



Australian Government

MSMWJ201 Use high pressure water jetting equipment

Release: 1

MSMWJ201 Use high pressure water jetting equipment

Modification History

Not applicable.

Application

This unit of competency covers the skills and knowledge required to use high pressure water jetting equipment under the supervision of a competent operator. The job may be to clean, prepare, abrade, cut or demolish concrete, steel or other plant, equipment, vessels or infrastructure.

Work will be undertaken on a worksite which may be a client's site or a site belonging to the organisation.

This work is undertaken in compliance with *AS/NZS 4233.1:2013 High pressure water jetting systems - Safe operation and maintenance*, or its authorised replacement and *Safe Work Australia Guide for Managing Risks from High Pressure Water Jetting December 2013*, its state/territory equivalent (where one exists) or the authorised replacement.

AS/NZS 4233.1:2013 High pressure water jetting systems - Safe operation and maintenance defines this work as work with:

- (a) *High pressure water jetting systems pressurised by positive displacement pumps with an output capability greater than 800 bar litres per minute.*
- (b) *High pressure water jetting operations carried out at pressures above 800 bar litres per minute and includes jetting operations involving the use of additives and abrasives.*
- (c) *Water jetting operations below 800 bar litres per minute where there is a foreseeable risk of injury to operators.*

It further defines:

High pressure water jetting systems with an output capability greater than 800 bar litres per minute and less than 5600 bar litres per minute are identified as Class A and systems with an output capability in excess of 5600 bar litres per minute are identified as Class B.

This unit covers an operator who is competent to operate under supervision. For a competent operator who is to operate independently *MSMWJ301A Operate a high pressure water jetting system* should be used.

AS/NZS 4233.1:2013 High pressure water jetting systems - Safe operation and maintenance states that 'Verification of competency or refresher training on high pressure water jetting operations shall be carried out and documented at appropriate intervals not exceeding two years to ensure the continued competency of operators'.

Competence may also be required in a range of other units of competency in order to be allowed to operate on site under supervision.

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

Pre-requisite Unit

Nil

Competency Field

Operations

Unit Sector

Surface finishing

Elements and Performance Criteria

Elements describe the essential outcomes

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

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|---|-------------------------------------|-----|--|
| 1 | Prepare for work | 1.1 | Obtain required job details as part of a team |
| | | 1.2 | Complete site access and work control requirements |
| | | 1.3 | Identify site hazards and required hazard controls |
| | | 1.4 | Select, check, load and prepare required equipment under supervision |
| | | 1.5 | Participate in toolbox meeting or similar, as required |
| | | 1.6 | Complete required pre-work paperwork |
| 2 | Complete on-site preparation | 2.1 | Check correct equipment is at job/site location |
| | | 2.2 | Check job location, scope and requirements |
| | | 2.3 | Obtain required permits/work authorities, as directed |
| | | 2.4 | Follow job-related documentation as directed |
| | | 2.5 | Check that the required quantity and quality of water is available |
| | | 2.6 | Check available waste disposal is adequate for all wastes generated by the job |
| | | 2.7 | Report any deviations from requirements to supervisor |

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|---|--|-----|---|
| | | 2.8 | Recognise and control job and site-specific hazards |
| 3 | Set up job as directed | 3.1 | Prepare worksite to comply with job and safety requirements |
| | | 3.2 | Set up and prepare water jetting equipment |
| | | 3.3 | Liaise with other work groups as appropriate to ensure safe and efficient operation |
| | | 3.4 | Establish appropriate means of communication between operators |
| | | 3.5 | Ensure hazard controls are operational and adequate |
| | | 3.6 | Check and use required personal protective equipment |
| | | 3.7 | Test emergency shut-off and request equipment be repaired if not functional. |
| 4 | Undertake water jetting job as directed | 4.1 | Start up high pressure water jetting system |
| | | 4.2 | Communicate with supervisor and any other operators as required by job |
| | | 4.3 | Operate equipment as directed |
| | | 4.4 | Monitor the job, conditions and equipment |
| | | 4.5 | Maintain required line of sight |
| | | 4.6 | Monitor hazards and activate emergency stop, as required |
| | | 4.7 | Recognise problems and resolve routine problems |
| | | 4.8 | Complete required paperwork |
| 5 | Complete job | 5.1 | Shut down equipment |
| | | 5.2 | Clean job site and equipment |
| | | 5.3 | Service and inspect equipment as directed |

- 5.4 Store equipment, as directed
- 5.5 Restock running spares and consumables, as directed
- 5.6 Report any issues or incidents according to procedures
- 5.7 Participate in debrief
- 5.8 Complete required paperwork

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance.

