



Water Quality
Protection
Guidelines
No. 8

Mining and Mineral
Processing

Laboratory waste
discharge

2000



1. Introduction

Laboratories do not usually discharge large volumes of liquid waste but often dispose of a range of chemicals such as acids, alkalis, dissolved salts, nutrients and organic solvents. These wastes may produce adverse localised effects in water resources, disrupt biological waste stabilisation processes and contaminate drain systems.

2. Purpose

These guidelines are designed to be used to ensure the quality of the region's water sources are protected where disposal of laboratory wastewater to a sewer system is not possible.

3. Scope

These guidelines apply to all laboratories where disposal of wastewater to a sewer system is not available. It is specifically directed to minesite analytical facilities and bulk commercial analytical laboratories that service the mining and exploration industries.

4. Guidelines

An assessment of the nature and volume of waste to be discharged is the first step in assessing appropriate management options. Material safety data sheets should be available for waste that may be discharged.

Laboratory waste should discharge to a dilution pit which is capable of holding at least one cubic metre or the average daily liquid waste discharge volume, whichever is the greater. This pit should be constructed of, or lined with, materials resistant to the chemicals used in the laboratory. Fibreglass, rigid plastic or coated masonry may be suitable. The pit should have removable baffle plates. The offtake point should be located at a high level opposite the entry point to encourage mixing of pit contents. The pit should have a removable lid to permit

extraction of sludges and surface scums. It will need to be vented to permit release of gases. The pit should be sign-posted to indicate that the contents may be hazardous.

Contents of the dilution pit may be discharged to a soak pit, leach drain or evaporation bed, depending on the soil conditions at the site. Discharge should not occur to septic tank/leach drain systems because of the potential to disrupt biological processes within them.

The Commission recommends that laboratory waste disposal facilities be located at least:

- 2 metres above the highest groundwater table;
- 30 metres downstream from any well or bore used by humans, or stock or for irrigation;
- 100 metres from any wetland, water impoundment or surface drainage channel.

The laboratory operator is responsible for staff being familiar with the operation of the waste disposal system. Staff should be informed about disposal of toxic or harmful substances that may threaten the environment. Caution notices above sinks are recommended.

Solid waste should not be flushed down the sink. It should be temporarily stored in a secure impervious container pending recycling or disposal at a site approved by the DEP. Incompatible chemicals should be stored in separate labelled containers.

Regular checks, e.g.(at least monthly), should be made of the dilution pit to check for build-up of solids, that could cause loss of dilution or blockage. Periodic chemical testing and data recording is recommended to confirm that the discharge does not pose a threat to the environment.

Groundwater monitoring may be required if the waste from the dilution pit is directly discharged to the environment. Test results should be recorded and made available for inspection by the regulatory agencies.

Discharge to sewerage schemes may need pretreatment to conform to the requirements of an **Industrial Waste Permit** issued by the sewerage service provider.

Further enquiries

Any project where the proponent/operator of a project 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/>



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Water quality management in mining and mineral processing: An overview

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Tailings facilities

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Liners for waste containment

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Installation of minesite groundwater monitoring bores

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