



Australian Government

MSMWJ307 Operate a hydro excavation system

Release: 1

MSMWJ307 Operate a hydro excavation system

Modification History

Release 1. Newly created unit.

Application

This unit describes the skills and knowledge required to autonomously operate a hydro excavation system which uses pressurised water and an industrial strength vacuum to simultaneously excavate soil. Work involves the safe removal of ground debris from underground infrastructure. This is a specific and limited application of the use of high pressure water jetting equipment.

This work is undertaken using a vacuum loading system and a high pressure water jetting system that meets the requirements of a Class B system as defined by *AS 4233.1 High pressure water jetting systems – Part 1: Safe operation and maintenance*, and in compliance with *Safe Work Australia Guide for Managing Risks from High Pressure Water Jetting*, its state/territory equivalent (where one exists) or the authorised replacement.

The worksite may be a client's site, a site belonging to the organisation or a public space.

No licensing or certification requirements exist at the time of publication. Relevant legislation, industry standards and codes of practice within Australia, including refresher training, must be applied.

Pre-requisite Unit

Nil

Competency Field

Operations

Elements and Performance Criteria

Elements	Performance Criteria
Elements describe the essential outcomes.	Performance criteria describe the performance needed to demonstrate achievement of the element.
1. Prepare for work	1.1 Interpret and follow job requirements 1.2 Obtain site Dial Before You Dig information 1.3 Confirm site access and work control requirements 1.4 Identify known site hazards and required hazard controls 1.5 Select, check and load consumables, equipment and personal

Elements	Performance Criteria
Elements describe the essential outcomes.	Performance criteria describe the performance needed to demonstrate achievement of the element.
	protective equipment (PPE) required for job 1.6 Communicate with utility owner to identify specified pressure to protect the underground asset 1.7 Complete pre-work documentation to job requirements
2. Use issued drawings	2.1 Confirm all drawings and drawing versions and validate against job requirements 2.2 Identify dimensions and check all equipment is appropriate for job
3. Complete on-site preparation	3.1 Confirm job scope, location and requirements with job owner or contact person 3.2 Communicate with site authorities and obtain correct work permits in accordance with site procedures 3.3 Lead toolbox meeting or similar 3.4 Read, interpret and follow job-related documentation 3.5 Define work area and confirm required exclusion zones 3.6 Confirm that required quantity and quality of water is available 3.7 Confirm available waste disposal is adequate for all waste generated by job 3.8 Recognise and control job and site-specific hazards
4. Set up hydro excavation job	4.1 Prepare worksite to comply with job, safety and environmental requirements 4.2 Set up and prepare hydro excavation equipment in accordance with equipment requirements and relevant standards 4.3 Communicate with other work groups as appropriate to ensure safe and efficient operation 4.4 Establish appropriate means of communication between operators and ensure correct positioning of personnel 4.5 Ensure hazard controls and PPE are operational and adequate 4.6 Test emergency shut-off and have equipment repaired prior to starting job if not functional
5. Undertake hydro excavation job	5.1 Start up hydro excavation equipment for safe operation 5.2 Set pressure in accordance with utility owner requirements 5.3 Operate equipment to meet job specifications

Elements	Performance Criteria
Elements describe the essential outcomes.	Performance criteria describe the performance needed to demonstrate achievement of the element.
	5.4 Monitor job, conditions and equipment and maintain agreed real-time visual and verbal communication 5.5 Monitor hazards and activate emergency stop as required 5.6 Recognise and diagnose problems and take appropriate action to resolve them 5.7 Measure and record utility location and depth
6. Complete hydro excavation job	6.1 Shut down hydro excavation equipment 6.2 Backfill or make safe any excavations 6.3 Report job completion and any issues or incidents in accordance with client/organisation requirements 6.4 Disassemble equipment when safe to do so 6.5 Clean job site and equipment and ensure appropriate disposal of all waste 6.6 Complete routine equipment inspection and servicing and store in appropriate location 6.7 Identify and action restock requirements for spares and consumables 6.8 Complete documentation to job requirements

Foundation Skills

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

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

Unit Mapping Information

Release 1. Newly created unit. No equivalent unit.

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 MSMWJ307 Operate a hydro excavation system

Modification History

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Performance Evidence

There must be evidence the candidate has completed the tasks outlined in the elements and performance criteria of this unit, and demonstrated the ability to:

- autonomously assemble and operate a hydro excavation system comprising both of the following at least once:
 - a vacuum system for the removal of debris AND
 - high pressure water jetting equipment that meets the requirements of a Class B system as defined by *AS 4233.1 High pressure water jetting systems – Part 1: Safe operation and maintenance*, including use of a pressure gun.

Knowledge Evidence

There must be evidence the candidate has knowledge of:

- existence and purpose of *AS 4233.1 High pressure water jetting systems – Part 1: Safe operation and maintenance* and *Safe Work Australia Guide for Managing Risks from High Pressure Water Jetting*
- system controls required by *AS 4233.1 High pressure water jetting systems – Part 1: Safe operation and maintenance* and *Safe Work Australia Guide for Managing Risks from High Pressure Water Jetting*
- hazards and hazard controls specific to hydro excavation activities, including:
 - physical hazards
 - stored energy hazards
 - working environment hazards, including asbestos
- environmental protection considerations for hydro excavation activities
- types of utilities and how these are identified, including but not limited to:
 - water
 - gas
 - power
 - fibre optics
 - waste water
- pre-operational checks and set-up for a hydro excavation system
- basic principles of how high pressure water jetting nozzles and water jets work
- system controls for a vacuum system
- basic principles of how the following components from the two systems work, including:

- pump
- motive power
- hoses and nozzles
- guns
- equipment variables, including:
 - hose type, size and restraints
 - nozzle type
 - pressure and flow required
- units of measurement used in drawings and their practical application for equipment selection
- graphics and symbols used on drawings
- communication systems used between operators, including hand signals
- operational parameters and limitations of equipment
- types and causes of known problems for hydro excavation and its components and corrective action appropriate to the problem cause
- importance of monitoring and controlling job conditions
- methods for monitoring job variables and the appropriate corrective actions
- types of situations that require:
 - activation of an emergency stop
 - stopping work until a situation is resolved
- procedures for:
 - raising the alarm (when, how, who to)
 - responding to injury
- routine cleaning and servicing requirements for hydro excavation equipment
- types of waste generated and procedures for safe disposal.

Assessment Conditions

Skills must have been demonstrated in the workplace or in a simulated environment that reflects workplace conditions and contingencies.

The following conditions must be met for this unit:

- use of suitable facilities, equipment and resources, including:
 - vacuum loading unit and ancillary equipment, high pressure water jetting system and other tools and materials to complete tasks specified in the performance evidence
 - safety and personal protective equipment (PPE)
 - job documentation.

Assessors must satisfy the NVR/AQTF mandatory competency requirements for assessors.

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