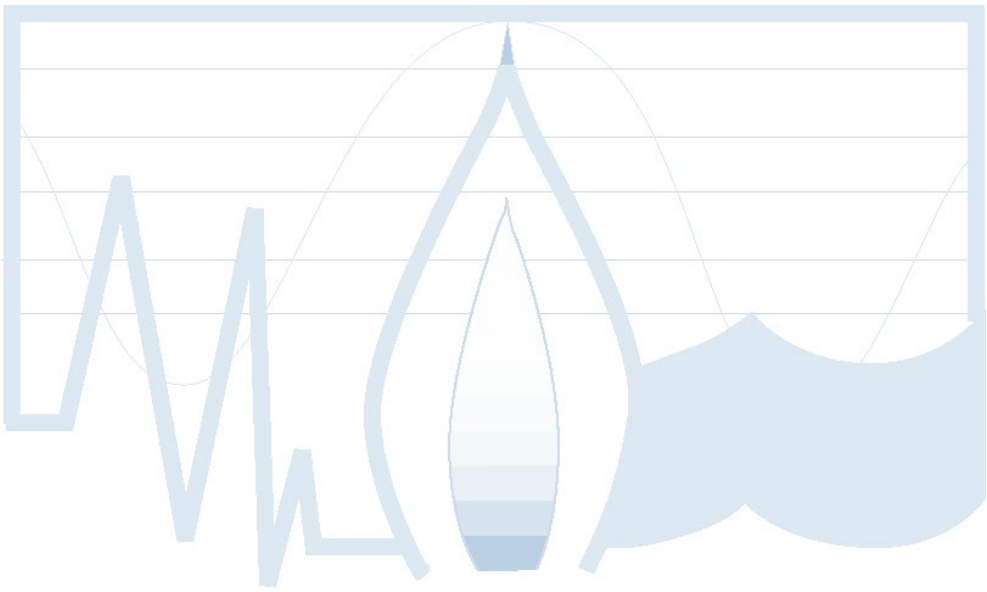

Electricity Supply Industry
Generation Training Package
UTP98
V2.00

Volume 4

Units NEG122 - NEG179

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Glossary

Advanced

High degree of knowledge and skill as would be demonstrated by an 'expert' operative (highly developed analytical, conceptual and problem solving skills).

Alkalinity Reduction

Process of controlling pH of cooling system waters to offset increasing alkalinity due to carbon dioxide loss. Required to maintain optimum pH for effective chlorination and plant protection. Usually done by sulphuric acid injection.

Analysis

Resolution of data into understandable information and its subsequent rational interpretation.

Apparatus

Equipment used in the Power Generation processes.

Ash

Residue of combustion and, in particular, the bottom ash of pulverised fuel combustion.

Assemble

Refers to: the selection, visual inspection, placement and securing of components to form an item of plant, equipment or a structure

Assessment

Refers to: diagnosis of performance, classification of eligibility, award of credentials, assurance of progress of learning.

Auxiliary Steam System

Steam used to assist the generation process, i.e. air extraction, gland sealing etc.

Basic

Fundamental and simplest application.

Batching (Chemicals)

Mixing required quantities of chemicals predominantly for water treatment.

Boiler

Vessel for producing steam under pressure (generic).

Plant used in power production is of large voluminous construction that produce large volumes of high pressure steam required for the thermal power generation process. These boilers contain several stages of superheating and may also contain reheating elements.

Brine Concentrator

Plant for concentrating salts in discharged cooling waters, purifying the majority of water for re-use.

Bulk

Large quantity.

Chemicals

Chemicals used in the power generation processes.

Clean

Make site, buildings, plant and equipment safe, tidy and clear of obstructions (including dirt and grime).

Codes of Practice

Refers to: those relevant standards required within Australia.

Commissioning

Activities carried out to make plant ready for normal operation.

Communications

Conveying information by an approved medium.

Competency

The ability to exercise knowledge and skill in the process of carrying out required tasks/duties.

Component

Any self-contained part, combination of parts, subassemblies of units, which perform a distinctive function necessary to the operation of a system.

Compressed

Reduced in volume.

Condensate System

Part of a generating unit's steam/water cycle, in particular the low pressure water system from the condenser hot well to the boiler feed pump suction including pumps, low pressure feed water heaters, air ejectors, water treatment plants, de-aerators etc.

Condenser

Chamber beneath a turbine's low pressure cylinder(s) in which steam is condensed to water.

Condensing

Make denser or more compact. Main application in the generation industry is the condensing of steam to water.

Condition Changing

Voltage control. Apparatus may include tap changers, reactors and synchronous condensers.

Condition Monitoring

Process of measuring key performance characteristics of an item of equipment on a continuous or regular basis, usually for the purpose of optimising maintenance requirements.

Conduct

1. Manner of doing business or work.

2. Transmission of heat or power.

Contaminated

Polluted. Degradation from a pure or desired state.

Cooling Systems

Various methods of controlling temperature rise in plant by the transfer of heat to a cooling medium during the power generation process.

Coordinate

Cause to function and/or link together in a proper order.

Crisis

Time of danger, acute risk to system or plant, possibility of imminent failure or collapse.

Critical

1. An incident that involves risk and suspense that may require a decisive and crucial response.

2. Sequence of stages determining minimum time needed for an operation (critical path).

Decommission

Remove from service permanently or for a long period of time.

Defect

Any confirmed abnormal condition of an item whether or not this could eventually result in a failure.

Desired

Want earnestly, bordering on required or necessary. The preferred option.

Diagnose and Repair

Refers to corrective maintenance which is the recognition, location and rectification of faults.

Direct (work)

Set direction/requirements and instruct or allocate staff to achieve the required outputs.

Distribution System

Integrated electricity supply system.

Dogging

Attachment of, and the direction of, the lifting of materials in conjunction with a manned crane or hoist.

Drawings

Refers to: block, wiring, PID, schematic, layout drawings and site plans.

Draft System

Plant used to supply adequate air for combustion. Plant may include: fans, air heaters dampers etc.

Dust

Main application: fly ash that is collected in either electrostatic precipitators or fabric filters.

Efficiency

Maximising plant performance by operating to designed parameters.

Electronic Equipment

Refers to: equipment where the majority of its components are electronic.

Emergency Response

Responding to a sudden state of danger or a condition needing immediate treatment.

Enterprise

Refers to electricity generators and their procedures and standards which can refer to isolation/permit procedures, station/depot instructions, work orders and agreed quality assurance requirements.

Environment

The area surrounding the work site which can be directly or indirectly affected by occurrences at the work site. It includes the atmosphere, soils, drains, underground water tables and the ecosystem. Protection of the *environment* would require the proper disposal of waste materials, restriction of burning off, the correct handling of toxic substances, the containment of CFCs and the like.

The protection of the environment would also include the minimisation of those factors that contribute, directly or indirectly, to the production of greenhouse gases.

These contributing factors might include the minimisation of construction waste materials, the correct use of enterprise vehicles and machinery, the re-use or recycling of trade materials where possible and the overall reduction of energy usage through general awareness and the use of appropriate technologies.

Environmental Control

Protection of the surrounding environment. See also *environment*

Erect

Refers to: the actions of preparing foundations, the erection and stabilisation of structures and the placement of electrical equipment.

Explosive Power Tool

Ram set gun or similar tools.

External

Areas external to the power generation site.

Fabricate

To take raw stock and make detailed parts by a variety of methods, such as cutting, bending, attaching, etc. It may be applied to metal and composite structures, electrical parts, etc.

Facilitating

Promote or help forward.

Feedwater

High pressure and high temperature treated water supplied to a boiler.

Feedwater System

Part of a generating unit's steam/water cycle, in particular the high pressure water system from the feed pump suction to the boiler including pumps, economiser high pressure feed water heaters, feedwater regulating valves etc.

Field (operations)

External to the main centre of operation.

Fork Lift

Vehicle with fork in front for lifting and moving materials.

Fuel

Used for combustion and may include coal, gas, oil, refuse etc.

Generation

Production of electricity.

Hardware

Refers to: material or non-moving parts of systems including such items as insulators. "Hardware" does not include electrical apparatus.

High Voltage

Equal to, or greater than, 1000 volts AC or 1500 volts DC.

HV

High Voltage.

HV Apparatus

Equipment used for transportation and control of electricity.

Implement

Put into effect.

Inspect

To examine or check a system, assembly, component or part by visual or physical means for the purpose of identifying defects or limits.

Inspection

Examine closely.

Install

Refers to: the fitting and positioning of new plant, equipment and/or systems, and the replacement of plant, equipment and/or systems following overhaul or maintenance.

Intermediate

Skills and knowledge greater than a basic level but with room for further development available (experienced but not yet expert).

Internal

Areas internal to the power generation site.

Internal Combustion Duel Fuel Reciprocating Engine

Engine having two fuel sources (normally diesel fuel and gas).

Internal Combustion Single Fuel Reciprocating Engine

Engine having one fuel source.

Isolated Power Systems

Power systems not connected to a power grid, ie Alice Springs.

Key Role

Essential or of vital importance.

Lay

Refers to: the placement in position of underground cables in preparation for jointing and terminating.

Liaise

Communicate and cooperate with an outside organisation, section or person.

Lifting and Load Shifting Equipment (1)

Cranes and hoists that do not require a licence to operate.

Lifting and Load Shifting Equipment (2)

Cranes and hoists that do require a licence to operate.

Local

Controlling equipment from controls located adjacent to an item of plant.

Locomotive

A diesel or steam engine providing the motive power to haul load-carrying wagons.

Low Voltage

Not exceeding 1000 volts AC or 1500 volts DC.

Lubrication

Minimisation of friction by the application of specified oils or greases.

LV

Low Voltage.

Maintain

Refers to: preventative maintenance and the replacement of damaged or faulty components found during preventative maintenance.

Make and Spread (stockpile)

The formation of, and the management of, a stockpile (usually coal).

Manage (plant operations)

Planning, preparing, organisation and actual operation of major plant startups or shutdowns plus the in service control of normal and abnormal plant operating conditions.

Manoeuvering

Planned and controlled movements towards a defined objective.

Material

Matter used in the power production processes including raw, processed, building plant or offices materials.

Maximum

Highest allowable limit.

Minimum

Lowest allowable limit.

Modify

Refers to: alterations, additions, adjustments or re-adjustments to existing equipment

Monitor

Maintain regular surveillance (see also ‘condition monitoring’).

Network

Chain of interconnected electrical conductors, integrated electricity grid system.

Non-Routine

Outside normal daily operations or practices.

Occupational Health and Safety Standards

Refers to: those which are relevant within Australia.

Operate

Bring about a controlled change in plant output.

Operational

Be able to operate or function.

Operator (power generation)

Personnel employed to operate, monitor and control power generation plant.

Organise

Give orderly structure to, make arrangements for or initiate (undertaking).

Others Involved In Or Affected By The Work

Refers to: supervisor, foreperson, other tradespersons, operations personnel and other workers.

Outage

Period of non-operation.

Perform

Carry into effect, execute (operation).

Performance Testing

Check of plant output under test conditions.

Permit to Work

Written approval to work (in safety and in a clearly defined area).

Plan

Formulated or organised methods by which actions are to be done in order to achieve a defined objective or outcome.

Plant

1. Apparatus associated with power production.

2. Mobile plant i.e. implements and vehicles.

Power

Electrical energy.

Process

Controlled course of actions to achieve a required output/outcome.

Production

Produce (electrical energy) in large quantities.

Promote

Help forward, encourage.

Protection Devices/Schemes

Devices, or a number of devices working together, to protect plant and equipment from damage during fault conditions or out of limits operations.

Plug-In Printed Circuit Boards

Refers to: the placement of individual plug-in printed circuit boards, regardless of whether the connections are plugs or soldered, which do not require any additional setting up/tuning.

Quality

Maintaining a high degree of excellence (meeting requirements/standards).

Receive

Accept delivery of (coal).

Reclaim

Recover (coal) from stockpile.

Record

Piece of recorded information, account or fact preserved in a permanent document or electronically.

Rectification

1. Converting AC to DC .

2. Process of repairing faults or failures of equipment or systems.

Regulatory Authority

Refers to: any organisation or department which has a responsibility for establishing and monitoring adherence to procedures, specifications or standards within the Generation sector.

Reliability

May be relied upon (to continue producing). Measure of the probability of failure.

Relocating

Move to a new position.

Request/Work Orders

Refers to: work generated by schedules, instructions, handover details from previous shift, inspection test plant, defect cards, danger tags.

Requirements

That to which *equipment* and procedures and their outcomes must conform and includes statutory obligations and regulations and *Standards* called-up by legislation or regulations. *Requirements* may include:

- codes of practice
- job specifications
- *Standards* called-up in specifications
- procedures and work instructions
- quality assurance systems
- manufacturers' specifications
- design specifications
- customer/client requirements and specifications
- specified underpinning knowledge (specified in units' Evidence Guides)
- National and State guidelines, policies and imperatives relating to the *environment.*

Reverse Osmosis

Process of removing chemicals from (usually) water by forcing it through a semi permeable membrane using high pressure.

Rigging

Set up slings etc. to ensure a controlled lift of materials by hoists and/or cranes.

Ringmain

Distribution systems for either water, steam or power supplies in the form of a continuous ring.

Risk

Exposure to danger, hazards, losses etc.

SCADA Control

System Control And Data Acquisition system. Screen based remote monitoring and control of a process/acquisition system.

Scaffold

Temporary elevated platform to assist or enable access for inspection or maintenance requirements.

Schedule

Planned output (generation).

Service

Refers to: procedural maintenance which would, in general, be of a routine nature.

Set-up

Refers to: specifications set by manufacturers', client/user requirements.

Shift (material)

Change or move from one place to another.

Shunting

1. Procedure for warming de-aerator.

2. Divert (train) onto a side track to clear the line.

Site

Location of power generation plant.

Stakeholders

Those who have an influence on activities (power generation).

Standard

1. Degree of excellence required for a particular purpose.

2. Required quality of work.

Statutory requirements

Refers to: those standards required by the relevant regulatory or licensing authority eg. Worksafe Australia, SAA Wiring rules.

Steam/Water Cycle

Major or main cycle of steam and water through a boiler and/or steam turbine. Includes valves piping, heat exchangers, superheat and reheat elements, boiler drum(s) etc.

Stockpile

Accumulated stock of raw materials (mainly coal).

Strategies

Plans formed to achieve specific outcomes.

String

Refers to: the placement of aerial conductors/cables in position, including tensioning.

Structure

Refers to: a pole or tower with associated hardware which supports electrical apparatus.

Switchboard

A combination of cubicles or switches located together that enable the connection or disconnection of electrical circuits.

Switchgear

Apparatus designed to make or break electrical connections.

Systems

Systems in the generation industry means the interaction between a number of elements requiring consideration of the total effect of the parts, rather than a concentration on any single part, and in respect of which actions and responses that are needed, may require analytical skills and techniques.

Tasks

Single items of work.

Team

People working together in a cooperative/collaborative manner.

Technical Inspection

Examine closely, utilising specific criteria relevant to the apparatus concerned.

Test

Refers to: testing and/or functioning (operating) an assembly, component or part to make sure that it agrees with the applicable specifications. In this definition testing provides a way in which adjustment and/or troubleshooting/diagnosis can occur.

Test and Commission

Refers to: the checking of individual equipment/components for correct operation and the placement into service of the equipment or system.

Test (operational)

Operate under a strictly controlled manner to check/determine the condition of an item of plant. This may include a complete system, a complete item of plant (i.e. boiler fan) or an individual component.

Tippling

Discharging of coal (or other material) from a railway wagon.

Tools

Refers to general hand tools, portable electric tools and specialist tools.

Transfer (material)

Move or relocate.

Transformers

Apparatus for reducing or increasing voltage in an AC system.

Transport Plant and Equipment

Moving mobile plant and associated equipment.

Tune

Refers to: correcting or altering a system, circuit, components or indicators to provide a specified outcome or condition.

Turbine

Wheel or rotor driven by the impact or reaction of steam or water (generic). Main plant item in thermal or hydro power production consisting of a number of stages. May include a number of turbines connected in tandem.

Undertake

Be committed to perform, or take responsibility for, work, testing etc.

Waste

Substances of no further use in the power production process, i.e. ash.

Water Quality Control System

System(s) utilised to continually monitor and adjust the quality of water used in the power generation process.

Water Treatment

The treatment processes used to condition raw water to make it suitable for use in the power generation processes.

Wind Generator

Device to convert air currents into electrical energy.

Work Completion Details

Refers to: time sheets, job cards, plans and records.

UTP NEG122 A
Diagnose and Repair Faults in Electrical Equipment

Descriptor: This unit refers to the diagnosing and repairing of faults in electrical equipment, and may involve the work to be carried out with equipment online

Elements		Performance criteria	
122.1	Plan and prepare for the work	122.1.1	Work requirements are identified from request/work orders or equivalent and clarified/confirmed with appropriate parties or by site inspection
		122.1.2	Occupational health and safety standards, statutory requirements, relevant Australian standards, codes of practice, manufacturers' specifications, environmental requirements and enterprise procedures are identified, applied and monitored throughout the work procedure
		122.1.3	Resources required to satisfy the work plan are identified, obtained and inspected for compliance with the job specifications
		122.1.4	Relevant plans, drawings and texts are selected and interpreted in accordance with the work plan
		122.1.5	Correct size, type and quantity of materials/components are determined, obtained and inspected for compliance with the job specifications
		122.1.6	Work is planned in detail including sequencing and prioritising and considerations made, where appropriate, for the maintenance of plant security and capacity in accordance with system/site requirements
		122.1.7	Co-ordination requirements, including requests for isolations where appropriate, are resolved with others involved, affected or required by the work
		122.1.8	Potential hazards are identified and prevention and/or control measures are selected in accordance with the work plan and site procedures
		122.1.9	Work area is prepared in accordance with work requirements and site procedures

Elements		Performance criteria	
		122.1.10	Where appropriate, the teams and individuals roles and responsibilities within the team are identified and, where required, assist in the provision of the on-the-job training
122.2	Verify the fault	122.2.1	Normal performance and function of the equipment is ascertained by consulting appropriate reference sources in accordance with the work plan
		122.2.2	Fault indicators and appropriate technical information/diagnostic techniques are used to verify reported symptoms/faults in accordance with the work plan
		122.2.3	Symptoms are reproduced and monitored if possible, whilst due regard for personnel safety and plant security is observed in accordance with the work plan
122.3	Find the fault	122.3.1	Required isolations are confirmed where appropriate in accordance with site requirements
		122.3.2	Fault finding is carried out in conjunction with others involved in, or affected by, the work in accordance with enterprise/job requirements
		122.3.3	Equipment components, wires, cables, terminations and support fixings are inspected for obvious faults in accordance with the work plan
		122.3.4	All appropriate fault finding/diagnostic techniques are identified, selected and used to determine the fault in accordance with the work plan
		122.3.5	All appropriate components are disconnected to enable accurate test measurements of suspected faulty components without the concern of “back-feed” readings in accordance with the work plan

Elements		Performance criteria	
		122.3.6	Test and measurement instruments are used in accordance with manufacturer's instructions and job requirements
122.4	Determine cause of fault	122.4.1	All appropriate personnel are consulted in order to obtain as many details relating to the faulty equipment as possible in accordance with the work plan
		122.4.2	Appropriate use is made of any information from fault indicators and maintenance records in accordance with the work plan
		122.4.3	Valid conclusions about the nature and cause of the fault are reached from analysis of available evidence in accordance with the work plan
122.5	Repair or rectify the fault	122.5.1	Required isolations are confirmed where appropriate in accordance with site requirements
		122.5.2	Appropriate repair procedures are undertaken in conjunction with others involved in, or affected by, the work in accordance with the work plan
		122.5.3	Faulty, worn, damaged or unsecured components are replaced, repaired or secured in accordance with the work plan
		122.5.4	Parts and components are selected and replaced as required in accordance with appropriate specifications and the work plan
		122.5.5	Components disconnected for testing are reconnected having been proven free of faults and all terminations are then checked to ensure they are electrically and mechanically sound in accordance with the work plan
		122.5.6	All faults are repaired or rectified in accordance with the work plan
		122.5.7	Final job inspection is performed and permits are relinquished as required in accordance with the work plan

Elements		Performance criteria	
122.6	Complete the work	122.6.1	Work is completed and appropriate personnel notified in accordance with site/enterprise requirements
		122.6.2	Work area is cleared of waste, cleaned, restored and secured in accordance with site/enterprise procedures
		122.6.3	Plant, tools and equipment are maintained and stored in accordance with site/enterprise procedures
		122.6.4	Work completion details are finalised in accordance with site/enterprise procedures

Range Statement

Stream: Production Plant

Field: Maintenance

Equivalencies: This unit of competence is based on unit 5.5 of the Electrical Contractors Industry Association Competency Standards (electrical stream)

Inspection should be planned with the appropriate parties to determine access, conditions and work requirements

Equipment may include AC motors, alternators, DC motors, generators, pumps, electro/mechanical motor starters, low voltage transformers/switchgear and associated control panels, motor operated valves, hoists and cranes, arc welders, resistive heaters, hot water units, exhaust fans, luminaries, batteries, metal detectors, general low voltage lighting, power circuits, control/indication and alarm circuits, electrical tools/appliances, workshop machinery and compressors

Materials may include masonry anchors, bolts, nuts, washers, screws, rivets, saddles, clips, brackets, solvents, adhesives, insulation tapes, heat shrink, sleeving, spiral binding, cable ties, solder, lubricants, oils, greases, sealants, lugs, connectors, terminal blocks, cable markers and identification labels

Components may include fuses/circuit breakers, earth leakage breakers, timers, contactors, contacts, coils, relays, resistors, ballasts, capacitors, solenoids, overloads, switches, plugs, busbar, cable, fans, thermostats, elements, seals, motor bearings and brushgear

Test and measurement instruments may include multimeters, tong testers, insulation resistance/continuity tester, ductor tester, overload injection tester and growlers

Fault finding and diagnostic techniques may include linear approach, half split rule, sensory detection, loop test, insulation/resistance and continuity tests

Fault indicators may include indication lamps, LED’s, alarms and flag relays

Work may be performed with equipment online

Work completion details may include, plant and maintenance records, job cards, check sheets and on device labelling updates

Work site environment may be affected by nearby plant or processes, e.g. heat, noise, dust, oil, water and chemical

Isolations can refer to electrical/mechanical or other associated processes

Evidence Guide

Critical aspects of evidence

The knowledge and application of relevant sections of: Occupational, health and safety legislation; Statutory legislation; Enterprise/site safety procedures; Enterprise/site emergency procedures

Attainment of electrical licence, deeming competency associated with electrical work

Preparation and planning of work

Verification techniques

Diagnostic and fault finding techniques and procedures

Repair techniques and procedures

Completion of work procedures

Context of assessment

Competency Standards should be assessed in the workplace or simulated workplace and under the normal range of workplace conditions

Assessment of this unit will be supported with documentary evidence, by means of endorsement stating type and application of work

Interdependent assessment of unit

Nil

Knowledge and Skills

A knowledge of:

Occupational health and safety standards; Relevant statutory requirements and codes of practice; Relevant Australian standards; Equipment and material required to perform the work; Isolation procedures; Layout of plant/work site and operation of its equipment; Fault finding and diagnostic techniques; Repair techniques; Electrical equipment; Regulatory procedures; Electrical principles; Test and measurement instruments; Circuit plan appreciation; Engineering and workshop practice; Communication principles

The ability to:

Apply occupational health and safety standards; Follow relevant statutory regulations and codes of practice; Apply relevant Australian standards; Use and update plans, drawings and texts; Use tools and relevant equipment; Use test and measurement instruments; Verify and identify faults; Use appropriate fault finding and diagnostic techniques; Repair faults; Select materials for the job; Apply regulatory procedures; Apply electrical principles; Communicate effectively; Apply data analysis techniques and tools.

UTP NEG123 A
Diagnose and Repair Faults in Electronic Equipment

Descriptor: This unit refers to the diagnosing and repairing faults in electronic equipment to board and component level and may involve the work to be carried out with equipment online

Elements		Performance criteria	
123.1	Plan and prepare for the work	123.1.1	Work requirements are identified from request/work orders or equivalent and clarified/confirmed with appropriate parties or by site inspection
		123.1.2	Occupational health and safety standards, statutory requirements, relevant Australian standards, codes of practice, manufacturers' specifications, environmental requirements and enterprise procedures are identified, applied and monitored throughout the work procedure
		123.1.3	Resources required to satisfy the work plan are identified, obtained and inspected for compliance with the job specifications
		123.1.4	Relevant plans, drawings and texts are selected and interpreted in accordance with the work plan
		123.1.5	Correct size, type and quantity of materials/components are determined, obtained and inspected for compliance with the job specifications
		123.1.6	Work is planned in detail including sequencing and prioritising and considerations made, where appropriate, for the maintenance of plant security and capacity in accordance with system/site requirements
		123.1.7	Co-ordination requirements, including requests for isolations where appropriate, are resolved with others involved, affected or required by the work
		123.1.8	Potential hazards are identified and prevention and/or control measures are selected in accordance with the work plan and site procedures
		123.1.9	Work area is prepared in accordance with work requirements and site procedures

Elements		Performance criteria	
		123.1.10	Where appropriate, the teams and individuals roles and responsibilities within the team are identified and, where required, assist in the provision of the on-the-job training
123.2	Verify the fault	123.2.1	Normal performance and function of the equipment is ascertained by consulting appropriate reference sources in accordance with the work plan
		123.2.2	Fault indicators and appropriate technical information/diagnostic techniques are used to verify reported symptoms/faults in accordance with the work plan
		123.2.3	Symptoms are reproduced and monitored if possible, whilst due regard for personnel safety and plant security is observed in accordance with the work plan
123.3	Find the fault	123.3.1	Required isolations are confirmed where appropriate in accordance with site requirements
		123.3.2	Fault finding is carried out in conjunction with others involved in, or affected by, the work in accordance with enterprise/job requirements
		123.3.3	Equipment components, wires, cables, terminations and support fixings are inspected for obvious faults in accordance with the work plan
		123.3.4	All appropriate fault finding/diagnostic techniques are identified, selected and used to determine the fault in accordance with the work plan
		123.3.5	All appropriate components are disconnected to enable accurate test measurements of suspected faulty components without the concern of “back-feed” readings in accordance with the work plan
		123.3.6	Test and measurement instruments are used in accordance with manufacturer’s instructions and job requirements

Elements		Performance criteria	
123.4	Determine cause of fault	123.4.1	All appropriate personnel are consulted in order to obtain as many details relating to the faulty equipment as possible in accordance with the work plan
		123.4.2	Appropriate use is made of any information from fault indicators and maintenance records in accordance with the work plan
		123.4.3	Valid conclusions about the nature and cause of the fault are reached from analysis of available evidence in accordance with the work plan
123.5	Repair or rectify the fault	123.5.1	Required isolations are confirmed where appropriate in accordance with site requirements
		123.5.2	Appropriate repair procedures are undertaken in conjunction with others involved in, or affected by, the work in accordance with the work plan
		123.5.3	Faulty, worn, damaged or unsecured components are replaced, repaired or secured in accordance with the work plan
		123.5.4	Parts and components are selected and replaced as required in accordance with appropriate specifications and the work plan
		123.5.5	Components disconnected for testing are reconnected having been proven free of faults and all terminations are then checked to ensure they are electrically and mechanically sound in accordance with the work plan
		123.5.6	All faults are repaired or rectified in accordance with the work plan
		123.5.7	Final job inspection is performed and permits are relinquished as required in accordance with the work plan
123.6	Complete the work	123.6.1	Work is completed and appropriate personnel notified in accordance with site/enterprise requirements
		123.6.2	Work area is cleared of waste, cleaned, restored and secured in accordance with site/enterprise procedures

Elements	Performance criteria
	123.6.3 Plant, tools and equipment are maintained and stored in accordance with site/enterprise procedures
	123.6.4 Work completion details are finalised in accordance with site/enterprise procedures

Range Statement

Stream: Production Plant

Field: Maintenance

Equivalencies: This unit of competence is based on unit 5.5 of the Electrical Contractors Industry Association Competency Standards (electronic stream)

Inspection should be planned with the appropriate parties to determine access, conditions and work requirements

Equipment may include analysers, recorders, nuclear devices, fire panels, T/C converters, electronic controllers, smart transmitters, coal feeders, belt weighers, PLC's, ultrasonic sensors, turbine/compressor supervisory equipment, combustion control equipment, wear monitors, water ingress protection equipment, printers, compressor surge control equipment, fuel governor equipment, gas detection panels, temperature monitoring equipment, VCRs, closed circuit TVs, communications equipment and protection equipment

Materials may include cables, solder/flux, lubricants, cleaning solvents, contact cleaners, connectors, adhesives and sealants

Components may include analyser sensing elements, load cells, PLC input/output blocks, printed circuit boards, protection devices, switches, diodes, transistors, SCR's, triacs, diacs, LED's, integrated circuits, resistors, capacitors, inductors and transformers

Test and measurement instruments may include multimeter, decade box, DC, I/V standard, potentiometer, radiation meter, hand-held communicator/ programmer, frequency counter, function generator, CRO, LCR bridge, logic analyser and specialised test equipment

Work may be performed with equipment on line

Work completion details may include plant and maintenance records, job cards, check sheets and on device labelling updates

Work site environment may be affected by nearby plant or processes, e.g. heat, noise, dust, oil, water and chemical

Isolations can refer to electrical/mechanical or other associated processes

Evidence Guide

Critical aspects of evidence

The knowledge and application of relevant sections of: Occupational, health and safety legislation; Statutory legislation; Enterprise/site safety procedures; Enterprise/site emergency procedures

Attainment of electrical licence, deeming competency associated with electrical work

Preparation and planning of work

Verification techniques

Diagnostic and fault finding techniques and procedures

Repair techniques and procedures

Completion of work procedures

Context of assessment

Competency Standards should be assessed in the workplace or simulated workplace and under the normal range of workplace conditions

Assessment of this unit will be supported with documentary evidence, by means of endorsement stating type and application of work

Interdependent assessment of unit

Nil

Knowledge and Skills

A knowledge of:

Occupational health and safety standards; Relevant statutory requirements and codes of practice; Relevant Australian standards; Equipment and material required to perform the work; Isolation procedures; Layout of plant/work site and operation of its equipment; Fault finding and diagnostic techniques; Repair techniques; Electronic equipment; Regulatory procedures; Electrical principles; Test and measurement instruments; Circuit plan appreciation; Engineering and electronic workshop practice; Communication principles

The ability to:

Apply occupational health and safety standards; Follow relevant statutory regulations and codes of practice; Apply relevant Australian standards; Use and update plans, drawings and texts; Use tools and relevant equipment; Use test and measurement instruments; Verify and identify faults; Use appropriate fault finding and diagnostic techniques; Repair faults; Select materials for the job; Apply regulatory procedures; Apply electrical principles; Communicate effectively; Apply data analysis techniques and tools; Apply engineering and electronic workshop practices

UTP NEG124 A
Diagnose and Repair Faults in Complex Electrical Equipment

Descriptor: This unit refers to the diagnosing and repairing of faults in complex and H.V. electrical equipment, and may involve the work to be carried out with equipment on line

Elements		Performance criteria	
124.1	Plan and prepare for the work	124.1.1	Work requirements are identified from request/work orders or equivalent and clarified/confirmed with appropriate parties or by site inspection
		124.1.2	Occupational health and safety standards, statutory requirements, relevant Australian standards, codes of practice, manufacturers' specifications, environmental requirements and enterprise procedures are identified, applied and monitored throughout the work procedure
		124.1.3	Resources required to satisfy the work plan are identified, obtained and inspected for compliance with the job specifications
		124.1.4	Relevant plans, drawings and texts are selected and interpreted in accordance with the work plan
		124.1.5	Correct size, type and quantity of materials/components are determined, obtained and inspected for compliance with the job specifications
		124.1.6	Work is planned in detail including sequencing and prioritising and considerations made, where appropriate, for the maintenance of plant security and capacity in accordance with system/site requirements
		124.1.7	Co-ordination requirements, including requests for isolations where appropriate, are resolved with others involved, affected or required by the work
		124.1.8	Potential hazards are identified and prevention and/or control measures are selected in accordance with the work plan and site procedures

Elements		Performance criteria	
		124.1.9	Work area is prepared in accordance with work requirements and site procedures
		125.1.10	Where appropriate, the teams and individuals roles and responsibilities within the team are identified and, where required, assist in the provision of the on-the-job training
124.2	Verify the fault	124.2.1	Normal performance and function of the equipment is ascertained by consulting appropriate reference sources in accordance with the work plan
		124.2.2	Fault indicators and appropriate technical information/diagnostic techniques are used to verify reported symptoms/faults in accordance with the work plan
		124.2.3	Symptoms are reproduced and monitored if possible, whilst due regard for personnel safety and plant security is observed in accordance with the work plan
124.3	Find the fault	124.3.1	Required isolations are confirmed where appropriate in accordance with site requirements
		124.3.2	Fault finding is carried out in conjunction with others involved in, or affected by, the work in accordance with enterprise/job requirements
		124.3.3	Equipment components, wires, cables, terminations and support fixings are inspected for obvious faults in accordance with the work plan
		124.3.4	All appropriate fault finding/diagnostic techniques are identified, selected and used to determine the fault in accordance with the work plan
		124.3.5	All appropriate components are disconnected to enable accurate test measurements of suspected faulty components without the concern of "back-feed" readings in accordance with the work plan

Elements		Performance criteria	
		124.3.6	Test and measurement instruments are used in accordance with manufacturer's instructions and job requirements
124.4	Determine cause of fault	124.4.1	All appropriate personnel are consulted in order to obtain as many details relating to the faulty equipment as possible in accordance with the work plan
		124.4.2	Appropriate use is made of any information from fault indicators and maintenance records in accordance with the work plan
		124.4.3	Valid conclusions about the nature and cause of the fault are reached from analysis of available evidence in accordance with the work plan
124.5	Repair or rectify the fault	124.5.1	Required isolations are confirmed where appropriate in accordance with site requirements
		124.5.2	Appropriate repair procedures are undertaken in conjunction with others involved in, or affected by, the work in accordance with the work plan
		124.5.3	Faulty, worn, damaged or unsecured components are replaced, repaired or secured in accordance with the work plan
		124.5.4	Parts and components are selected and replaced as required in accordance with appropriate specifications and the work plan
		124.5.5	Components disconnected for testing are reconnected having been proven free of faults and all terminations are then checked to ensure they are electrically and mechanically sound in accordance with the work plan
		124.5.6	All faults are repaired or rectified in accordance with the work plan
		124.5.7	Final job inspection is performed and permits are relinquished as required in accordance with the work plan

Elements		Performance criteria	
124.6	Complete the work	124.6.1	Work is completed and appropriate personnel notified in accordance with site/enterprise requirements
		124.6.2	Work area is cleared of waste, cleaned, restored and secured in accordance with site/enterprise procedures
		124.6.3	Plant, tools and equipment are maintained and stored in accordance with site/enterprise procedures
		124.6.4	Work completion details are finalised in accordance with site/enterprise procedures

Range Statement

Stream: Production Plant

Field: Maintenance

Equivalencies: This unit of competence is based on unit 7.2 if the Electrical Contractors Industry Association Competency Standards (electrical stream)

Inspection should be planned with the appropriate parties to determine access, conditions and work requirements

Equipment may include HV transformers, tap changers, switchgear and associated control panels, alarms, alternators, igniters, flame scanners, unit control panels, mimic panels, conveyors, alternator cooling systems, automatic voltage regulators, sootblowers, vibratory feeders, battery chargers, precipitators and overhead cranes

Materials may include masonry anchors, bolts, nuts, washers, screws, rivets, saddles, clips, brackets, solvents, adhesives, insulation tapes, heat shrink, sleeving, spiral binding, cable ties, solder, lubricants, oil, greases, sealants, lugs, connectors, terminal blocks, cable markers, identification labels, transformer oil, jointing compound, cable compounds and phase markers

Components may include fuses/circuit breakers, timers, contactors, contacts, coils, relays, solenoids, overloads, switches, plugs, busbar, cable, fans, thermostats, elements, seals and motor bearings and brush gear

Test and measurement instruments may include multimeters, tong testers, insulation resistance/continuity tester, ductor tester, growlers, overload injection tester, liquid leak tester, pressure gauges, vacuum gauges, dew point test equipment, insulating oil tester and specialist test equipment

Fault finding and diagnostic techniques may include linear approach, half split rule, sensory detection, loop test, insulation/resistance and continuity tests

Fault indicators may include indication lamps, LEDs, alarms and flag relays

Work may be performed with equipment on line

Work completion details may include, plant and maintenance records, job cards, check sheets and on device labelling updates.

