

This skill set applies to those working in water industry operations who develop, monitor, implement and assess catchment operations.

Suggested words for Statement of Attainment

This NWPSS00002 Catchment Operations Skill Set from the NWP Water Training Package meets the industry requirements for individuals who develop, monitor, implement and assess catchment operations in the water industry.

Custom Content Section

Not applicable.

NWPSS00003 Certification bridging

Modification History

Release 2: This is the second release of this Skill Set in the NWP National Water Training Package with updated unit codes and details.

Release 1: This skill set was released in NWP Water Training Package release 1.0 and meets the Standards for Training Packages.

- New skill set composed of existing units.

Description

This skill set allows for the attainment of competencies to allow staff possessing earlier versions of water qualifications to undertake bridging to meet the requirements of the Water Certification program. The skill set allows transition of existing workers in the water industry into the requirements of the certification.

Pathways Information

These units may provide credit towards a range of qualifications in the Water Training Package.

Licensing/Regulatory Information

No licensing, legislative or certification requirements apply to this skill set at the time of publication.

Skill Set Requirements

A total of 2 units of competency must be attained.

NWPGEN017	Apply the risk management principles of the water industry standards, guidelines and legislation
NWPGEN020	Sample and test source or drinking water

Target Group

This skill set applies to those working in water industry operations.

Suggested words for Statement of Attainment

These competencies meet the industry standards for water certification.

NWPSS00004 Dam operations

Modification History

Release 2: This is the second release of this Skill Set in the NWP National Water Training Package with updated unit codes and details.

Release 1: This skill set was released in NWP Water Training Package release 1.0 and meets the Standards for Training Packages.

- New skill set composed of existing units.

Description

This skill set allows for the attainment of competencies in dam operations. The skill set covers skills that allow water industry staff to inspect, monitor and report on dam operations.

Pathways Information

These units may provide credit towards a range of qualifications in the Water Training Package.

Licensing/Regulatory Information

No licensing, legislative or certification requirements apply to this skill set at the time of publication.

Skill Set Requirements

A total of 5 units of competency must be attained.

NWPCAD008	Monitor and control dam operations
NWPCAD009	Monitor and implement dam maintenance
NWPCAD010	Inspect and report on concrete dam safety
NWPCAD011	Inspect and report on embankment dam safety
NWPCAD013	Conduct and report dam safety instrumentation monitoring

Target Group

This skill set applies to those working in water industry operations.

Suggested words for Statement of Attainment

These competencies meet the industry standards for dam operations.

NWPSS00005 Hydrography basics

Modification History

Release	Comments
1	This skill set was released in NWP Water Training Package release 1.0 and meets the Standards for Training Packages. • New skill set composed of existing units.

Description

This skill set allows for the attainment of basic hydrography skills. The skill set covers skills that allow water industry staff to undertake basic hydrography operations.

Pathways Information

These units may provide credit towards a range of qualifications in the Water Training Package.

Licensing/Regulatory Information

No licensing, legislative or certification requirements apply to this skill set at the time of publication.

Skill Set Requirements

Units	
NWPHYD011	Measure and process low and medium flows using area velocity methods
NWPHYD013	Operate, maintain and decommission monitoring sites
AHCLPW306A	Undertake sampling and testing of water

Target Group

This skill set applies to those working as water industry staff undertaking basic hydrography operations.

Suggested words for Statement of Attainment

These competencies meet the industry standards for basic hydrography operations.

NWPSS00007 Regional treatment operations

Modification History

Release 2: This is the second release of this Skill Set in the NWP National Water Training Package with updated unit codes and details.

Release 1: This skill set was released in NWP Water Training Package release 1.0 and meets the Standards for Training Packages.

- New skill set composed of existing units.

Description

This skill set allows for the attainment of competencies required to undertake water operations and treatment in a regional environment. The skill set covers skills that allow water industry staff to conduct regional treatment operations.

Pathways Information

These units may provide credit towards a range of qualifications in the Water Training Package.

Licensing/Regulatory Information

No licensing, legislative or certification requirements apply to this skill set at the time of publication.

Skill Set Requirements

A total of 5 units of competency must be attained.

NWPGEN017	Apply the risk management principles of the water industry standards, guidelines and legislation
NWPNET051	Monitor and operate water distribution systems
NWPNET052	Monitor and operate wastewater collection and transfer systems
NWPTRT005	Monitor and operate water treatment processes
NWPTRT027	Monitor and operate wastewater treatment processes

Target Group

This skill set applies to those working as regional treatment operators.

Suggested words for Statement of Attainment

These competencies meet the industry standards for regional treatment operations.

NWPSS00008 Water quality monitoring

Modification History

Release 2: This is the second release of this Skill Set in the NWP National Water Training Package with updated unit codes and details.

Release 1: This skill set was released in NWP Water Training Package release 1.0 and meets the Standards for Training Packages.

- New skill set composed of existing units.

Description

This skill set allows for the attainment of competencies in the monitoring of water quality.

Pathways Information

These units may provide credit towards a range of qualifications in the Water Training Package.

Licensing/Regulatory Information

No licensing, legislative or certification requirements apply to this skill set at the time of publication.

Skill Set Requirements

A total of 4 units of competency must be attained.

NWPGEN005	Coordinate and monitor the application of environmental plans and procedures
NWPGEN006	Implement and manage environmental management policies
NWPGEN018	Follow environmental and licensing procedures
NWPGEN019	Assess, implement and report environmental procedures

Target Group

This skill set applies to those working in water industry operations.

Suggested words for Statement of Attainment

These competencies meet the industry standards for water quality monitoring operations.