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

Range of Conditions

This field allows for different work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included.

Regulatory framework

The latest version of all legislation, regulations, industry codes of practice and Australian/international standards, or the version specified by the local regulatory authority, must be used.

Applicable legislation, regulations, standards and codes of practice include one or more of the following:

- *AS/NZS 4233.1:2013 High pressure water jetting systems - Safe operation and maintenance*
- *Safe Work Australia Guide for Managing Risks from High Pressure Water Jetting December 2013*
- work health and safety (WHS) legislation, codes of practice and guidance material
- environmental regulations and guidelines
- other relevant government legislation, regulations and codes
- Australian and other standards
- other relevant codes and standards
- licence and certification requirements

Procedures	All operations must be performed in accordance with relevant procedures. Procedures are written, verbal, visual, computer-based or in some other form, and include one or more of the following: • work instructions • standard operating procedures (SOPs) • Guidance Notes • temporary instructions • any similar instructions provided for the smooth running of the plant All operations to which this unit applies are subject to stringent health, safety and environment (HSE) requirements, which may be imposed through federal or state/territory legislation, and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and HSE requirements, the HSE requirements take precedence.
Site access requirements	Site access requirements include one or more of the following: • site induction • other requirements if defined by the site or client
Work control requirements	Work control requirements include one or more of the following: • permits or other authorities to enter site, commence and continue work • other requirements if defined by the site or client
Equipment	Equipment includes one or more of the following: • pumps • pump motors/drivers • hoses • guns, lances and nozzles • personal protective equipment (PPE) • other equipment, plant, tools and hazard control devices required for the job
Routine problems	Routine problems must be resolved by applying known solutions.

Routine problems are predictable and include one or more of the following:

- equipment not operating at desired conditions
- equipment malfunction
- jobs is not as described in the scope

Known solutions are drawn from one or more of the following:

- procedures
- training
- remembered experience

Non-routine problems must be reported according to according to relevant procedures.

Equipment operation

Equipment operation includes one or more of the following:

- manually on the worksite
- using local controller on the worksite
- using the control system which may be remote from the jetting equipment

Job paperwork

Job paperwork is electronic, hard copy or other format, and includes one or more of the following:

- tool storeroom records
- equipment loaded records
- maintenance/inspection records/checklists
- tag out/reports for failed equipment
- hazard controls
- work control system requirements.

PPE

PPE includes one or more of the following:

- PPE as specified in:
 - Section 4 *AS/NZS 4233.1:2013 High pressure water jetting systems - Safe operation and maintenance, or its authorised replacement*
 - Section 5 *Safe Work Australia Guide for Managing Risks from High Pressure Water Jetting December 2013, or its authorised replacement*

- medical alert card as specified in Section 9.5 of *AS/NZS 4233.1:2013 High pressure water jetting systems - Safe operation and maintenance, or its authorised replacement*
- other equipment as required

Communication Communication includes one or more of the following:

- hand signals
- radio head phones
- other means appropriate to the job/site

Hazards Hazards include one or more of the following:

