



STANDARD HIGH PRESSURE WATER JETTING

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1 Purpose

This document describes the standards and procedures within Hunter Water Corporation (Hunter Water) to effectively manage work with high-pressure water activities.

2 Objectives

The objectives of this standard are to ensure the safety of all personnel, including Hunter Water personnel, contractors, and the general public, working in or around the immediate vicinity of high-pressure water activities.

3 Scope

This standard applies to all Hunter Water Business Units. This standard covers the requirements associated with High-Pressure Water activities within Hunter Water.

4 Lifesavers – High Pressure Jetting

The Hunter Water Lifesavers are a set of minimum behaviours related to high-risk activities.



I will always implement controls to protect from high pressure water jetting injuries.

// Set up site to protect myself and others including the public

// Conduct daily pre-start checks on jetting equipment including pump motor, hoses, emergency stops and nozzles

// Ensure the remote control remains with the hose operator at all times

// Wear jetting PPE including high impact face shield

Sewer Shaft Jetting

// Ensure the minimum safety controls are always used including the rubber safety mat (planted by operator's foot), marking the hose with tape at the shaft joint + 1m and using nutted fittings for all hose joins

Sewer Mains Jetting

// Ensure the minimum safety controls are always used including the use of tiger tail and manhole protective grate including hose roller



5 Definitions

Term	Definition
Class B Systems	Hunter Water jetting and pressure washing equipment has been assessed as Class-B. High pressure water jetting systems are identified as Class B systems when the maximum energy produced by the system, measured in pressure volume units per minute (i.e. bar litres per minute), exceeds 5600 bar litres per minute.
Fatal Risk Standard (FRS)	The Fatal Risk Standards are a Water Services Association Australia (WSAA) initiative to collectively identify the industry fatality potential topics and identify the critical controls (i.e., “must do’s, golden rules, critical elements”), to provide clarity to workers and leaders on the controls that will prevent fatality.
High-Risk Work Permit	A permit developed to lower the risk of activities by controlling when and how the high-risk activity is undertaken may include Confined Space, Work at Height, Electrical Live Test, and Electrical High Voltage.
Manager	A person is responsible for managing a functional area of the business, including the workers within the relevant functional area. This includes, but is not limited to, Group Managers, Business Unit Managers, Departments Managers, and Project Managers. A manager is also considered a worker; however, managers may have additional responsibilities for implementing the WHS Management System and any other duties as an officer of the business.
PCBU	A 'person conducting a business or undertaking' (PCBU) is a legal term under WHS laws for individuals, businesses or organisations conducting business. A person who performs work for a PCBU is considered a worker.
Safety Shroud	A waterproof cover can withstand and sustain the maximum output pressure of the unit attached from the pressure hose to the attachment or pump outlet to protect the operator from a jet of high-pressure water if a failure occurs.

6 Roles and Responsibilities

Roles and Responsibilities can be located in the [WHSMA Manual](#).

Individual guidance booklets are in the Responsibility, Accountability, and Authority Manual [HW2021-534](#).

7 General Requirements

7.1 What is High-Pressure Water Jetting

High-Pressure Water Jetting (HPWJ) is pressuring water with a pump and blasting water through nozzles to break up and remove obstructions from sewer systems.

Pressure washing is the process of using high-pressure water to clean plants and equipment.

Jetting in Hunter Water

There are two main types of Jetting activities in Hunter Water:

- a. Sewer shaft and pipes
- b. Sewer mains and maintenance holes



Pressure Washing in Hunter Water

There are two main types of Pressure Washing in Hunter Water:

- a. Sewer Shaft (vertical access shaft) cleaning root obstructions
- b. Wash Bay activities - pressure cleaning vehicles and equipment

7.2 Determining the Class of High Pressure Water Jetting in Hunter Water

The Australian Standard AS/NZS 4233.1:2013 categorises high-pressure water processes into the following categories;

Class A systems

Pressure water jetting systems are identified as Class A systems when the maximum energy produced by the system, measured in bar litres per minute, falls in the range 800 bar litres per minute and 5600 bar litres per minute.

Class B systems

High-pressure water jetting systems are identified as Class B systems when the maximum energy produced by the system, measured in bar litres per minute, exceeds 5600 bar litres per minute.

Jetting and pressure washing activities in Hunter Water have been assessed as Class B. This requires specific controls to minimise the potential for a High Pressure Water Jetting injury.

7.3 High Pressure Water Hazards and Risks

There is potential for a severe injury if the water pressure associated with Class B equipment contacts the skin at close range. If the person receives an HPWJ injury, it can cause significant trauma and a high risk of infection.

All Hunter Water workers must carry a Medical Advice Card in person or their vehicles as described in AS/NZS 4233.1:2013. The advice card must be provided to the treating medical practitioner.

