

Hazard Review

- **Absorption (chemical)**
- **Awkward postures**
- **Caught in/on/between; pinch points**
- **Electrical**
- **Fire/explosion**
- **Flying object; struck by**
- **Forceful exertions**
- **Hearing Loss**
- **Ingestion (chemical)**
- **Inhalation (chemical)**
- **Injection (chemical)**
- **Repetition**
- **Skin contact (chemical)**
- **Slips/falls**
- **Striking against**
- **Vibration**

Related Safe Work Practice

- **Fuel Safety**
- **Hazardous Substances**

Required Personal Protective Equipment

- **Protective clothing (rain suit)**
- **Protective eyewear**
- **Rubber gloves**
- **Work boots**
- **Hearing Protection**

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Issued:	5/18/01, Revised 10/17/07, 2/10/2015

This safe work practice addresses the hazards of power washing. This SWP is dedicated to helping you avoid an injury or illness from known hazards. We advise you to follow these recommendations.

The known hazard and potential injury or illness related to power washing based on RPD injury and illness data include:

Known Hazard	Potential Injury, Illness
Chemical Hazards	
Inhalation (chemical)	Inflammation of the lungs, respiratory failure, death
Skin contact (chemical)	Burns, allergic reaction, dermatitis
Absorption (chemical)	Irritation, overexposure
Injection (chemical)	Overexposure
Ingestion (chemical)	Overexposure
Physical Hazards	
Flying object; struck by	Laceration, cut, puncture, foreign object in eye, abrasion
Slips/falls	Bruise, contusion, sprain, strain, fracture from fall and impact
Striking against	Laceration, puncture, abrasion
Caught in/on/between; pinch points	Crush, amputation
Electrical	Shock, burn, cardiac arrest, death
Ergonomic Hazards	
Forceful exertions	Back strain, cumulative trauma disorder, physical stress
Repetition	Pain, impairment of bodily capacity, cumulative trauma disorder
Vibration	Swelling, inflammation

All tasks require that you:

- Use the equipment in accordance with the guidelines set forth by the manufacturer. This includes following all signs and labels, and reviewing any manufacturer’s operating manuals.
 - If the instructions provided in the operating manual conflict with this SWP, then follow the instructions in the manual. The manufacturer’s instructions prevail over this SWP.
- Review the safety data sheets (SDSs) for each chemical used and follow all instructions contained therein.
- Train on this SWP and those listed above as related. Training on SWPs must be completed before initial assignment. It is also recommended that you complete refresher training every two years.

You are advised to read and follow this SWP and any related SWPs.

BEFORE

1. Complete required training. This includes:
 - A review of the manufacturer's operating manual.
 - Training on this SWP and those listed as related. Both must be completed before the initial assignment and every 2 years thereafter.
2. As the operator, you must inspect any equipment prior to each use.
 - Check for worn, loose, or damaged hoses or other parts.
 - Remove excessive dirt, especially around the muffler and recoil starter.
 - Look around and underneath the engine for signs of oil or gasoline leaks.
 - Check that all shields and covers are in place, and all nuts, bolts, and screws are tightened.
 - Check the engine oil and fuel levels. Running the engine with a low oil level can cause engine damage.
 - Check the air filter. A dirty air filter will restrict airflow to the carburetor.
 - Never exceed the factory pressure or temperature rating of the system. Be sure all accessory equipment and system components used will withstand the pressure developed.
 - Ensure that all machine safety decals are kept clean and legible, replace any decals that become damaged, lost or painted over.
3. Wear Personal Protective Equipment. Always wear all personal protective equipment specified to prevent injury from blowing or ricocheting rocks, glass, wire, and other debris. This includes hearing protection to protect you from the sound of the machine.
4. Inspect the work area. Remove debris such as glass and wire that could cause damage if blown.
5. Use caution when connecting the high pressure hose.
 - The motor must be OFF before connecting the high-pressure hose.
 - When you connect the high pressure hose, test the connection by tugging on it slightly, to be sure the hose is securely connected.
 - Use only those hoses and nozzles specified by the manufacturer.
 - High pressure hoses may only be extended by a single extension hose. The extension hose may not exceed a maximum length of 20 meters (60 feet). Longer extensions increase the likelihood of a disconnection or break in the hose.
6. Use caution when connecting to the water supply.
 - The water supply hose must be at least 6 meters (18 feet) in length, and the temperature of the feed water may not exceed 70° C (158° F).