Work site environment may be affected by nearby plant or process, e.g. heat, noise, dust, oil, water and chemical

Isolations can refer to electrical/mechanical or other associated processes

Evidence Guide

Critical aspects of evidence

The knowledge and application of relevant sections of: Occupational, health and safety legislation; Statutory legislation; Enterprise/site safety procedures; Enterprise/site emergency procedures

Attainment of electrical licence, deeming competency associated with electrical work

Preparation and planning of work

Verification techniques

Diagnostic and fault finding techniques and procedures

Repair techniques and procedures

Completion of work procedures

Context of assessment

Competency Standards should be assessed in the workplace or simulated workplace and under the normal range of workplace conditions

Assessment of this unit will be supported with documentary evidence, by means of endorsement stating type and application of work

Interdependent assessment of unit

Nil

Knowledge and Skills

A knowledge of:

Occupational health and safety standards; Relevant statutory requirements and codes of practice; Relevant Australian standards;

The ability to:

Apply occupational health and safety standards; Follow relevant statutory regulations and codes of practice; Apply relevant Australian standards.

UTP NEG125 A
Diagnose and Repair Faults in Electrical and Electronic Systems

Descriptor: This unit refers to the diagnosis and repairing of faults in electrical/electronic systems

Elements		Performance criteria	
125.1	Plan and prepare for the work	125.1.1	Work requirements are identified from request/work orders or equivalent and clarified/confirmed with appropriate parties or by site inspection
		125.1.2	Occupational health and safety standards, statutory requirements, relevant Australian standards, codes of practice, manufacturers' specifications, environmental requirements and enterprise procedures are identified, applied and monitored throughout the work procedure
		125.1.3	Resources required to satisfy the work plan are identified, obtained and inspected for compliance with the job specifications
		125.1.4	Relevant plans, drawings and texts are selected and interpreted in accordance with the work plan
		125.1.5	Correct size, type and quantity of materials/components are determined, obtained and inspected for compliance with the job specifications
		125.1.6	Work is planned in detail including sequencing and prioritising and considerations made, where appropriate, for the maintenance of plant security and capacity in accordance with system/site requirements
		125.1.7	Co-ordination requirements, including requests for isolations where appropriate, are resolved with others involved, affected or required by the work
		125.1.8	Potential hazards are identified and prevention and/or control measures are selected in accordance with the work plan and site procedures

Elements		Performance criteria	
		125.1.9	Work area is prepared in accordance with work requirements and site procedures
		125.1.10	Where appropriate, the teams and individuals roles and responsibilities within the team are identified and, where required, assist in the provision of the on-the-job training
125.2	Verify the fault	125.2.1	Normal performance and function of the equipment is ascertained by consulting appropriate reference sources in accordance with the work plan
		125.2.2	Fault indicators and appropriate technical information/diagnostic techniques are used to verify reported symptoms/faults in accordance with the work plan
		125.2.3	Symptoms are reproduced and monitored if possible, whilst due regard for personnel safety and plant security is observed in accordance with the work plan
125.3	Find the fault	125.3.1	Required isolations are confirmed where appropriate in accordance with site requirements
		125.3.2	Fault finding is carried out in conjunction with others involved in, or affected by the work in accordance with enterprise/job requirements
		125.3.3	Equipment components, wires, cables, terminations and support fixings are inspected for obvious faults in accordance with the work plan
		125.3.4	All appropriate fault finding/diagnostic techniques are identified, selected and used to determine the fault in accordance with the work plan
		125.3.5	All appropriate components are disconnected to enable accurate test measurements of suspected faulty components without the concern of “back feed” readings in accordance with the work plan

Elements		Performance criteria	
		125.3.6	Test and measurement instruments are used in accordance with manufacturer's instructions and job requirements
125.4	Determine cause of fault	125.4.1	All appropriate personnel are consulted in order to obtain as many details relating to the faulty equipment as possible in accordance with the work plan
		125.4.2	Appropriate use is made of any information from fault indicators and maintenance records in accordance with the work plan
		125.4.3	Valid conclusions about the nature and cause of the fault are reached from analysis of available evidence in accordance with the work plan
125.5	Repair or rectify the fault	125.5.1	Required isolations are confirmed where appropriate in accordance with site requirements
		125.5.2	Appropriate repair procedures are undertaken in conjunction with others involved in, or affected by, the work in accordance with the work plan
		125.5.3	Faulty, worn, damaged or unsecured components are replaced, repaired or secured in accordance with the work plan
		125.5.4	Parts and components are selected and replaced as required in accordance with appropriate specifications and the work plan
		125.5.5	Components disconnected for testing are reconnected having been proven free of faults and all terminations are then checked to ensure they are electrically and mechanically sound in accordance with the work plan
		125.5.6	All faults are repaired or rectified in accordance with the work plan
		125.5.7	Final job inspection is performed and permits are relinquished as required in accordance with the work plan

Elements		Performance criteria	
125.6	Complete the work	125.6.1	Work is completed and appropriate personnel notified in accordance with site/enterprise requirements
		125.6.2	Work area is cleared of waste, cleaned, restored and secured in accordance with site/enterprise procedures
		125.6.3	Plant, tools and equipment are maintained and stored in accordance with site/enterprise procedures
		125.6.4	Work completion details are finalised in accordance with site/enterprise procedures

Range Statement

Stream: Production Plant

Field: Maintenance

Equivalencies: This unit of competence is based on unit 9.1 of the Electrical Contractors Industry Association Competency Standards (electrical stream)

Inspection should be planned with the appropriate parties to determine access, conditions and work requirements

Systems can refer to water ingress protection system, ashing system, burner management system, conveyor systems, sootblower system, alternator cooling system, annunciator system and flame surveillance system, emergency shutdown systems, turbine compressor set control systems, compressor station control systems, gas engine alternator control systems, bore control systems, distributive control systems and complex fire/security systems

Materials may refer to fixings, lubricants, cleaning solvents, contact cleaners, emery paper, grease, oil, connectors, terminal blocks, lugs, solder, adhesives, insulation tape, heat shrink and sealants

Components may refer to transformers, switchboards, control panels, PLC's, motor starters, motor operated valves, battery chargers, power supplies and annunciators

Test and measurement instruments may refer to multimeters, tong testers, insulation resistance/continuity tester, ductor tester, overload injection tester, cathode ray oscilloscope, variac, hand held programmer, logic probe and recorders

Fault finding and diagnostic techniques can refer to linear approach, half split rule, sensory detection, loop test, insulation/resistance and continuity tests

Fault indicators can refer to indication lamps LEDs, VDUs alarms and flag relays

Work may be performed with system on line

Work completion details may include plant and maintenance records, job cards, check sheets and on device labelling updates

Work site environment may be affected by nearby plant or processes, e.g. heat, noise, dust, oil, water and chemical

Isolations can refer to electrical/mechanical or other associated processes

Evidence Guide

Critical aspects of evidence

The knowledge and application of relevant sections of: Occupational, health and safety legislation; Statutory legislation; Enterprise/site safety procedures; Enterprise/site emergency procedures

Attainment of electrical licence, deeming competency associated with electrical work

Preparation and planning of work

Verification techniques

Diagnostic and fault finding techniques and procedures

Repair techniques and procedures

Completion of work procedures

Context of assessment

Competency Standards should be assessed in the workplace or simulated workplace and under the normal range of workplace conditions

Assessment of this unit will be supported with documentary evidence, by means of endorsement stating type and application of work

Interdependent assessment of unit

Nil

Knowledge and Skills

A knowledge of:

Occupational health and safety standards; Relevant statutory requirements and codes of practice; Relevant Australian standards; Equipment and material required to perform the work; Isolation procedures; Layout of plant/work site and operation of its equipment; Fault finding and diagnostic techniques; Repair techniques; Electronic and electrical systems; Regulatory procedures; Electrical principles; Test and measurement instruments; Circuit plan appreciation; Engineering and electronic workshop practice; Communication principles

The ability to:

Apply occupational health and safety standards; Follow relevant statutory regulations and codes of practice; Apply relevant Australian standards; Use and update plans, drawings and texts; Use tools and relevant equipment; Use test and measurement instruments; Verify and identify faults; Use appropriate fault finding and diagnostic techniques; Repair faults; Select materials for the job; Apply regulatory procedures; Apply electrical principles; Communicate effectively; Apply data analysis techniques and tools; Apply engineering and electronic workshop practices

UTP NEG126 A
Modify Electrical Equipment

Descriptor: This unit refers to the modification of electrical equipment and may include, but not be limited to, alterations, additions or adjustments

Elements		Performance criteria	
126.1	Plan and prepare for the work	126.1.1	Work requirements are identified from request/work orders or equivalent and clarified/confirmed with appropriate parties or by site inspection
		126.1.2	Occupational health and safety standards, statutory requirements, relevant Australian standards, codes of practice, manufacturers' specifications, environmental requirements and enterprise procedures are identified, applied and monitored throughout the work procedure
		126.1.3	Resources required to satisfy the work plan are identified, obtained and inspected for compliance with the job specifications
		126.1.4	Relevant plans, drawings and texts are selected and interpreted in accordance with the work plan
		126.1.5	Correct size, type and quantity of materials/components are determined, obtained and inspected for compliance with the job specifications
		126.1.6	Work is planned in detail including sequencing and prioritising and considerations made, where appropriate, for the maintenance of plant security and capacity in accordance with system/site requirements
		126.1.7	Co-ordination requirements, including requests for isolations where appropriate, are resolved with others involved, affected or required by the work
		126.1.8	Potential hazards are identified and prevention and/or control measures are selected in accordance with the work plan and site procedures
		126.1.9	Work area is prepared in accordance with work requirements and site procedures

Elements		Performance criteria	
		126.1.10	Where appropriate, the teams and individuals roles and responsibilities within the team are identified and, where required, assist in the provision of the on-the-job training
126.2	Carry out modification	126.2.1	Required isolations are confirmed where appropriate in accordance with site requirements
		126.2.2	Equipment is modified using appropriate plans, drawings and texts in accordance with the work plan
		126.2.3	Equipment is modified in conjunction with others involved in, or affected by, the work in accordance with the work plan
		126.2.4	Modifications are carried out mindful of effects on or unnecessary loss of other equipment in accordance with the work plan
		126.2.5	Modified equipment is set up to suit operational requirements and in accordance with manufacturer's specifications and the work plan
		126.2.6	Final job inspection is performed and permits relinquished as required in accordance with the work plan
126.3	Complete the work	126.3.1	Work is completed and appropriate personnel notified in accordance with site/enterprise requirements
		126.3.2	Work area is cleared of waste, cleaned, restored and secured in accordance with site/enterprise procedures
		126.3.3	Plant, tools and equipment are maintained and stored in accordance with site/enterprise procedures
		126.3.4	Work completion details are finalised in accordance with site/enterprise procedures

Range Statement

Stream: Production Plant

Field: Maintenance

Equivalencies: This unit of competence is based on unit 6.2 of the Electrical Contractors Industry Association Competency Standards (electrical stream)

Inspection should be planned with the appropriate parties to determine access, conditions and work requirements

Equipment may include AC motors, alternators, DC motors, generators, pumps, electro/mechanical motor starters, low voltage transformers/switchgear and associated control panels, motor operated valves, hoists and cranes, arc welders, resistive heaters, hot water units, exhaust fans, luminaries, batteries, metal detectors, general low voltage lighting, power circuits, control/indication and alarm circuits, electrical tools/appliances, workshop machinery and compressors

Materials may include masonry anchors, bolts, nuts, washers, screws, rivets, saddles, clips, brackets, solvents, adhesives, insulation tapes, heat shrink, sleeving, spiral binding, cable ties, solder, lubricants, oils, greases, sealants, lugs, connectors, terminal blocks, cable markers and identification labels

Components may include fuses/circuit breakers, earth leakage breakers, timers, contactors, contacts, coils, relays, resistors, ballasts, capacitors, solenoids, overloads, switches, plugs, busbar, cable, fans, thermostats, elements, seals, motor bearings and brushgear

Test and measurement instruments may include multimeters, tong testers, insulation resistance/continuity tester, ductor tester, overload injection tester and growlers

Work may be performed with equipment on line

Work completion details may include plant and maintenance records, job cards, check sheets and on device labelling updates

Work site environment may be affected by nearby plant or processes, e.g. heat, noise, dust, oil, water and chemical

Isolations can refer to electrical/mechanical or other associated processes

Evidence Guide

Critical aspects of evidence

The knowledge and application of relevant sections of: Occupational, health and safety legislation; Statutory legislation; Enterprise/site safety procedures; Enterprise/site emergency procedures

Attainment of electrical licence, deeming competency associated with electrical work

Preparation and planning of work

Modification techniques and procedures

Completion of work procedures

Context of assessment

Competency Standards should be assessed in the workplace or simulated workplace and under the normal range of workplace conditions

Assessment of this unit will be supported with documentary evidence, by means of endorsement stating type and application of work

Interdependent assessment of unit

Nil

Knowledge and Skills

A knowledge of:

Occupational health and safety standards; Relevant statutory requirements and codes of practice; Relevant Australian standards; Equipment and material required to perform the work; Isolation procedures; General layout of plant/work site and operation of its equipment; Modification techniques; Electrical equipment; Regulatory procedures; Electrical principles; Test and measurement instruments; Circuit plan appreciation; Engineering and workshop practice; Communication principles

The ability to:

Apply occupational health and safety standards; Follow relevant statutory regulations and codes of practice; Apply relevant Australian standards; Use and update plans, drawings and texts; Use tools and relevant equipment; Use test and measurement instruments; Modify electrical equipment; Select materials for the job; Apply regulatory procedures; Apply electrical principles; Carry out work completion details; Apply data analysis techniques and tools; Communicate effectively.

UTP NEG127 A
Modify Complex Electrical Equipment

Descriptor: This unit refers to the modification of complex and H.V electrical equipment and may include, but not be limited to, alterations, additions or adjustments

Elements		Performance criteria	
127.1	Plan and prepare for the work	127.1.1	Work requirements are identified from request/work orders or equivalent and clarified/confirmed with appropriate parties or by site inspection
		127.1.2	Occupational health and safety standards, statutory requirements, relevant Australian standards, codes of practice, manufacturers' specifications, environmental requirements and enterprise procedures are identified, applied and monitored throughout the work procedure
		127.1.3	Resources required to satisfy the work plan are identified, obtained and inspected for compliance with the job specifications
		127.1.4	Relevant plans, drawings and texts are selected and interpreted in accordance with the work plan
		127.1.5	Correct size, type and quantity of materials/components are determined, obtained and inspected for compliance with the job specifications
		127.1.6	Work is planned in detail including sequencing and prioritising and considerations made, where appropriate, for the maintenance of plant security and capacity in accordance with system/site requirements
		127.1.7	Co-ordination requirements, including requests for isolations where appropriate, are resolved with others involved, affected or required by the work
		127.1.8	Potential hazards are identified and prevention and/or control measures are selected in accordance with the work plan and site procedures
		127.1.9	Work area is prepared in accordance with work requirements and site procedures.

Elements		Performance criteria	
		127.1.10	Where appropriate, the teams and individuals roles and responsibilities within the team are identified and, where required, assist in the provision of the on-the-job training
127.2	Carry out modification	127.2.1	Required isolations are confirmed where appropriate in accordance with site requirements
		127.2.2	Equipment is modified using appropriate plans, drawings and texts in accordance with the work plan
		127.2.3	Equipment is modified in conjunction with others involved in, or affected by, the work in accordance with the work plan
		127.2.4	Modifications are carried out, mindful of effects on, or unnecessary loss of, other equipment in accordance with the work plan
		127.2.5	Modified equipment is set up to suit operational requirements and in accordance with manufacturer's specifications and the work plan
		127.2.6	Final job inspection is performed and permits relinquished as required in accordance with the work plan
127.3	Complete the work	127.3.1	Work is completed and appropriate personnel notified in accordance with site/enterprise requirements
		127.3.2	Work area is cleared of waste, cleaned, restored and secured in accordance with site/enterprise procedures
		127.3.3	Plant, tools and equipment are maintained and stored in accordance with site/enterprise procedures
		127.3.4	Work completion details are finalised in accordance with site/enterprise procedures

Range Statement

Stream: Production Plant

Field: Maintenance

Equivalencies: This unit of competence is based on unit 7.4 of the Electrical Contractors Industry Association Competency Standards (electrical stream)

Inspection should be planned with the appropriate parties to determine access, conditions and work requirements

Equipment may include HV transformers, tap changers, switchgear and associated control panels, alarms, alternators, igniters, flame scanners, unit control panels, mimic panels, conveyors, alternator cooling systems, automatic voltage regulators, sootblowers, vibratory feeders, battery chargers, precipitators and overhead cranes

Materials may include masonry anchors, bolts, nuts, washers, screws, rivets, saddles, clips, brackets, solvents, adhesives, insulation tapes, heat shrink, sleeving, spiral binding, cable ties, solder, lubricants, oil, greases, sealants, lugs, connectors, terminal blocks, cable markers, identification labels, transformer oil, jointing compound, cable compounds and phase markers

Components may include fuses/circuit breakers, timers, contactors, contacts, coils, relays, solenoids, overloads, switches, plugs, busbar, cable, fans, thermostats, elements, seals and motor bearings and brush gear

Test and measurement instruments may include multimeters, tong testers, insulation resistance/continuity tester, ductor tester, growlers, overload injection tester, liquid leak tester, pressure gauges and vacuum gauges

Work may be performed with equipment on line

Work completion details may include plant and maintenance records, job cards, check sheets and on device labelling updates

Work site environment may be affected by nearby plant or processes, e.g. heat, noise, dust, oil, water and chemical

Isolations can refer to electrical/mechanical or other associated processes

Evidence Guide

Critical aspects of evidence

The knowledge and application of relevant sections of: Occupational, health and safety legislation; Statutory legislation; Enterprise/site safety procedures; Enterprise/site emergency procedures

Attainment of electrical licence, deeming competency associated with electrical work

Preparation and planning of work

Modification techniques and procedures

Completion of work procedures

Context of assessment

Competency Standards should be assessed in the workplace or simulated workplace and under the normal range of workplace conditions

Assessment of this unit will be supported with documentary evidence, by means of endorsement stating type and application of work

Interdependent assessment of unit

Nil

Knowledge and Skills

A knowledge of:

Occupational health and safety standards; Relevant statutory requirements and codes of practice; Relevant Australian standards; Equipment and material required to perform the work; Isolation procedures; General layout of plant/work site and operation of its equipment; Modification techniques; Complex electrical equipment; Regulatory procedures; Electrical principles; Test and measurement instruments; Circuit plan appreciation; Engineering and workshop practice; Communication principles

The ability to:

Apply occupational health and safety standards; Follow relevant statutory regulations and codes of practice; Apply relevant Australian standards; Use and update plans, drawings and texts; Use tools and relevant equipment; Use test and measurement instruments; Modify complex electrical equipment; Select materials for the job; Apply regulatory procedures; Apply electrical principles; Carry out work completion details; Apply data analysis techniques and tools; Communicate effectively.

UTP NEG128 A
Modify Electronic Electrical Equipment

Descriptor: This unit refers to the modification of electronic electrical equipment and may include, but not be limited to, alterations, additions or adjustments

Elements		Performance criteria	
128.1	Plan and prepare for the work	128.1.1	Work requirements are identified from request/work orders or equivalent and clarified/confirmed with appropriate parties or by site inspection
		128.1.2	Occupational health and safety standards, statutory requirements, relevant Australian standards, codes of practice, manufacturers' specifications, environmental requirements and enterprise procedures are identified, applied and monitored throughout the work procedure
		128.1.3	Resources required to satisfy the work plan are identified, obtained and inspected for compliance with the job specifications
		128.1.4	Relevant plans, drawings and texts are selected and interpreted in accordance with the work plan
		128.1.5	Correct size, type and quantity of materials/components are determined, obtained and inspected for compliance with the job specifications
		128.1.6	Work is planned in detail including sequencing and prioritising and considerations made, where appropriate, for the maintenance of plant security and capacity in accordance with system/site requirements
		128.1.7	Co-ordination requirements, including requests for isolations where appropriate, are resolved with others involved, affected or required by the work
		128.1.8	Potential hazards are identified and prevention and/or control measures are selected in accordance with the work plan and site procedures
		128.1.9	Work area is prepared in accordance with work requirements and site procedures.

Elements		Performance criteria	
		128.1.10	Where appropriate, the teams and individuals roles and responsibilities within the team are identified and, where required, assist in the provision of the on-the-job training
128.2	Carry out modification	128.2.1	Required isolations are confirmed where appropriate in accordance with site requirements
		128.2.2	Equipment is modified using appropriate plans, drawings and texts in accordance with the work plan
		128.2.3	Equipment is modified in conjunction with others involved in, or affected by, the work in accordance with the work plan
		128.2.4	Modifications are carried out, mindful of effects on, or unnecessary loss of, other equipment in accordance with the work plan
		128.2.5	Modified equipment is set up to suit operational requirements and in accordance with manufacturer's specifications and the work plan
		128.2.6	Final job inspection is performed and permits relinquished as required in accordance with the work plan
128.3	Complete the work	128.3.1	Work is completed and appropriate personnel notified in accordance with site/enterprise requirements
		128.3.2	Work area is cleared of waste, cleaned, restored and secured in accordance with site/enterprise procedures
		128.3.3	Plant, tools and equipment are maintained and stored in accordance with site/enterprise procedures
		128.3.4	Work completion details are finalised in accordance with site/enterprise procedures

Range Statement

Stream: Production Plant

Field: Maintenance

Equivalencies: This unit of competence is based on unit 7.4 of the Electrical Contractors Industry Association Competency Standards (electrical stream)

Inspection should be planned with the appropriate parties to determine access, conditions and work requirements

Equipment may refer to PLC's, I/O modules, VDU's, soft start motor starters, alarms, stabilised power supply units and uninterrupted power supply units

Materials may refer to insulation tapes, heat shrink, sleeving, spiral binding, cable ties, solder, lubricants, oil, greases, sealants, lugs, connectors, terminal blocks, cable markers and identification labels

Components may include fuses/circuit breakers, timers, contactors, contacts, coils, relays, resistors, inductors, capacitors, bridge rectifiers, diodes, heat sinks, solenoids, overloads, plug in printed circuit boards, switches, plugs, cable and thermistors

Test and measurement instruments may include multimeters, tong testers, insulation resistance/continuity tester, ductor tester, overload injection tester, growlers, cathode ray oscilloscope, variac, hand held programmer, frequency generator, high voltage generators and logic probe

Work completion details may include plant and maintenance records, job cards, check sheets and on device labelling updates

Work site environment may be affected by nearby plant or processes, e.g. heat, noise, dust, oil, water and chemical

Isolations can refer to electrical/mechanical or other associated processes

Evidence Guide

Critical aspects of evidence

The knowledge and application of relevant sections of: Occupational, health and safety legislation; Statutory legislation; Enterprise/site safety procedures; Enterprise/site emergency procedures

Attainment of electrical licence, deeming competency associated with electrical work

Preparation and planning of work

Modification techniques and procedures

Completion of work procedures

Context of assessment

Competency Standards should be assessed in the workplace or simulated workplace and under the normal range of workplace conditions

Assessment of this unit will be supported with documentary evidence, by means of endorsement stating type and application of work

Interdependent assessment of unit

Nil

Knowledge and Skills

A knowledge of:

Occupational health and safety standards; Relevant statutory requirements and codes of practice; Relevant Australian standards; Equipment and material required to perform the work; Isolation procedures; General layout of plant/work site and operation of its equipment; Modification techniques; Electronic electrical equipment; Regulatory procedures; Electrical principles; Test and measurement instruments; Circuit plan appreciation; Engineering and electronic workshop practice; Communication principles

The ability to:

Apply occupational health and safety standards; Follow relevant statutory regulations and codes of practice; Apply relevant Australian standards; Use and update plans, drawings and texts; Use tools and relevant equipment; Use test and measurement instruments; Modify electronic electrical equipment; Select materials for the job; Apply regulatory procedures; Apply electrical principles; Carry out work completion details; Apply data analysis techniques and tools; Communicate effectively; Apply engineering and electronic workshop practices

UTP NEG129 A
Test and Commission Electrical Equipment

Descriptor: This unit refers to the testing and commissioning of electrical wiring systems and equipment

Elements		Performance criteria	
129.1	Plan and prepare for the work	129.1.1	Work requirements are identified from request/work orders or equivalent and clarified/confirmed with appropriate parties or by site inspection
		129.1.2	Occupational health and safety standards, statutory requirements, relevant Australian standards, codes of practice, manufacturers' specifications, environmental requirements and enterprise procedures are identified, applied and monitored throughout the work procedure
		129.1.3	Resources required to satisfy the work plan are identified, obtained and inspected for compliance with the job specifications
		129.1.4	Relevant plans, drawings and texts are selected and interpreted in accordance with the work plan
		129.1.5	Correct size, type and quantity of materials/components are determined, obtained and inspected for compliance with the job specifications
		129.1.6	Work is planned in detail including sequencing and prioritising and considerations made, where appropriate, for the maintenance of plant security and capacity in accordance with system/site requirements
		129.1.7	Co-ordination requirements, including requests for isolations where appropriate, are resolved with others involved, affected or required by the work
		129.1.8	Potential hazards are identified and prevention and/or control measures are selected in accordance with the work plan and site procedures
		129.1.9	Work area is prepared in accordance with work requirements and site procedures

Elements		Performance criteria	
		129.1.10	Where appropriate, the teams and individuals roles and responsibilities within the team are identified and, where required, assist in the provision of the on-the-job training
129.2	Test wiring systems	129.2.1	Required isolations are confirmed where appropriate in accordance with site requirements
		129.2.2	Wiring systems are tested using appropriate plans, drawings and texts in accordance with the work plan
		129.2.3	Wiring systems are tested in conjunction with others involved in, or affected by, the work in accordance with the work plan
		129.2.4	Wiring systems, including enclosures/supports, are inspected prior to testing to ensure absence of any damage, defects and/or signs of deterioration in accordance with the work plan
		129.2.5	Fixed wiring is tested as appropriate and results/observations are interpreted and documented to confirm compliance with job specifications
129.3	Test the equipment	129.3.1	Required isolations are confirmed where appropriate in accordance with site requirements
		129.3.2	Equipment is tested using appropriate plans, drawings and texts in accordance with the work plan
		129.3.3	Equipment is tested in conjunction with other involved in, or affected by, the work in accordance with the work plan
		129.3.4	Required test conditions are confirmed and the equipment is inspected to ensure absence of any damage, defects and/or signs of deterioration in accordance with the work plan
		129.3.5	Equipment is tested using appropriate test techniques in accordance with the work plan

Elements		Performance criteria	
		129.3.6	Equipment test results/observations are interpreted and documented to confirm compliance with job specifications
129.4	Commission the equipment	129.4.1	Required isolations are confirmed where appropriate in accordance with site requirements
		129.4.2	Equipment is commissioned using appropriate plans, drawings and texts in accordance with the work plan
		129.4.3	Equipment is commissioned in conjunction with others involved in, or affected by, the work in accordance with the work plan
		129.4.4	Equipment is set up in accordance with operational requirements/manufacturer's specifications
		129.4.5	Testing and monitoring procedures are followed and results monitored, interpreted and documented to ensure equipment operates/functions within specifications
		129.4.6	Equipment is commissioned with due regard being paid to plant security and capacity in accordance with the work plan
		129.4.7	Final job inspection is carried out and permits relinquished as required in accordance with the work plan
129.5	Complete the work	129.5.1	Work is completed and appropriate personnel notified in accordance with site/enterprise requirements
		129.5.2	Work area is cleared of waste, cleaned, restored and secured in accordance with site/enterprise procedures
		129.5.3	Plant, tools and equipment are maintained and stored in accordance with site/enterprise procedures
		129.5.4	Work completion details are finalised in accordance with site/enterprise procedures

Range Statement

Stream: Production Plant

Field: Maintenance

Equivalencies: This unit of competence is based on unit 6.4 of the Electrical Contractors Industry Association Competency Standards (electrical stream)

Inspection should be planned with the appropriate parties to determine access, conditions and work requirements

Equipment may include AC motors, alternators, DC motors, generators, pumps, electro/mechanical motor starters, low voltage transformers/switchgear and associated control panels, motor operated valves, hoists and cranes, arc welders, resistive heaters, hot water units, exhaust fans, luminaries, batteries, metal detectors, general low voltage lighting, power circuits, control/indication and alarm circuits, electrical tools/appliances, workshop machinery and compressors

Materials may include masonry anchors, bolts, nuts, washers, screws, rivets, saddles, clips, brackets, solvents, adhesives, insulation tapes, heat shrink, sleeving, spiral binding, cable ties, solder, lubricants, oils, greases, sealants, lugs, connectors, terminal blocks, cable markers and identification labels

Components may include fuses/circuit breakers, earth leakage breakers, timers, contactors, contacts, coils, relays, resistors, ballasts, capacitors, solenoids, overloads, switches, plugs, busbar, cable, fans, thermostats, elements, seals, motor bearings and brushgear

Fixed wiring tests may refer to polarity, loop impedance and insulation resistance/continuity tests

Monitoring equipment may refer to stopwatch, indication lamps, tachometer/rev counter and audio signals

Work may be performed with equipment on line

Work completion details may include plant and maintenance records, job cards, check sheets and on device labelling updates

Work site environment may be affected by nearby plant or processes, e.g. heat, noise, dust, oil, water and chemical

Isolations can refer to electrical/mechanical or other associated processes

Evidence Guide

Critical aspects of evidence

The knowledge and application of relevant sections of: Occupational, health and safety legislation; Statutory legislation; Enterprise/site safety procedures; Enterprise/site emergency procedures

Attainment of electrical licence, deeming competency associated with electrical work

Preparation and planning of work

Testing techniques

Commissioning procedures

Completion of work procedures

Context of assessment

Competency Standards should be assessed in the workplace or simulated workplace and under the normal range of workplace conditions

Assessment of this unit will be supported with documentary evidence, by means of endorsement stating type and application of work

Interdependent assessment of unit

Nil

Knowledge and Skills

A knowledge of:

Occupational health and safety standards; Relevant statutory requirements and codes of practice; Relevant Australian standards; Equipment and material required to perform the work; Isolation procedures; Layout of plant/work site and operation of its equipment; Testing and commissioning techniques and procedures; Operational requirements of the equipment; Electrical equipment; Regulatory procedures; Electrical principles; Test and measurement instruments; Circuit plan appreciation; Engineering and electronic workshop practice; Communication principles

The ability to:

Apply occupational health and safety standards; Follow relevant statutory regulations and codes of practice; Apply relevant Australian standards; Use and update plans, drawings and texts; Use tools and relevant equipment; Use test and measurement instruments; Inspect and test the wiring systems; Inspect, test and monitor equipment; Commission electrical equipment; Select materials for the job; Apply regulatory procedures; Apply electrical principles; Communicate effectively ; Apply data analysis techniques and tools; Apply engineering and electronic workshop practices

UTP NEG130 A
Test and Commission Complex Electrical Equipment

Descriptor: This unit refers to the testing and commissioning of complex and H.V. electrical wiring systems and equipment

Elements		Performance criteria	
130.1	Plan and prepare for the work	130.1.1	Work requirements are identified from request/work orders or equivalent and clarified/confirmed with appropriate parties or by site inspection
		130.1.2	Occupational health and safety standards, statutory requirements, relevant Australian standards, codes of practice, manufacturers' specifications, environmental requirements and enterprise procedures are identified, applied and monitored throughout the work procedure
		130.1.3	Resources required to satisfy the work plan are identified, obtained and inspected for compliance with the job specifications
		130.1.4	Relevant plans, drawings and texts are selected and interpreted in accordance with the work plan
		130.1.5	Correct size, type and quantity of materials/components are determined, obtained and inspected for compliance with the job specifications
		130.1.6	Work is planned in detail including sequencing and prioritising and considerations made, where appropriate, for the maintenance of plant security and capacity in accordance with system/site requirements
		130.1.7	Co-ordination requirements, including requests for isolations where appropriate, are resolved with others involved, affected or required by the work
		130.1.8	Potential hazards are identified and prevention and/or control measures are selected in accordance with the work plan and site procedures
		130.1.9	Work area is prepared in accordance with work requirements and site procedures

Elements		Performance criteria	
		130.1.10	Where appropriate, the teams and individuals roles and responsibilities within the team are identified and, where required, assist in the provision of the on-the-job training
130.2	Test wiring systems	130.2.1	Required isolations are confirmed where appropriate in accordance with site requirements
		130.2.2	Wiring systems are tested using appropriate plans, drawings and texts in accordance with the work plan
		130.2.3	Wiring systems are tested in conjunction with others involved in, or affected by, the work in accordance with the work plan
		130.2.4	Wiring systems, including enclosures/ supports, are inspected prior to testing to ensure absence of any damage, defects and/or signs of deterioration in accordance with the work plan
		130.2.5	Fixed wiring is tested as appropriate and results/observations are interpreted and documented to confirm compliance with job specifications
130.3	Test the equipment	130.3.1	Required isolations are confirmed where appropriate in accordance with site requirements
		130.3.2	Equipment is tested using appropriate plans, drawings and texts in accordance with the work plan
		130.3.3	Equipment is tested in conjunction with other involved in, or affected by, the work in accordance with the work plan
		130.3.4	Required test conditions are confirmed and the equipment is inspected to ensure absence of any damage, defects and/or signs of deterioration in accordance with the work plan

