



Water Quality  
Protection  
Guidelines  
No. 7

Mining and Mineral  
Processing

Mechanical  
servicing and  
workshop facilities

2000



## 1. Introduction

Servicing of vehicles and mechanical components in central workshop facilities produces a variety of wastes including:

- solvents, lubricants and metals from degreasing engines;
- old motor vehicle parts;
- waste oils, brake fluid, coolants and lubricants;
- soiled cleanup materials and rags;
- used oil containers and filters;
- washdown water.

These waste products have the potential to degrade water resources unless proper management practices are in place.

## 2. Purpose

These guidelines are designed to be used in the operation and disposal of waste from mechanical servicing facilities to ensure the quality of the region's water resources are protected.

## 3. Scope

These guidelines apply to all sites where mechanical servicing of vehicles or equipment occurs. They cover, but their scope is not limited to, mining workshops, dredging equipment, treatment plants and machinery servicing facilities.

## 4. Regulatory requirements

There are provisions under the *Environmental Protection Act 1986* (the EP Act) to control the disposal of wastewater from mechanical workshops through licence conditions set by the Department of Environmental Protection (DEP). Environmental controls for fuel and workshop areas should be addressed in the project Notice of Intent (NOI) submitted to the Department of Minerals and Energy. The DME and DEP may seek advice from the Commission if they consider the proposal may impact on water resources.

Activities involved with fuel and workshop waste must also comply with the Dangerous Goods Regulations 1992.

The quality of public drinking water sources is protected by proclaiming Public Drinking Water Source Areas under the *Metropolitan Water Supply, Sewerage and Drainage Act 1909* and the *Country Areas Water Supply Act 1947*. These include Catchment Areas, Water Reserves and Underground Water Pollution Control Areas.

The by-laws under these Acts enable the Water and Rivers Commission to control potentially polluting activities, to regulate land use, to inspect premises and to take steps to prevent or clean up pollution.

The Commission has defined three priority classifications for drinking water source areas: Priority 1, Priority 2 and Priority 3.

In addition, wellhead protection zones and reservoir protection zones are defined to protect the water source from contamination in the immediate vicinity of production wells and reservoirs.

New mechanical workshop facilities are incompatible with the source protection objectives for Priority 1 and Priority 2 areas, wellhead protection zones, reservoir protection zones and environmentally sensitive areas such as conservation wetlands or declared waterways. Permit approval is required from the Water and Rivers Commission in Priority 3 source protection areas.

## 5. Guidelines

### 5.1 Development proposals

Proposals to regulatory agencies to establish new mechanical servicing facilities should include the following information:

- a site plan showing the location of the facility;
- description of the activities that will be carried out at the facility;
- description of the type and quantity of waste that will be generated;
- a plan with design drawings for management and disposal of waste;
- details of a contingency plan for spills and the disposal of contaminated water generated in the event of a fire, flood or other catastrophe.

## 5.2 Workshop area

- a. Any areas within the workshop involved in washdown or mechanical servicing should be bunded with concrete kerbing or approved equivalent.
- b. Mechanical servicing and washdown should be carried out on an impervious (sealed) pad designed and graded to contain any spilt material or washdown water.
- c. The workshop area should be adequately covered and bunded to prevent intrusion of rainfall.
- d. Stormwater runoff should be diverted away from the workshop and storage areas.
- e. Spills or effluent from washdown areas should drain to a collection sump and should be treated before disposal.
- f. The wastewater treatment system should have a means of removing grit and soil material, and provide for a minimum detention capacity of one-hour peak flow to maximise settling of solids.
- g. Oily waste decanted from the treatment system should pass into a basin that has sufficient detention time to break down emulsions before separating the oil.
- h. Low permeability ( $< 10^{-9}$  m/s) lining should be used in the treatment system.
- i. The wastewater treatment system should be capable of achieving an effluent quality of  $< 30$  mg/L of oil and grease.
- j. Any oil separated from the wastewater system should be collected in sealed weatherproof containers and disposed of in accordance with DEP requirements.
- k. Treated wastewater with  $< 30$  mg/L of oil and grease may be:
  - discharged to sewer with prior approval from the sewerage service provider, e.g. the Water Corporation;
  - disposed of onsite to a soakage basin, with prior approval of the Commission or DEP; or
  - discharged to an evaporation basin with prior approval of the Commission or DEP.
- l. Under no circumstances should the wastewater treatment system be allowed to overflow to open

ground or to an off-site drainage system without the prior approval of the Commission or DEP.

## 5.3 Workshop operations

- a. All activities associated with vehicle repairs and maintenance should take place within the workshop area
- b. Organic solvent cleaners should not be used unless an artificial means of breaking oily emulsions is employed. Degreaser products are now available that readily break-down or allow easy separation from oily emulsions with minimum risk to the environment.
- c. The workshop area should be cleaned and maintained regularly.
- d. Used liquids such as lubricants, brake fluid and coolants should be placed in sealed containers for recycling or disposal.

## 5.4 Disposal of liquid wastes

- a. There should be no discharge of waste oil, grease, solvent, lubricant, acid, brake fluid, radiator coolant or detergent to any land surface or water-body.
- b. Liquid wastes should be contained in sealed, weatherproof containers and then either:
  - recycled, reused or disposed of in accordance with the requirements of the DEP; or
  - discharged to sewer, with the prior approval of the sewerage service provider.
- c. Small quantities ( $< 250$  litres) of liquid waste may be stored within the workshop area.
- d. Large quantities ( $> 250$  litres) of liquid waste should be stored within an approved tank or bunded compound. The compound should satisfy the Commission's *Water Quality Protection Guidelines No. 10 – Above-ground fuel and chemical storage*.

