

# EPA Guidelines

## Pressure water-blasting activities

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*EPA 079/03: This guideline replaces EPA Technical Bulletin No. 16, 'Pressure water-blasting activities' (July 2000), and provides information on strategies and techniques to enable operators of pressure water-blasting equipment to comply with the general environmental duty (refer below) by preventing pollutants generated by their activities from entering the environment. This advice also applies to any cleaning process that involves the addition of any solid material to the cleaning water to act as an abrasive.*

### Introduction

The *Environment Protection Act 1993* (the Act) requires everyone to adopt a general environmental duty whereby:

*25(1) A person must not undertake an activity that pollutes, or might pollute, the environment unless the person takes all reasonable and practicable measures to prevent or minimise any resulting environmental harm.*

Environmental harm is defined in the Act as:

*5(1) . . . any harm, or potential harm, to the environment (of whatever degree or duration) and includes an environmental nuisance.*

The use of water-based pressure cleaners to clean the exterior of buildings, structures or paved areas has the potential to create an environmental nuisance or harm, unless the wastes produced from the cleaning operation are managed properly.

The sources of pollutants arising from the use of pressure water-blasting techniques include:

- chemicals and other additives used in the cleaning solution
- materials removed from the cleaning surface (including dirt, oil/grease, paint sludge and bird faeces)
- compounds produced as a result of reactions between the cleaning solution and the materials removed from the face of the building or structure
- mains water containing chemicals such as chlorine.

It is important that these pollutants are prevented from entering the environment.



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Through licensing and the setting of standards, the Act provides for the regulation of activities that have the potential to cause significant pollution of the environment. It is a requirement under section 36 of the Act for persons undertaking a prescribed activity of environmental significance to obtain an environmental authorisation in the form of a licence (see Appendix 1).

Pressure water-blasting that involves the use of any solvents, surfactants, acidic or caustic solutions, or the production of paint sludges and residues or any other materials listed in Part B of Schedule 1 (see Appendix 1), may require a licence for activities producing listed wastes. The addition of any powdered material or grit to enhance the cleaning process will require a licence for abrasive blasting.

These guidelines should not be considered as the only possible way of complying with the general environmental duty associated with pressure water-blasting activities. In situations where it is not practicable or possible to follow these guidelines, or where the guidelines omit to describe, recommend or suggest actions, it is still necessary to comply with the general environmental duty at all times. This can be achieved by applying the guiding principles (refer below) by the most appropriate means. It is recommended that, if alternative measures are to be used, operators should check with an Environment Protection Authority (EPA) officer who will advise whether such measures are likely to be satisfactory.<sup>1</sup>

## Guiding principles

The guiding principles to be adopted in pressure water-blasting operations are as follows:

- The amount of wastewater produced during pressure water-blasting operations is to be minimised by recycling and reusing the wastewater.
- Spray drift of the cleaning solution and resultant wastewater is to be prevented from escaping from the immediate zone of the working surface.
- Wastewater should be disposed of either to a sewer or to on-site storage in a sealed container.
- Solid residues produced as a result of the cleaning process are to be stored on site in a sealed container.
- All stored liquid and solid wastes are to be collected by a licensed waste transport business and taken to a licensed disposal, treatment or storage facility.
- Noise emissions from the operation of pressure water-blasting activities should be controlled so as to minimise any adverse effect on the amenity of an area.

It is the responsibility of any person producing or storing wastes to:

- ensure the waste transport business is licensed to transport the type of waste produced
- determine the type of disposal/treatment the waste will require
- nominate a licensed facility where the disposal/treatment can be undertaken
- when required, complete a 'Waste Tracking Form or 'PART A' of a 'Waste Transport Certificate' (Appendix 2) and forward the pink copy to the EPA.

Noise emissions from the operation of high-pressure water blasting activities should be controlled so as to minimise any adverse effect on the amenity of an area.

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<sup>1</sup> For advice and licensing information please see 'Further Information' at the end of this document.

## Site preparation

To prevent wastewater from escaping into the environment (which includes air, land, and water), durable and impermeable (waterproof) liners should be used to direct all wastewater run-off to a collection point. If scaffolding is used, care should be taken to ensure that run-off from the scaffold structure is also collected. Under certain site conditions, waterproof liners may not be necessary if all of the wastewater discharge is onto impervious surfaces or into drains, provided that all of the wastewater is collected and treated for recycling or directed to a sewer (with approval from SA Water's Trade Wastes Section, (08) 8207 1350).