Elements		Performance criteria	
		130.3.5	Equipment is tested using appropriate test techniques in accordance with the work plan
		130.3.6	Equipment test results/observations are interpreted and documented to confirm compliance with job specifications
130.4	Commission the equipment	130.4.1	Required isolations are confirmed where appropriate in accordance with site requirements
		130.4.2	Equipment is commissioned using appropriate plans, drawings and texts in accordance with the work plan
		130.4.3	Equipment is commissioned in conjunction with others involved in, or affected by, the work in accordance with the work plan
		130.4.4	Equipment is set up in accordance with operational requirements/manufacturer's specifications
		130.4.5	Testing and monitoring procedures are followed and results monitored, interpreted and documented to ensure equipment operates/functions within specifications
		130.4.6	Equipment is commissioned with due regard being paid to plant security and capacity in accordance with the work plan
		130.4.7	Final job inspection is carried out and permits relinquished as required in accordance with the work plan
130.5	Complete the work	130.5.1	Work is completed and appropriate personnel notified in accordance with site/enterprise requirements
		130.5.2	Work area is cleared of waste, cleaned, restored and secured in accordance with site/enterprise procedures
		130.5.3	Plant, tools and equipment are maintained and stored in accordance with site/enterprise procedures
		130.5.4	Work completion details are finalised in accordance with site/enterprise procedures

Range Statement

Stream: Production Plant

Field: Maintenance

Equivalencies: This unit of competence is based on unit 7.5 of the Electrical Contractors Industry Association Competency Standards (electrical stream)

Inspection should be planned with the appropriate parties to determine access, conditions and work requirements

Equipment may include HV transformers, tap changers, switchgear and associated control panels, alarms, alternators, igniters, flame scanners, unit control panels, mimic panels, conveyors, alternator cooling systems, automatic voltage regulators, sootblowers, vibratory feeders, battery chargers, precipitators and overhead cranes

Materials may include masonry anchors, bolts, nuts, washers, screws, rivets, saddles, clips, brackets, solvents, adhesives, insulation tapes, heat shrink, sleeving, spiral binding, cable ties, solder, lubricants, oil, greases, sealants, lugs, connectors, terminal blocks, cable markers, identification labels, transformer oil, jointing compound, cable compounds and phase markers

Components may include fuses/circuit breakers, timers, contactors, contacts, coils, relays, solenoids, overloads, switches, plugs, busbar, cable, fans, thermostats, elements, seals and motor bearings and brush gear

Fixed wiring tests may include polarity, loop impedance and insulation resistance/continuity tests

Monitoring equipment may include stopwatch, indication lamps, tachometer/ rev counter, LED displays, VDUs, thermometers, mimic panels, position indicators, audio indicators and chart recorders

Work may be performed with equipment on line

Work completion details may include plant and maintenance records, job cards, check sheets and on device labelling updates

Work site environment may be affected by nearby plant or processes, e.g. heat, noise, dust, oil, water and chemical

Isolations can refer to electrical/mechanical or other associated processes

Evidence Guide

Critical aspects of evidence

The knowledge and application of relevant sections of: Occupational, health and safety legislation; Statutory legislation; Enterprise/site safety procedures; Enterprise/site emergency procedures

Attainment of electrical licence, deeming competency associated with electrical work

Preparation and planning of work

Testing techniques

Commissioning procedures

Completion of work procedures

Context of assessment

Competency Standards should be assessed in the workplace or simulated workplace and under the normal range of workplace conditions

Assessment of this unit will be supported with documentary evidence, by means of endorsement stating type and application of work

Interdependent assessment of unit

Nil

Knowledge and Skills

A knowledge of:

Occupational health and safety standards; Relevant statutory requirements and codes of practice; Relevant Australian standards; Equipment and material required to perform the work; Isolation procedures; Layout of plant/work site and operation of its equipment; Testing and commissioning techniques and procedures; Operational requirements of the equipment; Complex electrical equipment; Regulatory procedures; Electrical principles; Test and measurement instruments; Circuit plan appreciation; Engineering and electronic workshop practice; Communication principles

The ability to:

Apply occupational health and safety standards; Follow relevant statutory regulations and codes of practice; Apply relevant Australian standards; Use and update plans, drawings and texts; Use tools and relevant equipment; Use test and measurement instruments; Inspect and test the wiring systems; Inspect, test and monitor equipment; Commission complex electrical equipment; Select materials for the job; Apply regulatory procedures; Apply electrical principles; Communicate effectively ; Apply data analysis techniques and tools; Apply engineering and electronic workshop practices

UTP NEG131 A
Test and Commission Electronic Electrical Equipment

Descriptor: This unit refers to the testing and commissioning of electrical electronic equipment

Elements		Performance criteria	
131.1	Plan and prepare for the work	131.1.1	Work requirements are identified from request/work orders or equivalent and clarified/confirmed with appropriate parties or by site inspection
		131.1.2	Occupational health and safety standards, statutory requirements, relevant Australian standards, codes of practice, manufacturers' specifications, environmental requirements and enterprise procedures are identified, applied and monitored throughout the work procedure
		131.1.3	Resources required to satisfy the work plan are identified, obtained and inspected for compliance with the job specifications
		131.1.4	Relevant plans, drawings and texts are selected and interpreted in accordance with the work plan
		131.1.5	Correct size, type and quantity of materials/components are determined, obtained and inspected for compliance with the job specifications
		131.1.6	Work is planned in detail including sequencing and prioritising and considerations made, where appropriate, for the maintenance of plant security and capacity in accordance with system/site requirements
		131.1.7	Co-ordination requirements, including requests for isolations where appropriate, are resolved with others involved, affected or required by the work
		131.1.8	Potential hazards are identified and prevention and/or control measures are selected in accordance with the work plan and site procedures
		131.1.9	Work area is prepared in accordance with work requirements and site procedures

Elements		Performance criteria	
		131.1.10	Where appropriate, the teams and individuals roles and responsibilities within the team are identified and, where required, assist in the provision of the on-the-job training
131.2	Test wiring systems	131.2.1	Required isolations are confirmed where appropriate in accordance with site requirements
		131.2.2	Wiring systems are tested using appropriate plans, drawings and texts in accordance with the work plan
		131.2.3	Wiring systems are tested in conjunction with others involved in, or affected by, the work in accordance with the work plan
		131.2.4	Wiring systems, including enclosures/supports, are inspected prior to testing to ensure absence of any damage, defects and/or signs of deterioration in accordance with the work plan
		131.2.5	Fixed wiring is tested as appropriate and results/observations are interpreted and documented to confirm compliance with job specifications
131.3	Test the equipment	131.3.1	Required isolations are confirmed where appropriate in accordance with site requirements
		131.3.2	Equipment is tested using appropriate plans, drawings and texts in accordance with the work plan
		131.3.3	Equipment is tested in conjunction with other involved in, or affected by, the work in accordance with the work plan
		131.3.4	Required test conditions are confirmed and the equipment is inspected to ensure absence of any damage, defects and/or signs of deterioration in accordance with the work plan
		131.3.5	Equipment is tested using appropriate test techniques in accordance with the work plan

Elements		Performance criteria	
		131.3.6	Equipment test results/observations are interpreted and documented to confirm compliance with job specifications
131.4	Commission the equipment	131.4.1	Required isolations are confirmed where appropriate in accordance with site requirements
		131.4.2	Equipment is commissioned using appropriate plans, drawings and texts in accordance with the work plan
		131.4.3	Equipment is commissioned in conjunction with others involved in, or affected by, the work in accordance with the work plan
		131.4.4	Equipment is set up in accordance with operational requirements/manufacturer's specifications
		131.4.5	Testing and monitoring procedures are followed and results monitored, interpreted and documented to ensure equipment operates/functions within specifications
		131.4.6	Equipment is commissioned with due regard being paid to plant security and capacity in accordance with the work plan
		131.4.7	Final job inspection is carried out and permits relinquished as required in accordance with the work plan
131.5	Complete the work	131.5.1	Work is completed and appropriate personnel notified in accordance with site/enterprise requirements
		131.5.2	Work area is cleared of waste, cleaned, restored and secured in accordance with site/enterprise procedures
		131.5.3	Plant, tools and equipment are maintained and stored in accordance with site/enterprise procedures
		131.5.4	Work completion details are finalised in accordance with site/enterprise procedures

Range Statement

Stream: Production Plant

Field: Maintenance

Equivalencies: This unit of competence is based on unit 5.4 of the Electrical Contractors Industry Association Competency Standards (electrical stream)

Inspection should be planned with the appropriate parties to determine access, conditions and work requirements

Equipment may refer to PLC's, I/O modules, VDU's, soft start motor starters, alarms, stabilised power supply units and uninterrupted power supply units

Materials may refer to insulation tapes, heat shrink, sleeving, spiral binding, cable ties, solder, lubricants, oil, greases, sealants, lugs, connectors, terminal blocks, cable markers and identification labels

Components may include fuses/circuit breakers, timers, contactors, contacts, coils, relays, resistors, inductors, capacitors, bridge rectifiers, diodes, heat sinks, solenoids, overloads, plug in printed circuit boards, switches, plugs, cable and thermistors

Fixed wiring tests can refer to polarity, loop impedance and insulation resistance/continuity tests

Monitoring equipment may include stopwatch, indication lamps, tachometer/rev counter, LED displays, VDUs, thermometers, mimic panels, position indicators, audio indicators and chart recorders

Work may be performed with equipment on line

Work completion details may include plant and maintenance records, job cards, check sheets and on device labelling updates

Work site environment may be affected by nearby plant or process, e.g. heat, noise, dust, oil, water and chemical

Isolations can refer to electrical/mechanical or other associated processes

Evidence Guide

Critical aspects of evidence

The knowledge and application of relevant sections of: Occupational, health and safety legislation; Statutory legislation; Enterprise/site safety procedures; Enterprise/site emergency procedures

Attainment of electrical licence, deeming competency associated with electrical work

Preparation and planning of work

Testing techniques

Commissioning procedures

Completion of work procedures

Context of assessment

Competency Standards should be assessed in the workplace or simulated workplace and under the normal range of workplace conditions

Assessment of this unit will be supported with documentary evidence, by means of endorsement stating type and application of work

Interdependent assessment of unit

Nil

Knowledge and Skills

A knowledge of:

Occupational health and safety standards; Relevant statutory requirements and codes of practice; Relevant Australian standards; Equipment and material required to perform the work; Isolation procedures; Layout of plant/work site and operation of its equipment; Testing and commissioning techniques and procedures; Operational requirements of the equipment; Electronic electrical equipment; Regulatory procedures; Electrical principles; Test and measurement instruments; Circuit plan appreciation; Engineering and electronic workshop practice; Communication principles

The ability to:

Apply occupational health and safety standards; Follow relevant statutory regulations and codes of practice; Apply relevant Australian standards; Use and update plans, drawings and texts; Use tools and relevant equipment; Use test and measurement instruments; Inspect and test the wiring systems; Inspect, test and monitor equipment; Commission electronic electrical equipment; Select materials for the job; Apply regulatory procedures; Apply electrical principles; Communicate effectively ; Apply data analysis techniques and tools; Apply engineering and electronic workshop practices

UTP NEG132 A
Test and Commission Electronic Electrical Systems

Descriptor: This unit refers to the testing and commissioning of electrical/electronic systems. Systems can refer to a combination of electrical/electronic machinery/equipment

Elements		Performance criteria	
132.1	Plan and prepare for the work	132.1.1	Work requirements are identified from request/work orders or equivalent and clarified/confirmed with appropriate parties or by site inspection
		132.1.2	Occupational health and safety standards, statutory requirements, relevant Australian standards, codes of practice, manufacturers' specifications, environmental requirements and enterprise procedures are identified, applied and monitored throughout the work procedure
		132.1.3	Resources required to satisfy the work plan are identified, obtained and inspected for compliance with the job specifications
		132.1.4	Relevant plans, drawings and texts are selected and interpreted in accordance with the work plan
		132.1.5	Correct size, type and quantity of materials/components are determined, obtained and inspected for compliance with the job specifications
		132.1.6	Work is planned in detail including sequencing and prioritising and considerations made, where appropriate, for the maintenance of plant security and capacity in accordance with system/site requirements
		132.1.7	Co-ordination requirements, including requests for isolations where appropriate, are resolved with others involved, affected or required by the work
		132.1.8	Potential hazards are identified and prevention and/or control measures are selected in accordance with the work plan and site procedures
		132.1.9	Work area is prepared in accordance with work requirements and site procedures

Elements		Performance criteria	
		132.1.10	Where appropriate, the teams and individuals roles and responsibilities within the team are identified and, where required, assist in the provision of the on-the-job training
132.2	Test wiring systems	132.2.1	Required isolations are confirmed where appropriate in accordance with site requirements
		132.2.2	Wiring systems are tested using appropriate plans, drawings and texts in accordance with the work plan
		132.2.3	Wiring systems are tested in conjunction with others involved in, or affected by, the work in accordance with the work plan
		132.2.4	Wiring systems, including enclosures/supports, are inspected prior to testing to ensure absence of any damage, defects and/or signs of deterioration in accordance with the work plan
		132.2.5	Fixed wiring is tested as appropriate and results/observations are interpreted and documented to confirm compliance with job specifications
132.3	Test the systems	132.3.1	Required isolations are confirmed where appropriate in accordance with site requirements
		132.3.2	Equipment is tested using appropriate plans, drawings and texts in accordance with the work plan
		132.3.3	Equipment is tested in conjunction with other involved in, or affected by, the work in accordance with the work plan
		132.3.4	Required test conditions are confirmed and the equipment is inspected to ensure absence of any damage, defects and/or signs of deterioration in accordance with the work plan
		132.3.5	Equipment is tested using appropriate test techniques in accordance with the work plan

Elements		Performance criteria	
		132.3.6	Equipment test results/observations are interpreted and documented to confirm compliance with job specifications
132.4	Commission the systems	132.4.1	Required isolations are confirmed where appropriate in accordance with site requirements
		132.4.2	Equipment is commissioned using appropriate plans, drawings and texts in accordance with the work plan
		132.4.3	Equipment is commissioned in conjunction with others involved in, or affected by, the work in accordance with the work plan
		132.4.4	Equipment is set up in accordance with operational requirements/manufacturer's specifications
		132.4.5	Testing and monitoring procedures are followed and results monitored, interpreted and documented to ensure equipment operates/functions within specifications
		132.4.6	Equipment is commissioned with due regard being paid to plant security and capacity in accordance with the work plan
		132.4.7	Final job inspection is carried out and permits relinquished as required in accordance with the work plan
132.5	Complete the work	132.5.1	Work is completed and appropriate personnel notified in accordance with site/enterprise requirements
		132.5.2	Work area is cleared of waste, cleaned, restored and secured in accordance with site/enterprise procedures
		132.5.3	Plant, tools and equipment are maintained and stored in accordance with site/enterprise procedures
		132.5.4	Work completion details are finalised in accordance with site/enterprise procedures

Range Statement

Stream: Production Plant

Field: Maintenance

Equivalencies: This unit of competence is based on unit 9.2 of the Electrical Contractors Industry Association Competency Standards (electrical stream)

Inspection should be planned with the appropriate parties to determine access, conditions and work requirements

Systems can refer to water ingress protection system, ashing system, burner management system, conveyor system, sootblower system, alternator cooling system, annunciator system and flame surveillance systems

Components may refer to transformers, switch boards, control panels, PLC's, motor starters, motor operated valves, battery chargers, power supplies and annunciators

Test and measurement instruments may refer to multimeters, tong tester, insulation resistance/continuity tester, ductor tester, overload injection tester, growlers, cathode ray oscilloscope, variac, hand held programmer and logic probe

Fixed wiring tests can refer to polarity, loop impedance and insulation resistance/continuity tests

Monitoring equipment may include stopwatch, indication lamps, tachometer/rev counter, LED displays, VDUs, thermometers, mimic panels, position indicators, audio indicators and chart recorders

Work may be performed with equipment on line

Work completion details may include plant and maintenance records, job cards, check sheets and on device labelling updates

Work site environment may be affected by nearby plant or process, e.g. heat, noise, dust, oil, water and chemical

Isolations can refer to electrical/mechanical or other associated processes

Evidence Guide

Critical aspects of evidence

The knowledge and application of relevant sections of: Occupational, health and safety legislation; Statutory legislation; Enterprise/site safety procedures; Enterprise/site emergency procedures

Attainment of electrical licence, deeming competency associated with electrical work

Preparation and planning of work

Testing techniques

Commissioning procedures

Completion of work procedures

Context of assessment

Competency Standards should be assessed in the workplace or simulated workplace and under the normal range of workplace conditions

Assessment of this unit will be supported with documentary evidence, by means of endorsement stating type and application of work

Interdependent assessment of unit

Nil

Knowledge and Skills

A knowledge of:

Occupational health and safety standards; Relevant statutory requirements and codes of practice; Relevant Australian standards; Equipment and material required to perform the work; Isolation procedures; Layout of plant/work site and operation of its equipment; Testing and commissioning techniques and procedures; Operational requirements of the equipment; Electronic/electrical systems; Regulatory procedures; Electrical principles; Test and measurement instruments; Circuit plan appreciation; Engineering and electronic workshop practice; Communication principles

The ability to:

Apply occupational health and safety standards; Follow relevant statutory regulations and codes of practice; Apply relevant Australian standards; Use and update plans, drawings and texts; Use tools and relevant equipment; Use test and measurement instruments; Inspect and test the wiring systems; Inspect, test and monitor equipment; Commission electronic/electrical system; Select materials for the job; Apply regulatory procedures; Apply electrical principles; Communicate effectively ; Apply data analysis techniques and tools; Apply engineering and electronic workshop practices

UTP NEG133 A
Maintain Battery Banks and Cells

Descriptor: This unit refers to the installation, testing and maintenance of all battery cells/banks including hydrogen generation cells/banks

Elements		Performance criteria	
133.1	Plan and prepare for the work	133.1.1	Work requirements are identified from request/work orders or equivalent and clarified/confirmed with appropriate parties or by site inspection
		133.1.2	Occupational health and safety standards, statutory requirements, relevant Australian standards, codes of practice, manufacturers' specifications, environmental requirements and enterprise procedures are identified, applied and monitored throughout the work procedure
		133.1.3	Resources required to satisfy the work plan are identified, obtained and inspected for compliance with the job specifications
		133.1.4	Relevant plans, drawings and text are selected and interpreted in accordance with the work plan
		133.1.5	Correct size, type and quantity of materials/components are determined, obtained and inspected for compliance with the job specifications
		133.1.6	Work is planned in detail including sequencing and prioritising and considerations made, where appropriate, for the maintenance of plant security and capacity in accordance with system/site requirements
		133.1.7	Co-ordination requirements, including requests for isolations where appropriate, are resolved with others involved, affected or required by the work
		133.1.8	Potential hazards are identified and prevention and/or control measures are selected in accordance with the work plan and site procedures
		133.1.9	Work area is prepared in accordance with work requirements and site procedures

Elements		Performance criteria	
		133.1.10	Where appropriate, the teams and individuals roles and responsibilities within the team are identified and, where required, assist in the provision of the on-the-job training
133.2	Test the equipment	133.2.1	Battery plant/equipment is inspected prior to testing to ensure absence of any damage, defects and/or signs of abnormalities in accordance with the work plan
		133.2.2	Tests are carried out to determine battery/plant condition in accordance with site requirements and the work plan
		133.2.3	Test results are recorded and analysed to determine battery/plant capabilities in accordance with site requirements and the work plan
		133.2.4	Test and measurement instruments are used in accordance with manufacturer's instructions and the work plan
		133.2.5	Faults found are noted and reported to appropriate parties in accordance with the work plan
133.3	Maintain the equipment	133.3.1	Required isolations are confirmed where appropriate in accordance with site requirements
		133.3.2	Equipment is disconnected and removed in a logical and sequential manner in order to facilitate maintenance and subsequent replacement in accordance with the work plan
		133.3.3	Equipment is maintained using appropriate methods in conjunction with others involved in, or affected by, the work in accordance with the work plan
		133.3.4	Repairs and/or adjustments required are carried out to ensure equipment complies to manufacturer's specifications and/or site requirements in accordance with the work plan
		133.3.5	Equipment is replaced and connected using appropriate methods in accordance with the work plan

Elements		Performance criteria	
		133.3.6	Final job inspection is carried out and permits relinquished in accordance with the work plan
133.4	Complete the work	133.4.1	Work is completed and appropriate personnel notified in accordance with site/enterprise requirements
		133.4.2	Work area is cleared of waste, cleaned, restored and secured in accordance with site/enterprise procedures
		133.4.3	Plant, tools and equipment are maintained and stored in accordance with site/enterprise procedures
		133.4.4	Work completion details are finalised in accordance with site/enterprise procedures

Range Statement

Stream: Production Plant

Field: Maintenance

Equivalencies: N/A

Types of equipment supplied by batteries may include emergency lighting systems, alarm and protection systems and process management systems

Types of batteries may include lead acid, ni-cad and hydrogen gen cells

Battery plant work area may be subject to environmental hazards, e.g. hydrogen gas and corrosive acids

Work completion details may include plant and maintenance records, job cards, check sheets and on device labelling updates.

Isolations can refer to electrical/mechanical or other associated processes

Evidence Guide

Critical aspects of evidence

The knowledge and application of relevant sections of: Occupational, health and safety legislation; Statutory legislation; Enterprise/site safety procedures; Enterprise/site emergency procedures

Attainment of electrical licence, deeming competency associated with electrical work

Preparation and planning of work

Testing techniques and procedures

Maintenance techniques and procedures

Completion of work procedures

Context of assessment

Competency Standards should be assessed in the workplace or simulated workplace and under the normal range of workplace conditions

Assessment of this unit will be supported with documentary evidence, by means of endorsement stating type and application of work

Interdependent assessment of unit

Nil

Knowledge and Skills

A knowledge of:

Occupational health and safety standards; Relevant statutory requirements and codes of practice; Relevant Australian standards; Equipment and material required to perform the work; Isolation procedures; Battery plant and operation of its equipment; Performance and function of D.C. electrical systems; Fault finding and diagnostic techniques; Hazardous materials; Battery test procedures; Repair techniques; Regulatory procedures; Electrical principles; Circuit plan appreciation; Engineering and work shop practice; Communication principles

The ability to:

Apply occupational health and safety standards; Follow relevant statutory regulations and codes of practice; Apply relevant Australian standards; Use plans, drawings and texts; Use hand and portable power tools; Use test and measurement instruments; Identify faults; Apply fault finding and diagnostic techniques; Repair faults; Maintain battery banks; Select materials for the job; Handle hazardous materials; Carry out work completion details; Apply data analysis techniques and tools; Communicate effectively.

UTP NEG134 A
Diagnose and Repair Faults in Refrigeration/Air Conditioning Equipment

Descriptor: This unit refers to the diagnosing and repairing of faults in refrigeration/air conditioning equipment, and associated accessories and wiring systems

Elements		Performance criteria	
134.1	Plan and prepare for the work	134.1.1	Work requirements are identified from request/work orders or equivalent and clarified/confirmed with appropriate parties or by site inspection
		134.1.2	Occupational health and safety standards, statutory requirements, relevant Australian standards, codes of practice, manufacturers' specifications, environmental requirements and enterprise procedures are identified, applied and monitored throughout the work procedure
		134.1.3	Resources required to satisfy the work plan are identified, obtained and inspected for compliance with the job specifications
		134.1.4	Relevant plans, drawings and texts are selected and interpreted in accordance with the work plan
		134.1.5	Correct size, type and quantity of materials/components are determined, obtained and inspected for compliance with the job specifications
		134.1.6	Work is planned in detail including sequencing and prioritising and considerations made, where appropriate, for the maintenance of plant security and capacity in accordance with system/site requirements
		134.1.7	Co-ordination requirements, including requests for isolations where appropriate, are resolved with others involved, affected or required by the work
		134.1.8	Potential hazards are identified and prevention and/or control measures are selected in accordance with the work plan and site procedures

Elements		Performance criteria	
		134.1.9	Work area is prepared in accordance with work requirements and site procedures
		134.1.10	Where appropriate, the teams and individuals roles and responsibilities within the team are identified and, where required, assist in the provision of the on-the-job training
134.2	Verify the fault	134.2.1	Normal performance and function of the equipment is ascertained by consulting appropriate reference sources in accordance with the work plan
		134.2.2	Fault indicators and appropriate technical information/diagnostic techniques are used to verify reported symptoms/faults in accordance with the work plan
		134.2.3	Symptoms are reproduced and monitored if possible, whilst due regard for personnel safety and plant security is observed in accordance with the work plan
134.3	Find the fault	134.3.1	Required isolations are confirmed where appropriate in accordance with site requirements
		134.3.2	Fault finding is carried out in conjunction with others involved in, or affected by, the work in accordance with enterprise/job requirements
		134.3.3	Equipment components, wires, cables, terminations and support fixings are inspected for obvious faults in accordance with the work plan
		134.3.4	All appropriate fault finding/diagnostic techniques are identified, selected and used to determine the fault in accordance with the work plan
		134.3.5	All appropriate components are disconnected to enable accurate test measurements of suspected faulty components without the concern of "back-feed" readings in accordance with the work plan

Elements		Performance criteria	
		134.3.6	Test and measurement instruments are used in accordance with manufacturer's instructions and job requirements
134.4	Determine cause of fault	134.4.1	All appropriate personnel are consulted in order to obtain as many details relating to the faulty equipment as possible in accordance with the work plan
		134.4.2	Appropriate use is made of any information from fault indicators and maintenance records in accordance with the work plan
		134.4.3	Valid conclusions about the nature and cause of the fault are reached from analysis of available evidence in accordance with the work plan
134.5	Repair or rectify the fault	134.5.1	Required isolations are confirmed where appropriate in accordance with site requirements
		134.5.2	Appropriate repair procedures are undertaken in conjunction with others involved in, or affected by, the work in accordance with the work plan
		134.5.3	Faulty, worn, damaged or unsecured components are replaced, repaired or secured in accordance with the work plan
		134.5.4	Parts and components are selected and replaced as required in accordance with appropriate specifications and the work plan
		134.5.5	Components disconnected for testing are reconnected having been proven free of faults and all terminations are then checked to ensure they are electrically and mechanically sound in accordance with the work plan
		134.5.6	All faults are repaired or rectified in accordance with the work plan
		134.5.7	Final job inspection is performed and permits are relinquished as required in accordance with the work plan

Elements		Performance criteria	
134.6	Complete the work	134.6.1	Work is completed and appropriate personnel notified in accordance with site/enterprise requirements
		134.6.2	Work area is cleared of waste, cleaned, restored and secured in accordance with site/enterprise procedures
		134.6.3	Plant, tools and equipment are maintained and stored in accordance with site/enterprise procedures
		134.6.4	Work completion details are finalised in accordance with site/enterprise procedures

Range Statement

Stream: Production Plant

Field: Maintenance

Equivalencies: This unit of competence is based on unit 5.5 of the Electrical Contractors Industry Association Competency Standards (refrigeration and air conditioning stream)

Inspection should be planned with the appropriate parties to determine access, conditions and work requirements

Equipment may include air conditioning (refrigerated and evaporative), water coolers, packaged air conditioners and refrigerators

Materials may include solvents, insulation tape, contact cleaners, heat shrink, vacuum pumps, gas recovery units and gas bottles

Components may include fuses/circuit breakers, overloads, indicator lamps, plugs, residual current devices, earth leakage circuit breakers and light emitting/power diodes

Test and measurement instruments may include manifold gauges, thermometers, insulation testers, voltmeters, ammeters and refrigerant detectors

Fault finding and diagnostic techniques may include linear approach, half split rule, sensory detection and insulation/continuity tests

Tests and operational checks may include correct air circulation, drainage, vibration, correct temperature, noise, pressure checks and leak detection

Work may be performed with equipment on line

Work completion details may include plant and maintenance records, job cards, check sheets and on device labelling updates

Work site environment may be affected by nearby plant or processes, e.g. heat, noise, dust, oil, water and chemical

Isolations can refer to electrical/mechanical or other associated processes

Evidence Guide

Critical aspects of evidence

The knowledge and application of relevant sections of: Occupational, health and safety legislation; Statutory legislation; Enterprise/site safety procedures; Enterprise/site emergency procedures

Preparation and planning of work

Verification techniques

Diagnostic and fault finding techniques and procedures

Attainment of electrical licence, where appropriate, deeming competency associated with electrical work

Repair techniques and procedures

Completion of work procedures

Context of assessment

Competency Standards should be assessed in the workplace or simulated workplace and under the normal range of workplace conditions

Assessment of this unit will be supported with documentary evidence, by means of endorsement stating type and application of work

Interdependent assessment of unit

Nil

Knowledge and Skills

A knowledge of:

Occupational health and safety standards; Relevant statutory requirements and codes of practice; Relevant Australian standards; Equipment and material required to perform the work; Isolation procedures; Layout of plant/work site and operation of its equipment; Fault finding and diagnostic techniques; Repair techniques; Air conditioning and refrigeration equipment; Environmental legislation; Regulatory procedures; Electrical principles; Test and measurement instruments; Circuit plan appreciation; Engineering and workshop practice; Communication principles ; Refrigerant gases

The ability to:

Apply occupational health and safety standards; Follow relevant statutory regulations and codes of practice; Apply relevant Australian standards; Use plans, drawings and texts; Use test and measurement instruments; Use fault finding and diagnostic techniques; Determine the cause of faults; Repair faults; Recover refrigerant gases; Select materials for the job; Apply regulatory procedures; Apply electrical principles; Communicate effectively ; Apply data analysis techniques and tools.

UTP NEG135 A
Diagnose and Repair Faults in Complex Refrigeration/ Air Conditioning Equipment

Descriptor: This unit refers to the diagnosing and repairing of faults in complex refrigeration/ air conditioning equipment, and associated accessories and wiring systems

Elements		Performance criteria	
135.1	Plan and prepare for the work	135.1.1	Work requirements are identified from request/work orders or equivalent and clarified/confirmed with appropriate parties or by site inspection
		135.1.2	Occupational health and safety standards, statutory requirements, relevant Australian standards, codes of practice, manufacturers' specifications, environmental requirements and enterprise procedures are identified, applied and monitored throughout the work procedure
		135.1.3	Resources required to satisfy the work plan are identified, obtained and inspected for compliance with the job specifications
		135.1.4	Relevant plans, drawings and texts are selected and interpreted in accordance with the work plan
		135.1.5	Correct size, type and quantity of materials/components are determined, obtained and inspected for compliance with the job specifications
		135.1.6	Work is planned in detail including sequencing and prioritising and considerations made, where appropriate, for the maintenance of plant security and capacity in accordance with system/site requirements
		135.1.7	Co-ordination requirements, including requests for isolations where appropriate, are resolved with others involved, affected or required by the work
		135.1.8	Potential hazards are identified and prevention and/or control measures are selected in accordance with the work plan and site procedures

Elements		Performance criteria	
		135.1.9	Work area is prepared in accordance with work requirements and site procedures
		135.1.10	Where appropriate, the teams and individuals roles and responsibilities within the team are identified and, where required, assist in the provision of the on-the-job training
135.2	Verify the fault	135.2.1	Normal performance and function of the equipment is ascertained by consulting appropriate reference sources in accordance with the work plan
		135.2.2	Fault indicators and appropriate technical information/diagnostic techniques are used to verify reported symptoms/faults in accordance with the work plan
		135.2.3	Symptoms are reproduced and monitored if possible, whilst due regard for personnel safety and plant security is observed in accordance with the work plan
135.3	Find the fault	135.3.1	Required isolations are confirmed where appropriate in accordance with site requirements
		135.3.2	Fault finding is carried out in conjunction with others involved in or affected by the work in accordance with enterprise/job requirements
		135.3.3	Equipment components, wires, cables, terminations and support fixings are inspected for obvious faults in accordance with the work plan
		135.3.4	All appropriate fault finding/diagnostic techniques are identified, selected and used to determine the fault in accordance with the work plan
		135.3.5	All appropriate components are disconnected to enable accurate test measurements of suspected faulty components without the concern of "back-feed" readings in accordance with the work plan

Elements		Performance criteria	
		135.3.6	Test and measurement instruments are used in accordance with manufacturer's instructions and job requirements
135.4	Determine cause of fault	135.4.1	All appropriate personnel are consulted in order to obtain as many details relating to the faulty equipment as possible in accordance with the work plan
		135.4.2	Appropriate use is made of any information from fault indicators and maintenance records in accordance with the work plan
		135.4.3	Valid conclusions about the nature and cause of the fault are reached from analysis of available evidence in accordance with the work plan
135.5	Repair or rectify the fault	135.5.1	Required isolations are confirmed where appropriate in accordance with site requirements
		135.5.2	Appropriate repair procedures are undertaken in conjunction with others involved in or affected by the work in accordance with the work plan
		135.5.3	Faulty, worn, damaged or unsecured components are replaced, repaired or secured in accordance with the work plan
		135.5.4	Parts and components are selected and replaced as required in accordance with appropriate specifications and the work plan
		135.5.5	Components disconnected for testing are reconnected having been proven free of faults and all terminations are then checked to ensure they are electrically and mechanically sound in accordance with the work plan
		135.5.6	All faults are repaired or rectified in accordance with the work plan
		135.5.7	Final job inspection is performed and permits are relinquished as required in accordance with the work plan

Elements		Performance criteria	
135.6	Complete the work	135.6.1	Work is completed and appropriate personnel notified in accordance with site/enterprise requirements
		135.6.2	Work area is cleared of waste, cleaned, restored and secured in accordance with site/enterprise procedures
		135.6.3	Plant, tools and equipment are maintained and stored in accordance with site/enterprise procedures
		135.6.4	Work completion details are finalised in accordance with site/enterprise procedures

Range Statement

Stream: Production Plant

Field: Maintenance

Equivalencies: This unit of competence is based on unit 7.2 of the Electrical Contractors Industry Association Competency Standards (refrigeration and air conditioning stream)

Inspection should be planned with the appropriate parties to determine access, conditions and work requirements

Equipment may include air conditioning (refrigerated and evaporative), water coolers, packaged air conditioners, refrigerators, split system air conditioners, cool rooms, constant temperature baths, refrigerant air driers, central air conditioning cooling systems and industrial process freezers

Materials may include solvents, insulation tape, contact cleaners, heat shrink, vacuum pumps, gas recovery units and gas bottles

Components may include fuses/circuit breakers, overloads, indicator lamps, plugs, residual current devices, earth leakage circuit breakers, light emitting/power diodes, ultra-sonic level/proximity flow rate sensors, magnetic level switches and plate heater exchange/liquid receiver/liquid injection/TX valve controllers and uninterrupted power supplies

Test and measurement instruments may include manifold gauges, thermometers, insulation testers, voltmeters, ammeters and refrigerant detectors

Fault finding and diagnostic techniques may include linear approach, half split rule, sensory detection and insulation/continuity tests

Tests and operational checks may include correct air circulation, drainage, vibration, correct temperature, noise, pressure checks and leak detection

Work may be performed with equipment on line

Work completion details may include plant and maintenance records, job cards, check sheets and on device labelling updates

Work site environment may be affected by nearby plant or processes, e.g. heat, noise, dust, oil, water and chemical

Isolations can refer to electrical/mechanical or other associated processes

Evidence Guide

Critical aspects of evidence

The knowledge and application of relevant sections of: Occupational, health and safety legislation; Statutory legislation; Enterprise/site safety procedures; Enterprise/site emergency procedures

Preparation and planning of work

Verification techniques

Diagnostic and fault finding techniques and procedures

Attainment of electrical licence, where appropriate, deeming competency associated with electrical work

Repair techniques and procedures

Completion of work procedures

Context of assessment

Competency Standards should be assessed in the workplace or simulated workplace and under the normal range of workplace conditions

Assessment of this unit will be supported with documentary evidence, by means of endorsement stating type and application of work

Interdependent assessment of unit

Nil

Knowledge and Skills

A knowledge of:

Occupational health and safety standards; Relevant statutory requirements and codes of practice; Relevant Australian standards; Equipment and material required to perform the work; Isolation procedures; Layout of plant/work site and operation of its equipment; Fault finding and diagnostic techniques; Repair techniques; Complex air conditioning and refrigeration equipment; Environmental legislation; Regulatory procedures; Electrical principles; Test and measurement instruments; Circuit plan appreciation; Engineering and workshop practice; Communication principles ; Refrigerant gases

The ability to:

Apply occupational health and safety standards; Follow relevant statutory regulations and codes of practice; Apply relevant Australian standards; Use plans, drawings and texts; Use test and measurement instruments; Use fault finding and diagnostic techniques; Determine the cause of faults; Repair faults; Recover refrigerant gases; Select materials for the job; Apply regulatory procedures; Apply electrical principles; Communicate effectively ; Apply data analysis techniques and tools.

