

Water Quality Protection Note

Mechanical servicing and workshops

Purpose

The Department of Environment (DoE) is responsible for managing and protecting the State's water resources. It is also a lead agency for water conservation and reuse. This note offers:

- our current consolidated views on facilities used for repair and servicing of vehicles and mechanical equipment.
- guidance on acceptable practices used to protect the quality of Western Australian water resources; and
- a basis for the development of a multi-agency code or guidelines designed to balance the views of industry, government and the community, while sustaining a healthy environment.

Mechanical servicing and workshop facilities perform a vital service for the community of Western Australia. The work is usually carried out in weatherproof buildings with reinforced concrete floors that allow for comparatively easy clean-up of any spilt servicing fluids. Providing chemicals (new and waste) and process wastewater are well managed and contained, these facilities is unlikely to pose a significant threat to water resources. On occasion field servicing and repairs may need to be carried out where mechanical breakdown has occurred. Care is needed to prevent battery acid, coolants, fuel, hydraulic fluids, lubricants and solvents from escaping into the environment where they may harm plants, animals or people using water resources.

Best environmental management practice application is necessary wherever escape of industrial fluids may harm water resources. Implementing these practices should result in reduced production costs through more efficient use of resources, an improved image with customers and benefits to the local environment.

Areas where good environmental management practice can make a difference include:

- Containment and appropriate disposal of all fluid wastes and discarded parts;
- Spill control for floor areas,
- Stormwater management, and
- Waste-water capture and appropriate disposal from wash-down of vehicles, parts and floors.

This note is intended as a general guide on issues of environmental concern, and offers potential solutions based on professional judgement and precedent. It's recommendations do not override any statutory obligation or Government policy requirement. Alternative practical environmental solutions suited to local conditions may be considered. The recommendations should not be used by regulators in place of a site-specific assessment of a project's environmental risks. Any regulatory conditions set should consider the values of the surrounding environment, the safeguards in place, and take a precautionary approach. This note shall not be used as this Department's policy position on a specific matter, unless confirmed in writing. The note may also be varied at Departmental discretion as new data becomes available.

Scope

This note applies to the design, installation and operation of mechanical servicing and workshop facilities for:

- motor vehicles,
- agricultural and earthmoving machinery,
- industrial plant (e.g. pumps and generators), and
- similar equipment where harmful fluids could escape into the environment and potentially contaminate water resources.

The note is not intended to cover home workshops or small non-commercial activities, but may offer a useful guide on environmental risks and good practice.

Recommendations

Siting

1. Workshop facilities should be located on land meeting the following criteria:
 - a. Site zoned for commercial or light industrial activities in the local government planning scheme;
 - b. Have access to key support services, including waste treatment recycling and disposal facilities;
 - c. Have sufficient on-site area to provide for safe chemical storage and effective management of waste products;
 - d. Adequate area provided for likely future expansion;
 - e. Located where practical away from sensitive environments e.g. residential areas and sensitive water resources (as detailed in [Appendix B](#));
 - f. Water table located at least **2 metres** below the final land surface, and
 - g. Avoid flood-prone land.

Public Drinking Water Source Areas

Public Drinking Water Source Area (PDWSA) is the collective name given to any catchment declared for the management and protection of a water source used for public drinking water supplies. PDWSAs include Underground Water Pollution Control Areas, Water Reserves and Catchment Areas. For details on the relevant statutes and associated regulatory measures in PDWSAs, see [Appendices C and D](#).

Within PDWSAs, three protective classifications of land areas (Priority 1, 2 and 3) are used based on present land use and vulnerability of the water body to harm. These areas are each managed in a different way to protect water resource quality. Priority classifications are assigned in site-specific Drinking Water Source Protection Plans. These plans are prepared by DoE in consultation with State government agencies, landowners, local governments, key industry and community stakeholders. Additional constraints may apply in defined zones closest to the point where drinking water is harvested or stored. These are described as Well-head Protection Zones (WHPZ) and Reservoir Protection Zones (RPZ). For additional explanatory information on PDWSAs, see DoE's Water Quality Protection Note: *Land use compatibility in Public Drinking Water Source Areas*.

3. In Priority 1 and 2 PDWSAs, Well-head and Prohibited (Reservoir Protection) Zones: The establishment or expansion of mechanical servicing and workshop facilities is **incompatible** with management objectives for the water resource. This Department will oppose development or expansion of these facilities within these areas or zones.
4. In Priority 3 PDWSAs: These facilities are **compatible with conditions**, requiring best practice environmental management to be used. Guidance on current best environmental management practice is given in this note, or in project-specific conditions set by regulatory agencies.
5. Operational areas (where compatible) should have a minimum vegetated separation distance to the full supply level of reservoirs, their primary feeder streams, and production bores or wells used as a source of drinking water as recommended in the DoE's Water Quality Protection Note *Buffers to sensitive water resources*.