If the surface to be cleaned contains paint with more than 0.5% lead content (typically pre-1992 applications), the area being cleaned should be totally encapsulated with an impermeable membrane. Any operators working within the encapsulating membrane should be completely protected from contact with all wastewater. For further information, contact the EPA.

## Wastewater recycling

Pressure cleaners use water flow rates of 7–21 litres per minute for cleaning surfaces ranging from domestic scale applications to very high-pressure cleaning of heavy earthmoving equipment. The total volume of water used during any cleaning operation is a function of the flow rate and duration of operation. As a general rule, low flow rate cleaners require longer operating times than higher flow rate cleaners. However, for a wastewater recycling process, the water will eventually flow within a closed loop in which the wastewater treatment rate is matched by the flow rate used by the pressure cleaner.

Most pressure cleaning machines are relatively durable and use ceramic pistons within the pump assembly. These pumps are capable of being used with bore water that can contain some solid material. Therefore, the use of recycled wastewater containing small amounts of solids should be acceptable.

The wastewater recycling unit may consist of the following components:

- an impervious collection pit to which wastewater run-off from the operation should be diverted
- a holding tank to which wastewater from the collection pit should be pumped through a two-stage filter system
- a feed to the pressure cleaner that uses filtered wastewater from the holding tank.

Operators should choose hoses, pumps, filters and tanks made of durable components that can withstand the effects of the chemicals and residues used or generated during the cleaning process.

The filter system should consist of a coarse screen (for instance, 1.0 mm opening) followed by a fine filter capable of removing solid material down to at least 100 microns (0.1 mm) in size. Care should be taken to check with the equipment suppliers to ensure that these suggested filters are suitable and will not cause any damage to the cleaning equipment.

The size of the holding tank should be at least large enough to contain the wastewater run-off generated after one (1) hour of continuous operation of the pressure cleaner. For the standard range of pressure cleaners, such containment would require holding tanks ranging in capacity from 420–1260 litres.

## Spray drift control

Measures should be taken to the maximum extent practicable to prevent spray drift from the cleaning operation escaping to the environment.

These measures may include:

- locating moveable impermeable screens alongside and behind the operator
- cladding scaffolding in dense screens
- avoiding cleaning operations during windy conditions
- fitting back-spray screens onto roof-cleaning equipment.

## **Wastewater disposal**

Following the completion of the cleaning operation, or at certain intervals during large cleaning operations, it will be necessary to dispose of the wastewater.

Depending on the types of chemicals added to the cleaning water and the type of material being removed from the cleaning surface, discharge of wastewater to the sewer could be appropriate. Written approvals should be obtained from SA Water, Trade Wastes Section, before discharging wastewater from the cleaning operation to the sewer. For operators who regularly clean similar surface types such as domestic house roofs, it might be appropriate to seek approval from SA Water on an ongoing basis.

If disposal to the sewer is not practicable or permitted by SA Water, then the wastewater is to be stored on site in a sealed container, collected by a licensed waste transport business and taken to a licensed disposal, treatment or storage facility.

## **Solid residue disposal**

Solid residues will be produced by the cleaning operation. These residues will collect on the impermeable liners or be trapped on the filters and in the holding tank. These wastes should be stored in a sealed container, collected by a licensed waste transport business and taken to a licensed disposal, treatment or storage facility. The same responsibilities as those for wastewater disposal rest with the producer of this kind of waste.

## **Noise controls**

Any pressure water-blasting activity emitting noise that causes, or is likely to cause, any adverse effect on the amenity value of an area should only take place between 7am and 7pm Monday to Saturday, or between 9am and 7pm on Sundays or public holidays.

It is important to ensure that all practicable steps are taken to minimise the adverse effect that the noise emissions may have on the amenity value of an area. This responsibility includes not only the noise emitted from the cleaners and pumps but also associated noise sources, such as radios.

## **Currency of these guidelines**

These guidelines offer advice to assist with compliance with the general environmental duty and specific environmental policies. They are subject to amendment and persons relying on the information should check with the EPA to ensure that it is current at any given time.