UTP NEG136 A
Conduct Minor/Basic Electrical Maintenance

Descriptor: This unit refers to the range of minor/basic maintenance functions associated with electrical equipment

Elements		Performance criteria	
136.1	Plan and prepare for the work	136.1.1	Work requirements are identified from request/work orders or equivalent and clarified/confirmed with appropriate parties or by site inspection
		136.1.2	Occupational health and safety standards, statutory requirements, relevant Australian standards, codes of practice, manufacturers' specifications, environmental requirements and enterprise procedures are identified, applied and monitored throughout the work procedure
		136.1.3	Resources required to satisfy the work plan are identified, obtained and inspected for compliance with the job specifications
		136.1.4	Relevant plans, drawings and texts are selected and interpreted in accordance with the work plan
		136.1.5	Correct size, type and quantity of materials/components are determined, obtained and inspected for compliance with the job specifications
		136.1.6	Work is planned in detail including sequencing and prioritising and considerations made, where appropriate, for the maintenance of plant security and capacity in accordance with system/site requirements
		136.1.7	Co-ordination requirements, including requests for isolations where appropriate, are resolved with others involved, affected or required by the work
		136.1.8	Potential hazards are identified and prevention and/or control measures are selected in accordance with the work plan and site procedures
		136.1.9	Work area is prepared in accordance with work requirements and site procedures

Elements		Performance criteria	
		136.1.10	Where appropriate, the teams and individuals roles and responsibilities within the team are identified and, where required, assist in the provision of the on-the-job training
136.2	Conduct minor maintenance	136.2.1	Required isolations are confirmed where appropriate in accordance with enterprise requirements
		136.2.2	Minor maintenance is conducted in accordance with the work plan and site requirements
		136.2.3	Minor adjustments are undertaken in accordance with prescribed procedures and schedules and site requirements
		136.2.4	Faults are reported to the relevant parties in accordance with site/enterprise procedures
136.3	Complete the work	136.3.1	Work is completed and appropriate personnel notified in accordance with site/enterprise requirements
		136.3.2	Work area is cleared of waste, cleaned, restored and secured in accordance with site/enterprise procedures
		136.3.3	Plant, tools and equipment are maintained and stored in accordance with site/enterprise procedures
		136.3.4	Work completion details are finalised in accordance with site/enterprise procedures

Range Statement

Stream: Production Plant

Field: Maintenance

Equivalencies: This unit of competence incorporates unit 7.1a of the National Metal and Engineering Competency Standards

Minor maintenance may include changing globes and starters, switchboard indicator lenses, checking transformer oil levels, flag/tell-tale patrols, changing of oil and air filters and humidryers, cleaning of air and oil filters, battery inspection, recording of cell voltages and specific gravity; cleaning, minor fabrication tasks, e.g. brackets, cable supports, gaskets and similar

Inspections should be planned with the appropriate parties to determine access, conditions and work requirements

Materials may include lubricants, cleaning agents, contact cleaners, emery paper and deodorisers

Consumables may include but not be limited to, air filter media, filters, charts, pens, ribbons, paper and lubricants

Equipment may include printers, plotters, recorders, battery cells, air conditioners, cooling plant, transformers, switchboards and control panels

Tools may include general hand tools, portable electrical tools, measuring tools and specialist tools

Appropriate parties may refer to supervisor, tradesperson or operations personnel

Work completion details may include plant and maintenance records, job cards, check sheets, on device labelling updates, reporting and/or documenting equipment defects

Work site environment may be affected by nearby plant or processes, e.g. chemical, heat, dust, noise, gas and oil

Isolations can refer to electrical/mechanical or other associated processes

Evidence Guide

Critical aspects of evidence

The knowledge and application of relevant sections of: Occupational, health and safety legislation; Statutory legislation; Enterprise/site safety procedures; Enterprise/site emergency procedures

Preparation and planning of work

Maintenance techniques and procedures

Completion of work procedures

Context of assessment

Competency Standards should be assessed in the workplace or simulated workplace and under the normal range of workplace conditions

Assessment of this unit will be supported with documentary evidence, by means of endorsement stating type and application of work

Interdependent assessment of unit

Nil

Knowledge and Skills

A knowledge of:

Occupational health and safety standards; Relevant statutory requirements and codes of practice; Relevant Australian standards; Equipment and material required to perform the work; Isolation procedures; Layout of plant/work site and operation of its equipment; Maintenance techniques; Hand and portable power tools; Communication principles

The ability to:

Apply occupational health and safety standards; Apply maintenance procedures; Select materials for the job; Use hand and portable power tools; Handle hazardous materials; Perform basic maintenance; Communicate effectively.

UTP NEG137 A
Conduct Generator Electrical Maintenance

Descriptor: This unit refers to those tasks required during the maintenance of an electrical generating set

Elements		Performance criteria	
137.1	Plan and prepare for the work	137.1.1	Work requirements are identified from request/work orders or equivalent and clarified/confirmed with appropriate parties or by site inspection
		137.1.2	Occupational health and safety standards, statutory requirements, relevant Australian standards, codes of practice, manufacturers' specifications, environmental requirements and enterprise procedures are identified, applied and monitored throughout the work procedure
		137.1.3	Resources required to satisfy the work plan are identified, obtained and inspected for compliance with the job specifications
		137.1.4	Relevant plans, drawings and texts are selected and interpreted in accordance with the work plan
		137.1.5	Correct size, type and quantity of materials/components are determined, obtained and inspected for compliance with the job specifications
		137.1.6	Work is planned in detail including sequencing and prioritising and considerations made, where appropriate, for the maintenance of plant security and capacity in accordance with system/site requirements
		137.1.7	Co-ordination requirements, including requests for isolations where appropriate, are resolved with others involved, affected or required by the work
		137.1.8	Potential hazards are identified and prevention and/or control measures are selected in accordance with the work plan and site procedures
		137.1.9	Work area is prepared in accordance with work requirements and site procedures

Elements		Performance criteria	
		137.1.10	Where appropriate, the teams and individuals roles and responsibilities within the team are identified and, where required, assist in the provision of the on-the-job training
137.2	Carry out generator maintenance	137.2.1	Required isolations are confirmed where appropriate in accordance with site requirements
		137.2.2	Generator is maintained using appropriate plans, drawings and texts in accordance with the work plan
		137.2.3	Generator is maintained in conjunction with others involved in, or affected by, the work in accordance with the work plan
		137.2.4	Maintenance requirements are carried out to ensure generator operates within requirements in accordance with the work plan
		137.2.5	Maintenance requirements are carried out, mindful of effects on, or unnecessary loss of, other equipment
		137.2.6	Final job inspection is carried out and permits relinquished in accordance with the work plan
137.3	Complete the work	137.3.1	Work is completed and appropriate personnel notified in accordance with site/enterprise requirements
		137.3.2	Work area is cleared of waste, cleaned, restored and secured in accordance with site/enterprise procedures
		137.3.3	Plant, tools and equipment are maintained and stored in accordance with site/enterprise procedures
		137.3.4	Work completion details are finalised in accordance with site/enterprise procedures

Range Statement

Stream:	Production Plant
Field:	Maintenance
Equivalencies:	This unit of competence incorporates unit 18.55a of the National Metal and Engineering Competency Standards

Details of maintenance may be clarified by diagnosis and/or workplace inspection

Maintenance may include brush gear inspection, condition monitoring, cleaning, slot wedging, re-insulation, end bell removal, de-gauzing and coolers

Work completion details may include plant and maintenance records, job cards, check sheets and on device labelling updates

Work site environment may be affected by nearby plant or processes, e.g. heat, noise, dust, oil, water and chemical

Isolations can refer to electrical/mechanical or other associated processes

Evidence Guide

Critical aspects of evidence

The knowledge and application of relevant sections of: Occupational, health and safety legislation; Statutory legislation; Enterprise/site safety procedures; Enterprise/site emergency procedures

Preparation and planning of work

Maintenance techniques and procedures

Completion of work procedures

Context of assessment

Competency Standards should be assessed in the workplace or simulated workplace and under the normal range of workplace conditions

Assessment of this unit will be supported with documentary evidence, by means of endorsement stating type and application of work

Interdependent assessment of unit

Nil

Knowledge and Skills

A knowledge of:

Occupational health and safety standards; Relevant statutory requirements and codes of practice; Relevant Australian standards; Equipment and material required to perform the work; Isolation procedures; Layout of plant/work site and operation of its equipment; Maintenance techniques ; Electrical equipment; Regulatory procedures; Test and measurement instruments; Engineering and workshop practice; Communication principles ; Teamwork

The ability to:

Apply occupational health and safety standards; Follow relevant statutory regulations and codes of practice; Apply relevant Australian standards; Use plans, drawings and text; Use tools and relevant equipment; Use test and measurement instruments; Use maintenance procedures; Select materials for the job; Apply regulatory procedures; Apply data analysis techniques and tools; Communicate effectively ; Work as part of a team.

UTP NEG145 A
Perform Mechanical and Fabrication Drafting

Descriptor: This unit refers to the drafting and use of drawing equipment as applied to the production of schematic and plan drawings

Elements		Performance criteria	
145.1	Prepare for drafting	145.1.1	Work requirements are identified from request/work orders or equivalent and clarified/confirmed with appropriate parties or by site inspection
		145.1.2	Occupational health and safety standards, statutory requirements, relevant Australian standards, codes of practice, manufacturers' specifications, environmental requirements and enterprise procedures are identified, applied and monitored throughout the work procedure
		145.1.3	Relevant plans, drawings and texts are selected and interpreted in accordance with the work plan
		145.1.4	Where appropriate, the teams and individuals roles and responsibilities within the team are identified and, where required, assist in the provision of the on-the-job training
145.2	Perform mechanical and fabrication drafting	145.2.1	Mechanical and fabrication assemblies are drawn using sectional representation in accordance with specification requirements.
		145.2.2	Fabrication sections drawn to highlight critical features in accordance with specification requirements.
		145.2.3	Mechanical sections drawn to highlight critical features in accordance with specification requirements.
		145.2.4	Progressive tolerance calculations made to ensure functional operation of mechanical and fabrication assemblies.
		145.2.5	Dimensions selected to ensure fit of mechanical and fabrication assembly components in accordance with specification requirements.

Elements		Performance criteria	
		145.2.6	Mechanical/fabrication components selected from manufacturer's catalogue to meet specified functions.
		145.2.7	Pictorial drawings, such as isometric, produced as requested in accordance with relevant standards
145.3	Complete the work	145.3.1	Drawings checked to ensure that assembly is possible in accordance with specification requirements
		145.3.2	Drawings produced, registered and recorded in accordance with instructions/site documentation procedures
		145.3.3	Relevant personnel notified and existing drawings/specification sheets updated as required

Range Statement

Stream: Production Plant

Field: Maintenance

Equivalencies: This unit of competence incorporates units 9.2a, 9.3a, 9.5a, 9.6b, 9.7b and 9.8b of the National Metal and Engineering Competency Standards

Relevant legislation, standards or codes of practice may apply

Dimensions may be notated in metric or imperial units

Drawings may utilise perspective, explosive view or hidden view techniques

Types of equipment drafted may include pressure, level, flow, temperature, speed and vibration equipment

Drawing equipment used may include Computer Aided Drafting (CAD) and conventional drawing tools

Standard symbols are used

Evidence Guide

Critical aspects of evidence

The knowledge and application of relevant sections of: Occupational, health and safety legislation; Statutory legislation; Enterprise/site safety procedures; Enterprise/site emergency procedures

Preparation for drafting

Mechanical and fabrication drafting

Context of assessment

Competency Standards should be assessed in the workplace or simulated workplace and under the normal range of workplace conditions

Assessment of this unit will be supported with documentary evidence, by means of endorsement stating type and application of work

Interdependent assessment of unit

Nil

Knowledge and Skills

A knowledge of:

Occupational health and safety standards; Relevant Statutory requirements, standards and codes of practice; Detailed drafting concepts; Technical drawings and data; Engineering practices (mechanical/fabrication); Engineering drawing equipment; Fluid power circuits; Mechanical drawing symbols; Communication principles ; Computer Aided Drawing systems

The ability to:

Apply occupational health and safety standards; Follow relevant statutory regulations and codes of practice; Interpret and use technical drawings and data; Perform mechanical and fabrication drafting; Use drawing equipment; Use Computer Aided Drawing systems; Communicate effectively ; Apply data analysis techniques and tools.

UTP NEG146 A
Perform Civil Drafting

Descriptor: This unit refers to the drafting and use of drawing equipment as applied to the production of sectional, arrangement, schematic and plan drawings

Elements		Performance criteria	
146.1	Prepare for drafting	146.1.1	Work requirements are identified from request/work orders or equivalent and clarified/confirmed with appropriate parties or by site inspection
		146.1.2	Occupational health and safety standards, statutory requirements, relevant Australian standards, codes of practice, manufacturers' specifications, environmental requirements and enterprise procedures are identified, applied and monitored throughout the work procedure
		146.1.3	Relevant plans, drawings and texts are selected and interpreted in accordance with the work plan
		146.1.4	Where appropriate, the teams and individuals roles and responsibilities within the team are identified and, where required, assist in the provision of the on-the-job training
146.2	Perform civil drafting	146.2.1	Civil structures and assemblies are drawn using sectional representation in accordance with specification requirements
		146.2.2	Structures drawn to highlight critical features in accordance with specification requirements
		146.2.3	Civil assemblies drawn to highlight critical features in accordance with specification requirements
		146.2.4	Progressive tolerance calculations made to ensure functional operation of civil structures and assemblies
		146.2.5	Dimensions selected to ensure fit of civil components in accordance with specification requirements
		146.2.6	Civil components selected from manufacturer's catalogue to meet specified functions

Elements		Performance criteria	
		146.2.7	Pictorial drawings, such as isometric, produced as requested in accordance with relevant standards
146.3	Complete the work	146.3.1	Drawings checked to ensure that assembly is possible in accordance with specification requirements
		146.3.2	Drawings produced, registered and recorded in accordance with instructions/site documentation procedures
		146.3.3	Relevant personnel notified and existing drawings/specification sheets updated as required

Range Statement

Stream: Production Plant

Field: Maintenance

Equivalencies: This unit of competence incorporates units 9.2a, 9.3a, 9.5a, 9.6b, 9.7b and 9.8b of the National Metal and Engineering Competency Standards

Relevant legislation, standards or codes of practice may apply

Dimensions may be notated in metric or imperial units

Drawings may utilise perspective, explosive view or hidden view techniques

Types of structures drafted may include foundations, plinths, dams, canals, spillways, flumes and roads

Drawing equipment used may include Computer Aided Drafting (CAD) and conventional drawing tools

Standard symbols are used

Evidence Guide

Critical aspects of evidence

The knowledge and application of relevant sections of: Occupational, health and safety legislation; Statutory legislation; Enterprise/site safety procedures; Enterprise/site emergency procedures

Detailed drafting concepts (Civil)

Engineering practices (Civil)

Use of engineering drawing equipment

Context of assessment

Competency Standards should be assessed in the workplace or simulated workplace and under the normal range of workplace conditions

Assessment of this unit will be supported with documentary evidence, by means of endorsement stating type and application of work

Interdependent assessment of unit

Nil

Knowledge and Skills

A knowledge of:

Occupational health and safety standards; Relevant Statutory requirements, standards and codes of practice; Detailed drafting concepts; Technical drawings and data; Engineering practices (civil); Engineering drawing equipment; Fluid power circuits; Civil drawing symbols; Communication principles; Communication principles; Computer Aided Drawing systems

The ability to:

Apply occupational health and safety standards; Apply relevant statutory requirements and codes of practice; Interpret and use technical drawings and data; Perform civil drafting; Use drawing equipment; Use Computer Aided Drawing systems; Communicate effectively ; Apply data analysis techniques and tools.

UTP NEG147 A
Perform Electrical/Electronic Drafting

Descriptor: This refers to the drafting of electrical circuits and use of drawing equipment as applied to the production of schematic and wiring diagrams

Elements		Performance criteria	
147.1	Prepare for drafting	147.1.1	Work requirements are identified from request/work orders or equivalent and clarified/confirmed with appropriate parties or by site inspection
		147.1.2	Occupational health and safety standards, statutory requirements, relevant Australian standards, codes of practice, manufacturers' specifications, environmental requirements and enterprise procedures are identified, applied and monitored throughout the work procedure
		147.1.3	Relevant plans, drawings and texts are selected and interpreted in accordance with the work plan
		147.1.4	Where appropriate, the teams and individuals roles and responsibilities within the team are identified and, where required, assist in the provision of the on-the-job training
147.2	Perform electrical drafting	147.2.1	Schematics drawn to indicate relative positioning of electrical/electronic components
		147.2.2	Electrical drawings are produced in accordance with all relevant specification requirements
		147.2.3	Electrical/electronic components selected from manufacturer's/suppliers catalogues to meet specification requirements
		147.2.4	Drawings are produced in accordance with relevant standards
147.3	Complete the work	147.3.1	Drawings checked to ensure that assembly is possible in accordance with specification requirements
		147.3.2	Drawings produced, registered and recorded in accordance with instructions/site documentation procedures
		147.3.3	Relevant personnel notified and existing drawings/specification sheets updated as required

Range Statement

Stream: Production Plant

Field: Maintenance

Equivalencies: This unit of competence incorporates units 9.2a, 9.3a, and 9.4b of the National Metal and Engineering Competency Standards

Relevant legislation, standards or codes of practice may apply

Dimensions may be notated in metric or imperial units

Circuit diagrams will use electrical drawing symbols to Australian or equivalent standards

Types of circuits drafted may include wiring, schematic and logic.

Drawing equipment used may include Computer Aided Drafting (CAD), conventional drawing tools

Manual drafting and drawing equipment used

Evidence Guide

Critical aspects of evidence

The knowledge and application of relevant sections of: Occupational, health and safety legislation; Statutory legislation; Enterprise/site safety procedures; Enterprise/site emergency procedures

Preparation for drafting

Electrical drafting

Context of assessment

Competency Standards should be assessed in the workplace or simulated workplace and under the normal range of workplace conditions

Assessment of this unit will be supported with documentary evidence, by means of endorsement stating type and application of work

Interdependent assessment of unit

Nil

Knowledge and Skills

A knowledge of:

Occupational health and safety standards; Relevant statutory requirements, standards and codes of practice; Detailed drafting concepts; Technical drawings and data; Engineering practices (Electrical); Engineering drawing equipment; Electrical/electronic drawing symbols; Electrical/electronic circuits; Communication principles; Computer Aided Drawing systems

The ability to:

Apply occupational health and safety standards; Apply relevant statutory requirements and codes of practice; Interpret and use technical drawings and data; Perform electrical/electronic drafting; Use drawing equipment; Use Computer Aided Drawing systems; Communicate effectively; Apply data analysis techniques and tools.

UTP NEG150 A
Operate Bulk Coal Handling Plant

Descriptor: This unit refers to the storage, reclaiming and dispatching of bulk coal

Element		Performance criteria	
150.1	Plan and prepare work	150.1.1	Safety issues are identified to comply with enterprise/site requirements
		150.1.2	Work, plant and resource requirements are identified from relevant personnel, information and documentation
		150.1.3	Quality assurance requirements recognised and adhered to
		150.1.4	Basic mineralogy information is interpreted and applied in accordance with enterprise/site requirements
		150.1.5	Work schedule devised consistent with job requirements
		150.1.6	The pad is prepared to receive coal for stockpiling including removal of contamination and drainage
		150.1.7	Pre-operational checks are carried out on plant according to manufacturer's recommendations and site requirements
		150.1.8	Sequence for recommissioning of plant is determined to suit existing circumstances in accordance with enterprise/site requirements
		150.1.9	Where appropriate, the teams and individuals roles and responsibilities within the team are identified and, where required, assist in the provision of the on-the-job training
150.2	Operate machine/plant	150.2.1	Start up, park up and shut down procedures are carried out in accordance with manufacturer's and/or site specific requirements
		150.2.2	Plant is operated in accordance with enterprise and manufacturer's operating procedures
		150.2.3	Plant is monitored and observed to detect deviations from normal operating conditions

Element	Performance criteria	
	150.2.4	Corrective actions taken or reported, to rectify abnormalities, are in accordance with industry standards and site requirements
	150.2.5	Plant to be removed from service is locally identified and isolated in accordance with enterprise/site standards and requirements
	150.2.6	Corrective actions are taken in accordance with safety rules and site requirements when abnormalities are identified during the removal from service
	150.2.7	Inspection and fault finding are carried out in accordance with manufacturer's and/or site requirements
	150.2.8	Coal is placed in predetermined stockpile location in accordance with enterprise/site procedures
	150.2.9	Reclaim specifications are received, personnel dispatch area is notified of the requirement and equipment is made ready to dispatch and reclaim product
	150.2.10	Specified coal is blended, loaded, sampled and dispatched in accordance with enterprise/site procedures
	150.2.11	Dispatch details are recorded in accordance with enterprise/site procedures
150.3 Test plant operation	150.3.1	Tests are performed in accordance with defined procedures applicable to the operational test
	150.3.2	System and plant is observed for correct operational response
	150.3.3	Correct action is taken when response is not in accordance with documentation, plant integrity or personnel safety requirements
	150.3.4	Plant is returned to required operational status upon completion of test

Elements		Performance criteria	
150.4	Analyse system faults	150.4.1	Causes of abnormal plant operating conditions are identified by analysing the technical and operational information in a logical and sequential manner
		150.4.2	Corrective action taken is in accordance with enterprise procedures
		150.4.3	Plant integrity and personnel safety is maintained through consultation with appropriate personnel, and with reference to plant, technical and operational documentation
		150.4.4	Appropriate supplementary personnel are arranged for local investigation or identified operational abnormalities
150.5	Inspect plant	150.5.1	Plant to be inspected is physically identified
		150.5.2	Plant is inspected for expected operation or to detect deviations from normal operating conditions of the plant
		150.5.3	Corrective action taken is in accordance with enterprise/site procedures
		150.5.4	Appropriate personnel is notified when defects are detected
150.6	Complete documentation	150.6.1	Documentation is updated and plant problems, movements, and abnormalities and status are reported and logged in accordance with enterprise/site procedures

Range Statement

Stream: Production Plant

Field: Operations

Equivalencies: N/A

Systems, plant and/or equipment may include electrical supply switchboard(s) and transformers, fixed coal handling plant and equipment, mobile coal plant, relocating plant and equipment (stockpile), fire services system, dust suppression system, supervisory, alarm and control equipment

Types of contamination may include coal (outside specifications), wood, steel, brattice, rock and water

Safety standards may include relevant sections of occupational health and safety legislation, enterprise safety rules, relevant state and federal legislation, national standards for plant

Site hazards may include power lines, trees, overhead service lines, other equipment; earthworks, obstructions, underground services, bridges, facilities and dangerous materials

Information and documentation sources may include verbal or written communications; enterprise safety rules documentation/form(s); equipment and alarm manuals; dedicated computer equipment; standing enterprise/site and operating instructions; enterprise/site log books; equipment manufacturer's operation and maintenance manuals and statutory body license documentation

Technical and operational indicators may include stimuli (audio, smell, touch, visual), remote or local indicators and recorders and alarms (visible and or audible)

Communications may be by means of telephone, two way radio, pager, public address system, facsimile, computer (electronic mail), operating logs (written or verbal), whistle or hand signals and operating plan

Tests may include alarm and protection tests, performance tests, stand-by plant tests and post maintenance operating tests

Appropriate personnel for consultation, and for giving or receiving direction may include supervisor/team leader or equivalent, technical and engineering officers or equivalent, maintenance staff, contractor personnel, other production staff, mine staff (coal suppliers where relevant) and coal handlers

Test, fault finding and operating tools may include hand tools and basic electronic testing equipment

Operating environment may be remote from plant and equipment being operated, (operation is assisted by remote indicators of plant status and other parameters monitored), during inclement or otherwise harsh weather conditions, in wet/noisy/ dusty areas or during night periods

Faults and abnormal operating conditions may include motor/pump/actuator/valve/ dampers failure/malfunction, control equipment failure/malfunctions, loss of electrical supply to plant and equipment, loss of conveyors/restricted availability, loss of, or restricted availability of, mobile plant and wet weather operation

Evidence Guide

Critical aspects of evidence

It is essential that competence is assessed in the critical aspects of:-

The knowledge and application of relevant sections of:

occupational, health and safety legislation; statutory legislation

enterprise/site safety procedures; enterprise/site emergency procedures

preparation and planning of work; operation of coal handling plant;

Context of assessment

Competency Standards should be assessed on site or in a simulated work environment under the normal range of workplace conditions.

Assessment of this unit will be supported with documentary evidence, by means of endorsement stating type and application of equipment operated.

Operationally testing plant; analysing plant faults; inspection of plant

Knowledge and Skills

A knowledge of:

Relevant occupational health and safety regulations; relevant statutory legislation; relevant enterprise/site safety procedures; enterprise/site emergency procedures and techniques; relevant plant and equipment, its location and operating parameters; plant status; environmental legislation

Enterprise recording procedures; communication principles ; computers and software; emergency procedures; warning and directional signals; coal blending procedures; stockpile stability and management; hydraulic power units; lubrication and oil conditioning systems; introduction to power production plant; Mathematics; mechanics; lubrication and bearings; general responsibilities for power production plant operations; bunkering fuels;

Principles governing efficient combustion; electrical principles; transformers

electric motors; switchgear; heating of electrical equipment; electrical protection; auxiliary supply systems (coal handling plant); safe operating principles

The ability to:

Apply relevant occupational health and safety regulations; apply relevant statutory legislation; apply relevant enterprise/site safety procedures; apply enterprise/site emergency procedures and techniques; apply enterprise recording procedures; identify plant status; prepare plant/equipment for operation; organise resources; operate coal handling plant; apply diagnostic and testing techniques; identify and respond to abnormal plant operating conditions; plan and prioritise work; use relevant hand tools; communicate effectively; apply data analysis techniques and tools; co-ordinate the operation of equipment to maintain plant integrity and personnel safety; identify and respond to emergencies; blend coal; operate in a team

UTP NEG152 A
Operate and Monitor Fuel Supply (Coal)

Descriptor: This unit refers to the operation, inspection and monitoring of coal delivery systems to the generating unit storage bunker

Elements		Performance criteria	
152.1	Plan and prepare plant for operation	152.1.1	Safety issues are identified to comply with enterprise/site and legislative requirements
		152.1.2	Work, plant and resource requirements are identified from relevant personnel, information and documentation
		152.1.3	Quality assurance requirements are identified in accordance with enterprise/site requirements
		152.1.4	Documentation to determine plant status is assessed and evaluated
		152.1.5	Localised plant inspection and field preparation for service is carried out in accordance with manufacturer's and enterprise/site procedures
		152.1.6	Plant operational prerequisites are established in accordance with manufacturer's and enterprise/site procedures
		152.1.7	Sequence for recommissioning of plant is determined to suit existing circumstances in accordance with enterprise/site requirements
		152.1.8	Where appropriate, the teams and individuals roles and responsibilities within the team are identified and, where required, assist in the provision of the on-the-job training
152.2	Operate coal delivery plant	152.2.1	Plant is operated in accordance with enterprise and manufacturer's operating procedures
		152.2.2	Plant is monitored and observed to detect deviations from normal operating conditions
		152.2.3	Corrective actions taken or reported, to rectify abnormalities, are in accordance with industry standards and site requirements
		152.3.2	Correct action is taken when response is not in accordance with documentation, plant integrity or personnel safety requirements

Elements		Performance criteria	
		152.3.3	Plant is returned to required operational status upon completion of test
152.4	Analyse plant faults	152.4.1	Causes of abnormal plant operating conditions are identified by analysing the technical and operational information in a logical and sequential manner
		152.4.2	Corrective action taken is in accordance with enterprise/site procedures
		152.4.3	Plant integrity and personnel safety is maintained through consultation with appropriate personnel, and with reference to plant, technical and operational documentation
152.5	Monitor and inspect plant	152.5.1	Plant to be monitored/inspected is physically identified
		152.5.2	Plant is monitored/inspected for normal operation or to detect deviations
		152.5.3	Corrective action taken is in accordance with enterprise/site procedures
		152.5.4	Appropriate personnel are notified when defects are detected
152.6	Complete documentation	152.6.1	Documentation is updated and plant problems, movements, and abnormalities and status are reported and logged in accordance with enterprise/site procedures

Range Statement

Stream: Production Plant

Field: Operations

Equivalencies: N/A

Systems, plant and or equipment may include electrical supply switchboard(s) and transformers, conveyors, motors and "soft" motor starters, hydraulic systems, pumps, storage bins/dry storage bunkers and associated equipment, vibratory feeders, trippers, check weigh bins, valves and actuators (electric, hydraulic and pneumatic), lubricating and oil conditioning systems, fire services system, dust suppression system, supervisory, alarm, protection and control equipment

Safety standards may include relevant sections of occupational health and safety legislation, enterprise safety rules, relevant state and federal legislation and national standards for plant

Information and documentation sources may include verbal or written communications; enterprise safety rules documentation/forms; equipment and alarm manuals; dedicated computer equipment; enterprise/site standing and operating instructions; enterprise/site log books; equipment manufacturer's operation and maintenance manuals

Technical and operational indicators may include stimuli (audio, smell, touch, visual), remote or local indicators and recorders, computers and alarms (visible and or audible)

Communications may be by means of telephone, two way radio, pager, public address system, facsimile, computer (electronic mail) and operating log (written or verbal)

Tests may include alarm and protection tests, performance tests, stand-by plant tests and post maintenance operating tests

Appropriate personnel to consult, give or receive direction may include supervisor/team leader or equivalent, technical and engineering officers or equivalent, maintenance staff, contractor personnel, other production staff and coal handling plant operators

Test, fault finding and operating tools may include hand tools and basic electronic testing equipment

Operating environment may be during inclement or otherwise harsh weather conditions, in wet/noisy/dusty/hot areas or during night periods

Faults and abnormal operating conditions may include motor/pump/ actuator/valve/dampers failure/malfunctions, control equipment failure/ malfunctions, loss of electrical supply to plant and equipment, loss of conveyor(s)/restricted availability, loss of or restricted availability of mobile plant and wet weather operation

Evidence Guide

Critical aspects of evidence

The knowledge and application of relevant sections of: Occupational, health and safety legislation; Statutory legislation; Enterprise/site safety procedures; Enterprise/site emergency procedures

Preparation and planning of work

Operation of coal delivery plant

Operationally testing plant

Analysing plant faults

Monitoring plant operation

Context of assessment

Competency Standards should be assessed in the workplace or simulated workplace and under the normal range of workplace conditions

Assessment of this unit will be supported with documentary evidence, by means of endorsement stating type and application of equipment operated

Interdependent assessment of unit

Nil

Knowledge and Skills

A knowledge of:

Relevant occupational health and safety regulations; Relevant statutory legislation; Relevant enterprise/site safety procedures; Enterprise/site emergency procedures and techniques; Relevant plant and equipment, its location and operating parameters; Plant status; Environmental legislation; Enterprise recording procedures; Basic motor designs and characteristics; Coal handling procedures; Hydraulic power units; Communication principles ; Control and data acquisition systems; Computers and software; Introduction to power production plant; Typical arrangements of power production plant; Mathematics; Mechanics; Properties of matter; Lubrication and bearings; General responsibilities for power production plant operations; Coal handling plant; Bunkering; Fuels; Principles governing efficient combustion; Electrical principles; Transformers; Electric motors; Switchgear; Heating of electrical equipment; Electrical protection; Auxiliary supply systems; Safe operating principles

The ability to:

Apply relevant occupational health and safety regulations; Apply relevant statutory legislation; Apply relevant enterprise/site safety procedures; Apply enterprise/site emergency procedures and techniques; Apply enterprise recording procedures; Identify plant status; Prepare plant/equipment for operation; Organise resources where applicable; Operate coal delivery plant; Apply diagnostic and testing techniques; Identify and respond to abnormal plant operating conditions; Plan and prioritise work; Use relevant hand tools; Communicate effectively ; Apply data analysis techniques and tools; Operate in a team.