- hazards from high/extreme pressure and or velocity
- hazards arising from the materials used in/generated by the water jetting job
- hose set-up and hose run
- hazards specific to the site/process
- slip/trip hazards
- PPE is unavailable or not functional
- emergency equipment is unavailable
- electricity
- gas
- gases and liquids under pressure
- structural hazards
- structural collapse
- equipment is in safe condition with hazard controls functional
- industrial (machinery, equipment and product)
- equipment or product mass
- noise, rotational equipment or vibration
- limited head spaces or overhangs
- working where the possibility of a fall is reasonably likely, in restricted or confined spaces, or in environments subjected to heat, noise, dusts or vapours, smoke or other atmospheric hazards
- flammability and explosivity
- hazardous products and materials
- unauthorised personnel
- sharp edges, protrusions or obstructions, swarf and scrap
- slippery surfaces, spills or leaks
- extreme weather
- other hazards that might arise

Hazard controls Hazard controls include one or more of the following:

- controls required by *AS/NZS 4233.1: 2013 High pressure water jetting systems - Safe operation and maintenance, or its authorised replacement*
- controls identified in the relevant permits to work
- use of PPE
- other appropriate controls consistent with the hierarchy of control

Unit Mapping Information

Release 1. Supersedes and is equivalent to MSAPMWJ201A Use high pressure water jetting equipment

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=d1287d36-dff4-4e9f-ad2c-9d6270054027>

Assessment Requirements for MSMWJ201 Use high pressure water jetting equipment

Modification History

Not applicable.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy the requirements of the elements and performance criteria and under supervision demonstrate the ability to:

- assemble and operate equipment which meets the requirements of a Class B system as defined by *AS/NZS 4233.1:2013 High pressure water jetting systems - Safe operation and maintenance* or its authorised replacement, including:
 - at least one (1) gun operation AND
 - at least one (1) of:
 - pipe cleaning
 - heat exchanger/tube cleaning
 - surface preparation
 - vessel (interior) cleaning using a cleaning head AND
 - use at least two (2) different types of nozzles/heads.

Knowledge Evidence

Must provide evidence that demonstrates knowledge relevant to their job sufficient to operate under routine only supervision and to solve routine problems, including:

- system controls required by *AS/NZS 4233.1: 2013 High pressure water jetting systems - Safe operation and maintenance*, or its authorised replacement
- possible injuries resulting from high pressure water jets and appropriate responses
- basic principles of how high pressure water jetting nozzles/jets work
- basic understanding of reaction force and its determination
- preoperational checks and set-up
- relevant communication systems, including hand signals
- types of waste generated and procedures for safe disposal.

Assessment Conditions

- Competency must be achieved before performing this work under supervision. Therefore this unit will typically be assessed off the job. Where assessment is undertaken on the job appropriate supervision and safety precautions must be provided.
- The unit should be assessed holistically and the judgement of competence shall be based on a holistic assessment of the evidence.

- While water jetting equipment meeting the requirements of Class B must be used, the plant/job requiring water jetting may be a realistic simulation of an industry plant/application/situation.
- All appropriate tools, equipment, paper work/permits and safety gear required will be available and used as required. The assessor should act as the supervisor, giving such directions as would be provided on the job. It is expected that one assessor would not observe a group larger than ten persons at the one assessment event.
- Off-the-job assessment must sufficiently reflect realistic operational workplace conditions that cover all aspects of workplace performance, including environment, task skills, task management skills, contingency management skills and job role environment skills.
- Assessment in a simulated environment should use evidence collected from one or more of:
 - walk-throughs
 - demonstration of skills
 - industry-based case studies/scenarios
 - ‘what ifs’.
- Knowledge evidence will be collected independently of the above practical assessment and may use workbooks, written assessments, interviews (provided a record is kept) or other methods.
- Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.
- Conditions for assessment must include access to all tools, equipment, materials and documentation required, including relevant workplace procedures, product and manufacturing specifications associated with this unit.
- Persons seeking verification of competence/retraining to comply with *AS/NZS 4233.1:2013 High pressure water jetting systems - Safe operation and maintenance*, or its authorised replacement must meet the same evidence requirements as above.
- The regulatory framework will be reflected in workplace policies and procedures and is not required to be independently assessed.
- Foundation skills are integral to competent performance of the unit and should not be assessed separately.
- As a minimum, assessors must satisfy the Standards for Registered Training Organisations 2015 assessor requirements.

Links

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<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=d1287d36-dff4-4e9f-ad2c-9d6270054027>