NWPSS00010 Water sampling

Modification History

Release 2: This is the second release of this Skill Set in the NWP National Water Training Package with updated unit codes and details.

Release 1: This skill set was released in NWP Water Training Package release 1.0 and meets the Standards for Training Packages.

- New skill set composed of existing units.

Description

This skill set allows for the attainment of competencies in water sampling. The skill set covers skills that allow water industry staff to conduct sampling and testing on drinking and wastewater.

Pathways Information

These units may provide credit towards a range of qualifications in the Water Training Package.

Licensing/Regulatory Information

No licensing, legislative or certification requirements apply to this skill set at the time of publication.

Skill Set Requirements

A total of 5 units of competency must be attained.

NWPGEN017	Apply the risk management principles of the water industry standards, guidelines and legislation
NWPGEN002	Ensure compliance with water industry standards, guidelines and legislation
NWPGEN006	Implement and manage environmental management policies
NWPGEN020	Sample and test source or drinking water
NWPGEN021	Sample and test wastewater

Target Group

This skill set applies to water industry staff who conduct sampling and testing on drinking and wastewater.

Suggested words for Statement of Attainment

These competencies meet the industry standards for water sampling operations.

NWPSS00011 Dam Operations and Maintenance Skill Set

Modification History

Release 1. New Skill Set.

Description

This Skill Set is for individuals who operate and maintain dams in the water industry.

Pathways Information

This Skill Set is part of the NWP Water Training Package.

Licensing/Regulatory Information

No licensing, legislative or certification requirements apply to this skill set at the time of publication.

Skill Set Requirements

A total of 4 units of competency must be attained:

NWPCAD009	Monitor and implement dam maintenance
NWPCAD014	Inspect and report river performance
NWPCAD021	Coordinate and monitor bulkwater system operations
NWPGEN031	Develop an operational plan

Target Group

This Skill Set applies to those working in water industry operations who operate and maintain dams.

Suggested words for Statement of Attainment

This NWPSS00011 Dam Operations and Maintenance Skill Set from the NWP Water Training Package meets the industry requirements for individuals who operate and maintain infrastructure in the water industry.

Custom Content Section

Not applicable.

NWPSS00012 Environmental Procedures Skill Set

Modification History

Release 1. This is the first release of this Skill Set in the NWP Water Training Package release 4.0 and meets the Standards for Training Packages.

This Skill Set replaces and is equivalent to NWPSS00008 Water quality monitoring.

Description

This Skill Set is for individuals who coordinate, implement and monitor the application of environmental plans and procedures in the water industry.

Pathways Information

This Skill Set is part of the NWP Water Training Package.

Licensing/Regulatory Information

No licensing, legislative or certification requirements apply to this skill set at the time of publication.

Skill Set Requirements

A total of 4 units of competency must be attained:

NWPGEN006	Implement and manage environmental management policies
NWPGEN018	Follow environmental and licensing procedures
NWPGEN019	Assess, implement and report environmental procedures
NWPGEN030	Coordinate and monitor the application of environmental plans and procedures

Target Group

This skill set applies to those working in water industry operations who coordinate, implement and monitor the application of environmental plans and procedures.

Suggested words for Statement of Attainment

This NWPSS00012 Environmental Procedures Skill Set from the NWP Water Training Package meets the industry requirements for individuals who coordinate, implement and monitor the application of environmental plans and procedures in the water industry.

Custom Content Section

Not applicable.

NWPSS00013 Hydrometric Monitoring Basics Skill Set

Modification History

Release 1. This is the first release of this Skill Set in the NWP Water Training Package release 4.0 and meets the Standards for Training Packages.

This Skill Set replaces and is equivalent to NWPSS00005 Hydrography basics.

Description

This Skill Set is for individuals who undertake basic hydrometric monitoring operations.

Pathways Information

This Skill Set is part of the NWP Water Training Package.

Licensing/Regulatory Information

No licensing, legislative or certification requirements apply to this skill set at the time of publication.

Skill Set Requirements

A total of 3 units of competency must be attained:

AHCLPW306	Undertake sampling and testing of water
NWPHYD007	Measure discharge using wading method
NWPHYD008	Operate, maintain and decommission monitoring sites

Target Group

This skill set applies to those working in water industry operations who undertake basic hydrometric monitoring operations.

Suggested words for Statement of Attainment

This NWPSS00013 Hydrometric Monitoring Basics Skill Set from the NWP Water Training Package meets the industry requirements for individuals who undertake basic hydrometric monitoring operations in the water industry.

Custom Content Section

Not applicable.

NWPSS00014 Water Sampling Skill Set

Modification History

Release 1. This is the first release of this Skill Set in the NWP Water Training Package release 4.0 and meets the Standards for Training Packages.

This Skill Set replaces and is equivalent to NWPSS00010 Water sampling.

Description

This Skill Set is for individuals who conduct sampling and testing on drinking water and wastewater in the water industry.

Pathways Information

This Skill Set is part of the NWP Water Training Package.

Licensing/Regulatory Information

No licensing, legislative or certification requirements apply to this skill set at the time of publication.

Skill Set Requirements

A total of 4 units of competency must be attained:

NWPGEN006	Implement and manage environmental management policies
NWPGEN017	Apply the risk management principles of the water industry standards, guidelines and legislation
NWPGEN020	Sample and test source or drinking water
NWPGEN021	Sample and test wastewater

Target Group

This Skill Set applies to those working in water industry operations who conduct sampling and testing on drinking water and wastewater.

Suggested words for Statement of Attainment

This NWPSS00010 Water Sampling Skill Set from the NWP Water Training Package meets the industry requirements for individuals who conduct sampling and testing on drinking water and wastewater in the water industry.

Custom Content Section

Not applicable.