UTP NEG153 A
Operate Ash and Dust Disposal Plant

Descriptor: This unit refers to the operation, inspection and monitoring of ash and dust disposal plants associated with a coal fired power station

Elements		Performance criteria	
153.1	Plan and prepare plant for operation	153.1.1	Safety issues are identified to comply with enterprise/site and legislative requirements
		153.1.2	Work requirements are identified from relevant personnel and documentation
		153.1.3	Localised plant inspection and field preparation for service is carried out in accordance with manufacturer's and enterprise/site procedures
		153.1.4	Plant operational prerequisites are established in accordance with manufacturer's and enterprise/site procedures
		153.1.5	Sequence for recommissioning of plant is determined to suit existing circumstances in accordance with enterprise/site requirements
		153.1.6	Where appropriate, the teams and individuals roles and responsibilities within the team are identified and, where required, assist in the provision of the on-the-job training
153.2	Operate plant	153.2.1	Plant is operated in accordance with enterprise and manufacturer's operating procedures
		153.2.2	Plant is monitored and observed to detect deviations from normal operating conditions
		153.2.3	Corrective actions taken or reported, to rectify abnormalities, are in accordance with industry standards and site requirements
153.3	Test plant operation	153.3.1	Tests are performed in accordance with defined procedures applicable to the operational test
		153.3.2	Plant is observed for correct operational response
		153.3.3	Corrective action is taken when response is not in accordance with documentation, plant integrity or personnel safety requirements

Elements		Performance criteria	
		153.3.4	Plant is returned to required operational status upon completion of test
153.4	Analyse plant faults	153.4.1	Causes of abnormal plant operating conditions are identified by analysing the technical and operational information in a logical and sequential manner
		153.4.2	Corrective action taken is in accordance with enterprise/site procedures
		153.4.3	Plant integrity and personnel safety is maintained through consultation with appropriate personnel, and with reference to plant, technical and operational documentation
153.5	Monitor and inspect plant	153.5.1	Plant to be monitored/inspected is physically identified
		153.5.2	Plant is monitored/inspected for normal operation or to detect deviations
		153.5.3	Corrective action taken is in accordance with enterprise/site procedures
		153.5.4	Appropriate personnel are notified when defects are detected
153.6	Complete documentation	153.6.1	Documentation is updated and plant problems, movements, and abnormalities and status are reported and logged in accordance with enterprise/site procedures

Range Statement

Stream: Production Plant

Field: Operations

Equivalencies: N/A

Systems, plant and/or equipment may include electrical supply switchboard(s) and transformers; electrical motors; valves; dampers and actuators (electric, hydraulic, manual and pneumatic); lubricating and oil conditioning systems; supervisory, alarm, protection and control equipment; boiler ash/dust hopper and ash/dust extraction equipment; sluiceway and sluiceway equipment; ash crusher; ash and dust slurry pumps; ash, dust and dam water recovery plant; hydraulic power oil unit; dust suppression plant; dams; and transportation systems

Safety standards may include relevant sections of occupational health and safety legislation, enterprise safety rules, relevant state and federal legislation, national standards for plant, Australian standards

Information and documentation sources may include verbal or written communications; enterprise safety rules documentation; enterprise operating instructions; manufacturer's operational and maintenance manuals; equipment and alarm manuals; dedicated computer equipment; enterprise standing instructions and plant notes; and enterprise log books

Technical and operational indicators may include stimuli (audio, smell, touch, visual), remote or local indicators and recorders and alarms (visible and or audible)

Communications may be by means of, telephone, two way radio, pager, computer (electronic mail), operating log (written or verbal) and public address system

Tests may include motor direction checks, stand-by plant tests, performance tests and pump rotation checks

Appropriate personnel to consult, give or receive direction may include supervisor/team leader or equivalent, power plant operations personnel, technical and engineering officers or equivalent, maintenance staff, contractor personnel and other production staff

Test, fault finding and operating tools may include high voltage testers, proving dead equipment, power or hand tools

Operating environment may be during inclement or otherwise harsh weather conditions, in wet/noisy/dusty/hot areas and during continuous operation

Faults and abnormal operating conditions may include motor/pump/actuator /valve/dampers failure/malfunctions, control equipment failure/malfunctions, loss of electrical supply to plant and equipment, loss/low cooling air/water, low lubricating/power oil flow to auxiliary plant/equipment, clinker build ups (manual removal), excessive vibration pumps/motors, loss/low ejector water flow, loss of pump gland sealing water, high/low pit levels, blocked sluiceways and blocked/burst lines

Evidence Guide

Critical aspects of evidence

The knowledge and application of relevant sections of: Occupational, health and safety legislation; Statutory legislation; Enterprise/site safety procedures; Enterprise/site emergency procedures

Preparation and planning of work

Operation of ash and dust disposal plant

Operationally testing plant

Analysing plant faults

Monitoring plant operation

Context of assessment

Competency Standards should be assessed in the workplace or simulated workplace and under the normal range of workplace conditions

Assessment of this unit will be supported with documentary evidence, by means of endorsement stating type and application of equipment operated

Interdependent assessment of unit

Nil

Knowledge and Skills

A knowledge of:

Relevant occupational health and safety regulations; Relevant statutory legislation; Relevant enterprise/site safety procedures; Enterprise/site emergency procedures and techniques; Relevant plant and equipment, its location and operating parameters; Plant status; Environmental legislation; Enterprise recording procedures; Communication principles ; Control and data acquisition systems; Computers and software; Supervisory, alarm, protection and control equipment; Emergency procedures; Basic motor performance; Basic pump and compressor performance; Valve, damper and actuator types and characteristics; Introduction to power production plant; Typical arrangements of power production plant; Mathematics; Mechanics; Properties of matter; Lubrication and bearings; Compressors; Pumps; Liquid pumping systems; Power plant cycle; General responsibilities for power production plant operations; Precipitators; Fabric filters; Ash and dust removal systems; Electrical principles; Transformers; Electric motors; Switchgear; Heating of electrical equipment; Electrical protection; Auxiliary supply systems; Safe operating principles

The ability to:

Apply relevant occupational health and safety regulations; Apply relevant statutory legislation; Apply relevant enterprise/site safety procedures; Apply enterprise/site emergency procedures and techniques; Apply enterprise recording procedures; Identify plant status; Prepare plant/equipment for operation; Organise resources; Operate ash and dust disposal plant; Apply diagnostic and testing techniques; Identify and respond to abnormal plant operating conditions; Plan and prioritise work; Use relevant hand tools; Communicate effectively; Apply data analysis techniques and tools; Use diagrams, drawings and symbols; Ascertain clinker properties; Perform clinker break up and disposal.

UTP NEG154 A
Operate Electrostatic Precipitator Dust Collection Plant

Descriptor: This unit refers to the operation, inspection and monitoring of electrostatic precipitator dust collection plant associated with a power station

Elements		Performance criteria	
154.1	Plan and prepare work	154.1.1	Safety issues are identified to comply with enterprise/site and legislative requirements
		154.1.2	Work requirements are identified from relevant personnel and documentation
		154.1.3	Localised plant inspection and field preparation for service are carried out in accordance with manufacturer's and enterprise/site procedures
		154.1.4	Plant operational prerequisites are established in accordance with manufacturer's and enterprise/site procedures
		154.1.5	Sequence for recommissioning of plant is determined to suit existing circumstances in accordance with enterprise/site requirements
		154.1.6	Where appropriate, the teams and individuals roles and responsibilities within the team are identified and, where required, assist in the provision of the on-the-job training
154.2	Operate plant	154.2.1	Plant is operated in accordance with enterprise and manufacturer's operating procedures
		154.2.2	Plant is monitored and observed to detect deviations from normal operating conditions
		154.2.3	Corrective actions taken or reported, to rectify abnormalities are in accordance with industry standards and site requirements
154.3	Test plant operation	154.3.1	Tests are performed in accordance with defined procedures applicable to the operational test
		154.3.2	Plant is observed for correct operational response
		154.3.3	Corrective action is taken when response is not in accordance with documentation, plant integrity or personnel safety requirements

Elements		Performance criteria	
		154.3.4	Plant is returned to required operational status upon completion of test
154.4	Analyse plant faults	154.4.1	Causes of abnormal plant operating conditions are identified by analysing the technical and operational information in a logical and sequential manner
		154.4.2	Corrective action taken is in accordance with enterprise/site procedures
		154.4.3	Plant integrity and personnel safety is maintained through consultation with appropriate personnel, and with reference to plant, technical and operational documentation
154.5	Monitor and inspect plant	154.5.1	Plant to be monitored/inspected is physically identified
		154.5.2	Plant is monitored/inspected for normal operation or to detect deviations
		154.5.3	Corrective action taken is in accordance with enterprise/site procedures
		154.5.4	Appropriate personnel are notified when defects are detected
154.6	Complete documentation	154.6.1	Documentation is updated and plant problems, movements, and abnormalities and status are reported and logged in accordance with enterprise/site procedures

Range Statement

Stream: Production Plant

Field: Operations

Equivalencies: N/A

Systems, plant and or equipment may include electrical supply switchboard(s) and transformers; fans; electrical motors; valves, dampers and actuators (electric, hydraulic, manual and pneumatic); lubricating and oil conditioning systems; supervisory, alarm, protection and control equipment; dust ejectors; electrostatic precipitators; hoppers and associated equipment; sluice water systems; and chemical injection systems

Safety standards may include relevant sections of occupational health and safety legislation, enterprise safety rules, relevant state and federal legislation, national standards for plant and Australian standards

Information and documentation sources may include verbal or written communications; enterprise safety rules documentation; enterprise operating instructions; manufacturer's operational and maintenance manuals; equipment and alarm manuals; dedicated computer equipment; enterprise standing instructions and plant notes; and enterprise log books

Technical and operational indicators may include stimuli (audio, smell, touch, visual), remote or local indicators and recorders and alarms (visible and or audible)

Communications may be by means of telephone, two way radio, pager, computer (electronic mail), operating log (written or verbal) and public address system

Tests may include motor direction checks, stand-by plant "cut-in" tests, performance tests and alarm initiation tests

Appropriate personnel to consult, give or receive direction may include, supervisor/team leader or equivalent, power plant operations personnel, technical and engineering officers or equivalent, maintenance staff, contractor personnel and other production staff or equivalent

Test, fault finding and operating tools may include high voltage testers, proving dead equipment, power or hand tools

Operating environment may be during inclement or otherwise harsh weather conditions, in wet/noisy/dusty/hot areas and during continuous operation

Faults and abnormal operating conditions may include motor/pump/ actuator/valve/dampers failure/malfunctions, control equipment failure/ malfunction, loss of electrical supply to plant and equipment, excessive vibration of pumps/motors, loss/low ejector water flow, broken "wire" in cell, loss of chemical injection and chemical storage/delivery plant malfunctions, low/loss air pressure, loss of pump gland sealing water, blocked ejector strainers, blocked hoppers and rapper failure

Evidence Guide

Critical aspects of evidence

The knowledge and application of relevant sections of: Occupational, health and safety legislation; Statutory legislation; Enterprise/site safety procedures; Enterprise/site emergency procedures

Preparation and planning of work

Operation of electrostatic dust collection plant

Operationally testing plant

Analysing plant faults

Monitoring plant operation

Context of assessment

Competency Standards should be assessed in the workplace or simulated workplace and under the normal range of workplace conditions

Assessment of this unit will be supported with documentary evidence, by means of endorsement stating type and application of equipment operated

Interdependent assessment of unit

Nil

Knowledge and Skills

A knowledge of:

Relevant occupational health and safety regulations; Relevant statutory legislation; Relevant enterprise/site safety procedures; Enterprise/site emergency procedures and techniques; Relevant plant and equipment, its location and operating parameters; Plant status; Environmental legislation; Enterprise recording procedures; Communication principles ; Control and data acquisition systems; Computers and software; Supervisory, alarm , protection and control equipment; Emergency procedures; Basic motor performance; Basic fan and compressor performance; Valve, damper and actuator types and characteristics; Introduction to power production plant; Typical arrangements of power production plant; Mathematics; Mechanics; Properties of matter; Lubrication and bearings; General responsibilities for power production plant operations; Precipitators; Ash and dust removal systems; Boiler draft system; Electrical principles; Transformers; Electric motors; Switchgear; Heating of electrical equipment; Electrical protection; Auxiliary supply systems; Safe operating principles

The ability to:

Apply relevant occupational health and safety regulations; Apply relevant statutory legislation; Apply relevant enterprise/site safety procedures; Apply enterprise/site emergency procedures and techniques; Apply enterprise recording procedures; Identify plant status; Prepare plant/equipment for operation; Organise resources; Operate electrostatic precipitator dust collection plant; Apply diagnostic and testing techniques; Identify and respond to abnormal plant operating conditions; Plan and prioritise work; Use relevant hand tools; Communicate effectively ; Apply data analysis techniques and tools; Use diagrams, drawings and symbols

UTP NEG155 A
Operate Fabric Filter Dust Collection Plant

Descriptor: This unit refers to the operation, inspection and monitoring of fabric filter dust collection plant associated with coal fired power stations

Elements		Performance criteria	
155.1	Plan and prepare work	155.1.1	Safety issues are identified to comply with enterprise/site and legislative requirements
		155.1.2	Work requirements are identified from relevant personnel and documentation
		155.1.3	Localised plant inspection, pre-operational checks and field preparations for service are carried out in accordance with manufacturer's and enterprise/site procedures
		155.1.4	Plant operational prerequisites are established in accordance with manufacturer's and enterprise/site procedures
		155.1.5	Sequence for recommissioning of plant is determined to suit existing circumstances in accordance with enterprise/site requirements
		155.1.6	Where appropriate, the teams and individuals roles and responsibilities within the team are identified and, where required, assist in the provision of the on-the-job training
155.2	Operate plant	155.2.1	Plant is operated in accordance with enterprise and manufacturer's operating procedures
		155.2.2	Plant is monitored and observed to detect deviations from normal operating conditions
		155.2.3	Corrective actions taken or reported, to rectify abnormalities, are in accordance with industry standards and site requirements
155.3	Test plant operation	155.3.1	Tests are performed in accordance with defined procedures applicable to the operational test
		155.3.2	Plant is observed for correct operational response

Elements		Performance criteria	
		155.3.3	Corrective action is taken when response is not in accordance with documentation, plant integrity or personnel safety requirements
		155.3.4	Plant is returned to required operational status upon completion of test
155.4	Analyse plant faults	155.4.1	Causes of abnormal plant operating conditions are identified by analysing the technical and operational information in a logical and sequential manner
		155.4.2	Corrective action taken is in accordance with enterprise/site procedures
		155.4.3	Plant integrity and personnel safety is maintained through consultation with appropriate personnel, and with reference to plant, technical and operational documentation
155.5	Monitor and inspect plant	155.5.1	Plant to be monitored/inspected is physically identified
		155.5.2	Plant is monitored/inspected for normal operation or to detect deviations
		155.5.3	Corrective action taken is in accordance with enterprise/site procedures
		155.5.4	Appropriate personnel are notified when defects are detected
155.6	Complete documentation	155.6.1	Documentation is updated and plant problems, movements and abnormalities and status are reported and logged in accordance with enterprise/site procedures

Range Statement

Stream: Production Plant

Field: Operations

Equivalencies: N/A

Systems, plant and/or equipment may include electrical supply switchboard(s) and transformers, fans (simple), electrical motors AC, valves, dampers and actuators (electric, hydraulic, manual and pneumatic), lubricating and oil conditioning systems, supervisory, protection, alarm and control equipment, dust ejectors, sluice water systems, fabric filter cells and hoppers and air slides

Safety standards may include relevant sections of occupational health and safety legislation, enterprise safety rules, relevant state and federal legislation, national standards for plant and Australian standards

Information and documentation sources may include verbal or written communications; enterprise safety rules documentation; enterprise operating instructions; manufacturer's operational and maintenance manuals; equipment and alarm manuals; dedicated computer equipment; standing enterprise instructions and plant notes; and enterprise log books

Technical and operational indicators may include stimuli (audio, smell, touch, visual), remote or local indicators and recorders and alarms (visible and/or audible)

Communications may be by means of telephone, two way radio, pager, computer (electronic mail), operating logs (written or verbal) and public address system

Tests may include motor direction checks, stand-by plant "cut-in" tests, performance tests and alarm initiation tests

Appropriate personnel to consult, give or receive direction may include supervisor/team leader or equivalent, power plant operations personnel, technical and engineering officers or equivalent, maintenance staff, contractor personnel and other production staff or equivalent

Test, fault finding and operating tools may include high voltage testers, proving dead equipment, power or hand tools

Operating environment may be during inclement or otherwise harsh weather conditions, in wet/noisy/dusty/hot areas and during continuous operation

Faults and abnormal operating conditions may include motor/pump/ actuator/valve/dampers failure/malfunctions, control equipment failure/ malfunctions, loss of electrical supply to plant and equipment, excessive vibration pumps/motors, loss/low ejector water flow, loss/low air slide air pressure, loss of pumps gland sealing water and blocked ejector strainers

Evidence Guide

Critical aspects of evidence

The knowledge and application of relevant sections of: Occupational, health and safety legislation; Statutory legislation; Enterprise/site safety procedures; Enterprise/site emergency procedures

Preparation and planning of work

Operation of fabric filter dust collection plant

Operationally testing plant

Analysing plant faults

Monitoring plant operation

Context of assessment

Competency Standards should be assessed in the workplace or simulated workplace and under the normal range of workplace conditions

Assessment of this unit will be supported with documentary evidence, by means of endorsement stating type and application of equipment operated

Interdependent assessment of unit

Nil

Knowledge and Skills

A knowledge of:

Relevant occupational health and safety regulations; Relevant statutory legislation; Relevant enterprise/site safety procedures; Enterprise/site emergency procedures and techniques; Relevant plant and equipment, its location and operating parameters; Plant status; Environmental legislation; Enterprise recording procedures; Communication principles; Control and data acquisition systems; Computers and software; Supervisory, alarm, protection and control equipment; Emergency procedures; Basic motor performance; Basic pump, fan and compressor performance; Valve, damper and actuator types and characteristics; Fabric filter bag toxicity properties and appropriate safety precautions; Introduction to power production plant; Typical arrangements of power production plant; Mathematics; Mechanics; Properties of matter; Lubrication and bearings; Compressors; Power plant cycle; General responsibilities for power production plant operations; Fabric filters; Ash and dust removal systems; Boiler draft system; Electrical principles; Transformers; Electric motors; Switchgear; Heating of electrical equipment; Electrical protection; Auxiliary supply systems; Safe operating principles

The ability to:

Apply relevant occupational health and safety regulations; Apply relevant statutory legislation; Apply relevant enterprise/site safety procedures; Apply enterprise/site emergency procedures and techniques; Apply enterprise recording procedures; Identify plant status; Prepare plant/equipment for operation; Organise resources; Operate fabric filter plant; Apply diagnostic and testing techniques; Identify and respond to abnormal plant operating conditions; Plan and prioritise work; Use relevant hand tools; Communicate effectively ; Apply data analysis techniques and tools; Use diagrams, drawings and symbols.

UTP NEG156 A
Operate and Monitor Fuel Supply (Gas or Oil)

Descriptor: This unit refers to the operation, inspection and monitoring of fuel supply from source to recipient unit storage

Elements		Performance criteria	
156.1	Plan and prepare	156.1.1	Safety issues are identified to comply with enterprise and site requirements
		156.1.2	Work requirements are identified from relevant personnel and documentation
		156.1.3	Documentation to determine plant status is assessed and evaluated
		156.1.4	Localised plant inspection and field preparation for service are carried out in accordance with manufacturer's and enterprise procedures
		156.1.5	Plant operational prerequisites are established in accordance with manufacturer's and enterprise procedures
		156.1.6	Sequence for recommissioning of plant is determined to suit existing circumstances in accordance with enterprise requirements
		156.1.7	Where appropriate, the teams and individuals roles and responsibilities within the team are identified and, where required, assist in the provision of the on-the-job training
156.2	Operate fuel plant	156.2.1	Plant is operated in accordance with enterprise/site and manufacturer's operating procedures
		156.2.2	Plant is monitored and observed to detect deviations from normal operating conditions
		156.2.3	Corrective actions are taken to rectify abnormalities in accordance with manufacturer's and enterprise procedures
156.3	Test plant operation	156.3.1	Tests are performed in accordance with defined procedures applicable to the operational test
		156.3.2	Plant is observed for correct operational response

Elements		Performance criteria	
		156.3.3	Corrective action is taken when response is not in accordance with documentation, plant integrity or personnel safety requirements
		156.3.4	Plant is returned to required operational status upon completion of test
156.4	Analyse plant faults	156.4.1	Causes of abnormal plant operating conditions are identified by analysing the technical and operational information in a logical and sequential manner
		156.4.2	Corrective action taken is in accordance with enterprise procedures
		156.4.3	Plant integrity and personnel safety are maintained through consultation with appropriate personnel, and with reference to plant, technical and operational documentation
156.5	Monitor and inspect plant	156.5.1	Plant to be monitored/inspected is physically identified
		156.5.2	Plant is monitored/inspected for normal operation or to detect deviations
		156.5.3	Corrective action taken is in accordance with enterprise procedures
		156.5.4	Appropriate personnel are notified when defects are detected
156.6	Complete documentation	156.6.1	Documentation is updated and plant problems, movements, abnormalities and status are reported and logged in accordance with enterprise/site procedures

Range Statement

Stream: Production Plant

Field: Operations

Equivalencies: N/A

Systems, plant and/or equipment may include electrical supply switchboard; supervisory, alarm, protection and control equipment; gas supply; gas delivery; fire protection systems; compressors and pumps; electric motors; valves, actuators and dampers (electric, hydraulic, pneumatic and manual); filters and strainers heaters (electrical/steam), oil recirculation systems, attemporators and gas or oil storage systems.

Safety standards may include relevant sections of occupational health and safety legislation, enterprise safety rules, relevant state and federal legislation, national standards for plant and environmental legislation

Information and documentation sources may include verbal or written communications; enterprise/site safety rules; equipment and alarm manuals; dedicated computer equipment; enterprise/site standing and operating instructions; enterprise/site log books; manufacturer's operation and maintenance manuals; and specialist's reports

Technical and operational indicators may include stimuli (audio, smell, touch, visual), local indicators and recorders, alarms (visible and or audible) and basic fault finding equipment

Communications may be by means of telephone, two way radio, pager public address system, computer (electronic mail) and operating log (written or verbal)

Tests may include stand-by plant tests, post maintenance operating tests and leak testing

Appropriate personnel to consult, give or receive direction may include supervisor/team leader or equivalent, technical and engineering officers or equivalent, power system control personnel or equivalent, maintenance staff, power plant operations personnel, contractor and specialist personnel

Test, fault finding and operating tools may include power or hand tools, control system equipment and leak detectors

Operating environment may be during inclement or otherwise harsh weather conditions, in wet/noisy/dusty/hot areas, during night periods and during continuous operation

Faults and abnormal operating conditions may include motor/pump/ actuator/valve/damper failure/malfunction; control equipment failure/ malfunctions; loss of electrical supply to plant and equipment; breakdown in delivery of fuel supply; excessive vibration pumps/motors; high filter/strainer differentials; delivery system blockages; fuel supply and delivery system fires; and line fractures/leaks

Evidence Guide

Critical aspects of evidence

The knowledge and application of relevant sections of: Occupational, health and safety legislation; Statutory legislation; Enterprise/site safety procedures; Enterprise/site emergency procedures

Preparation and planning of work

Operation of fuel supply plant

Operationally testing plant

Analysing plant faults

Monitoring plant operation

Context of assessment

Competency Standards should be assessed in the workplace or simulated workplace and under the normal range of workplace conditions

Assessment of this unit will be supported with documentary evidence, by means of endorsement stating type and application of equipment operated

Interdependent assessment of unit

Nil

Knowledge and Skills

A knowledge of:

Relevant occupational health and safety regulations; Relevant statutory legislation; Relevant enterprise/site safety procedures; Enterprise/site emergency procedures and techniques; Relevant plant and equipment, its location and operating parameters; Plant status; Environmental legislation; Enterprise recording procedures; Communication principles ; Control and data acquisition systems; Computers and software; Supervisory, alarm, protection and control equipment; Emergency procedures; Basic motor performance; Basic pump and compressor performance; Valve, damper and actuator types and characteristics; Fuel leak detection and control ; Fuel supply systems

The ability to:

Apply relevant occupational health and safety regulations; Apply relevant statutory legislation; Apply relevant enterprise/site safety procedures; Apply enterprise/site emergency procedures and techniques; Apply enterprise recording procedures; Identify plant status; Prepare plant/equipment for operation; Organise resources; Operate fuel supply system; Apply diagnostic and testing techniques; Identify and respond to abnormal plant operating conditions; Plan and prioritise work; Use relevant hand tools; Communicate effectively ; Apply data analysis techniques and tools; Operate in a team; Use diagrams, drawings and symbols.

UTP NEG157 A
Operate and Monitor Boiler Draught System

Descriptor: This unit refers to the operation, inspection and monitoring of boiler draught equipment

Elements		Performance criteria	
157.1	Plan and prepare work	157.1.1	Safety issues are identified to comply with enterprise/site and legislative requirements
		157.1.2	Work requirements are identified from relevant personnel and documentation
		157.1.3	Documentation to determine plant status is assessed and evaluated
		157.1.4	Localised plant inspection, pre-operational checks and field preparations for service are carried out in accordance with manufacturer's and enterprise/site procedures
		157.1.5	Plant operational prerequisites are established in accordance with manufacturer's and enterprise/site procedures
		157.1.6	Sequence for recommissioning of plant is determined to suit existing circumstances in accordance with enterprise/site requirements
		157.1.7	Where appropriate, the teams and individuals roles and responsibilities within the team are identified and, where required, assist in the provision of the on-the-job training
157.2	Operate plant	157.2.1	Plant is operated in accordance with enterprise and manufacturer's operating procedures
		157.2.2	Plant is monitored and observed to detect deviations from normal operating conditions
		157.2.3	Corrective actions taken or reported, to rectify abnormalities, are in accordance with industry standards and site requirements
157.3	Test plant operation	157.3.1	Tests are performed in accordance with defined procedures applicable to the operational test
		157.3.2	Plant is observed for correct operational response

Elements		Performance criteria	
		157.3.3	Corrective action is taken when response is not in accordance with documentation, plant integrity or personnel safety requirements
		157.3.4	Plant is returned to required operational status upon completion of test
157.4	Analyse plant faults	157.4.1	Causes of abnormal plant operating conditions are identified by analysing the technical and operational information in a logical and sequential manner
		157.4.2	Corrective action taken is in accordance with enterprise/site procedures
		157.4.3	Plant integrity and personnel safety is maintained through consultation with appropriate personnel, and with reference to plant, technical and operational documentation
157.5	Monitor and inspect plant	157.5.1	Plant to be monitored/inspected is physically identified
		157.5.2	Plant is monitored/inspected for normal operation or to detect deviations
		157.5.3	Corrective action taken is in accordance with enterprise/site procedures
157.6	Complete documentation	157.6.1	Documentation is updated and plant problems, movements and abnormalities and status are reported and logged in accordance with enterprise/site procedures

Range Statement

Stream: Production Plant

Field: Operations

Equivalencies: N/A

Systems, plant and or equipment may include electrical supply switchboard(s) and transformers, electrical motors, valves, dampers and actuators (electric, hydraulic, manual and pneumatic), lubricating and oil conditioning systems, supervisory, alarm, protection and control equipment, compressors and pumps, fans axial/centrifugal, speed or vane control, filters, strainers and pressure control devices, air heaters, auxiliary steam, emergency drives (air heater), air heater cleaning, washing systems, purge and cooling air systems and control air systems

Safety standards may include relevant sections of occupational health and safety legislation, enterprise safety rules, relevant state and federal legislation and national standards for plant

Information and documentation sources may include verbal or written communications; enterprise safety rules documentation; manufacturer's operational and maintenance manuals; equipment and alarm manuals; dedicated computer equipment; enterprise standing and operating instructions and enterprise log books

Technical and operational indicators may include stimuli (audio, smell, touch, visual), local indicators and recorders and alarms (visible and or audible)

Communications may be by means of telephone, two way radio, pager, public address system, computer (electronic mail) and operating log (written or verbal)

Tests may include post maintenance operating tests and stand-by plant tests

Appropriate personnel to consult, give or receive direction may include, supervisor/team leader or equivalent, technical and engineering officers or equivalent, maintenance staff, contractor personnel, other production staff or equivalent, power system control personnel or equivalent and power plant operations personnel

Test, fault finding and operating tools may include power or hand tools, control system equipment, H.V. testers and proving dead equipment

Operating environment may be during inclement or otherwise harsh weather conditions, in wet/noisy/dusty/hot areas, during night periods and during continuous operation

Faults and abnormal operating conditions may include motor/pumps/actuator/ valve/damper failure/malfunctions, control equipment failure/malfunctions, loss of electrical supply to plant and equipment, excessive vibration, pumps/motors, air heater drive failure, fan failure, high/low furnace pressure, loss of purge and cooling air supplies, loss of control medium, air heater blockages and fires

Evidence Guide

Critical aspects of evidence

The knowledge and application of relevant sections of: Occupational, health and safety legislation; Statutory legislation; Enterprise/site safety procedures; Enterprise/site emergency procedures

Preparation and planning of work

Operation of boiler draught plant

Operationally testing plant

Analysing plant faults

Monitoring plant operation

Context of assessment

Competency Standards should be assessed in the workplace or simulated workplace and under the normal range of workplace conditions

Assessment of this unit will be supported with documentary evidence, by means of endorsement stating type and application of equipment operated

Interdependent assessment of unit

Nil

Knowledge and Skills

A knowledge of:

Relevant occupational health and safety regulations; Relevant statutory legislation; Relevant enterprise/site safety procedures; Enterprise/site emergency procedures and techniques; Relevant plant and equipment, its location and operating parameters; Plant status; Environmental legislation; Enterprise recording procedures; Communication principles; Control and data acquisition systems; Computers and software; Supervisory, alarm, protection and control equipment; Emergency procedures; Basic motor performance; Valve, damper and actuator types and characteristics; Basic fan/motor performance characteristics; Process chemicals used and handling and spillage clean-up procedure; Introduction to power production plant; Typical arrangements of power production plant; Mathematics; Mechanics; Properties of matter; Lubrication and bearings; Fans; Power plant cycle; General responsibilities for power production plant operations; Precipitators; Fabric filters; Boiler draft system; Fuels; Principles governing efficient combustion; Fuel conditioning and fuel firing equipment; Control of a boiler; Electrical principles; Transformers; Electric motors; Switchgear; Heating of electrical equipment; Electrical protection; Schematic diagrams; Auxiliary supply systems; Safe operating principles

The ability to:

Apply relevant occupational health and safety regulations; Apply relevant statutory legislation; Apply relevant enterprise/site safety procedures; Apply enterprise/site emergency procedures and techniques; Apply enterprise recording procedures; Identify plant status; Prepare plant/equipment for operation; Organise resources; Operate boiler draught plant; Apply diagnostic and testing techniques; Identify and respond to abnormal plant operating conditions; Plan and prioritise work; Use relevant hand tools; Communicate effectively; Apply data analysis techniques and tools; Use diagrams, drawings and symbols; Co-ordinate the operation of equipment to maintain plant integrity, personnel safety and continuity of supply.

UTP NEG159 A
Operate and Monitor Fuel Firing Plant (Gas or Oil)

Descriptor: This unit refers to the operation, inspection and monitoring of gas or oil firing plant

Elements		Performance criteria	
159.1	Plan and prepare work	159.1.1	Safety issues are identified to comply with enterprise/site requirements
		159.1.2	Work requirements are identified from relevant personnel and documentation
		159.1.3	Documentation to determine plant status is assessed and evaluated
		159.1.4	Localised plant inspection, pre-operational tests and field preparations for service are carried out in accordance with manufacturer's and enterprise/site procedures
		159.1.5	Plant operational prerequisites are established in accordance with manufacturer's and enterprise/site procedures
		159.1.6	Sequence for recommissioning of plant is determined to suit existing circumstances in accordance with enterprise/site requirements
		159.1.7	Where appropriate, the teams and individuals roles and responsibilities within the team are identified and, where required, assist in the provision of the on-the-job training
159.2	Operate plant	159.2.1	Plant is operated in accordance with enterprise and manufacturer's operating procedures
		159.2.2	Plant is monitored and observed to detect deviations from normal operating conditions
		159.2.3	Corrective actions are taken to rectify abnormalities in accordance with manufacturer's and enterprise/site procedures
159.3	Test plant operation	159.3.1	Tests are performed in accordance with defined procedures applicable to the operational test

Elements		Performance criteria	
		159.3.2	Plant is observed for correct operational response
		159.3.3	Corrective action is taken when response is not in accordance with documentation, plant integrity or personnel safety requirements
		159.3.4	Plant is returned to required operational status upon completion of test
159.4	Analyse plant faults	159.4.1	Causes of abnormal plant operating conditions are identified by analysing the technical and operational information in a logical and sequential manner
		159.4.2	Corrective action taken is in accordance with enterprise procedures
		159.4.3	Plant integrity and personnel safety is maintained through consultation with appropriate personnel, and with reference to plant, technical and operational documentation
159.5	Monitor and inspect plant	159.5.1	Plant to be monitored/inspected is physically identified
		159.5.2	Plant is monitored/inspected for normal operation or to detect deviations
		159.5.3	Corrective action taken is in accordance with enterprise procedures
		159.5.4	Appropriate personnel are notified when defects are detected
159.6	Complete documentation	159.6.1	Documentation is updated and plant problems, movements, abnormalities and status are reported and logged in accordance with enterprise/site procedures

Range Statement

Stream: Production Plant

Field: Operations

Equivalencies: N/A

Plant and equipment may include electrical supply switchboard; supervisory, protection, alarm and control equipment; gas supply system; gas ignition system; fire protection systems; valves, actuators and dampers (electric, hydraulic, pneumatic and manual); compressed air systems; ignition and cooling air; filters, strainers, pressure control devices, oil supply system; oil ignition system; compressors and pumps; auxiliary steam systems and gas and/or oil guns

Safety standards may include relevant sections of occupational health and safety legislation, enterprise safety rules, relevant state and federal legislation, national standards for plant and environmental legislation

Information and documentation sources may include verbal or written communications; enterprise safety rules documentation; enterprise operating instructions; dedicated computer equipment; enterprise/site standing and operating instructions; enterprise log books; manufacturer's operation and maintenance manuals; and equipment and alarm manuals

Technical and operational indicators may include stimuli (audio, smell, touch, visual), local indicators and recorders, computers and alarms (visible and or audible)

Communications may be by means of telephone, two way radio, pager, public address system, computer (electronic mail) and operating log (written or verbal)

Tests may include post maintenance operating tests and stand-by plant tests

Appropriate personnel to consult, give or receive direction may include supervisor/team leader or equivalent, technical and engineering officers or equivalent, power system control personnel or equivalent; contractor and specialist personnel, maintenance staff and power plant operations personnel

Test, fault finding and operating tools may include gas detector, power or hand tools and control system equipment

Operating environment may be during inclement or otherwise harsh weather conditions, in wet/noisy/dusty/hot areas, during night periods and during continuous operation

Faults and abnormal operating conditions may include motor/pump/ actuator/valve/dampers failure/malfunctions, control equipment failure/ malfunctions, loss of electrical supply to plant and equipment, excessive vibration of pumps/motors, high filter/strainer differentials, delivery system blockages, fuel preparation and delivery system fires, pipe fracture and leaks

Evidence Guide

Critical aspects of evidence

The knowledge and application of relevant sections of: Occupational, health and safety legislation; Statutory legislation; Enterprise/site safety procedures; Enterprise/site emergency procedures

Preparation and planning of work

Operation of fuel firing plant

Operationally testing plant

Analysing plant faults

Monitoring plant operation

Context of assessment

Competency Standards should be assessed in the workplace or simulated workplace and under the normal range of workplace conditions

Assessment of this unit will be supported with documentary evidence, by means of endorsement stating type and application of equipment operated

Interdependent assessment of unit

Nil

Knowledge and Skills

A knowledge of:

Relevant occupational health and safety regulations; Relevant statutory legislation; Relevant enterprise/site safety procedures; Enterprise/site emergency procedures and techniques; Relevant plant and equipment, its location and operating parameters; Plant status; Environmental legislation; Enterprise recording procedures; Communication principles; Control and data acquisition systems; Computers and software; Supervisory, alarm, protection and control equipment; Emergency procedures; Basic motor performance; Basic pump and compressor performance; Actuator, valve and damper types and characteristics; The process

The ability to:

Apply relevant occupational health and safety regulations; Apply relevant statutory legislation; Apply relevant enterprise/site safety procedures; Apply enterprise/site emergency procedures and techniques; Apply enterprise recording procedures; Identify plant status; Prepare plant/equipment for operation; Organise resources; Operate fuel firing plant; Apply diagnostic and testing techniques; Identify and respond to abnormal plant operating conditions; Plan and prioritise work; Use relevant hand tools; Communicate effectively; Apply data analysis techniques and tools; Operate in a team; Co-ordinate the operation of equipment to maintain plant integrity, personnel safety and continuity of supply; Use diagrams, drawings and symbols.

