Protect Yourself

Personal Protective Equipment (**PPE**) is necessary for all high pressure water blasting jobs. Although specific jobs may require additional protection, here are the basics:

- Full face and eye protection shield
- Waterproof clothing, fully covering body and arms
- Hand protection if necessary
- Foot protection—waterproof with steel toe caps (High top CSA Rated)
- Hearing protection—most high pressure water systems exceed safe noise levels
- Respiratory protection—when necessary, particularly in confined spaces

PPE will not completely protect you from high pressure water impact, but may decrease the extent of an injury.

Doing the Job

When you set up your work area, make sure you define the area limits. High pressure water blasting is best done in a water jetting area.

During startup, make sure each member of the team is in position, direct the nozzle at the work piece, and hold the lance or gun securely. If you suspect there may be a problem (e.g., the water flow does not shut off when the trigger or foot pedal is released), stop the work.

At any time during the job, stop work if:

- You notice leaks or damage.
- There is a change in conditions or hazards.
- There is a plant or work emergency alarm.
- Work is not being done safely.

Additional Important Points to Work By:

- Always use the minimum pressure required for the job.
- Never leave a pressurized system unattended.
- Never hold objects in your hands while cleaning them.
- Use equipment only for its intended purpose (e.g., never use a hose to support your weight when climbing in or out of a confined space).

Maintenance

Never work with damaged equipment. Replace or repair anything that is damaged or worn. Remember—always depressurize the system before making repairs.

Use the right tool for repairs (e.g., do not use adjustable tools like crescent wrenches or pliers as these may damage equipment). Make sure all pieces on the system fit and work together properly. Never use makeshifts. Have equipment overhauled and checked for correct functioning at the manufacturer's recommended intervals.

For more information, refer to current applicable Occupational Health and Safety Legislation.

The Alberta Construction Safety Association's mission is to provide quality advice and education for the construction industry that will reduce human suffering and financial costs associated with workplace incidents. This brochure is part of a series, ***The Toolbox Brochures***, which are available on a variety of safety topics. If you have any questions or comments please contact:

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High Pressure Water Blasting

Making Safety A Way Of Life

The Alberta Construction Safety Association

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It's the People that Count

Each worker involved in a high pressure water job must be physically and mentally fit. Everyone has an important role to play.

If you're working in or around a high pressure water blasting area, never approach a water jet operator while the jet is operating. Wait until the jet is stopped and you are certain the operator sees you.

High pressure water blasting has the potential to be very dangerous. Always use safe work practices and procedures, wear appropriate PPE, and be alert at all times on the job.

A Powerful Force

Water is one of nature's most powerful forces, and one of man's most powerful tools. From drinking water to rain, water is an integral part of life. Most people view water as harmless, yet some industrial uses of water can be highly dangerous if not used correctly.

Hand lancing is one method of high pressure water blasting, and is often used in refineries and petrochemical plants. It can be used for removing unwanted residue from surfaces, or for cutting through materials like steel and concrete.

Severe Consequences

Water blasting utilizes extremely high pressure. The jet of water is usually in the 10,000 psi pressure rate, but can exceed 60,000 psi (car washes are about 1,200 psi). In fact, the velocity of water at nozzle tip can exceed that of a bullet coming out of a gun.

When injuries occur with high pressure water, you can count on them being severe. Along with the physical damage caused by the blast, your body is injected with many harmful bacteria. Unless immediate medical care is initiated, serious infection will occur.

The high pressure blast can cut through skin, ligaments, and bone in one quick motion, potentially resulting in the loss of a body part. If injected into more vulnerable parts of the body like the chest, abdomen, or head areas, death may be the final result.

Other hazards with high pressure water blasting:

- The combination of water and residue may create dangerous vapours.
- Slips and falls may occur on wet or frozen surfaces.

Confined Space Hazards

Hand lancing in confined spaces should only be used when no other methods are available.

In a confined space you may be dealing with:

- Hazardous atmospheres.
- Limited space for lance control.
- Restricted space.
- Poor lighting.
- Limited entry and exit points.
- Poor communication with fellow workers.
- Poor footing and uneven surfaces.
- Difficult rescue of workers due to the design of the confined space.

Training

Operating a high pressure water blaster requires detailed training, including safe work practices and procedures. If you have not received specific training, you are not qualified to use this equipment. You will be a danger to yourself and others.

Once you are trained, you must demonstrate your knowledge and gain experience under the supervision of an expert operator before you do the work on your own.

Job Planning

Start a water blasting job with adequate pre-job planning. Each type of cleaning or cutting operation should have specific written work procedures. The crew should meet before performing the job to discuss potential hazards, environmental issues, and safety standards. All workers in the area must agree on a code of signals. Checklists are useful to ensure that everything is in place and working properly.

Before You Start

Before any work starts, erect warning barriers and signs—outside the range of the jet.

Before you start the job, ensure that everything is working correctly and in the right place.

Hoses—Arrange hoses so they will not create a tripping hazard. Check them for damage, wear, or imperfections. It's important to keep an eye on hoses throughout the job. Remember to protect hoses from being run over or crushed.

Nozzle Tips—Before installing the nozzle tip, start the pump and flush the system completely. Inspect nozzle tips for damaged or plugged jets. Nozzle tips must be completely open. (Ensure the unit is shut off and disconnected before you install the nozzles.)

Starting the System—When you start the system, increase pressure slowly and inspect for leaks and/or faulty components.