8 Key Elements – High Pressure Water Jetting and Washing

8.1 Job Planning

The first responder to a job or job planner should assess the job and assign either a Level 5 Sewer Shaft Jetter or Mains Jetter. The standard protocols for considering remote work, traffic control, difficult access, and personal threats should be considered when planning jobs. Customers should be notified if there is any disruption to the regular services.

When the Level 5 or Mains jetting work crew arrives at a job, the following steps should be undertaken:

- Review WI-008
- Notify the owner (if applicable)
- Complete the Pre-task Risk Assessment documentation (Take 5 or On Site 3 in 1)
- Clearly define and protect the work area with signage and barriers as per WI-008.

8.2 Carry out the Pre-Start Checks

Complete the Pre-start checklist as per WI-008 to ensure the equipment, including water pump, jetting equipment, and personal protective equipment, are serviceable.

Appendix A includes an example of the pre-start check sheet.



8.3 Mandatory Safety Controls

The following safety controls are mandatory and must be clearly understood, available, and serviceable including;

- Rubber Safety Mat (Level 5)
- Remote control with a stop button (Mains remote must have E-Stop)
- Emergency stops fitted to the jetting vehicle's pump motor and kerb side.
- The hose operator must be in control of the remote at all times
- Minimum of 10m of black double-braided leader hose
- Hose joins must be nutted – not quick-release
- Repairs to jetting equipment, including hoses, can only be carried out by a competent person

Mains Specific controls include:

- Safety Grate must be fitted over maintenance holes as soon as practicable
- Tiger tail hose guards must be used to minimise hose damage on sharp pipe bends
- Rake must be fitted to collect and safely retrieve the debris from mains

8.4 Jet Clean a Sewer Shaft

Complete the following steps in this order:

- Call despatch to log onto the job
- Use the GIS to review shaft location and pipe direction
- Conduct the Take-5 pre-task risk assessment (or on site 3in1 of more than 1 person)
- Set up the pedestrian and traffic controls
- Gather and fit the required PPE
- Complete the pre-start check, test-run the hose without a nozzle, and check that the remote and E-Stop are serviceable.
- Roll out the jetter hose and check the condition
- Attach it to the water supply and remove the shaft cover (consider opening other covers to avoid the surcharge).
- Mark the hose with tape to indicate shaft length (plus 1m), which alerts the operator to stop retrieving at the tape mark and to shut the pump down before recovering from the shaft)
- Insert the nozzle and hose into the shaft, ensuring the rubber safety mat (secured by the operator's foot) is in position (to prevent spray back and the nozzle from ejecting from the shaft).
- Commence jetting, manipulating the hose, and maintaining a safe manual handling posture
- When retrieving the nozzle from the pipe, stop at the tape mark, shut the pump off, and then remove it entirely from the shaft
- Commence site demobilisation as per WI-008

8.5 Jet Clean a Sewer Main

Complete the following steps in this order:

- Call despatch to log onto the job
- Use the GIS to review shaft location and pipe direction
- Conduct the Take-5 pre-task risk assessment (or on site 3in1 of more than 1 person)



- Set up the pedestrian and traffic controls
- Gather and fit the required PPE
- Complete the Pre-start Checklist
- For the first task of each shift – turn off the water and start the jetter unit using the pump ignition key and choke to ensure the batteries are charged. After checking the motor, run a short length of hose out, turn the water on, and check for clean, continuous flow, then turn it off again
- Walk the hose out to the job without the nozzle or penetrator head fitted to the hose, which will prevent injury if the pump inadvertently starts up
- Attach the penetrator head, securing the nutted fitting with spanners
- Remove the maintenance hole cover using the maintenance hole lifter and place the safety grate over the opening. Ensure the grate is fitted whenever possible to prevent persons from falling down the maintenance hole
- Mark the hose with tape at the shaft length (plus 1m) (as per level 5 jetting)
- Insert the hose and the tiger tail device (secured by rope to the maintenance hole cover) and refit the safety grate
- Locate the upstream maintenance hole and place pedestrian controls. Opening the upstream maintenance hole will enable verification that the penetrator's head has reached the through section of the pipe
- Commence jetting with the penetrator head. The jetter must maintain visual or radio contact with the 2nd man at the upstream maintenance hole. After the penetrator head has punctured the maintenance hole, check the water level, which drops. If there are large tap roots in the pipe, the root cutter may be required – **Note:** using the root cutter requires supervisor permission.
- If the nozzle head requires changing, ensure this is done under pump stop and depressurised conditions. Ensure nutted fitting are secured with a spanner
- Change to the warthog nozzle fitting to complete the cleaning
- Remove the hose from the maintenance hole stopping at the tape mark, and shut down the pump before retrieving the nozzle
- Retrieve the nozzle to ground level. Remove the nozzle and walk the hose back to the truck, trying to avoid abrasion damage to the hose
- Remove any debris from the maintenance hole using the rake. Use tools and PPE to place the debris in the rubbish bag
- Commence site demobilisation as per WI-008

8.6 Operate the Hand Held Jetting Gun/Pressure Washer

Complete the following steps in this order:

- Conduct the Take-5 pre-task risk assessment (or on site 3in1 if more than 1 person)
- Set up the pedestrian and traffic controls
- Gather and fit the required PPE, including face shield and lower leg spats, if the barrel length allows the gun nozzle to hit your lower leg/feet
- Complete the pre-start check
- Always stand clear of the water flow and be aware of the reaction force (pushback) from the gun under operation
- When the task is complete, turn the pressure washer off and safely relieve any remaining pressure in the hose/gun.

