

Operational Alert's inform Signal Mutual Members of serious incidents within the Mutual which resulted in permanent disability, death or a significant near miss. If you have similar operations, please share this Operational Alert with operation managers, supervisors, equipment operators, and all affected employees. It is imperative that management, at all levels review their operations for similar hazardous conditions or acts and their controls.

INCIDENT: PRESSURE WASHING

SUMMARY

Pressure washing is accomplished in a variety of very different applications in the marine preservation environment. But no matter what pressures an operator may be working with, hazards can dramatically impact the operator and those working in the area. **Across the Mutual, from January 2019 thru June 2021, there have been 20 serious accidents, including one fatality, associated with regular, High-Pressure, and Ultra High-Pressure Water Washing.**

Pressure washing can expose the operator and other workers in the area to serious risks from contact with high-pressure water, uncontrolled high-pressure hoses, and in some cases hot water. Injuries can be serious due to the associated high pressure and include but are not limited to fatalities, loss of body parts, loss of eyesight, deep wounds, burns and infections from contaminated water, and debris being injected under the skin.



RECENT INCIDENTS

1. Operator sustained 2nd-degree burns when a hose crimp failed on a hot water pressure washer being used by another Operator.
2. Painter was pressure washing barnacles off a vessel and something entered their eye causing an acute eye injury.
3. Painter was pressure washing when the nozzle broke off causing the gun handle to strike the faceshield resulting in a cheek injury.
4. Ship Cleaner aimed a pressure washer at their calf resulting in a deep laceration that became infected.
5. Diver aimed a pressure washer at their hand causing a finger laceration.
6. Painter used too much pressure while pressure washing a bridge causing them to fall backward and injure their back.
7. Ship Fitter aimed a pressure washer at their foot while washing a vessel deck causing a foot laceration and cellulitis.
8. Carpenter aimed a pressure washer at their foot causing a tear to their work boot and a foot laceration.
9. Painter was walking backward while washing a barge deck and aimed a pressure washer at their foot causing toe lacerations.
10. Water Blaster operating a lifting basket was struck by high-pressure water being used by a co-worker to clean a vessel. Both employees were in the lifting basket. This resulted in a fatal injury.
11. Tank Cleaner was pressure washing when the gun broke off the hose. The hose whipped around resulting in abdomen lacerations.



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12. Water Blaster lost control of a pressure washer when it became stuck in the cargo tie-down resulting in a high-pressure foot laceration and cellulitis.
13. Lead Mechanic was pressure washing a barge when the hose ruptured resulting in a high-pressure hand laceration.
14. Leadman was changing the end of a pressure rifle and accidentally activated the high-pressure water resulting in hand lacerations.
15. Scaffold Builder lost their grip on a pressure washer resulting in a high-pressure injection into their finger and hand lacerations.
16. Yard employee lost their grip on a pressure washer when the hose twisted and increased the pressure. The toggle switch accidentally activated and high-pressure water struck their hand resulting in bruising.
17. Gear-man was pressure washing a hustler when a crimp failed causing hot, high-pressure water to spray their thigh.
18. Dive Tenderer involved in a keel inspection was struck by high-pressure water being used by a worker to remove barnacles. This resulted in elbow bruising.
19. Painter aimed a pressure washer at their arm causing high-pressure water to be injected into their arm muscle.
20. Water Blaster turned on a UHP nozzle with their left hand and the water lacerated their left thumb.