## FURTHER INFORMATION

### **Legislation**

Legislation may be viewed on the Internet at: [www.parliament.sa.gov.au/dbsearch/legsearch.htm](http://www.parliament.sa.gov.au/dbsearch/legsearch.htm) □

Copies of legislation are available for purchase from:

Government Information Centre  
77 Grenfell Street  
Adelaide SA 5000

Telephone: (08) 8204 1900  
Facsimile: (08) 8204 1909  
Freecall (country): 1800 182 234

### **For general information please contact:**

Environment Protection Authority  
GPO Box 2607  
Adelaide SA 5001

Telephone: (08) 8204 2004  
Facsimile: (08) 8204 9393  
Freecall (country): 1800 623 445  
Internet: [www.epa.sa.gov.au](http://www.epa.sa.gov.au)

## Appendix 1: Summary of Environment Protection Act 1993

The following summary and extracts are excerpted from Part Six of the Act, 'Environmental Authorisations and Development Authorisations'. They summarise the main requirements and responsibilities as well as definitions of activities and waste products constituted under the Act.

### Requirement for licence

The Act states:

*A person must not undertake a prescribed activity of environmental significance except as authorised by an environmental authorisation in the form of a licence under this Part.*

*Penalty: If the offender is a body corporate – maximum fine of \$120 000.  
If the offender is a natural person – maximum fine of \$60,000.*

- section 36

### Definitions of activities and waste products

'Prescribed Activities of Environmental Significance' described in Part A of Schedule 1 include abrasive blasting in manufacturing and mineral processing where it involves:

*. . . the cleaning of materials by the abrasive action of any metal shot or mineral particulate propelled in a gaseous or liquid medium (otherwise than solely by using blast cleaning cabinets less than 5 cubic metres in volume or totally enclosed automatic blast cleaning units).*

- clause 2 (1)

Activities that produce listed wastes are included in Part A of Schedule 1.

Part B of Schedule 1 lists wastes, the production of which may require a licence under the Act, as follows:

- Acids and acidic solutions
- Adhesives (excluding solid inert polymeric materials)
- Alkali metals and alkaline earth metals
- Alkalis and alkaline solutions
- Antimony and antimony compounds and solutions
- Arsenic and arsenic compounds and solutions
- Asbestos
- Barium compounds and solutions
- Beryllium and beryllium compounds
- Boron and boron compounds
- Cadmium and cadmium compounds and solutions
- Calcium carbide
- Carbon disulphide
- Carcinogens teratogens and mutagens
- Chlorates
- Chromium compounds and solutions

- Copper compounds and solutions
- Cyanides or cyanide solutions and cyanide complexes
- Cytotoxic wastes
- Dangerous substances within the meaning of the *Dangerous Substances Act 1979*
- Distillation residues
- Fluoride compounds
- Halogens
- Heterocyclic organic compounds containing oxygen, nitrogen or sulphur
- Hydrocarbons and their oxygen, nitrogen and sulphur compounds (including oils)
- Isocyanate compounds (excluding solid inert polymeric materials)
- Laboratory chemicals
- Lead compounds and solutions
- Lime sludges or slurries
- Manganese compounds
- Medical waste consisting of:
  - (a) a needle, syringe with needle, surgical instrument or other article that is discarded in the course of medical\*, dental or veterinary practice or research and has a sharp edge or point capable of inflicting a penetrating injury on a person who comes into contact with it; or
  - (b) human tissue, bone, organ, body part or foetus; or
  - (c) a vessel, bag or tube containing a liquid body substance; or
  - (d) an animal carcass discarded in the course of veterinary or medical\* practice or research; or
  - (e) a specimen or culture discarded in the course of medical\*, dental or veterinary practice or research and any material that has come into contact with such a specimen or culture; or
  - (f) any other article or matter that is discarded in the course of medical\*, dental or veterinary practice or research and that poses a significant risk to the health of a person who comes into contact with it.
- \* *'medical practice' includes the practice of pathology and the operation of an immunisation clinic.*

- Mercaptans
- Mercury compounds and equipment containing mercury
- Nickel compounds and solutions
- Nitrates
- Organic halogen compounds (excluding solid inert polymeric materials)
- Organic phosphates
- Organic solvents
- Organometallic residues
- Oxidising agents
- Paint sludges and residues
- Perchlorates
- Peroxides

Pesticides (including herbicides and fungicides)  
Pharmaceutical wastes and residues  
Phenolic compounds (excluding solid inert polymeric materials)  
Phosphorus and its compounds  
Polychlorinated biphenyls  
Poisons within the meaning of the *Drugs Act 1908*  
Reactive chemicals  
Reducing agents  
Selenium and selenium compounds and solutions  
Silver compounds and solutions  
Solvent recovery residues  
Sulphides and sulphide solutions  
Surfactants  
Thallium and thallium compounds and solutions  
Vanadium compounds  
Zinc compounds and solutions