


HAZARD / WORK ACTIVITY ASSESSED	High Pressure Jetters
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Hazard (something with the potential to cause harm)	Risk rating prior to control			Who may be harmed					Control Measures	Risk rating after control		
	Severity	Probability	Risk	Operator	Employee	Visitor	Public	Sub-cont		Severity	Probability	Risk
Electricity – electrocution	4	2	8	x	x				Supply cables must be positioned so as to avoid physical damage or ingress of water. Cables must be visually inspected before use.	4	1	4
Chemicals – contact with hazardous substances (cleaning agents)	3	2	6	x					Protective clothing, safety boots, safety helmet, gloves and full face visor must be worn by the operator. No cleaning agents will be introduced into the water supply without knowledge and prior notice being given to supervisor.	2	2	4
High pressure jetter – damage to pipe material	1	3	3						Recommended pressure limits should not be exceeded (see attached notes). Ensure nozzle is not at any fixed point for longer than 60 secs.	1	2	2
High pressure jetter – injury to operator, employee and / or the public	3	3	9	x	x	x	x		Only trained personnel to operate the machinery and all working areas must be cordoned off to prevent access by the general public and non-authorised personnel. Appropriate signage must be displayed. The 3m length of lead hose must be inserted into the drainage line prior to turning the Jetter ON.	3	1	3
High pressure jetter – repetitive strain to musculo-skeletal system following prolonged use	3	2	6	x	x			x	Avoid longterm exposure, following assessment of duration of task implement regular rest breaks to limit exposure time. Adopt correct manual handling and kinetic lifting techniques at all times.	2	1	2
Rigid extension – injury to operator, employee and / or the public	2	2	4	x	x	x	x		The rigid extension must be used when undertaking High Pressure Jetting within 9" diameter pipe work to prevent the jet hose from turning back on itself within the Pipe work. Those present instructed not to enter work area without operator's permission.	2	1	2
Contact with vermin / pathogens / biological waste – Leptospirosis (weil's disease) Hepatitis A&B, Polio, Legionella, Tetanus, Diphtheria	3	2	6	x	x			x	Overalls, gloves, safety boots and masks must be worn when there is a likelihood of contact with sewage. Operatives to have all necessary jabs from their doctor. ID cards to be carried that clearly state that operatives come into contact with sewage and operate high pressure water jetting units.	3	1	3

SAFETY METHOD STATEMENT

1. COSHH assessments for detergents and cleaning agents to be available before this equipment is used.
2. Water pressure machines are subject to a planned maintenance programme
3. Supplied or hired machines must be 110 volts or less, and fitted with waterproof connections.
4. Machines shall be visually inspected, together with their leads and hoses, by operators before they are used.
5. The check shall look for signs of physical damage or poor electrical safety.
6. Supply leads must be positioned so as to avoid physical damage, ingress of water, or interference from passing traffic.
7. Electrical supplies should be protected by 30mA/30ms residual current devices.
8. PPE will be worn by operatives as required by operating instructions and applicable COSHH assessments.
9. Management to ensure that only trained operatives use these machines.
10. Clear operating instructions will be provided and readily available.
11. Limit the stationary time of the nozzle to a maximum of 60 seconds (see attached sheets)

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Severity	Probability	Risk Rating		
1 No Injury, property damage	1 Very Unlikely	Severity X Probability = 1 to 5	Low	Y – acceptable risk, work can start
2 Minor Injury	2 Unlikely	Severity X Probability = 6 to 14	Med	Y or N – may need further consideration
3 +3 Day Absence	3 Likely			
4 Major Injury	4 Very Likely	Severity X Probability = 15 to 25	High	N – Unacceptable risk Do not start work
5 Death	5 Virtually Certain			

SITE GUIDANCE NOTES FOR SEWER JETTING

These notes summarise the key points for contractors working on site. For full details, see the **Sewer Jetting Code of Practice** published by WRc, June 1997

Care of equipment

- Inspect and replace worn nozzles to maintain efficiency of jetting operation.
- Maintain pressure relief valves and pressure regulating valves on a regular basis in accordance with the manufacturer's instructions.

Sewer ownership

- Establish the ownership of the sewer or drain before commencing work.
- If you experience problems during jetting (e.g. blockage cannot be cleared at agreed pressures, times), refer back to the pipeline owner.

General points for all jetting and cleaning operations

- Carry out unblocking and cleaning work, where possible, working from the downstream manhole.
- Restrict carry-on flows (stank off) to prevent coarse material passing downstream. Fine material which has been re-entrained can pass through the sewer or drainage system.
- Take care when releasing the hose/nozzle into the manhole, as the jetting equipment itself can cause impact damage to manholes and sewers.
- For any type of jetting work, limit the stationary time of the nozzle to a maximum of 60 seconds
- When working for an extended duration at a single location in a sewer, move the nozzle backwards and forwards so that the nozzle is not at a fixed point for any longer than 60 seconds.

Methods of working for cleaning operations

- Select the appropriate size of the machine for the cleaning operation
- Maintain a steady rewind rate of 100 mm to 200 mm per second for effective cleaning.
- Use equipment appropriate to the scale of the operation for the removal of debris.

Methods of working for unblocking operations

- **Select the appropriate equipment for the unblocking operation.**
- For Standard and High Efficiency nozzles, use the pressure limits below.
- For all other nozzles, the maximum pressure is 340 bar / 5000 psi
- In situations where jetting is unsuccessful, refer to the sewer owner

Pressure limitations for Standard and High Efficiency nozzles

Obtain any information on the material and structural condition of sewer or drain

For all house drains and if the material or condition details are not available for sewers and highway drains, then:

- Do not exceed 130 bar / 1900 psi ; except in areas where brick, masonry or pitch fibre may be present where 100 bar / 1500 psi must not be exceeded

If sewers/drains are known to be in poor structural condition, then use the limits in the table below:

Structural condition grade	Typical defects	Maximum pressure (bar/psi)
3	Fractures, some deformation, bricks displaced	130/1900 except for brick, masonry, pitch fibre (100/1500)
4	Badley deformed, multiple fractures, numbers of bricks missing.	80/1200
5	Collapsed, extensive areas of missing fabric, missing invent.	80/1200

If sewers/drains are known to be in good structural condition (grade 1 and 2), then use the limits in the table below:

Pipeline Material	Maximum pump pressure (bar/psi) for materials in good condition
Asbestos cement	340/5000
Brick/masonry	100/1500
Clay	340/5000
Concrete	340/5000
Pitch fibre	100/1500
Plastic (PE, PP & PVC)	180/2600