UTP NEG161 A
Operate and Monitor Fuel Firing Plant (Coal)

Descriptor: This unit refers to the operation, inspection and monitoring of coal firing plant

Elements		Performance criteria	
161.1	Plan and prepare work	161.1.1	Safety issues are identified to comply with enterprise/site requirements
		161.1.2	Work requirements are identified from relevant personnel and documentation
		161.1.3	Documentation to determine plant status is assessed and evaluated
		161.1.4	Localised plant inspection, pre-operational tests and field preparations for service are carried out in accordance with manufacturer's and enterprise/site procedures
		161.1.5	Plant operational prerequisites are established in accordance with manufacturer's and enterprise/site procedures
		161.1.6	Sequence for recommissioning of plant is determined to suit existing circumstances in accordance with enterprise/site requirements
		161.1.7	Where appropriate, the teams and individuals roles and responsibilities within the team are identified and, where required, assist in the provision of the on-the-job training
161.2	Operate plant	161.2.1	Plant is operated in accordance with enterprise and manufacturer's operating procedures
		161.2.2	Plant is monitored and observed to detect deviations from normal operating conditions
		161.2.3	Corrective actions are taken to rectify abnormalities in accordance with manufacturer's and enterprise/site procedures

Elements		Performance criteria	
161.3	Test plant operation	161.3.1	Tests are performed in accordance with defined procedures applicable to the operational test
		161.3.2	Plant is observed for correct operational response
		161.3.3	Corrective action is taken when response is not in accordance with documentation, plant integrity or personnel safety requirements
		161.3.4	Plant is returned to required operational status upon completion of test
161.4	Analyse plant faults	161.4.1	Causes of abnormal plant operating conditions are identified by analysing the technical and operational information in a logical and sequential manner
		161.4.2	Corrective action taken is in accordance with enterprise procedures
		161.4.3	Plant integrity and personnel safety is maintained through consultation with appropriate personnel, and with reference to plant, technical and operational documentation
161.5	Monitor and inspect plant	161.5.1	Plant to be monitored/inspected is physically identified
		161.5.2	Plant is monitored/inspected for normal operation or to detect deviations
		161.5.3	Corrective action taken is in accordance with enterprise procedures
		161.5.4	Appropriate personnel are notified when defects are detected
161.6	Complete documentation	161.6.1	Documentation is updated and plant problems, movements, abnormalities and status are reported and logged in accordance with enterprise/site procedures

Range Statement

Stream: Production Plant

Field: Operations

Equivalencies: N/A

Plant and equipment may include electrical supply switchboard(s) and transformers; supervisory, alarm, protection and control equipment; coal supply system; coal feeders; coal mills/pulverisers; fuel safety system; fire protection systems; compressors and pumps; valves, actuators and dampers (electric, hydraulic, pneumatic and manual); pulse air systems; and electric motors

Safety standards may include relevant sections of occupational health and safety legislation, enterprise safety rules, relevant state and federal legislation, national standards for plant and environmental legislation

Information and documentation sources may include verbal or written communications; enterprise safety rules documentation; enterprise operating instructions; dedicated computer equipment; enterprise/site standing and operating instructions; enterprise log books; manufacturer's operation and maintenance manuals; and equipment and alarm manuals

Technical and operational indicators may include stimuli (audio, smell, touch, visual), local indicators and recorders, computers and alarms (visible and or audible)

Communications may be by means of telephone, two way radio, pager, computer (electronic mail), operating log (written or verbal) and public address system

Tests may include post maintenance operating tests, stand-by plant tests and tests for coal quality

Appropriate personnel to consult, give or receive direction may include supervisor/team leader or equivalent, technical and engineering officers or equivalent, power system control personnel or equivalent; contractor and specialist personnel, maintenance staff and power plant operations personnel

Test, fault finding and operating tools may include power or hand tools and control system equipment

Operating environment may be during inclement or otherwise harsh weather conditions, in wet/noisy/dusty/hot areas and during continuous operation

Faults and abnormal operating conditions may include motor/pump/ actuator/valve/dampers failure/malfunctions, control equipment failure/ malfunctions, loss of electrical supply to plant and equipment, excessive vibration pumps/motors, high filter/strainer differentials, delivery system blockages, fuel preparation and delivery system fires

Evidence Guide

Critical aspects of evidence

The knowledge and application of relevant sections of: Occupational, health and safety legislation; Statutory legislation; Enterprise/site safety procedures; Enterprise/site emergency procedures

Preparation and planning of work

Operation of coal firing plant

Operationally testing plant

Analysing plant faults

Monitoring plant operation

Context of assessment

Competency Standards should be assessed in the workplace or simulated workplace and under the normal range of workplace conditions

Assessment of this unit will be supported with documentary evidence, by means of endorsement stating type and application of equipment operated

Interdependent assessment of unit

Nil

Knowledge and Skills

A knowledge of:

Relevant occupational health and safety regulations; Relevant statutory legislation; Relevant enterprise/site safety procedures; Enterprise/site emergency procedures and techniques; Relevant plant and equipment, its location and operating parameters; Plant status; Environmental legislation; Enterprise recording procedures; Communication principles; Control and data acquisition systems; Computers and software; Supervisory, alarm, protection and control equipment; Emergency procedures; Basic motor performance; Valve, damper and actuator types and characteristics ; Introduction to power production plant; Typical arrangements of power production plant; Mathematics; Mechanics; Properties of matter; Lubrication and bearings; Fans; Power plant cycle; General responsibilities for power production plant operations; Steam power plant boiler water and steam systems; Fuels; Principles governing efficient combustion; Fuel conditioning and fuel firing equipment; Control of a boiler; Electrical principles; Transformers; Electric motors; Switchgear; Heating of electrical equipment; Electrical protection; Auxiliary supply systems; Safe operating principles.

The ability to:

Apply relevant occupational health and safety regulations; Apply relevant statutory legislation; Apply relevant enterprise/site safety procedures; Apply enterprise/site emergency procedures and techniques; Apply enterprise recording procedures; Identify plant status; Prepare plant/equipment for operation; Organise resources; Operate coal firing plant; Apply diagnostic and testing techniques; Identify and respond to abnormal plant operating conditions; Plan and prioritise work; Use relevant hand tools; Communicate effectively ; Apply data analysis techniques and tools; Operate in a team; Use diagrams, drawings and symbols; Co-ordinate the operation of equipment to maintain plant integrity, personnel safety and continuity of supply.

UTP NEG162 A
Operate and Monitor Boiler Steam/Water Cycle

Descriptor: This unit refers to the operation, inspection and monitoring of boiler steam/water cycle

Elements		Performance criteria	
162.1	Plan and prepare work	162.1.1	Safety issues are identified to comply with enterprise/site and legislative requirements
		162.1.2	Work requirements are identified from relevant personnel and documentation
		162.1.3	Documentation to determine plant status is assessed and evaluate
		162.1.4	Localised plant inspection, pre-operational checks and field preparations for service are carried out in accordance with manufacturer's and enterprise/site procedures
		162.1.5	Plant operational prerequisites are established in accordance with manufacturer's and enterprise/site procedures
		162.1.6	Sequence for recommissioning of plant is determined to suit existing circumstances in accordance with enterprise/site requirements
		162.1.7	Where appropriate, the teams and individuals roles and responsibilities within the team are identified and, where required, assist in the provision of the on-the-job training
162.2	Operate plant	162.2.1	Plant is operated in accordance with enterprise and manufacturer's operating procedures
		162.2.2	Plant is monitored and observed to detect deviations from normal operating conditions
		162.2.3	Corrective actions taken or reported, to rectify abnormalities, are in accordance with industry standards and site requirements
		162.2.4	Plant to be removed from service is locally identified and is removed from service in accordance with enterprise/site requirements

Elements		Performance criteria	
		162.2.5	Corrective actions are taken in accordance with enterprise safety rules and site requirements when abnormalities are identified during the removal from service
162.3	Test plant operation	162.3.1	Tests are performed in accordance with defined procedures applicable to the operational test
		162.3.2	Plant is observed for correct operational response
		162.3.3	Corrective action is taken when response is not in accordance with documentation, plant integrity or personnel safety requirements
		162.3.4	Plant is returned to required operational status upon completion of test
162.4	Analyse plant faults	162.4.1	Causes of abnormal plant operating conditions are identified by analysing the technical and operational information in a logical and sequential manner
		162.4.2	Corrective action taken is in accordance with enterprise/site procedures
		162.4.3	Plant integrity and personnel safety are maintained through consultation with appropriate personnel, and with reference to plant, technical and operational documentation
162.5	Monitor and inspect plant	162.5.1	Plant to be monitored/inspected is physically identified
		162.5.2	Plant is monitored/inspected for normal operation or to detect deviations
		162.5.3	Corrective action taken is in accordance with enterprise/site procedures
		162.5.4	Appropriate personnel are notified when defects are detected
162.6	Complete documentation	162.6.1	Documentation is updated and plant problems, movements, and abnormalities and status are reported and logged in accordance with enterprise/site procedures

Range Statement

Stream: Production Plant

Field: Operations

Equivalencies: This unit of competence incorporates parts of units 7.24a and 7.25a of The National Metal and Engineering Competency Standards

Systems, plant and/or equipment may include electrical supply switchboard(s) and transformers; electrical motors; valves and actuators (electric, hydraulic and pneumatic); supervisory, alarm, protection and control equipment; boiler circulation systems; boiler filling systems; boiler venting and draining systems; cooling water plant and equipment; filters; strainers; moisture removal devices; pressure control devices; safety devices; high and low pressure systems; and boiler water level indicators

Safety standards may include relevant sections of occupational health and safety legislation, enterprise safety rules, relevant state and federal legislation, national standards for plant and Australian standards

Information and documentation sources may include verbal or written communications; enterprise safety rules documentation; equipment and alarm manuals; dedicated computer equipment; enterprise standing and operating instructions; and enterprise log books

Technical and operational indicators may include stimuli (audio, smell, touch, visual), remote or local indicators and recorders and alarms (visible and or audible)

Communications may be by means of telephone, two way radio, pager, computer (electronic mail), operating log (written or verbal) and public address system

Tests may include laboratory test for water quality and impurities, alarm testing, leak test and safety valve float

Appropriate personnel to consult, give or receive direction may include, supervisor/team leader or equivalent, power plant operations personnel or equivalent, technical and engineering officers or equivalent, maintenance staff and contractor personnel

Test, fault finding and operating tools may include power or hand tools

Operating environment may be during inclement or otherwise harsh weather conditions, in wet/noisy/dusty/hot areas and during continuous operation

Faults and abnormal operating conditions may include motor/pump/ actuator/valve failure/malfunctions, control equipment failure/malfunctions, loss of electrical supply to plant and equipment, excessive vibration pumps/motors, loss/low cooling water pressure, boiler tube leaks, low/high steam pressure/temperature, plant equipment failure and loss of control air supply

Evidence Guide

Critical aspects of evidence

The knowledge and application of relevant sections of: Occupational, health and safety legislation; Statutory legislation; Enterprise/site safety procedures; Enterprise/site emergency procedures

Preparation and planning of work

Operation of boiler water/steam cycle

Operationally testing plant

Analysing plant faults

Monitoring plant operation

Context of assessment

Competency Standards should be assessed in the workplace or simulated workplace and under the normal range of workplace conditions

Assessment of this unit will be supported with documentary evidence, by means of endorsement stating type and application of equipment operated

Interdependent assessment of unit

Nil

Knowledge and Skills

A knowledge of:

Relevant occupational health and safety regulations; Relevant statutory legislation; Relevant enterprise/site safety procedures; Enterprise/site emergency procedures and techniques; Relevant plant and equipment, its location and operating parameters; Plant status; Environmental legislation; Enterprise recording procedures; Communication principles; Control and data acquisition systems; Computers and software; Supervisory, alarm, protection and control equipment; Emergency procedures; Basic motor performance; Basic pump and compressor performance; Valve, damper and actuator types and characteristics; Principles of venting/draining steam or water under extremely high temperature and pressure; Thermodynamics; The process

The ability to:

Apply relevant occupational health and safety regulations; Apply relevant statutory legislation; Apply relevant enterprise/site safety procedures; Apply enterprise/site emergency procedures and techniques; Apply enterprise recording procedures; Identify plant status; Prepare plant/equipment for operation; Organise resources; Operate boiler water/steam cycle; Apply diagnostic and testing techniques; Identify and respond to abnormal plant operating conditions; Plan and prioritise work; Use relevant hand tools; Communicate effectively; Apply data analysis techniques and tools; Use diagrams, drawings and symbols.

UTP NEG163 A
Operate Air Conditioning Plant

Descriptor: This unit refers to the operation and inspection of all air conditioning plant

Elements		Performance criteria	
163.1	Plan and prepare work	163.1.1	Safety issues are identified to comply with enterprise/site requirements
		163.1.2	Work requirements are identified from relevant personnel and documentation
		163.1.3	Documentation to determine plant status is assessed and evaluated
		163.1.4	Localised plant inspection and field preparations for service are carried out in accordance with enterprise/site operational requirements
		163.1.5	Plant operational prerequisites are established in accordance with manufacturer's and enterprise/site requirements
		163.1.6	Sequence for recommissioning of plant is determined to suit existing circumstances in accordance with enterprise/site requirements
		163.1.7	Where appropriate, the teams and individuals roles and responsibilities within the team are identified and, where required, assist in the provision of the on-the-job training
163.2	Operate plant	163.2.1	Plant is operated in accordance with enterprise, site and manufacturer's operating procedures
		163.2.2	Plant is monitored and observed to detect deviations from normal operating conditions
		163.2.3	Corrective actions taken to rectify abnormalities are in accordance with industry standards and site requirements
		163.2.4	Plant to be removed from service is identified and removed from service in accordance with enterprise and site requirements

Elements		Performance criteria	
		163.2.5	Corrective actions are taken in accordance with enterprise safety rules and site requirements when abnormalities are identified during the removal from service
163.3	Test plant operation	163.3.1	Tests are performed in accordance with defined procedures applicable to the operational test
		163.3.2	Plant is observed for correct operational response
		163.3.3	Corrective action is taken when response is not in accordance with documentation, plant integrity or personnel safety requirements
		163.3.4	Plant is returned to required operational status upon completion of test
163.4	Analyse plant faults	163.4.1	Causes of abnormal plant operating conditions are identified by analysing the technical and operational information in a logical and sequential manner
		163.4.2	Corrective action taken is in accordance with enterprise procedures
		163.4.3	Plant integrity and personnel safety is maintained through consultation with appropriate personnel, and with reference to plant, technical and operational documentation
163.5	Monitor and inspect plant	163.5.1	Plant to be monitored/inspected is physically identified
		163.5.2	Plant is monitored/inspected for normal operation or to detect deviations
		163.5.3	Corrective action taken is in accordance with enterprise/site procedures
		163.5.4	Appropriate personnel are notified when defects are detected
163.6	Complete documentation	163.6.1	Documentation is updated and plant problems, movements, abnormalities and status are reported and logged in accordance with enterprise/site procedures

Range Statement

Stream: Production Plant

Field: Operations

Equivalencies: N/A

Systems, plant and/or equipment may include electrical supply switchboard(s) and transformers; air conditioner compressors; chillers and associated cooling plant; air fans; humidifiers; heaters and filters; electrical motors; valves, actuators and dampers (electric, hydraulic, pneumatic and manual); supervisory, alarm, protection and control equipment; and chemical dosing equipment

Safety standards may include relevant sections of occupational health and safety legislation , enterprise safety rules, relevant state and federal legislation, national standards for plant and environmental legislation

Information and documentation sources may include verbal and written communications, enterprise/site safety rules documentation, enterprise operating instructions, manufacturer's operation and maintenance manuals, equipment and alarm manuals, dedicated computer equipment, enterprise standing instructions and plant notes and enterprise log books

Technical and operational indicators may include stimuli (audio, smell, touch, visual), local indicators and recorders and alarms (visible and or audible)

Communications may be by means of telephone, two way radio, pager, public address system, facsimile, computer (electronic mail) and operating log (written or verbal)

Tests may include motor direction checks, stand-by plant "cut-in" tests and performance tests

Appropriate personnel to consult, give or receive direction may include supervisor/team leader or equivalent, power plant operations personnel or equivalent, technical and engineering officers or equivalent, contractor staff and maintenance staff

Test, fault finding and operating tools may include hand and power tools and proving dead equipment

Operating environment may be during inclement or otherwise harsh weather conditions, in wet/noisy/dusty/hot areas and during continuous operation

Faults and abnormal operating conditions may include motor/pump/ actuator/valve/fan failure/malfunctions, control equipment failures/ malfunctions, loss of electrical supply to plant and equipment, excessive vibration pumps/motors, cooling tower abnormal operation, legionella bacteria count high and refrigerant compressor malfunction/failure

Evidence Guide

Critical aspects of evidence

The knowledge and application of relevant sections of: Occupational, health and safety legislation; Statutory legislation; Enterprise/site safety procedures; Enterprise/site emergency procedures

Preparation and planning of work

Operation of air conditioning plant

Operationally testing plant

Analysing plant faults

Monitoring plant operation

Applying knowledge of legionella bacteria control procedures

Context of assessment

Competency Standards should be assessed in the workplace or simulated workplace and under the normal range of workplace conditions

Assessment of this unit will be supported with documentary evidence, by means of endorsement stating type and application of equipment operated

Interdependent assessment of unit

Nil

Knowledge and Skills

A knowledge of:

Relevant occupational health and safety regulations; Relevant statutory legislation; Relevant enterprise/site safety procedures; Enterprise/site emergency procedures and techniques; Relevant plant and equipment, its location and operating parameters; Plant status; Environmental legislation; Enterprise recording procedures; Communication principles; Control and data acquisition systems; Computers and software; Supervisory, alarm, protection and control equipment; Emergency procedures; Basic motor performance; Basic pump and compressor performance; Valve, damper and actuator types and characteristics; Knowledge of legionella bacteria control procedures

The ability to:

Apply relevant occupational health and safety regulations; Apply relevant statutory legislation; Apply relevant enterprise/site safety procedures; Apply enterprise/site emergency procedures and techniques; Apply enterprise recording procedures; Identify plant status; Prepare plant/equipment for operation; Organise resources; Operate air conditioning plant; Apply diagnostic and testing techniques; Identify and respond to abnormal plant operating conditions; Plan and prioritise work; Use relevant hand tools; Communicate effectively; Apply data analysis techniques and tools; Use diagrams, drawings and symbols; Apply knowledge of legionella bacteria control procedures.

UTP NEG164 A
Operate and Monitor Site Services Water Systems

Descriptor: This unit refers to the operation, inspection and monitoring of site services water systems, excluding fixed fire water services

Elements		Performance criteria	
164.1	Plan and prepare work	164.1.1	Safety issues are identified to comply with enterprise/site requirements
		164.1.2	Work requirements are identified from relevant personnel and documentation
		164.1.3	Documentation to determine plant status is assessed and evaluated
		164.1.4	Localised plant inspection and field preparations for service are carried out in accordance with manufacturer's and enterprise procedures
		164.1.5	Plant operational prerequisites are established in accordance with manufacturer's and enterprise procedures
		164.1.6	Sequence for recommissioning of plant is determined to suit existing circumstances in accordance with enterprise requirements
		164.1.7	Where appropriate, the teams and individuals roles and responsibilities within the team are identified and, where required, assist in the provision of the on-the-job training
164.2	Operate plant	164.2.1	Plant is operated in accordance with enterprise and manufacturer's operating procedures
		164.2.2	Plant is monitored and observed to detect deviations from normal operating conditions
		164.2.3	Corrective actions are taken to rectify abnormalities in accordance with manufacturer's and enterprise procedures
164.3	Test plant operation	164.3.1	Tests are performed in accordance with defined procedures applicable to the operational test
		164.3.2	Plant is observed for correct operational response

Elements		Performance criteria	
		164.3.3	Corrective action is taken when response is not in accordance with documentation, plant integrity or personnel safety requirements
		164.3.4	Plant is returned to required operational status upon completion of test
164.4	Analyse plant faults	164.4.1	Causes of abnormal plant operating conditions are identified by analysing the technical and operational information in a logical and sequential manner
		164.4.2	Corrective action taken is in accordance with enterprise procedures
		164.4.3	Plant integrity and personnel safety are maintained through consultation with appropriate personnel, and with reference to plant, technical and operational documentation
164.5	Monitor and inspect plant	164.5.1	Plant to be monitored/inspected is physically identified
		164.5.2	Plant is monitored/inspected for normal operation or to detect deviations.
		164.5.3	Corrective action taken is in accordance with enterprise procedures
		164.5.4	Appropriate personnel are notified when defects are detected
164.6	Complete documentation	164.6.1	Documentation is updated and plant problems, movements, abnormalities and status are reported and logged in accordance with enterprise/site procedures

Range Statement

Stream: Production Plant

Field: Operations

Equivalencies: N/A

Systems, plant and/or equipment may include electrical supply switchboards; chemical treatment systems; raw water supply; town water supply; supervisory, alarm, protection and control equipment; high and low pressure pump; valves and actuators (electric, hydraulic, pneumatic and manual); compressed air systems; filters; strainers; and pressure control devices

Safety standards may include relevant sections of occupational health and safety legislation enterprise safety rules, relevant state and federal legislation, national standards for plant and environmental legislation

Information and documentation sources may include verbal and written communications, enterprise/site safety rules documentation/form(s), equipment and alarm manuals, dedicated computer equipment, enterprise/site standing and operating instructions, enterprise/site log book and manufacturer's operation and maintenance manuals

Technical and operational indicators may include stimuli (audio, smell, touch, visual), local indicators and recorders, computers and alarms (visible and or audible)

Communications may be by means of telephone, two way radio, pager, public address system, facsimile, computer (electronic mail) and operating log (written or verbal)

Tests may include stand-by plant tests, post maintenance operating tests and tests for water quality

Appropriate personnel to consult, give or receive direction may include, supervisor/team leader or equivalent, power system control personnel or equivalent, contractor and specialist personnel, maintenance staff and power plant operations personnel

Test, fault finding and operating tools may include hand and power tools and control system equipment

Operating environment may be during inclement or otherwise harsh weather conditions, in wet/noisy/dusty/hot areas and during continuous operation

Faults and abnormal operating conditions may include motor/pump/ actuator/valve/damper failure/malfunction, control equipment failure/ malfunctions, loss of electrical supply to plant and equipment, excessive vibration pumps/motors, high filter/strainer differentials, loss of major auxiliary, loss of control medium and water quality

Evidence Guide

Critical aspects of evidence

The knowledge and application of relevant sections of: Occupational, health and safety legislation; Statutory legislation; Enterprise/site safety procedures; Enterprise/site emergency procedures

Preparation and planning of work

Operation of site services water systems

Operationally testing plant

Analysing plant faults

Monitoring plant operation

Context of assessment

Competency Standards should be assessed in the workplace or simulated workplace and under the normal range of workplace conditions

Assessment of this unit will be supported with documentary evidence, by means of endorsement stating type and application of equipment operated

Interdependent assessment of unit

Nil

Knowledge and Skills

A knowledge of:

Relevant occupational health and safety regulations; Relevant statutory legislation; Relevant enterprise/site safety procedures; Enterprise/site emergency procedures and techniques; Relevant plant and equipment, its location and operating parameters; Plant status; Environmental legislation; Enterprise recording procedures; Communication principles; Control and data acquisition systems; Computers and softwar; Supervisory, alarm, protection and control equipment; Emergency procedures; Basic motor performance; Basic pump and compressor performance; Valve and actuator types and characteristics; System components and interaction; Introduction to power production plant; Typical arrangements of power production plant; Mathematics; Mechanics; Properties of matter; Lubrication and bearings; Compressors; Feedwater treatment; Pumps; Liquid pumping systems; Auxiliary supply systems; Safe operating principles; Electrical protection

The ability to:

Apply relevant occupational health and safety regulations; Apply relevant statutory legislation; Apply relevant enterprise/site safety procedures; Apply enterprise/site emergency procedures and techniques; Apply enterprise recording procedures; Identify plant status; Prepare plant/equipment for operation; Organise resources; Operate site services water systems; Apply diagnostic and testing techniques; Identify and respond to abnormal plant operating conditions; Plan and prioritise work; Use relevant hand tools; Communicate effectively; Apply data analysis techniques and tools; Operate in a team; Use diagrams, drawings and symbols; Co-ordinate the operation of equipment to maintain plant integrity, personnel safety and continuity of supply.

UTP NEG165 A
Operate and Monitor Fixed Fire Protection Systems

Descriptor: This unit refers to the operation, inspection and monitoring of fixed fire protection systems

Elements		Performance criteria	
165.1	Plan and prepare work	165.1.1	Safety issues are identified to comply with enterprise/site requirements
		165.1.2	Work requirements are identified from relevant personnel and documentation
		165.1.3	Documentation to determine plant status is assessed and evaluated
		165.1.4	Localised plant inspection and field preparations for service are carried out in accordance with manufacturer's and enterprise procedures
		165.1.5	Plant operational prerequisites are established in accordance with manufacturer's and enterprise procedures
		165.1.6	Sequence for recommissioning of plant is determined to suit existing circumstances in accordance with enterprise requirements
		165.1.7	Where appropriate, the teams and individuals roles and responsibilities within the team are identified and, where required, assist in the provision of the on-the-job training
165.2	Operate plant	165.2.1	Plant is operated in accordance with enterprise and manufacturer's operating procedures
		165.2.2	Plant is monitored and observed to detect deviations from normal operating conditions
		165.2.3	Corrective actions are taken to rectify abnormalities in accordance with manufacturer's and enterprise procedures
165.3	Test plant operation	165.3.1	Tests are performed in accordance with defined procedures applicable to the operational test
		165.3.2	Plant is observed for correct operational response

Elements		Performance criteria	
		165.3.3	Correct action is taken when response is not in accordance with documentation, plant integrity or personnel safety requirements
		165.3.4	Plant is returned to required operational status upon completion of test
165.4	Analyse system faults	165.4.1	Causes of abnormal plant operating conditions are identified by analysing the technical and operational information in a logical and sequential manner
		165.4.2	Corrective action taken is in accordance with enterprise procedures
		165.4.3	Plant integrity and personnel safety are maintained through consultation with appropriate personnel, and with reference to plant, technical and operational documentation
165.5	Monitor and inspect plant	165.5.1	Plant to be monitored/inspected is physically identified
		165.5.2	Plant is monitored/inspected for normal operation or to detect deviations
		165.5.3	Corrective action taken is in accordance with enterprise procedures
		165.5.4	Appropriate personnel are notified when defects are detected
165.6	Complete Documentation	165.6.1	Documentation is updated and plant problems, movements, abnormalities and status are reported and logged in accordance with enterprise/site procedures

Range Statement

Stream: Production Plant

Field: Operations

Equivalencies: This unit of competence incorporates parts of units 7.24a and 7.25a of The National Metal and Engineering Competency Standards

Systems may include fire control, supervisory, alarm and control equipment; valves, actuators and dampers (electric, hydraulic, pneumatic and manual); storage plant; detectors water deluge; detection systems; foam, halon, gas and CO_2 suppression systems

Safety standards may include relevant sections of occupational health and safety legislation enterprise safety rules, relevant state and federal legislation, national standards for plant and environmental legislation

Information and documentation sources may include verbal and written communications, enterprise/site safety rules documentation/form(s), equipment and alarm manuals, dedicated computer equipment, enterprise/site standing and operating instructions, enterprise/site log book and manufacturer's operation and maintenance manuals

Technical and operational indicators may include stimuli (audio, smell, touch, visual), local indicators and recorders, computers and alarms (visible and or audible)

Communications may be by means of telephone, two way radio, pager, public address system, facsimile, computer (electronic mail) and operating log (written or verbal)

Tests may include stand-by plant tests, post maintenance operating tests and alarm tests

Appropriate personnel to consult, give or receive direction may include supervisor/team leader or equivalent, power system control personnel or equivalent, contractor and specialist personnel, maintenance staff and power plant operations personnel

Test, fault finding and operating tools may include hand and power tools and CO_2 equipment

Operating environment may be during inclement or otherwise harsh weather conditions, in wet/noisy/dusty/hot areas, during night periods and during continuous operation

Faults and abnormal operating conditions may include motor/pump/ actuator/valve/damper failure/malfunction, control equipment failure/ malfunctions, loss of electrical supply to plant and equipment, loss/ low air, water, lubricating oil to plant/ equipment, CO2 system faults/ malfunctions, CO2 leaks, high filter/ strainer dp, and excessive vibration pumps/ motors

Evidence Guide

Critical aspects of evidence

The knowledge and application of relevant sections of: Occupational, health and safety legislation; Statutory legislation; Enterprise/site safety procedures; Enterprise/site emergency procedures

Preparation and planning of work

Operation of fixed fire protection systems

Operationally testing plant

Analysing plant faults

Monitoring plant operation

Context of assessment

Competency Standards should be assessed in the workplace or simulated workplace and under the normal range of workplace conditions

Assessment of this unit will be supported with documentary evidence, by means of endorsement stating type and application of equipment operated

Interdependent assessment of unit

Nil

Knowledge and Skills

A knowledge of:

Relevant occupational health and safety regulations; Relevant statutory legislation; Relevant enterprise/site safety procedures; Enterprise/site emergency procedures and techniques; Relevant plant and equipment, its location and operating parameters; Plant status; Environmental legislation; Enterprise recording procedures; Communication principles; Control and data acquisition systems; Computers and software; Supervisory, alarm, protection and control equipment; Emergency procedures

The ability to:

Apply relevant occupational health and safety regulations; Apply relevant statutory legislation; Apply relevant enterprise/site safety procedures; Apply enterprise/site emergency procedures and techniques; Apply enterprise recording procedures; Identify plant status; Prepare plant/equipment for operation; Organise resources; Operate fixed fire protection systems; Apply diagnostic and testing techniques; Identify and respond to abnormal plant operating conditions; Plan and prioritise work; Use relevant hand tools; Communicate effectively; Apply data analysis techniques and tools; Operate in a team; Use diagrams, drawings and symbols; Co-ordinate the operation of equipment to maintain plant integrity, personnel safety and continuity of supply.

UTP NEG166 A
Operate and Monitor Compressed Gas Systems

Descriptor: This unit refers to the operation of compressed gas systems excluding air/steam

Elements		Performance criteria	
166.1	Plan and prepare work	166.1.1	Safety issues are identified to comply with enterprise/site requirements
		166.1.2	Work requirements are identified from relevant personnel and documentation
		166.1.3	Documentation to determine plant status is assessed and evaluated
		166.1.4	Localised plant inspection and field preparations for service are carried out in accordance with enterprise operational requirements
		166.1.5	Plant operational prerequisites are established in accordance with manufacturer's and enterprise/site requirements
		166.1.6	Sequence for recommissioning of plant is determined to suit existing circumstances in accordance with enterprise/site requirements
		166.1.7	Where appropriate the teams and individuals roles and responsibilities within the team are identified, and where required, assist in the provision of the on-the-job training
166.2	Operate plant	166.2.1	Plant is operated in accordance with enterprise, site and manufacturer's operating procedures
		166.2.2	Plant is monitored and observed to detect deviations from normal operating conditions
		166.2.3	Corrective actions taken to rectify abnormalities are in accordance with enterprise and site requirements
		166.2.4	Plant to be removed from service is locally identified and removed from service in accordance with enterprise and site requirements

Elements		Performance criteria	
		166.2.5	Corrective actions are taken in accordance with enterprise safety rules and site requirements when abnormalities are identified during the removal from service
166.3	Test plant operation	166.3.1	Tests are performed in accordance with defined procedures applicable to the operational test
		166.3.2	Plant is observed for correct operational response
		166.3.3	Corrective action is taken when response is not in accordance with documentation, plant integrity or personnel safety requirements
		166.3.4	Plant is returned to required operational status upon completion of test
166.4	Analyse plant faults	166.4.1	Causes of abnormal plant operating conditions are identified by analysing the technical and operational information in a logical and sequential manner
		166.4.2	Corrective action taken is in accordance with enterprise procedures
		166.4.3	Plant integrity and personnel safety is maintained through consultation with appropriate personnel, and with reference to plant, technical and operational documentation
166.5	Monitor and inspect plant	166.5.1	Plant to be monitored/inspected is physically identified
		166.5.2	Plant is monitored/inspected for normal operation or to detect deviations
		166.5.3	Corrective action taken is in accordance with enterprise/site procedures
		166.5.4	Appropriate personnel are notified when defects are detected
166.6	Complete documentation	166.6.1	Documentation is updated and plant problems, movements, abnormalities and status are reported and logged in accordance with enterprise/site procedures

Range Statement

tream: Production Plant

ield: Operations

quivalencies: N/A

Systems, plant and or equipment may include electrical supply switchboard(s) and transformers; compressors; electrical motors; valves, actuators and dampers (electric, hydraulic, pneumatic, mechanical and manual); supervisory, protection, alarm and control equipment; cooling water plant and equipment; filters; strainers; moisture removal devices; pressure control devices; safety devices; high and low pressure systems; and fans

Gases may include nitrogen, halon, ammonia, hydrogen and chlorine

Safety standards may include relevant sections of occupational health and safety legislation, enterprise safety rules, relevant state and federal legislation, national standards for plant and Australian standards

Information and documentation sources may include verbal and written communications, enterprise/site safety rules documentation/forms, equipment and alarm manuals, dedicated computer equipment, enterprise operating instructions, enterprise/site log book, enterprise standing instructions and plant notes and materials handling data sheets

Technical and operational indicators may include stimuli (audio, smell, touch, visual), local indicators and recorders, computers and alarms (visible and or audible)

Communications may be by means of telephone, two way radio, pager, computer (electronic mail), operating log (written or verbal) and public address system

Tests may include motor direction checks, stand-by plant “cut-in” tests and performance tests

Appropriate personnel to consult, give or receive direction may include, supervisor/team leader or equivalent, power plant operations personnel or equivalent, technical and engineering officers or equivalent, contractor staff and maintenance staff

Test, fault finding and operating tools may include hand and power tools, proving dead equipment and high voltage testers

Operating environment may be during inclement or otherwise harsh weather conditions, in wet/noisy/dusty/hot areas and during continuous operation

Faults and abnormal operating conditions may include motor/pump/actuator/ valve/damper failure/malfunction, control equipment failure/malfunctions, loss of electrical supply to plant and equipment, loss/low cooling air/water, lubricating/power oil flow to plant/equipment, excessive vibration pumps/motors, high air/oil strainer /filter/ differentials, moisture removal plant and equipment malfunctions and excessive vibration pumps/motors

Evidence Guide

Critical aspects of evidence

The knowledge and application of relevant sections of: Occupational, health and safety legislation; Statutory legislation; Enterprise/site safety procedures; Enterprise/site emergency procedures

Preparation and planning of work

Operation of compressed gas system

Operationally testing plant

Analysing plant faults

Monitoring plant operation

The knowledge of the properties of gases, their use and precautions to be taken

Context of assessment

Competency Standards should be assessed in the workplace or simulated workplace and under the normal range of workplace conditions

Assessment of this unit will be supported with documentary evidence, by means of endorsement stating type and application of equipment operated

Interdependent assessment of unit

Nil

Knowledge and Skills

A knowledge of:

Relevant occupational health and safety regulations; Relevant statutory legislation; Relevant enterprise/site safety procedures; Enterprise/site emergency procedures and techniques; Relevant plant and equipment, its location and operating parameters; Plant status; Environmental legislation; Enterprise recording procedures; Communication principles; Control and data acquisition systems; Computers and software; Supervisory, alarm, protection and control equipment; Emergency procedures; Valve, damper and actuator types and characteristics; Properties of gases, their uses and precautions to be taken; Material safe handling data sheets; Introduction to power production plant; Mathematics; Mechanics; Properties of matter; Lubrication and bearings; Compressors; Electric motors; Switchgear; Electrical protection; Auxiliary supply systems; Safe operating principles

The ability to:

Apply relevant occupational health and safety regulations; Apply relevant statutory legislation; Apply relevant enterprise/site safety procedures; Apply enterprise/site emergency procedures and techniques; Apply enterprise recording procedures; Identify plant status; Prepare plant/equipment for operation; Organise resources; Operate compressed gas systems; Apply diagnostic and testing techniques; Identify and respond to abnormal plant operating conditions; Plan and prioritise work; Use relevant hand tools; Communicate effectively; Apply data analysis techniques and tools; Use diagrams, drawings and symbols.