7. Fuel the unit safely.
 - Always stop the motor and allow it to cool for at least two minutes before filling up with fuel.
 - Avoid spilling fuel. Use gasoline cans with a safety nozzle to prevent spillage. If no nozzle is available, use a funnel.
8. Use caution when starting up the machine.
 - Check that the oil level is between the min. and max. mark on the dipstick.
 - When the motor is hot, check that the max. working pressure does NOT exceed the allowed max. pump pressure. This can be taken from the pressure gauge and must not exceed 160 bar.
 - Allow the engine to warm up for a few minutes before turning the water on.
9. **Before use, do not:**
 - Use the unit until it is in proper working order.
 - Start machine unless you have the trigger gun or wand assembly completely under your control. If left loose the gun or wand assembly could recoil and damage property or cause injury to the operator.
 - Operate the machine where combustible fumes, dust, or other flammable material may be present.
 - Strain the hose with knots or sharp bends as this may cause bursting.
 - Adjust the safety valve. The high pressure pump is equipped with a safety valve, the adjustment of which must not be changed.
 - Overfill the fuel tank. If fuel spillage occurs, do not start the engine before cleaning up and neutralizing any spilled fuel.
 - Smoke or use other ignition sources in the vicinity of the unit while fueling.

DURING

10. Keep the spray lance under control. Always hold the spray handle and spray lance with both hands when working.
11. Be cautious of where you spray. Never direct the water jet at people, animals, or electrical installations. **Stand at least one meter (3 feet) from walls, buildings, and other solid objects being sprayed.**
12. Secure the spray handle during breaks. During work breaks, secure the spray handle by rotating the safety lever into position 0. This will prevent inadvertent start-up.
13. Be mindful of the motor protection device. The motor is fitted with a protection device to stop the motor in case of insufficient oil level. If the motor suddenly stops, check oil level, refill the motor with oil as needed, then restart normally.
14. Stop the engine safely.

- In an emergency, stop the engine.
 - To stop the engine in an emergency, simply turn the engine switch to the OFF position.
- Under normal conditions, use the following procedure.
 - Move the throttle lever to the SLOW position.
 - Turn the engine switch to the OFF position.

15. Re-check the hose connections. Check hose connections and hose if the unit is stopped for several minutes or longer before starting again.

16. During use, do not:

- Use the equipment in a confined area. Exhaust gas contains poisonous carbon monoxide. Avoid inhalation of exhaust gas. Never run the engine in a closed garage or confined area.
- Put hands or fingers over the spray tip while in operation. Never use your hands to stop or detect leaks.
- Let the machine idle. If you don't have water running through the nozzle, the engine will overheat.
- Touch the muffler. The muffler becomes very hot during operation and remains hot for a while after stopping the engine. Be careful not to touch the muffler while it is hot.

AFTER

17. Empty water out of the machine. Never leave the machine without first emptying it of water, not even for brief periods. Empty the machine as follows:

- Remove the feed and high-pressure hoses off and empty them of water.
- Start the pump and run it until empty of water.

18. Let the engine cool. The muffler becomes very hot during operation and remains hot for a while after stopping the engine. Let the engine cool before storing it indoors.

19. Always remove the switch key and/or remove spark plug wire(s) to prevent accidental start-up before performing any machine service.

20. Immediately report any injuries to your supervisor. Fluids under high pressure spray can be nearly invisible and can penetrate the skin and cause extremely serious injury.

- Notify your supervisor and seek immediate medical attention if any fluid appears to have penetrated the skin. Do not treat as a simple cut. Be sure to tell the doctor what fluid may have been injected.
- Bring the fluid's SDS with you to the doctor.
- For treatment instructions, have your physician call the National Poison Control Network at (412) 681-6669.

21. Immediately report any problem or deficiencies you notice during your shift. Do not wait until the end of your shift to address a serious safety issue. If the problem is serious, make it your responsibility to have the equipment removed from service and have it tagged "out-of-service" if necessary.

For any questions, please contact EHS at 415-831-2780.

References:

1. Aaladin Cleaning Systems Installation, Operation, and Troubleshooting Manual, no date.
2. Job Analysis for 2708 Custodian, Cleary & Associates, July 28, 2010.