## 5.5 Storage and disposal of solid waste

- a. Old batteries, used filters and contaminated cleaning agents should be temporarily stored in skips or a bunded, sealed, and weathproof area.



- b. Batteries, used containers of solvents, lubricants and other liquids should be recycled or disposed of in accordance with the requirements of the DEP. Equipment supplier and fuel distributors should be able to advice on recycling opportunities for their products. They can assist in providing equipment for storage and handling fuels and oils.
- c. Any materials used for clean-up should be disposed of in accordance with the requirements of the DEP.

## 5.6 Spill Containment

- a. Absorbent materials such as sawdust or proprietary adsorbent litter should be kept onsite to absorb any spill of waste.
- b. Staff should be trained to deal with chemical spills to avoid occupational health hazards and harm to the environment

## 6. Useful references

Some components of these guidelines have been based on work already undertaken and reported in the following publication:

1. Department of Environmental Protection (1994). *Code of Practice – Automotive Repair Industry*, DEP, Perth.

## Glossary and Abbreviations

- |                              |  |
|------------------------------|--|
| 1. Commission                | Water and Rivers Commission  |
| 2. DEP                       | Department of Environmental Protection   |
| 3. Priority 1 (P1)           | P1 source protection areas are managed in accordance with the principle of <i>risk avoidance</i> . The source protection objective for P1 areas is to ensure no degradation of source water quality. Land is generally in public ownership and development is generally precluded from P1 areas.   |
| 4. Priority 2 (P2)           | P2 source protection areas are managed in accordance with the principle of <i>risk minimisation</i> . The source protection objective for P2 areas is to maintain existing water quality. Land is generally in private ownership and typically supports low intensity rural and rural lifestyle uses. Urban and industrial land uses are precluded.                            |
| 5. Priority 3 (P3)           | P3 source protection areas are managed in accordance with the principle of <i>risk management</i> . The source protection objective for P3 areas is to maintain water quality within health guidelines. Land is generally in private ownership and may support urban, light industrial and rural uses. Heavy industry and processing/treatment of animal wastes are precluded. |
| 6. Reservoir protection zone | Area around a reservoir defined to protect the reservoir waterbody. A reservoir protection zone usually consists of a 2-kilometre buffer from the high-water level of the reservoir and includes the reservoir itself.   |
| 7. Wellhead protection zone  | Area around a well defined to protect a bore from contamination in the immediate vicinity. Wellhead protection zones usually have a radius of 500 metres in Priority 1 and Priority 2 areas and 300 metres in Priority 3 areas. In some locations wellhead protection zones may be aligned to geological features or be based on detailed groundwater modelling.               |

## Further enquiries

Any project where the proponent/operator is unable to comply with these guidelines, or where site conditions prevent the application of these guidelines, should be submitted to the Commission as early as possible in the development of the proposal so that the matter may be resolved.

Any queries relating to the **content of these guidelines** should be directed to:

Program Manager Assessment and Advice  
Water Quality Protection Branch  
Water and Rivers Commission  
Level 2, Hyatt Centre  
3 Plain Street  
EAST PERTH, WESTERN AUSTRALIA 6004  
Phone (08) 9278 0300  
Fax (08) 9278 0585

For further enquiries on any matter relating to the **management of water resources**, please contact the Water and Rivers Commission's regional offices.

### Swan-Goldfields-Agricultural Regional Office

849 Albany Highway  
VICTORIA PARK WA 6100                      Phone (08) 9362 0555                      Fax (08) 9362 0500

Or  
254 Fitzgerald St  
NORTHAM WA 6401                      Phone (08) 9690 2821                      Fax (08) 9622 7155

### North West Regional Office

Chiratta Road  
KARRATHA WA 6714                      Phone (08) 9144 2000                      Fax (08) 9144 2610

### South West Regional Office

U2 Leschenault Quays,  
Austral Parade  
BUNBURY WA 6230                      Phone (08) 9721 0666                      Fax (08) 9721 0600

Or  
'Sholl House'  
21 Sholl St  
MANDURAH WA 6210                      Phone (08) 9535 3411                      Fax (08) 9581 4560

### Mid-West Gascoyne Regional Office

Pass Street  
Geraldton WA 6530                      Phone (08) 9964 5978                      Fax (08) 9964 5983

### South Coast Regional Office

5 Bevan Street  
ALBANY WA 6330                      Phone (08) 9842 5760                      Fax (08) 9842 1204

These guidelines are also available from the Water and Rivers Commission's web page at:

<http://www.wrc.wa.gov.au/protect/policy/>



**Other related guidelines in this series include:**

WATER QUALITY PROTECTION GUIDELINES NO. 1

Water quality management in mining and mineral processing: An overview

WATER QUALITY PROTECTION GUIDELINES NO. 2

Tailings facilities

WATER QUALITY PROTECTION GUIDELINES NO. 3

Liners for waste containment

WATER QUALITY PROTECTION GUIDELINES NO. 4

Installation of minesite groundwater monitoring bores

WATER QUALITY PROTECTION GUIDELINES NO. 5

Minesite water quality monitoring

WATER QUALITY PROTECTION GUIDELINES NO. 6

Minesite stormwater

WATER QUALITY PROTECTION GUIDELINES NO. 8

Laboratory waste discharge

WATER QUALITY PROTECTION GUIDELINES NO. 9

Acid mine drainage

WATER QUALITY PROTECTION GUIDELINES NO. 10

Above-ground fuel and chemical storage

WATER QUALITY PROTECTION GUIDELINES NO. 11

Mine dewatering