UTP NEG167 A
Operate and Monitor Gas Production Plant

Descriptor: This unit refers to the operation, inspection and monitoring of gas producing plant

Elements		Performance criteria	
167.1	Plan and prepare work	167.1.1	Safety issues are identified to comply with enterprise/site requirements
		167.1.2	Work requirements are identified from relevant personnel and documentation
		167.1.3	Documentation to determine plant status is assessed and evaluated
		167.1.4	Localised plant inspection and field preparation for service are carried out in accordance with manufacturer's and enterprise procedures
		167.1.5	Plant operational prerequisites are established in accordance with manufacturer's and enterprise procedures
		167.1.6	Sequence for recommissioning of plant is determined to suit existing circumstances in accordance with enterprise/site requirements
		167.1.7	Where appropriate, the teams and individuals roles and responsibilities within the team are identified and, where required, assist in the provision of the on-the-job training
167.2	Operate plant	167.2.1	Plant is operated in accordance with enterprise and manufacturer's operating procedures
		167.2.2	Plant is monitored and observed to detect deviations from normal operating conditions
		167.2.3	Corrective actions taken to rectify abnormalities in accordance with manufacturer's and enterprise procedures
167.3	Test plant operation	167.3.1	Tests are performed in accordance with defined procedures applicable to the operational test
		167.3.2	Plant is observed for correct operational response

Elements		Performance criteria	
		167.3.3	Corrective action is taken when response is not in accordance with documentation, plant integrity or personnel safety requirements
		167.3.4	Plant is returned to required operational status upon completion of test
167.4	Analyse plant faults	167.4.1	Causes of abnormal plant operating conditions are identified by analysing the technical and operational information in a logical and sequential manner
		167.4.2	Corrective action taken is in accordance with enterprise/site procedures
		167.4.3	Plant integrity and personnel safety is maintained through consultation with appropriate personnel, and with reference to plant, technical and operational documentation
167.5	Monitor and inspect plant	167.5.1	Plant to be monitored/inspected is physically identified
		167.5.2	Plant is monitored/inspected for normal operation or to detect deviations
		167.5.3	Correct action taken is in accordance with enterprise/site procedures
		167.5.4	Appropriate personnel are notified when defects are detected
167.6	Complete documentation	167.6.1	Documentation is updated and plant problems, movements, abnormalities and status are reported and logged in accordance with enterprise/site procedures

Range Statement

Stream: Production Plant

Field: Operations

Equivalencies: N/A

Systems, plant and/or equipment may include electrical supply switchboards; storage plant; heaters, electrical motors; valves, actuators and dampers (electric, hydraulic, pneumatic, manual); and supervisory, protection, alarm and control equipment

Gas production plant may include carbon dioxide, ammonia, chlorine and hydrogen

Safety standards may include relevant sections of occupational health and safety legislation, enterprise safety rules, relevant state and federal legislation and national standards for plant

Information and documentation sources may include verbal and written communications, enterprise/site safety rules documentation/form(s), enterprise/site standing and operating instructions, enterprise/site log book, manufacturer's operation and maintenance manuals and dedicated computer equipment

Technical and operational indicators may include stimuli (audio, smell, touch, visual), remote or local indicators and recorders, computers and alarms (visible and or audible)

Communications may be by means of telephone, two way radio, pager, public address system, computer (electronic mail) and operating log (written or verbal)

Tests may include stand-by plant tests, post maintenance operating tests and alarm tests

Appropriate personnel to consult, give or receive direction may include supervisor/team leader or equivalent, power system control personnel or equivalent, technical and engineering officers or equivalent, contractor and specialist personnel, maintenance staff and power plant operations personnel

Test, fault finding and operating tools may include hand and power tools and leak detection equipment

Operating environment may be during inclement or otherwise harsh weather conditions, in wet/noisy/dusty/hot areas and during continuous operation

Faults and abnormal operating conditions may include motor/pump/ actuator/valve/ dampers failure/malfunctions, control equipment failure/ malfunctions, loss of electrical supply to plant and equipment, loss/low air, water, lubricating oil to plant/equipment, gas system faults/malfunctions, gas leaks, high filter/strainer dp and excessive vibration pumps/motors

Evidence Guide

Critical aspects of evidence

The knowledge and application of relevant sections of: Occupational, health and safety legislation; Statutory legislation; Enterprise/site safety procedures; Enterprise/site emergency procedures

Preparation and planning of work

Operation of gas production plant

Operationally testing plant

Analysing plant faults

Monitoring plant operation

Knowledge of the properties of gases, their uses and precautions to be taken

Context of assessment

Competency Standards should be assessed in the workplace or simulated workplace and under the normal range of workplace conditions

Assessment of this unit will be supported with documentary evidence, by means of endorsement stating type and application of equipment operated

Interdependent assessment of unit

Nil

Knowledge and Skills

A knowledge of:

Relevant occupational health and safety regulations; Relevant statutory legislation; Relevant enterprise/site safety procedures; Enterprise/site emergency procedures and techniques; Relevant plant and equipment, its location and operating parameters; Plant status; Environmental legislation; Enterprise recording procedures; Communication principles; Control and data acquisition systems; Computers and software; Supervisory, alarm, protection and control equipment; Emergency procedures; Material safe data sheets; Properties of gases, their uses and precautions to be taken; Introduction to power production plant; Mathematics; Mechanics; Properties of matter; Lubrication and bearings; Compressors; Electrical principles; Transformers; Electric motors; Switchgear; Heating of electrical equipment; Electrical protection; Schematic diagrams; Auxiliary supply systems; Safe operating principles.

The ability to:

Apply relevant occupational health and safety regulations; Apply relevant statutory legislation; Apply relevant enterprise/site safety procedures; Apply enterprise/site emergency procedures and techniques; Apply enterprise recording procedures; Identify plant status; Prepare plant/equipment for operation; Organise resources; Operate gas production plant; Apply diagnostic and testing techniques; Identify and respond to abnormal plant operating conditions; Plan and prioritise work; Use relevant hand tools; Communicate effectively; Apply data analysis techniques and tools; Use diagrams, drawings and symbols.

UTP NEG168 A
Operate and Monitor Compressed Air Systems

Descriptor: This unit refers to the operation of compressed air systems

Elements		Performance criteria	
168.1	Plan and prepare work	168.1.1	Safety issues are identified to comply with enterprise/site requirements
		168.1.2	Work requirements are identified from relevant personnel and documentation
		168.1.3	Documentation to determine plant status is assessed and evaluated
		168.1.4	Localised plant inspection and field preparation for service are carried out in accordance with enterprise operational requirements
		168.1.5	Plant operational prerequisites are established in accordance with manufacturer's and enterprise/site requirements
		168.1.6	Sequence for recommissioning of plant is determined to suit existing circumstances in accordance with enterprise/site requirements
		168.1.7	Where appropriate, the teams and individuals roles and responsibilities within the team are identified and, where required, assist in the provision of the on-the-job training
168.2	Operate plant	168.2.1	Plant is operated in accordance with enterprise, site and manufacturer's operating procedures
		168.2.2	Plant is monitored and observed to detect deviations from normal operating conditions
		168.2.3	Corrective actions taken to rectify abnormalities are in accordance with enterprise and site requirements
		168.2.4	Plant is to be removed from service is locally identified and removed from service in accordance with enterprise and site requirements

Elements		Performance criteria	
		168.2.5	Corrective actions are taken in accordance with enterprise safety rules and site requirements when abnormalities are identified during the removal from service
168.3	Test plant operation	168.3.1	Tests are performed in accordance with defined procedures applicable to the operational test
		168.3.2	Plant is observed for correct operational response
		168.3.3	Corrective action is taken when response is not in accordance with documentation, plant integrity or personnel safety requirements
		168.3.4	Plant is returned to required operational status upon completion of test
168.4	Analyse plant faults	168.4.1	Causes of abnormal plant operating conditions are identified by analysing the technical and operational information in a logical and sequential manner
		168.4.2	Corrective action taken is in accordance with enterprise procedures
		168.4.3	Plant integrity and personnel safety is maintained through consultation with appropriate personnel, and with reference to plant, technical and operational documentation
168.5	Monitor and inspect plant	168.5.1	Plant to be monitored/inspected is physically identified
		168.5.2	Plant is monitored/inspected for normal operation or to detect deviations
		168.5.3	Corrective action taken is in accordance with enterprise/site procedures
		168.5.4	Appropriate personnel are notified when defects are detected
168.6	Complete documentation	168.6.1	Documentation is updated and plant problems, movements, abnormalities and status are reported and logged in accordance with enterprise/site procedures

Range Statement

Stream: Production Plant

Field: Operations

Equivalencies: N/A

Systems, plant and/or equipment may include electrical supply switchboard(s) and transformers; compressors; electrical motors; valves, actuators and dampers (electric, hydraulic, pneumatic, mechanical and manual); supervisory, protection, alarm and control equipment; cooling water plant and equipment; filters, strainers, moisture removal devices, pressure control devices, safety devices; and high and low pressure systems and fans

Safety standards may include relevant sections of occupational health and safety legislation, enterprise safety rules, relevant state and federal legislation, national standards for plant and Australian standards

Information and documentation sources may include verbal and written communications, enterprise/site safety rules documentation/forms, equipment and alarm manuals, dedicated computer equipment, enterprise operating instructions, enterprise/site log book, enterprise standing instructions and plant notes and materials handling data sheets

Technical and operational indicators may include stimuli (audio, smell, touch, visual), remote or local indicators and recorders and alarms (visible and or audible)

Communications may be by means of telephone, two way radio, pager, computer (electronic mail), operating log (written or verbal) and public address system

Tests may include motor direction checks, stand-by plant “cut-in” tests and performance tests

Appropriate personnel to consult, give or receive direction may include supervisor/team leader or equivalent, power plant operations personnel or equivalent, technical and engineering officers or equivalent, contractor staff and maintenance staff

Test, fault finding and operating tools may include hand and power tools, proving dead equipment and high voltage testers

Operating environment may be during inclement or otherwise harsh weather conditions, in wet/noisy/dusty/hot areas and during continuous operation

Faults and abnormal operating conditions may include motor/pump/actuator/ valve/ damper failure/malfunction, control equipment failure/malfunctions, loss of electrical supply to plant and equipment, loss/low cooling air/water, lubricating/power oil flow to plant/equipment, excessive vibration pumps/motors, high air/oil strainer /filter/ differentials, moisture removal plant and equipment malfunctions and excessive vibration pumps/motors

Evidence Guide

Critical aspects of evidence

The knowledge and application of relevant sections of: Occupational, health and safety legislation; Statutory legislation; Enterprise/site safety procedures; Enterprise/site emergency procedures

Preparation and planning of work

Operation of compressed gas systems

Operationally testing plant

Analysing plant faults

Monitoring plant operation

The knowledge of the properties of gases, their use and precautions to be taken

Context of assessment

Competency Standards should be assessed in the workplace or simulated workplace and under the normal range of workplace conditions

Assessment of this unit will be supported with documentary evidence, by means of endorsement stating type and application of equipment operated

Interdependent assessment of unit

Nil

Knowledge and Skills

A knowledge of:

Relevant occupational health and safety regulations; Relevant statutory legislation; Relevant enterprise/site safety procedures; Enterprise/site emergency procedures and techniques; Relevant plant and equipment, its location and operating parameters; Plant status; Environmental legislation; Enterprise recording procedures; Communication principles; Control and data acquisition systems; Computers and software; Supervisory, alarm, protection and control equipment; Emergency procedures; Valve, damper and actuator types and characteristics; Properties of gases, their uses and precautions to be taken; Material safe handling data sheets

The ability to:

Apply relevant occupational health and safety regulations; Apply relevant statutory legislation; Apply relevant enterprise/site safety procedures; Apply enterprise/site emergency procedures and techniques; Apply enterprise recording procedures; Identify plant status; Prepare plant/equipment for operation; Organise resources; Operate compressed gas systems; Apply diagnostic and testing techniques; Identify and respond to abnormal plant operating conditions; Plan and prioritise work; Use relevant hand tools; Communicate effectively; Apply data analysis techniques and tools; Use diagrams, drawings and symbols.

UTP NEG171 A
Operate and Monitor Water Treatment Plant

Descriptor: This unit refers to the operation, inspection and monitoring of water treatment and purification plant

Elements		Performance criteria	
171.1	Plan and prepare work	171.1.1	Safety issues are identified to comply with enterprise/site requirements
		171.1.2	Work requirements are identified from relevant personnel and documentation
		171.1.3	Documentation to determine plant status is assessed and evaluated
		171.1.4	Localised plant inspection and field preparation for service are carried out in accordance with manufacturer's and enterprise procedures
		171.1.5	Plant operational prerequisites are established in accordance with manufacturer's and enterprise procedures
		171.1.6	Sequence for recommissioning of plant is determined to suit existing circumstances in accordance with enterprise/site requirements
		171.1.7	Where appropriate, the teams and individuals roles and responsibilities within the team are identified and, where required, assist in the provision of the on-the-job training
171.2	Operate plant	171.2.1	Plant is operated in accordance with enterprise and manufacturer's operating procedures
		171.2.2	Plant is monitored and observed to detect deviations from normal operating conditions
		171.2.3	Corrective actions taken to rectify abnormalities in accordance with manufacturer's and enterprise procedures
171.3	Test plant operation	171.3.1	Tests are performed in accordance with defined procedures applicable to the operational test
		171.3.2	Plant is observed for correct operational response

Elements		Performance criteria	
		171.3.3	Corrective action is taken when response is not in accordance with documentation, plant integrity or personnel safety requirements
		171.3.4	Plant is returned to required operational status upon completion of test
171.4	Analyse plant faults	171.4.1	Causes of abnormal plant operating conditions are identified by analysing the technical and operational information in a logical and sequential manner
		171.4.2	Corrective action taken is in accordance with enterprise/site procedures
		171.4.3	Plant integrity and personnel safety is maintained through consultation with appropriate personnel, and reference to plant, technical and operational documentation
171.5	Monitor and inspect plant	171.5.1	Plant to be monitored/inspected is physically identified
		171.5.2	Plant is monitored/inspected for normal operation or to detect deviations
		171.5.3	Corrective action taken is in accordance with enterprise/site procedures
		171.5.4	Appropriate personnel are notified when defects are detected
171.6	Complete documentation	171.6.1	Documentation is updated and plant problems, movements, abnormalities and status are reported and logged in accordance with enterprise/site procedures

Range Statement

Stream: Production Plant

Field: Operations

Equivalencies: This unit of competence incorporates parts of units 7.24a and 7.25a of The National Metal and Engineering Competency Standards

Systems, plant and/or equipment may include electrical supply switchboard(s) and transformers; electrical motors; valves, actuators and dampers (electric, hydraulic, pneumatic, manual); supervisory, protection, alarm and control equipment; dams de-sanding chambers canals and pipelines; lime softening plant; acid cleaning equipment; chemical storage vessels; pressure vessels; water clarifying plant; water filtering plant; cation and anion exchangers; degassers; mixed bed exchangers; compressors and pumps; trash screens; flock level control and caustic cleaning

Safety standards may include relevant sections of occupational health and safety legislation, enterprise safety rules, relevant state and federal legislation, national standards for plant

Information and documentation sources may include verbal and written communications, enterprise/site safety rules documentation/forms, enterprise/site standing and operating instructions, enterprise/site log book, manufacturer's operation and maintenance manuals, dedicated computer equipment and equipment and alarm manuals

Technical and operational indicators may include stimuli (audio, smell, touch, visual), local indicators and recorders and alarms (visible and or audible)

Communications may be by means of telephone, two way radio, pager, , pager, public address system, computer (electronic mail) and operating log (written or verbal)

Tests may include motor direction checks, stand-by plant "cut-in" tests and performance tests

Appropriate personnel to consult, give or receive direction may include, supervisor/team leader or equivalent, power system control personnel or equivalent, technical and engineering officers or equivalent, contractor and specialist personnel, maintenance staff and power plant operations personnel

Test, fault finding and operating tools may include hand and power tools and control system equipment

Operating environment may be during inclement or otherwise harsh weather conditions, in wet/noisy/dusty/hot areas and during continuous operation

Faults and abnormal operating conditions may include motor/pump/actuator/ valve/ damper failure/malfunction, control equipment failure/malfunctions, loss of electrical supply to plant and equipment, process chemical limits exceeded, process chemicals leaks/spillages, loss of resin, high filter/strainer differential pressure and conductivity/silica limitations

Evidence Guide

Critical aspects of evidence

The knowledge and application of relevant sections of: Occupational, health and safety legislation; Statutory legislation; Enterprise/site safety procedures; Enterprise/site emergency procedures

Preparation and planning of work

Operation of water treatment plant

Operationally testing plant

Analysing plant faults

Monitoring plant operation

Material safe data sheets

Context of assessment

Competency Standards should be assessed in the workplace or simulated workplace and under the normal range of workplace conditions

Assessment of this unit will be supported with documentary evidence, by means of endorsement stating type and application of equipment operated

Interdependent assessment of unit

Nil

Knowledge and Skills

A knowledge of:

Relevant occupational health and safety regulations; Relevant statutory legislation; Relevant enterprise/site safety procedures; Enterprise/site emergency procedures and techniques; Relevant plant and equipment, its location and operating parameters; Plant status; Environmental legislation; Enterprise recording procedures; Communication principles; Control and data acquisition systems; Computers and software; Supervisory, alarm, protection and control equipment; Emergency procedures; Basic motor performance; Basic pump and compressor performance; Valve, damper and actuator types and characteristics; Process chemicals used, their properties, handling and spillage clean-up procedures; Material safe handling data sheets; Introduction to power production plant; Typical arrangements of power production plant; Mathematics; Mechanics; Properties of matter; Lubrication and bearings; Compressors; Feedwater treatment; Pumps; Liquid pumping systems; Power plant cycle; General responsibilities for power production plant operations; Steam power plant boiler water and steam systems; Condensate and feedwater systems; Feedwater heating and drainage systems; Circulating water system; Condenser systems; Electrical principles; Transformers; Electric motors; Switchgear; Electrical protection; Schematic diagrams; Auxiliary supply systems; Safe operating principles

The ability to:

Apply relevant occupational health and safety regulations; Apply relevant statutory legislation; Apply relevant enterprise/site safety procedures; Apply enterprise/site emergency procedures and techniques; Apply enterprise recording procedures; Identify plant status; Prepare plant/equipment for operation; Organise resources; Operate water treatment plant; Apply diagnostic and testing techniques; Identify and respond to abnormal plant operating conditions; Plan and prioritise work; Use relevant hand tools; Communicate effectively; Apply data analysis techniques and tools; Use diagrams, drawings and symbols.

UTP NEG172 A
Operate Alkalinity Reduction Plant

Descriptor: This unit refers to the operation, inspection and monitoring of alkalinity reduction plant. includes cooling tower water dosing plant

Elements		Performance criteria	
172.1	Plan and prepare work	172.1.1	Safety issues are identified to comply with enterprise/site requirements
		172.1.2	Work requirements are identified from relevant personnel and documentation
		172.1.3	Documentation to determine plant status is assessed and evaluated
		172.1.4	Localised plant inspection and field preparation for service are carried out in accordance with manufacturer's and enterprise procedures
		172.1.5	Plant operational prerequisites are established in accordance with manufacturer's and enterprise procedures
		172.1.6	Sequence for recommissioning of plant is determined to suit existing circumstances in accordance with enterprise/site requirements
		172.1.7	Where appropriate, the teams and individuals roles and responsibilities within the team are identified and, where required, assist in the provision of the on-the-job training
172.2	Operate plant	172.2.1	Plant is operated in accordance with enterprise and manufacturer's operating procedures
		172.2.2	Plant is monitored and observed to detect deviations from normal operating conditions
		172.2.3	Corrective actions taken to rectify abnormalities in accordance with manufacturer's and enterprise procedures
		172.2.4	Plant to be removed from service is locally identified and removed from service in accordance with enterprise/site requirements
		172.2.5	Corrective actions are taken in accordance with enterprise safety rules and site requirements when abnormalities are identified during the removal from service

Elements		Performance criteria	
172.3	Test plant operation	172.3.1	Tests are performed in accordance with defined procedures applicable to the operational test
		172.3.2	Plant is observed for correct operational response
		172.3.3	Corrective action is taken when response is not in accordance with documentation, plant integrity or personnel safety requirements
		172.3.4	Plant is returned to required operational status upon completion of test
172.4	Analyse plant faults	172.4.1	Causes of abnormal plant operating conditions are identified by analysing the technical and operational information in a logical and sequential manner
		172.4.2	Corrective action taken is in accordance with enterprise/site procedures
		172.4.3	Plant integrity and personnel safety is maintained through consultation with appropriate personnel, and reference to plant, technical and operational documentation
172.5	Monitor and inspect plant	172.5.1	Plant to be monitored/inspected is physically identified
		172.5.2	Plant is monitored/inspected for normal operation or to detect deviations
		172.5.3	Corrective action taken is in accordance with company procedures
		172.5.4	Appropriate personnel are notified when defects are detected
172.6	Complete documentation	172.6.1	Documentation is updated and plant problems, movements, abnormalities and status are reported and logged in accordance with enterprise/site procedures

Range Statement

Stream: Production Plant

Field: Operations

Equivalencies: N/A

Systems, plant and/or equipment may include electrical motors; valves, actuators and dampers (electric, hydraulic, pneumatic, manual); supervisory, alarm and control equipment; pressure vessels; pumps; and high pressure/high capacity chlorine storage cylinders and equipment

Safety standards may include relevant sections of occupational health and safety legislation, enterprise safety rules, relevant state and federal legislation, national standards for plant and Australian standards

Information and documentation sources may include verbal and written communications, enterprise/site safety rules documentation/form(s), enterprise/site operating instructions, enterprise/site log book, manufacturer's operation and maintenance manuals, dedicated computer equipment, equipment and alarm manuals, enterprise standing instructions and plant notes

Technical and operational indicators may include stimuli (audio, smell, touch, visual), remote or local indicators and recorders and alarms (visible and or audible)

Communications may be by means of telephone, two way radio, pager, computer (electronic mail), operating log (written or verbal) and public address system

Tests may include stand-by plant tests and motor direction checks

Appropriate personnel to consult, give or receive direction may include supervisor/team leader or equivalent, technical and engineering officers or equivalent, maintenance staff, power plant operations personnel or equivalent and other operating staff or equivalent

Test, fault finding and operating tools may include hand and power tools, high voltage testers and proving dead equipment

Operating environment may be, during inclement or otherwise harsh weather conditions, in wet/noisy/dusty/hot areas, during night periods, remote from plant or aided by indicators and monitors

Faults and abnormal operating conditions may include motor/pump/ actuator/valve/damper failure/malfunctions, control equipment failure/ malfunctions, loss of electrical supply to plant and equipment, process chemical limits exceeded, process chemicals leaks/spillages, excessive vibration pumps/motors and high legionella bacteria count

Evidence Guide

Critical aspects of evidence

The knowledge and application of relevant sections of: Occupational, health and safety legislation; Statutory legislation; Enterprise/site safety procedures; Enterprise/site emergency procedures

Preparation and planning of work

Operation of alkalinity reduction plant

Operationally testing plant

Analysing plant faults

Monitoring plant operation

Material safe data sheets

Context of assessment

Competency Standards should be assessed in the workplace or simulated workplace and under the normal range of workplace conditions

Assessment of this unit will be supported with documentary evidence, by means of endorsement stating type and application of equipment operated

Interdependent assessment of unit

Nil

Knowledge and Skills

A knowledge of:

Relevant occupational health and safety regulations; Relevant statutory legislation; Relevant enterprise/site safety procedures; Enterprise/site emergency procedures and techniques; Relevant plant and equipment, its location and operating parameters; Plant status; Environmental legislation; Enterprise recording procedures; Communication principles; Control and data acquisition systems; Computers and software; Supervisory, alarm, protection and control equipment; Emergency procedures; Basic motor performance; Basic pump and compressor performance; Valve, damper and actuator types and characteristics; Process chemicals used, their properties, handling and spillage clean-up procedures; Material safe handling data sheets; Introduction to power production plant; Typical arrangements of power production plant; Mathematics; Mechanics; Properties of matter; Lubrication and bearings; Compressors; Feedwater treatment; Pumps; Liquid pumping systems; Power plant cycle; General responsibilities for power production plant operations; Steam power plant boiler water and steam systems; Condensate and feedwater systems; Circulating water system; Electrical principles; Transformers; Electric motors; Switchgear; Heating of electrical equipment; Electrical protection; Schematic diagrams; Auxiliary supply systems; Safe operating principles

The ability to:

Apply relevant occupational health and safety regulations; Apply relevant statutory legislation; Apply relevant enterprise/site safety procedures; Apply enterprise/site emergency procedures and techniques; Apply enterprise recording procedures; Identify plant status; Prepare plant/equipment for operation; Organise resources; Operate alkalinity reduction plant; Apply diagnostic and testing techniques; Identify and respond to abnormal plant operating conditions; Plan and prioritise work; Use relevant hand tools; Communicate effectively; Apply data analysis techniques and tools; Use diagrams, drawings and symbols.

UTP NEG173 A
Operate Reverse Osmosis Plant

Descriptor: This unit refers to the operation, inspection and monitoring of reverse osmosis plant

Elements		Performance criteria	
173.1	Plan and prepare work	173.1.1	Safety issues are identified to comply with enterprise/site requirements
		173.1.2	Work requirements are identified from relevant personnel and documentation
		173.1.3	Documentation to determine plant status is assessed and evaluated
		173.1.4	Localised plant inspection and field preparation for service are carried out in accordance with manufacturer's and enterprise procedures
		173.1.5	Plant operational prerequisites are established in accordance with manufacturer's and enterprise procedures
		173.1.6	Sequence for recommissioning of plant is determined to suit existing circumstances in accordance with enterprise/site requirements
		173.1.7	Where appropriate, the teams and individuals roles and responsibilities within the team are identified and, where required, assist in the provision of the on-the-job training
173.2	Operate plant	173.2.1	Plant is operated in accordance with enterprise and manufacturer's operating procedures
		173.2.2	Plant is monitored and observed to detect deviations from normal operating conditions
		173.2.3	Corrective actions taken to rectify abnormalities in accordance with manufacturer's and enterprise procedures
		173.2.4	Plant to be removed from service is locally identified and removed from service in accordance with enterprise/site requirements
		173.2.5	Corrective actions are taken in accordance with enterprise safety rules and site requirements when abnormalities are identified during the removal from service

Elements		Performance criteria	
173.3	Test plant operation	173.3.1	Tests are performed in accordance with defined procedures applicable to the operational test
		173.3.2	Plant is observed for correct operational response
		173.3.3	Corrective action is taken when response is not in accordance with documentation, plant integrity or personnel safety requirements
		173.3.4	Plant is returned to required operational status upon completion of test
173.4	Analyse plant faults	173.4.1	Causes of abnormal plant operating conditions are identified by analysing the technical and operational information in a logical and sequential manner
		173.4.2	Corrective action taken is in accordance with enterprise/site procedures
		173.4.3	Plant integrity and personnel safety is maintained through consultation with appropriate personnel, and reference to plant, technical and operational documentation
173.5	Monitor and inspect plant	173.5.1	Plant to be monitored/inspected is physically identified
		173.5.2	Plant is monitored/inspected for normal operation or to detect deviations
		173.5.3	Corrective action taken is in accordance with enterprise/site procedures
		173.5.4	Appropriate personnel are notified when defects are detected
173.6	Complete documentation	173.6.1	Documentation is updated and plant problems, movements, abnormalities and status are reported and logged in accordance with enterprise/site procedures

Range Statement

Stream: Production Plant

Field: Operations

Equivalencies: N/A

Systems, plant and/or equipment may include electrical supply switchboard(s) and transformers; reverse osmosis membranes and pressure vessels; electrical motors; pumps; valves, actuators and dampers (electric, hydraulic, pneumatic and manual); safety showers and eyewash equipment; lime, ferric chloride storage and delivery plant; high pressure/high capacity chlorine storage cylinders and associated delivery equipment; high capacity sulphuric acid storage tanks and associated delivery equipment; safety shower and eyewash equipment; and supervisory, protection and alarm and control equipment

Safety standards may include relevant sections of occupational health and safety legislation, enterprise safety rules, relevant state and federal legislation, national standards for plant and Australian standards

Information and documentation sources may include verbal and written communications, enterprise/site safety rules documentation/form(s), enterprise/site operating instructions, enterprise/site log book, manufacturer's operation and maintenance manuals, dedicated computer equipment, equipment and alarm manuals and enterprise standing instructions and plant notes

Technical and operational indicators may include stimuli (audio, smell, touch, visual), remote or local indicators and recorders and alarms (visible and/or audible)

Communications may be by means of telephone, two way radio, pager, computer (electronic mail) and operating log (written or verbal)

Tests may include stand-by plant "cut-in" tests, motor direction checks and plant performance tests

Appropriate personnel to consult, give or receive direction may include supervisor/team leader or equivalent, technical and engineering officers or equivalent, maintenance staff, power plant operations personnel or equivalent, other operating staff or equivalent and contractor staff

Test, fault finding and operating tools may include high voltage testers, providing dead equipment, power or hand tools, pH and conductivity meters and chlorine leak detectors

Operating environment may be remote from plant, aided by indicators and monitors, during inclement or otherwise harsh weather conditions, in wet/noisy/ dusty/hot areas or during continuous operation

Faults and abnormal operating conditions may include motor/pump/ actuator/valve/damper failure/malfunctions, control equipment failure/ malfunctions, loss of electrical supply to plant and equipment, process chemical limits exceeded, process chemicals leaks/spillages, excessive vibration pumps/motors and clarifier abnormal operation (eg. loss of sludge bed)

Evidence Guide

Critical aspects of evidence

The knowledge and application of relevant sections of: Occupational, health and safety legislation; Statutory legislation; Enterprise/site safety procedures; Enterprise/site emergency procedures

Preparation and planning of work

Operation of reverse osmosis plant

Operationally testing plant

Analysing plant faults

Monitoring plant operation

The knowledge of the properties of gases, their use and precautions to be taken

Context of assessment

Competency Standards should be assessed in the workplace or simulated workplace and under the normal range of workplace conditions

Assessment of this unit will be supported with documentary evidence, by means of endorsement stating type and application of equipment operated

Interdependent assessment of unit

Nil

Knowledge and Skills

A knowledge of:

Relevant occupational health and safety regulations; Relevant statutory legislation; Relevant enterprise/site safety procedures; Enterprise/site emergency procedures and techniques; Relevant plant and equipment, its location and operating parameters; Plant status; Environmental legislation; Enterprise recording procedures; Communication principles; Control and data acquisition systems; Computers and software; Supervisory, alarm, protection and control equipment; Emergency procedures; Basic motor performance; Basic pump and compressor performance; Valve, dampers and actuator types and characteristics; Material safe handling data sheets; Introduction to power production plant; Typical arrangements of power production plant; Mathematics; Mechanics; Properties of matter; Lubrication and bearings; Compressors; Feedwater treatment; Pumps; Liquid pumping systems; Power plant cycle; General responsibilities for power production plant operations; Steam power plant boiler water and steam systems; Condensate and feedwater systems; Feedwater heating and drainage systems ; Circulating water system; Condenser systems; Electrical principles; Transformers; Electric motors; Switchgear; Electrical protection; Schematic diagrams; Auxiliary supply systems; Safe operating principles

The ability to:

Apply relevant occupational health and safety regulations; Apply relevant statutory legislation; Apply relevant enterprise/site safety procedures; Apply enterprise/site emergency procedures and techniques; Apply enterprise recording procedures; Identify plant status; Prepare plant/equipment for operation; Organise resources; Operate reverse osmosis plant; Apply diagnostic and testing techniques; Identify and respond to abnormal plant operating conditions; Plan and prioritise work; Use relevant hand tools; Communicate effectively; Apply data analysis techniques and tools; Use diagrams, drawings and symbols.