- Never under any circumstances point the gun at anyone. Horseplay is dangerous and will not be tolerated

9 Equipment Standards

9.1 Personal Protective Equipment

In addition to the standard Hunter Water clothing, Jetting operators must have available nitrile gloves, safety eyewear (face shield as required for jetting – mandatory for pressure washing), hearing protection, safety footwear (lower leg aluminium spats depending on gun barrel length), disposable facemask to protect against vapour inhalation (if applicable).

9.2 Pedestrian and Public Safety Control

Each vehicle and Mains jetter truck will carry Danger signage x 2, Traffic cones (minimum 450mm), and two extendable barrier poles (4 poles for the mains jetter truck).

9.3 Level 5 Jetting

- Emergency Stops fitted at the motor and kerb side of the vehicle
- Remote control with stop button
- Rubber Safety Mat
- Tape for marking the hose at shaft depth (plus 1m)
- 10m of black double braided leader hose fitted with the nutted fitting.

9.4 Mains Jetter

- Emergency Stops fitted at the motor and kerb side of the vehicle
- Remote control with Emergency Stop button
- Safety Gate with roller
- Tiger Trail
- Sewer maintenance hole rake
- Manhole (gattic cover) lifter
- Tape for marking the hose at shaft depth (plus 1m)

9.5 Pressure Washer

- Emergency Stop at the pump motor
- Face shield and face shield mandatory signage must be available at wash bays
- Lances or guns must be fitted with the 500-bar min-rated safety shroud and a hose restraint at the point where the hose connects to the gun.
- The length of the gun 'barrel' should be such that the nozzle strikes the ground before the operator can inadvertently direct it onto their feet or legs
- Aluminium lower leg spats should be available if the gun barrel length is short enough to drag across the operator's feet





10 Training

Hunter Water must provide RTO training in Class B Jetting Operations for all persons operating Level 5 and Mains Jetting Trucks and relevant components of the Jetting Operations course for Pressure Washer operators.

The above training will reference and include WI-008.

Records of all training must be kept while the worker is carrying out the work, and for five years after the day, the worker stops carrying out the work. These records must also be available for inspection by the regulator.

11 Related Documents

Document ID	Document Title
Assessment	Pre-Task Risk Assessment (PTRA)
Booklet	Hunter Water Lifesavers – High Pressure Water Jetting
Work Instruction (WI)	Work Instruction WI008 – Safe use of High-Pressure Water Jetting Equipment
Standard	Consultation, Cooperation, Participation and Coordination
Manual	WHSMA
Manual	Responsibility, Accountability and Authority Manual (HW2021-534)

12 Associated Regulations and Standards

Document ID	Document Title
Act	WHS Act 2011 (NSW)
Regulation	WHS Regulation 2017
Code of Practice	Code of Practice – How to manage work health and safety risks
Code of Practice	Code of Practice – Work Health and Safety Consultation, Cooperation and Coordination
Guidelines	AS/NZS 4233.1:2013 – High-Pressure Water Jetting – Safe Operation and Maintenance



APPENDIX A: PRE-START CHECK SHEET SAMPLE



High Pressure Water Jetter - Daily Pre Start Checklist

Vehicle Type / Registration		Week Commencing:
Operator Names and Initials		

Operator shall conduct a pre-start check prior to first use of each shift. Completed sheets returned to Supervisor weekly.

Mark OK with ✓. Mark fault with a ✗. Not Applicable – NA. All ✗ require a comment and notification to Supervisor.

	MON	TUE	WED	THU	FRI	SAT	SUN	Comments
1. Motor - oil and fluid levels								
2. Motor – fuel lines and gauges								
3. Water tank level and water filter								
4. Motor / Pump machine guarding								
5. Emergency Stops - motor, side, remote								
6. Hoses and connections								
7. Jetting nozzles and attachments								
8. Safety – mat, safety grate, tiger tail								
9. PPE – glasses, gloves, sanitizer, masks								
10. Public – Signs, cones, extendable poles								
11. Safety hose shroud on lance gun								
12. Other:								
Initials of person conducting the checklist								

Repairs Required	Notified to	Date repaired