

Great Western Painting

Hydro-blasting

HYDRO-BLASTING

29 CFR 1926.302 Power-operated hand tools.

Hydro-blasting:

Hydroblasting uses the action of water under extremely high pressure to clean surfaces. Hydroblasting is used for tank, vessel and pipe cleaning as well as surface preparation. Hydroblasting equipment may be powered by internal combustion engines (diesel) or electricity. The size of the equipment can vary from small portable units to the size of a tractor trailer. The pressures are enormous up to 40,000 psi (Ultra High Pressure).

The advantage of hydroblasting over abrasive blasting is that it can more safely be used in hazardous areas where a spark could cause an ignition of gases or other flammable substances.

While dust is certainly not a problem with hydroblasting, consideration must be given to the disposal of waste water if it is contaminated with toxic or hazardous materials.

Training:

Prior to performing hydro-blasting work, employees must be trained on the hazards (including penetration of the skin by high pressure water), operating procedures, and maintenance of hydro-blasters.

Training must include a demonstration of the cutting action of the high pressure water and of its ability to cut and penetrate the skin. This live demonstration will emphasize the potential hazard to the human body by actually cutting through a piece of lumber, concrete block, or rubber boot.

Because of the infinitely variable uses for hydroblasting and the combinations of hydroblasting equipment and the inherent dangers involved with hydroblasting operations, all hydroblasting operators must have received training on each type of equipment used. Only authorized personnel may operate hydroblasting equipment.

Obviously, if an accident should occur and water penetrates the skin, medical attention must be given immediately.

Information and training also will address, besides the tremendous force of the water, hazards also include shock and electrical hazards, noise hazards, chemical release hazards, slip hazards, fall hazards, kick-back hazards, and visibility hazards.

At a minimum, a hydro-blasting team will consist of a pump operator and a nozzle operator.

Personal Protective Equipment (PPE):

All employees performing hydro-blasting work should wear, at a minimum, waterproof body protection, eye protection, head protection including full face shield, waterproof foot protection with steel toe caps, appropriate hand protection, and hearing protection. Depending on circumstances, metatarsal protective boots may be required.

Hydro-blasting Permits:

A Pre-Operational, Operation, and Post-Operation Permit will be developed by the site (or the contractor performing the work) that contains, at least, the below information:

1. Job Description and equipment being cleaned.
2. Precautions taken to protect electrical equipment.
3. Maximum operating pressure.
4. A list of qualified personnel.

Establishment of a control zone:

A control zone will be established to protect personnel when approaching all ends of the equipment being cleaned. The control zone will be identified by barricades and signage.

Equipment and Procedures:

1. The operator will inspect all hydro-blast equipment prior to use for defects, proper fluid levels, filters, and properly sized/rated fittings. This inspection will cover the high pressure unit, hoses and fittings. **Defective equipment will be tagged out of service and not used.**
2. All blast cleaning nozzles must be equipped with an operating valve (on the gun or foot pedal) which must be held open manually and **always under control of the operator.**
3. Objects to be cleaned will never be held manually.
4. The minimum total length of a hydro-blasting gun (hand-operated control valve, lance and nozzle resembling a gun layout) will be 66 inches from the shoulder pad to the nozzle.
5. A properly sized anti-reversal device (stinger assembly attached to a nozzle to prevent it from turning around inside a pipe or large tube) will be used throughout the task. The combined length of the hose connection, stinger, and nozzle will be a minimum of 1.5 times the diameter of the pipe being cleaned unless the pipe be cleaned has a "T", then the combined length will be 3 time the diameter of the largest pipe.

6. Moleing device or lance will require a minimum 2 feet end identification when a pipe flange is available. If no flange or other means to secure the anti-reversal device is used, the hose/flange will require a 2 feet end identification marking and a 4 feet end identification marking of a different color or different pattern.
7. A hydro-blasting system is not to be operated above the lowest working pressure (40% of the burst pressure) of any of its components.
8. All hydro-blasting must be completed from a stable work surface.
9. When operating hydro-blasting equipment, no ladders, step stools, benches, etc. are to be used. Approved scaffolding or platforms that are job specific may be used.

System Shut Down Events:

The system will be shut down and depressurized any time one of the below events occur:

1. The barricade is violated.
2. The equipment malfunctions (special attention should be given to the dump control valve).
3. Repairs need to be made.
4. The system is to be left unattended.