UTP NEG174 A
Operate Brine Concentrator Plant

Descriptor: This unit refers to the operation, inspection and monitoring of brine concentrator plant

Elements		Performance criteria	
174.1	Plan and prepare work	174.1.1	Safety issues are identified to comply with enterprise/site requirements
		174.1.2	Work requirements are identified from relevant personnel and documentation
		174.1.3	Documentation to determine plant status is assessed and evaluated
		174.1.4	Localised plant inspection and field preparation for service are carried out in accordance with manufacturer's and enterprise procedures
		174.1.5	Plant operational prerequisites are established in accordance with manufacturer's and enterprise procedures
		174.1.6	Sequence for recommissioning of plant is determined to suit existing circumstances in accordance with enterprise/site requirements
		174.1.7	Where appropriate, the teams and individuals roles and responsibilities within the team are identified and, where required, assist in the provision of the on-the-job training
174.2	Operate plant	174.2.1	Plant is operated in accordance with enterprise and manufacturer's operating procedures
		174.2.2	Plant is monitored and observed to detect deviations from normal operating conditions
		174.2.3	Corrective actions taken to rectify abnormalities in accordance with manufacturer's and enterprise procedures
		174.2.4	Plant to be removed from service is locally identified and removed from service in accordance with enterprise/site requirements
		174.2.5	Corrective actions are taken in accordance with enterprise safety rules and site requirements when abnormalities are identified during the removal from service

Elements		Performance criteria	
174.3	Test plant operation	174.3.1	Tests are performed in accordance with defined procedures applicable to the operational test
		174.3.2	Plant is observed for correct operational response
		174.3.3	Corrective action is taken when response is not in accordance with documentation, plant integrity or personnel safety requirements
		174.3.4	Plant is returned to required operational status upon completion of test
174.4	Analyse plant faults	174.4.1	Cause of abnormal plant operating conditions are identified by analysing the technical and operational information in a logical and sequential manner
		174.4.2	Corrective action taken is in accordance with enterprise/site procedures
		174.4.3	Plant integrity and personnel safety is maintained through consultation with appropriate personnel, and with reference to plant, technical and operational documentation
174.5	Monitor and inspect plant	174.5.1	Plant to be monitored/inspected is physically identified
		174.5.2	Plant is monitored/inspected for normal operation or to detect deviations
		174.5.3	Corrective action taken is in accordance with enterprise/site procedures
		174.5.4	Appropriate personnel are notified when defects are detected
174.6	Complete documentation	174.6.1	Documentation is updated and plant problems, movements, abnormalities and status are reported and logged in accordance with enterprise/site procedures

Range Statement

Stream: Production Plant

Field: Operations

Equivalencies: N/A

Systems, plant and/or equipment may include electric boiler and associated auxiliaries; electrical supply switchboard(s) and transformers; vapour compressor; centrifuges; electrical motors; valves, actuators and dampers (electric, hydraulic, pneumatic and manual); supervisory, protection alarm and control equipment; safety showers and eyewash equipment; pumps; heat exchangers; de-aerator; and process chemicals storage and handling equipment

Safety standards may include relevant sections of occupational health and safety legislation, enterprise safety rules, relevant state and federal legislation, national standards for plant and Australian standards

Information and documentation sources may include verbal and written communications, enterprise/site safety rules documentation/form(s), enterprise/site operating instructions, enterprise/site log book, manufacturer's operation and maintenance manuals, dedicated computer equipment, equipment and alarm manuals, enterprise standing instructions and plant notes

Technical and operational indicators may include stimuli (audio, smell, touch, visual), remote or local indicators and recorders and alarms (visible and or audible)

Communications may be by means of telephone, two way radio, pager, computer (electronic mail), operating log (written or verbal) and public address system

Tests may include stand-by plant "cut-in" tests and motor direction checks

Appropriate personnel to consult, give or receive direction may include supervisor/team leader or equivalent, technical and engineering officers or equivalent, maintenance staff, power plant operations personnel or equivalent, other operating staff or equivalent and contractor staff

Test, fault finding and operating tools may include high voltage testers, providing dead equipment, power or hand tools and pH meters

Operating environment may be, remote from plant, aided by indicators and monitors, during inclement or otherwise harsh weather conditions, wet/noisy/dusty/ hot areas and during continuous operation

Faults and abnormal operating conditions may include motor/pump/ actuator/valve/ damper failure/malfunctions, control equipment failure/ malfunctions, loss of electrical supply to plant and equipment, process chemical limits exceeded, process chemicals leaks/spillages and excessive vibration pumps/motors

Evidence Guide

Critical aspects of evidence

The knowledge and application of relevant sections of: Occupational, health and safety legislation; Statutory legislation; Enterprise/site safety procedures; Enterprise/site emergency procedures

Preparation and planning of work

Operation of brine concentrator plant

Operationally testing plant

Analysing plant faults

Monitoring plant operation

The knowledge of the properties of gases, their use and precautions to be taken

Context of assessment

Competency Standards should be assessed in the workplace or simulated workplace and under the normal range of workplace conditions

Assessment of this unit will be supported with documentary evidence, by means of endorsement stating type and application of equipment operated

Interdependent assessment of unit

Nil

Knowledge and Skills

A knowledge of:

Relevant occupational health and safety regulations; Relevant statutory legislation; Relevant enterprise/site safety procedures; Enterprise/site emergency procedures and techniques; Relevant plant and equipment, its location and operating parameters; Plant status; Environmental legislation; Enterprise recording procedures; Communication principles; Control and data acquisition systems; Computers and software; Supervisory, alarm, protection and control equipment; Emergency procedures; Basic motor performance; Basic pump and compressor performance; Valve, dampers and actuator types and characteristics; Material safe handling data sheets; Properties of process chemicals in use; Introduction to power production plant; Typical arrangements of power production plant; Mathematics; Mechanics; Thermodynamics; Properties of matter; Lubrication and bearings; Compressors; Feedwater treatment; Pumps; Liquid pumping systems; Power plant cycle; General responsibilities for power production plant operations; Steam power plant boiler water and steam systems; Boiler draft system; Fuels; Principles governing efficient combustion; Fuel conditioning and fuel firing equipment; Control of a boiler; Condensate and feedwater systems; Feedwater heating and drainage systems ; Circulating water system; Condenser systems; Electrical principles; Transformers; Electric motors; Switchgear; Heating of electrical equipment; Electrical protection; Schematic diagrams; Auxiliary supply systems; High voltage systems; Safe operating principles

The ability to:

Apply relevant occupational health and safety regulations; Apply relevant statutory legislation; Apply relevant enterprise/site safety procedures; Apply enterprise/site emergency procedures and techniques; Apply enterprise recording procedures; Identify plant status; Prepare plant/equipment for operation; Organise resources; Operate brine concentrator plant; Apply diagnostic and testing techniques; Identify and respond to abnormal plant operating conditions; Plan and prioritise work; Use relevant hand tools; Communicate effectively; Apply data analysis techniques and tools; Use diagrams, drawings and symbols.

UTP NEG175 A
Operate and Monitor Water Quality Control Systems

Descriptor: This refers to the operation and monitoring of water quality control systems in a power station

Elements		Performance criteria	
175.1	Plan and prepare work	175.1.1	Safety issues are identified to comply with enterprise/site requirements
		175.1.2	Work requirements are identified from relevant personnel and documentation
		175.1.3	Documentation to determine plant status is assessed and evaluated
		175.1.4	Localised plant inspection and field preparation for service is carried out in accordance with manufacturer's and enterprise procedures
		175.1.5	Plant operational prerequisites are established in accordance with manufacturer's and enterprise procedures
		175.1.6	Sequence for recommissioning of plant is determined to suit existing circumstances in accordance with enterprise/site requirements
		175.1.7	Where appropriate, the teams and individuals roles and responsibilities within the team are identified and, where required, assist in the provision of the on-the-job training
175.2	Operate plant	175.2.1	Plant is operated in accordance with enterprise and manufacturer's operating procedures
		175.2.2	Plant is monitored and observed to detect deviations from normal operating conditions
		175.2.3	Corrective actions taken to rectify abnormalities in accordance with manufacturer's and enterprise procedures
175.3	Test plant operation	175.3.1	Tests are performed in accordance with defined procedures applicable to the operational test
		175.3.2	Plant is observed for correct operational response

Elements		Performance criteria	
		175.3.3	Correct action is taken when response is not in accordance with documentation, plant integrity or personnel safety requirements
		175.3.4	Plant is returned to required operational status upon completion of test
1754	Analyse plant faults	175.4.1	Cause of abnormal plant operating conditions are identified by analysing the technical and operational information in a logical and sequential manner
		175.4.2	Corrective action taken is in accordance with enterprise/site procedures
		175.4.3	Plant integrity and personnel safety is maintained through consultation with appropriate personnel, and reference to plant, technical and operational documentation
175.5	Monitor and inspect plant	175.5.1	Plant to be monitored/inspected is physically identified
		175.5.2	Plant is monitored/inspected for normal operation or to detect deviations
		175.5.3	Corrective action taken is in accordance with enterprise/site procedures
		175.5.4	Appropriate personnel are notified when defects are detected
175.6	Complete documentation	175.6.1	Documentation is updated and plant problems, movements, abnormalities and status are reported and logged in accordance with enterprise/site procedures

Range Statement

Stream: Production Plant

Field: Operations

Equivalencies: N/A

Systems, plant and/or equipment may include raw water, feed water, condenser cooling water, auxiliary cooling water, demineralised water, water treatment plant, water quality room, ammonia and hydrazine systems, hypochlorite plant, effluent disposal system, reverse osmosis plant; pumps, high/low pressure, characteristics, operating conditions; valves, actuators (electric, pneumatic); electrical supply switchboards; electrical motors (high and low voltage); supervisory, alarm and control equipment; filters, strainers, dryers, moisture, pressure control devices, safety devices; and high and low pressure systems

Safety standards may include relevant sections of occupational health and safety legislation, enterprise safety rules, relevant state and federal legislation and national standards for plant

Information and documentation sources may include verbal or written communications; enterprise safety rules documentation/form(s); equipment and alarm manuals; dedicated computer equipment; enterprise/site standing and operating instructions; enterprise log books; and manufacturer's operation and maintenance manuals

Technical and operational indicators may include stimuli (audio, smell, touch, visual), local indicators and recorders and alarms (visible and/or audible)

Communications may be by means of telephone, two way radio, pager, public address system, computer (electronic mail) and operating log (written or verbal)

Tests may include stand-by plant tests and post maintenance operating tests

Appropriate personnel to consult, give or receive direction may include, supervisor/team leader or equivalent, technical and engineering officers or equivalent, maintenance staff, power plant operations personnel and contractor and specialist staff

Test, fault finding and operating tools may include chemical analysis equipment, power or hand tools, control system equipment and leak test equipment

Operating environment may be remote from plant, aided by indicators and monitors, during inclement or otherwise harsh weather conditions, in wet/noisy/dusty areas or during night periods

Faults and abnormal operating conditions may include motor/pump/ actuator/valve/damper failure/malfunctions, control equipment failure/ malfunctions, loss of electrical supply to plant and equipment, loss supply, low water pressure, burst pipes, plant/equipment, loss of major auxiliary (dosing plant), excessive vibration pumps/motors and loss of station air supply

Evidence Guide

Critical aspects of evidence

The knowledge and application of relevant sections of: Occupational, health and safety legislation; Statutory legislation; Enterprise/site safety procedures; Enterprise/site emergency procedures

Preparation and planning of work

Operation of water quality control systems

Operationally testing plant

Analysing plant faults

Monitoring plant operation

The knowledge of process chemicals, their use and precautions taken

The knowledge of water quality chemistry

Context of assessment

Competency Standards should be assessed in the workplace or simulated workplace and under the normal range of workplace conditions

Assessment of this unit will be supported with documentary evidence, by means of endorsement stating type and application of work

Interdependent assessment of unit

Nil

Knowledge and Skills

A knowledge of:

Relevant occupational health and safety regulations; Relevant statutory legislation; Relevant enterprise/site safety procedures; Enterprise/site emergency procedures and techniques; Relevant plant and equipment, its location and operating parameters; Plant status; Environmental legislation; Enterprise recording procedures; Communication principles; Control and data acquisition systems; Computers and software; Supervisory, alarm, protection and control equipment; Emergency procedures; Thermodynamic properties of water; Water systems and required water quality standards; Process chemicals and their properties; Material safe handling data sheets; Introduction to power production plant; Typical arrangements of power production plant; Mathematics; Mechanics; Properties of matter; Lubrication and bearings; Compressors; Feedwater treatment; Pumps; Liquid pumping systems; Power plant cycle; General responsibilities for power production plant operations; Steam power plant boiler water and steam systems; Condensate and feedwater systems; Feedwater heating and drainage systems ; Circulating water system; Condenser systems; Electrical principles; Transformers; Electric motors; Switchgear; Electrical protection; Schematic diagrams; Auxiliary supply systems; Safe operating principles

The ability to:

Apply relevant occupational health and safety regulations; Apply relevant statutory legislation; Apply relevant enterprise/site safety procedures; Apply enterprise/site emergency procedures and techniques; Apply enterprise recording procedures; Identify plant status; Prepare plant/equipment for operation; Organise resources; Operate water quality control systems; Apply diagnostic and testing techniques; Identify and respond to abnormal plant operating conditions; Plan and prioritise work; Use relevant hand tools; Communicate effectively; Apply data analysis techniques and tools; Use diagrams, drawings and symbols; Co-ordinate the operation of equipment to maintain plant integrity, personnel safety and continuity of supply.

UTP NEG176 A
Conduct Chemical Batching Operations

Descriptor: This unit refers to the mixing of chemicals for the treatment of a primary substance

Elements		Performance criteria	
176.1	Plan and prepare work	176.1.1	Work requirements are identified from request/work orders or equivalent and clarified/confirmed with appropriate parties
		176.1.2	Occupational health and safety standards, statutory requirements, relevant Australian standards, codes of practice, manufacturers' specifications, environmental requirements and enterprise procedures are identified, applied and monitored throughout the work procedure
		176.1.3	Potential hazards are identified and prevention and/or control measures are selected in accordance with the work plan and site procedures
		176.1.4	Resources required to satisfy the work plan are identified, obtained and inspected for compliance with the job specifications
		176.1.5	Where appropriate, the teams and individuals roles and responsibilities within the team are identified and, where required, assist in the provision of the on-the-job training
176.2	Perform chemical batching	176.2.1	Relevant staff are notified on commencement and completion of work in accordance with enterprise/site procedures
		176.2.2	Amount of chemical needed is calculated in accordance with job requirements
		176.2.3	Correct chemical is added to tank or plant in accordance with job requirements
		176.2.4	Demineralised water is added to correct level in accordance with job requirements
		176.2.5	Mixing device is operated in accordance with job requirements
		176.2.6	Work site is left in a condition that ensures personnel safety and plant integrity

Elements		Performance criteria	
176.3	Complete documentation	176.3.1	Documentation is updated and plant problems, movements, abnormalities and status are reported and logged in accordance with enterprise/site procedures

Range Statement

Stream: Production Plant

Field: Operations

Equivalencies: N/A

Chemicals may include ammonia, hydrazine, sulphuric acid, caustic soda, hydrochloric acid, biocides, corrosion inhibitors, alum.polyelectrolytes and other industrial chemicals

Safety standards may include relevant sections of occupational health and safety legislation and enterprise safety rules

Information and documentation sources may include verbal and written communications, enterprise/site safety rules documentation/form(s), equipment and alarm manuals, dedicated computer equipment, enterprise/site operating instructions, enterprise/site log book, manufacturer's operation and maintenance manuals, enterprise standing instructions and plant notes and material safety data sheets

Technical and operational indicators may include stimuli (audio, smell, touch, visual), remote or local indicators and recorders and alarms (visible and or audible)

Communications may be by means of telephone, two way radio, pager, operating log (written or verbal), computers (electronic mail) and public address system

Appropriate personnel to consult, give or receive direction may include supervisor/team leader or equivalent, technical and engineering officers or equivalent, power plant operations personnel or equivalent

Operating environment may be remote from plant and equipment being operated (operation is assisted by remote indicators of plant status and other parameter monitors), during inclement or otherwise harsh weather conditions, in wet/noisy/dusty/hot areas or during continuous operation

Equipment used may include personal safety equipment, flexible barrier equipment, portable pumps valving and associated pipe work

Evidence Guide

Critical aspects of evidence

The knowledge and application of relevant sections of: Occupational, health and safety legislation; Statutory legislation; Enterprise/site safety procedures; Enterprise/site emergency procedures

The knowledge of the types of chemicals, properties and precautions taken

Conducting chemical batching operations

The knowledge of and ability to handle hazardous materials

Context of assessment

Competency Standards should be assessed in the workplace or simulated workplace and under the normal range of workplace conditions

Assessment of this unit will be supported with documentary evidence, by means of endorsement stating type and application of equipment operated

Interdependent assessment of unit

Nil

Knowledge and Skills

A knowledge of:

Relevant occupational health and safety regulations; Relevant statutory legislation; Relevant enterprise/site safety procedures; Enterprise/site emergency procedures and techniques; Relevant plant and equipment, its location and operating parameters; Plant status; Environmental legislation; Enterprise recording procedures; Communication principles; Emergency procedures; Types of chemicals their properties and precautions taken; Basic mathematics; Material safe handling data sheets; Introduction to power production plant; Typical arrangements of power production plant; Mathematics; Mechanics; Properties of matter; Lubrication and bearings; Compressors; Feedwater treatment; Pumps; Liquid pumping systems; Power plant cycle; General responsibilities for power production plant operations; Steam power plant boiler water and steam systems; Condensate and feedwater systems; Feedwater heating and drainage systems; Circulating water system; Condenser systems; Switchgear; Electrical protection; Auxiliary supply systems; Safe operating principles

The ability to:

Apply relevant occupational health and safety regulations; Apply relevant statutory legislation; Apply relevant enterprise/site safety procedures; Apply enterprise/site emergency procedures and techniques; Apply enterprise recording procedures; Identify plant status; Prepare plant/equipment for operation; Organise resources; Apply diagnostic and testing techniques; Plan and prioritise work; Use relevant hand tools; Communicate effectively; Apply basic mathematical calculations; Handle hazardous materials safely; Conduct chemical batching operation.

UTP NEG177 A
Operate Waste and Contaminated Water Plant

Descriptor: This unit refers to the operation, inspection and monitoring of waste contaminated water plant associated with a power generating complex

Elements		Performance criteria	
177.1	Plan and prepare work	177.1.1	Safety issues are identified to comply with enterprise/site requirements
		177.1.2	Work requirements are identified from relevant personnel and documentation
		177.1.3	Documentation to determine plant status is assessed and evaluated
		177.1.4	Localised plant inspection and field preparation for service are carried out in accordance with manufacturer's and enterprise procedures
		177.1.5	Plant operational prerequisites are established in accordance with manufacturer's and enterprise procedures
		177.1.6	Sequence for recommissioning of plant is determined to suit existing circumstances in accordance with enterprise/site requirements
		177.1.7	Where appropriate, the teams and individuals roles and responsibilities within the team are identified and, where required, assist in the provision of the on-the-job training
177.2	Operate plant	177.2.1	Plant is operated in accordance with enterprise and manufacturer's operating procedures
		177.2.2	Plant is monitored and observed to detect deviations from normal operating conditions
		177.2.3	Corrective actions taken to rectify abnormalities in accordance with manufacturer's and enterprise procedures
		177.2.4	Plant is removed from service in accordance with enterprise/site requirements
		177.2.5	Corrective actions are taken in accordance with enterprise safety rules and site requirements when abnormalities are identified during the removal from service

Elements		Performance criteria	
177.3	Test plant operation	177.3.1	Tests are performed in accordance with defined procedures applicable to the operational test
		177.3.2	Plant is observed for correct operational response
		177.3.3	Corrective action is taken when response is not in accordance with documentation, plant integrity or personnel safety requirements
		177.3.4	Plant is returned to required operational status upon completion of test
177.4	Analyse plant faults	177.4.1	Causes of abnormal plant operating conditions are identified by analysing the technical and operational information in a logical and sequential manner
		177.4.2	Corrective action taken is in accordance with enterprise/site procedures
		177.4.3	Plant integrity and personnel safety is maintained through consultation with appropriate personnel, and reference to plant, technical and operational documentation
177.5	Monitor and inspect plant	177.5.1	Plant to be monitored/inspected is physically identified
		177.5.2	Plant is monitored/inspected for normal operation or to detect deviations
		177.5.3	Corrective action taken is in accordance with enterprise/site procedures
		177.5.4	Appropriate personnel are notified when defects are detected
177.6	Complete documentation	177.6.1	Documentation is updated and plant problems, movements, abnormalities and status are reported and logged in accordance with enterprise/site procedures

Range Statement

Stream: Production Plant

Field: Operations

Equivalencies: N/A

Systems, plant and/or equipment may include electrical supply switchboard(s) and transformers; oil water separators; pumps; clarifiers, evaporative ponds; pasveer aeration system; electrical motors; valves and actuators, dampers (electric, hydraulic, pneumatic and manual); and supervisory, alarm, protection and control equipment

Safety standards may include relevant sections of occupational health and safety legislation, enterprise safety rules, relevant state and federal legislation, national standards for plant and Australian standards

Information and documentation sources may include verbal or written communications; enterprise safety rules documentation/form(s); equipment and alarm manuals; dedicated computer equipment; enterprise/site operating instructions; enterprise log books; manufacturer's operation and maintenance manuals; and enterprise standing instructions and plant notes

Technical and operational indicators may include stimuli (audio, smell, touch, visual), remote or local indicators and recorders and alarms (visible and or audible)

Communications may be by means of telephone, two way radio, pager, computer (electronic mail) and operating logs (written or verbal)

Tests may include stand-by plant "cut-in" tests

Appropriate personnel to consult, give or receive direction may include supervisor/team leader or equivalent, technical and engineering officers or equivalent, maintenance staff, power plant operations or equivalent, contractor staff and other operating staff or equivalent

Test, fault finding and operating tools may include high voltage testers, proving dead equipment and power or hand tools

Operating environment may be remote from plant, aided by indicators and monitors, during inclement or otherwise harsh weather conditions, in wet/noisy/dusty/hot areas, during night periods or during continuous operation

Faults and abnormal operating conditions may include motor/pump/ actuator/valve/ damper failure/malfunctions, control equipment failure/ malfunctions, loss of electrical supply to plant and equipment and excessive vibration pumps/motors

Evidence Guide

Critical aspects of evidence

The knowledge and application of relevant sections of: Occupational, health and safety legislation; Statutory legislation; Enterprise/site safety procedures; Enterprise/site emergency procedures

Preparation and planning of work

Operation of waste contaminated water plant

Operationally testing plant

Analysing plant faults

Monitoring plant operation

The knowledge of hygiene requirements

Context of assessment

Competency Standards should be assessed in the workplace or simulated workplace and under the normal range of workplace conditions

Assessment of this unit will be supported with documentary evidence, by means of endorsement stating type and application of equipment operated

Interdependent assessment of unit

Nil

Knowledge and Skills

A knowledge of:

Relevant occupational health and safety regulations; Relevant statutory legislation; Relevant enterprise/site safety procedures; Enterprise/site emergency procedures and techniques; Relevant plant and equipment, its location and operating parameters; Plant status; Environmental legislation; Enterprise recording procedures; Communication principles; Control and data acquisition systems; Computers and software; Supervisory, alarm, protection and control equipment; Emergency procedures; Basic motor performance; Basic pump and compressor performance; Valve, damper and actuator types and characteristics; Pasveer aeration systems for treatment of raw sewage; Principles of oil/water separators; The process; Introduction to power production plant; Typical arrangements of power production plant; Mathematics; Mechanics; Properties of matter; Lubrication and bearings; Feedwater treatment; Pumps; Liquid pumping systems; Power plant cycle; General responsibilities for power production plant operations; Electrical principles; Transformers; Electric motors; Switchgear; Electrical protection; Schematic diagrams; Auxiliary supply systems; Safe operating principles

The ability to:

Apply relevant occupational health and safety regulations; Apply relevant statutory legislation; Apply relevant enterprise/site safety procedures; Apply enterprise/site emergency procedures and techniques; Apply enterprise recording procedures; Identify plant status; Prepare plant/equipment for operation; Organise resources; Operate waste contaminated water plant; Apply diagnostic and testing techniques; Identify and respond to abnormal plant operating conditions; Plan and prioritise work; Use relevant hand tools; Communicate effectively; Apply data analysis techniques and tools; Use diagrams, drawings and symbols; Apply knowledge of hygiene requirements to work with sewage treatment plants.

UTP NEG178 A
Perform Plant Lubrication

Descriptor: This unit refers to maintaining grease, oil levels and quality in all areas of plant

Elements		Performance criteria	
178.1	Plan and prepare	178.1.1	Safety issues are identified to comply with enterprise/site requirements
		178.1.2	Work requirements are identified from relevant personnel and documentation
		178.1.3	Documentation to determine plant status is assessed and evaluated
		178.1.4	Isolation of plant is arranged where applicable in accordance with enterprise/site procedures
		178.1.5	Tools and lubricants are acquired as required in accordance with enterprise/site procedures
		178.1.6	Where appropriate, the teams and individuals roles and responsibilities within the team are identified and, where required, assist in the provision of the on-the-job training
178.2	Perform routine checks	178.2.1	Plant is checked in accordance with enterprise/site procedures
		178.2.2	Abnormal lubricating and plant conditions are identified. Appropriate personnel are informed of abnormal conditions
178.3	Lubricate plant	178.3.1	Plant to be lubricated is cleaned before work is carried out
		178.3.2	Plant is lubricated in accordance with manufacturers and enterprise/site procedures
		178.3.3	Plant is left in a condition that ensures safety to personnel and plant integrity
178.4	Complete documentation	178.4.1	Documentation is updated and plant problems, movements, abnormalities and status are reported and logged in accordance with enterprise/site procedures

Range Statement

Stream: Production Plant

Field: Operations

Equivalencies: This unit of competence incorporates unit 7.1a of The National Metal and Engineering Competency Standards

Systems, plant and/or equipment may include plant may be any plant within a thermal power station including gas turbines and diesels and lubricates which will be any lubricant approved for use by the enterprise

Safety standards may include relevant sections of occupational health and safety legislation enterprise safety rules, relevant state and federal legislation and national standards for plant

Information and documentation sources may include verbal and written communications, enterprise/site safety rules documentation/form(s), equipment and alarm manuals, dedicated computer equipment, enterprise/site standing and operating instructions, enterprise/site log book and manufacturer's operation and maintenance manuals

Technical and operational indicators may include stimuli (audio, smell, touch, visual), local indicators and recorders and alarms (visible and or audible)

Communications may be by means of telephone, two way radio, pager, public address system, facsimile, computer (electronic mail) and operating log (written or verbal)

Appropriate personnel to consult, give or receive direction may include supervisor/team leader or equivalent, technical and engineering officers or equivalent, contractor staff, maintenance staff and power plant operations personnel

Operating environment may be, during inclement or otherwise harsh weather conditions, in wet/noisy/dusty/hot areas or during night periods

Evidence Guide

Critical aspects of evidence

The knowledge and application of relevant sections of: Occupational, health and safety legislation; Statutory legislation; Enterprise/site safety procedures; Enterprise/site emergency procedures

The preparation and planning of work

The knowledge of the types of lubricants and their application

Lubricating procedures

Context of assessment

Competency Standards should be assessed in the workplace or simulated workplace and under the normal range of workplace conditions

Assessment of this unit will be supported with documentary evidence, by means of endorsement stating type and application of equipment operated

Interdependent assessment of unit

Nil

Knowledge and Skills

A knowledge of:

Relevant occupational health and safety regulations; Relevant statutory legislation; Relevant enterprise/site safety procedures; Enterprise/site emergency procedures and techniques; Relevant plant and equipment, its location and operating parameters; Plant status; Environmental legislation; Enterprise recording procedures; Communication principles; Material handling procedures; Automatic lubricating systems; Types of lubricants and their application; Lubricating procedures; Enterprise recording procedures; Measuring devices; Introduction to power production plant; Typical arrangements of power production plant; Mathematics; Mechanics; Properties of matter; Lubrication and bearings; Compressors; Pumps; Liquid pumping systems; General responsibilities for power production plant operations; Turbine lubrication and oil systems; Safe operating principles.

The ability to:

Apply relevant occupational health and safety regulations; Apply relevant statutory legislation; Apply relevant enterprise/site safety procedures; Apply enterprise/site emergency procedures and techniques; Apply enterprise recording procedures; Identify plant status; Prepare plant/equipment for operation; Organise resources; Use relevant hand tools; Communicate effectively; Disassemble and reassemble centrifuges; Apply material handling techniques; Lubricate plant and equipment.

UTP NEG179 A
Operate and Monitor Oil Systems

Descriptor: This and monitoring of oil systems unit refers to the operation, inspection

Elements		Performance criteria	
179.1	Plan and prepare work	179.1.1	Safety issues are identified to comply with enterprise/site and legislative requirements
		179.1.2	Work requirements are identified from relevant personnel and documentation
		179.1.3	Documentation to determine plant status is assessed and evaluate
		179.1.4	Localised plant inspection, pre-operational checks and field preparations for service are carried out in accordance with manufacturer's and enterprise/site procedures
		179.1.5	Plant operational prerequisites are established in accordance with manufacturer's and enterprise/site procedures
		179.1.6	Sequence for recommissioning of plant is determined to suit existing circumstances in accordance with enterprise/site requirements
		179.1.7	Where appropriate, the teams and individuals roles and responsibilities within the team are identified and, where required, assist in the provision of the on-the-job training
179.2	Operate plant	179.2.1	Plant is operated in accordance with enterprise and manufacturer's operating procedures
		179.2.1	Plant is monitored and observed to detect deviations from normal operating conditions
		179.2.3	Corrective actions taken or reported, to rectify abnormalities are in accordance with industry standards and site requirements
		179.2.4	Plant is removed from service in accordance with enterprise and site requirements
		179.2.5	Corrective actions are taken in accordance with enterprise safety rules and site requirements when abnormalities are identified during the removal from service

Elements		Performance criteria	
179.3	Test plant operation	179.3.1	Tests are performed in accordance with defined procedures applicable to the operational test
		179.3.2	Plant is observed for correct operational response
		179.3.3	Corrective action is taken when response is not in accordance with documentation, plant integrity or personnel safety requirements
		179.3.4	Plant is returned to required operational status upon completion of test
179.4	Analyse plant faults	179.4.1	Causes of abnormal plant operating conditions are identified by analysing the technical and operational information in a logical and sequential manner
		179.4.2	Corrective action taken is in accordance with company procedures
		179.4.3	Plant integrity and personnel safety is maintained through consultation with appropriate personnel, and reference to plant, technical and operational documentation
179.5	Monitor and inspect plant	179.5.1	Plant to be monitored/inspected is physically identified
		179.5.2	Plant is monitored/inspected for expected operation or to detect deviations from normal operating conditions of the plant
		179.5.3	Corrective action taken is in accordance with enterprise/site procedures
		179.5.4	Appropriate personnel are notified when defects are detected
179.6	Complete documentation	179.6.1	Documentation is updated and plant problems, movements, and abnormalities and status are reported and logged in accordance with enterprise/site procedures

Range Statement

Stream: Production Plant

Field: Operations

Equivalencies: N/A

Systems, plant and/or equipment may include electrical supply switchboards, electrical motors, valves and actuators (electric, hydraulic, pneumatic and manual), supervisory, protection, alarm and control equipment, cooling water plant and equipment, filters, strainers, moisture removal devices, pressure control devices, safety devices, high and low pressure systems, pumps (motor, shaft or steam driven); oil systems may include lubricating and hydraulic and seal oil systems.

Safety standards may include relevant sections of occupational health and safety legislation, enterprise safety rules, relevant state and federal legislation, national standards for plant and Australian standards

Information and documentation sources may include verbal or written communications; enterprise safety rules documentation; dedicated computer equipment; enterprise/site standing and operating instructions; enterprise log books; manufacturer's operation and maintenance manuals; and equipment and alarm manuals

Technical and operational indicators may include stimuli (audio, smell, touch, visual), remote or local indicators and recorders, computers and alarms (visible and or audible)

Communications may be by means of telephone, two way radio, pager, computer (electronic mail), operating log (written or verbal) and public address system

Tests may include stand-by plant "cut-in" tests, motor direction checks and performance tests

Appropriate personnel to consult, give or receive direction may include supervisor/team leader or equivalent, power plant operations personnel or equivalent, technical and engineering officers or equivalent, maintenance staff and contractor staff

Test, fault finding and operating tools may include high voltage testers, proving dead equipment, power or hand tools

Operating environment may be during inclement or otherwise harsh weather conditions, in wet/noisy/dusty/hot areas or during continuous operation

Faults and abnormal operating conditions may include motor/pump/ actuator/valve/ dampers failure/malfunctions, control equipment failure/ malfunctions, loss of electrical supply to plant and equipment, loss/low cooling air/water, lubricating flow to plant/equipment, high pressure/temperature, high oil strainer/filter dp, moisture removal plant and equipment malfunctions and excessive vibration pumps/motors

Evidence Guide

Critical aspects of evidence

The knowledge and application of relevant sections of: Occupational, health and safety legislation; Statutory legislation; Enterprise/site safety procedures; Enterprise/site emergency procedures

Preparation and planning of work

Operation of operation of oil system

Operationally testing plant

Analysing plant faults

Monitoring plant operation

The knowledge of the properties of gases, their use and precautions to be taken

Context of assessment

Competency Standards should be assessed in the workplace or simulated workplace and under the normal range of workplace conditions

Assessment of this unit will be supported with documentary evidence, by means of endorsement stating type and application of equipment operated

Interdependent assessment of unit

Nil

Knowledge and Skills

A knowledge of:

Relevant occupational health and safety regulations; Relevant statutory legislation; Relevant enterprise/site safety procedures; Enterprise/site emergency procedures and techniques; Relevant plant and equipment, its location and operating parameters; Plant status; Environmental legislation; Enterprise recording procedures; Communication principles; Control and data acquisition systems; Computers and software; Supervisory, alarm, protection and control equipment; Emergency procedures; Basic motor performance; Basic pump performance; Valve and actuator types and characteristics; Oil conditioning equipment (including coolers); The system interaction with other plant and equipment external to that covered in this competency; Fire protection control systems; Introduction to power production plant; Typical arrangements of power production plant; Mathematics; Mechanics; Properties of matter; Lubrication and bearings; Compressors; Liquid pumping systems; Power plant cycle; General responsibilities for power production plant operations; Turbine lubrication and oil systems; Electrical principles; Transformers; Switchgear; Electrical protection; Auxiliary supply systems; Safe operating principles

The ability to:

Apply relevant occupational health and safety regulations; Apply relevant statutory legislation; Apply relevant enterprise/site safety procedures; Apply enterprise/site emergency procedures and techniques; Apply enterprise recording procedures; Identify plant status; Prepare plant/equipment for operation; Organise resources; Operate oil systems; Apply diagnostic and testing techniques; Identify and respond to abnormal plant operating conditions; Plan and prioritise work; Use relevant hand tools; Communicate effectively; Apply data analysis techniques and tools; Use diagrams, drawings and symbols.