



Hydrojetting Safety



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INTRODUCTION

High pressure water jet cleaning (hydrojetting) is a very efficient cleaning method. However, because of the very high pressures involved, it is also potentially dangerous if used incorrectly. It is, therefore, necessary that personnel required to operate high pressure water jet cleaning equipment are trained and competent in the correct use of the equipment, before using the equipment.

This procedure applies to the use of hydrojetting equipment operating at pressures at or less than 200 bar (20,000 kPa or about 2,900 psi).

At pressures above 200 bar, the procedures described in "*Use of High Pressure Water Equipment*" (GM-11-031-39) shall be followed.

WARNING

ANY PERSON STRUCK ON THE SKIN BY A HIGH PRESSURE WATER JET SHALL BE MEDICALLY ASSESSED IMMEDIATELY. THE INJURY MAY BE MORE SEVERE THAN IS APPARENT, AND COULD BE INTERNAL.

LARGE QUANTITIES OF WATER MAY HAVE PUNCTURED THE SKIN, FLESH AND ORGANS THROUGH A VERY SMALL HOLE THAT MAY NOT EVEN BLEED.

1. EQUIPMENT

All high pressure water jetting (hydrojetting) cleaning equipment shall be fitted with actuating devices that require positive effort by the operator, (hand or foot) to keep the supply valve open. In addition, the following requirements for hoses shall, where practicable, be observed:

- Hoses used for high pressure cleaning shall have a bursting pressure at least 2.5 times that of the intended operating pressure.
- Hoses shall be tagged to indicate working pressure, date brought into service and predicted life expectancy.
- Hoses with exposed reinforcing wire shall be disposed of or repaired immediately.
- Damaged or faulty equipment shall not be used. It shall be tagged OUT OF SERVICE and repairs organised.
- Care shall be taken when laying out hydrojet hoses on the ground to avoid constant pulsation damage, especially from corners.
- Couplings shall be of such a design that they are unable to loosen or be accidentally dislodged during operation.

2. HAZARDS

When high pressure water jet cleaning (hydrojetting) is in progress, the particular hazards are:

- piercing of the skin by the water jet,
- flying debris from the cleaning operations,
- release of hazardous materials into the atmosphere from dislodged deposits,
- noise of the cleaning operation that may damage hearing or drown out the sound of an alarm,
- difficulty in breathing in confined space due to the high water vapour content in the air,
- electrostatic charging of nozzles and lances.
- reactive force generated by the discharge of water, creating a backward thrust against the nozzle holder.

3. PRECAUTIONS

The following safety precautions shall be observed when high pressure water jet cleaning (hydrojetting) is in progress:

- A Responsible Person shall be designated for controlling all work involving hydrojetting.
- All operating areas shall be barricaded off with suitable barriers to prevent accidental entry of unauthorised personnel. Signs should have wording to the effect - **DANGER HIGH PRESSURE WATER BLASTING, KEEP OUT. AUTHORISED PERSONNEL ONLY.** Red and white bunting or tape and signs are to be used.
- Entry into the area must be authorised by the Responsible Person.
- All high pressure equipment shall be earthed before work starts and during operation, to prevent the development of electrostatic charges between the lance and the workplace.
- Appropriate personal protective equipment shall be worn when operating high pressure water jet equipment. The PPE shall include:
 - safety helmet,
 - goggles and face shield,
 - PVC full protective overalls, or PVC jacket and PVC trousers,
 - suitable gloves, and
 - safety footwear.
- All high pressure equipment shall be isolated and depressurised before being left unattended.



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- Correct safety instruction shall be provided before the use of any hire equipment being used for high pressure water cleaning.
- Repair and maintenance shall be in accordance with manufacturer's standards.

4. USE IN A CONFINED SPACE

When hydrojetting is to take place in a confined space, a Confined Space Entry Certificate, as described in *Work Permit System (GM-11-031-51)* is to be obtained, and the precautions described in *Confined Spaces (GM-11-031-52)* are to be followed, in addition to the precautions listed in this procedure.