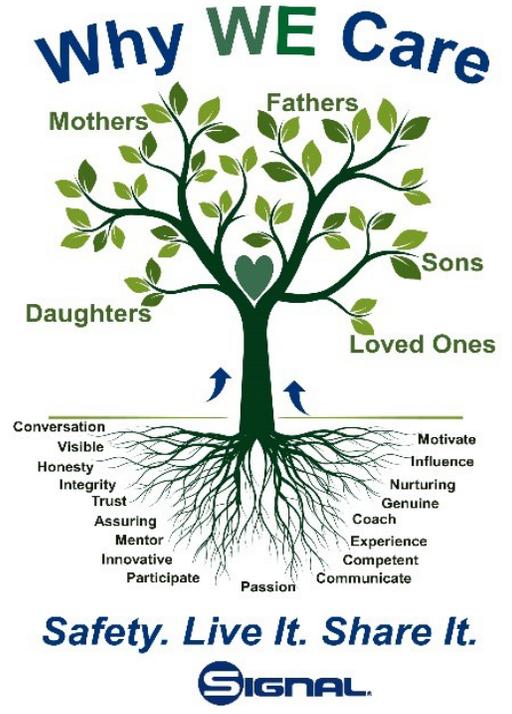
CONSIDERATIONS/PRECAUTIONS

- Know and follow the instructions in the equipment owner's manual.
- All equipment should undergo regular preventive maintenance and be inspected and tested prior to use. Before turning on the equipment, all parts, including hoses and connections should be inspected. Specifically look for hose, nozzle, lance, and connection damage.
- Operators should be trained in the proper use and inspection of the equipment and demonstrate competency. Operators should test pressures, inspect tips/fittings, inspect PPE, complete a system flush, and check the system for leaks.
- Appropriate PPE, including head protection with face shield, eye protection, hearing protection, appropriate clothing, cut-resistant and waterproof gloves, shin guards, safety boots with steel toe and metatarsal guards, etc., should be worn as needed to mitigate risk. If working at height, ensure fall protection is implemented.
- Never wash off PPE, yourself, or others with the gun.
- Pressure washers may be gas powered, so a fire extinguisher may be needed in the operating area.
- Identify the condition and type of shutoff control valve (e.g., tumble box).
- Ensure that the nozzle tip size is correct for the pressure and flow and that there is no cross-threading. Never remove the gun tip while spraying.



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- Use barricades with signage to control the area to prevent personnel not involved in the process from getting into harms-way. Ensure no one can walk through the path of the spray.
- A job briefing should be held before work begins and include a reminder about the hazards of being struck by high-pressure water and never pointing the nozzle at oneself or others.
- Watch for open electrical connections or damaged wiring where water intrusion can lead to shock.
- Never attempt to push or move objects with spray from a pressure washer. The strong spray can propel objects (i.e., rocks, paint chips, debris) which can strike and injure others or property that are close by. Use barrier guards when needed.
- Safety devices should be verified in place and functional before use. **Never** tamper with the trigger to keep it in the on position (e.g., taping or zip-tying).
- A line of communication should be established by the pump operator (applicable equipment) and the lance operator, and the pressure should never be increased unless requested by the lance operator.
- Spray wands should be secured (not held by hand) when working in an elevated basket and the basket is being repositioned (i.e., secure the wand while moving to a new location to avoid the potential of spraying accidents associated with jostling).
- Do not leave spray wands that are under pressure unattended. Physically secure the wand in place or ensure someone else can always maintain personal control while it is not in use. Never operate alone.
- Ensure the pressure washing system is properly depressurized after use.



ADDITIONAL INFORMATION

- The strong spray from a pressure washer can cause serious wounds that might first appear minor. Wounds that appear minor can cause a person to delay treatment, increasing the risk for infection, disability, or amputation. Contaminated water sources can further complicate the treatment of high-pressure water wounds.
- When operating Ultra High-Pressure Equipment (i.e., 30k PSI and above) there is a risk of hydraulic fluid injection due to the high-pressure hydraulic hoses. Inspect all hoses and fittings daily and replace at the first sign of wear or damage.
- The seriousness of high-pressure injection injuries is generally underestimated. The potential for serious injury should be considered with any device that produces greater than 100 pounds per square inch (PSI) of pressure.
- Persons who have high-pressure spray wounds are urged to get immediate medical attention.
- A medical professional might X-Ray the injured area, provide tetanus shot and antibiotics, or make a referral to a specialist.

Whenever uncertainty, confusion, doubt exists, use:
S.T.A.R
 (Stop-Think-Act-Review)

**Remember, the next person harmed could be you or someone's
 Mother, Father, Daughter or Son.**

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