Waterways Management Areas and natural waterways

Five Waterways Management Areas have been declared to provide special protection to estuaries and their associated waterways that are considered especially vulnerable to environmental degradation. These areas are the Albany Waterways, Avon River, Leschenault Inlet, Peel–Harvey estuary, and Wilson Inlet.

6. Adequate separation distances should be maintained between operational areas and natural waterways to minimise the risk of degradation of water quality. These separation distances are determined on the basis of the waterway values, vulnerability and biophysical criteria (see [Appendix A](#), Reference 4a).

7. If a development is located within a Waterways Management Area, the *Waterways Conservation Act 1976* requires prior written approval from DoE (see [Appendix D](#)). Information on waterway values and the location of these management areas can be obtained by contacting DoE's regional offices.

Swan River Trust management area

8. The Swan-Canning estuary and abutting reserves are managed by the Swan River Trust in accordance with the *Swan River Trust Act 1988*. Written approval from the Trust is required for any land or water based development that may have an effect on the estuary. For further information see the Internet site: www.swanrivertrust.wa.gov.au, or phone the Trust on 08 9278 0900.

Conservation valued wetlands

This department aims to ensure that chemicals or contaminated waters do not enter the environment close to sensitive environments such as wetlands. Certain waters have been given a conservation status under Ramsar, the Australian Nature Conservation Agency or State environmental protection policy provisions.

9. Operational areas proposed within **500 metres** of any wetland (included lakes, swamps, marshes and damp-land) should be referred to a DoE regional office for assessment, with supporting information addressing the environmental risks. For information on protection of wetlands and their fringing vegetation, see [Appendix A](#), references 3 and 4b. Separation distances will be negotiated based on wetland values, vulnerability and local bio-physical factors, and protective management techniques used at the facility to maintain or enhance the quality of water resources and adjoining wetland vegetation.

Private water supply sources

10. These surface water bodies or ground-water wells need protection from physical, chemical and microbial contaminants. This protection is provided by preventing discharge of contaminating material to soils and waterways and providing adequate protective separation buffers. The buffer from the external boundary of operational areas to the full supply level of surface drinking water supply points, their primary feeder streams, and production bores or wells; and aquaculture ponds (excluding tanks) should be determined using the DoE's Water Quality Protection Note *Buffers to sensitive water resources*.

Construction

11. Mechanical servicing should be carried out on a durable low-permeability floor or pad (e.g. reinforced concrete) finished and graded to contain any spilt material or wash-down water. The floor should be chemically sealed to minimise seepage below the surface and aid clean-up of spilt fluids. The workshop area should be surrounded with an impervious perimeter bund, or the floor graded to internal collection sumps. Ramps or 'speed humps' should be installed to allow wheeled traffic across bunded access ways.
12. Workshop areas should be adequately weather-proofed to prevent intrusion of stormwater. Any stormwater should be diverted away from the workshop floor, and chemical or parts storage areas.

Operation and management

13. All servicing and parts-cleaning operations should occur within the workshop. Where this is impractical, they should occur in a (roofed and paved) area which prevents stormwater mixing with process fluids and prevents their escape to the environment. Cleaning of parts over stormwater gullies is unacceptable, as harmful residues will escape via drains or may leach into ground-water, wetlands and waterways. Discharge of waste to the environment that may cause pollution is an offence under Section 50 of the *Environmental Protection Act, 1986*.
14. Used fluids such as lubricating or hydraulic oils, brake fluid and coolants should be drained into product specific secure containers for recycling or disposal at an approved facility supervised by the local government authority (council).

15. Where treated waters containing residues may ultimately discharge to the environment, steam or quick-break detergents should be used for cleaning oily mechanical equipment. Organic solvents and similar cleaners that create stable emulsions should not be used for degreasing, unless an effective means of breaking emulsions then treating contaminated residue is employed (e.g. chemical coagulation or dissolved air flotation followed by sludge or floating scum capture) before any release to drains. Separated scums and settled solids should be either recycled or collected for disposal at an approved location.

Waste-water treatment

16. Any equipment cleaning system used prior to on-site waste-water disposal should initially remove heavy soil particles such as grit (e.g. use a lined settling basin). Settling capacity should provide an effective holding time of at least **one hour** at peak through flow for effective removal of coarse solids.
17. Settled effluent containing any oils or grease emulsions should pass into a physical (e.g. corrugated plate interceptor), or chemical separator (e.g. chemical coagulation tank, followed by water-oil separation) allowing sufficient time to break emulsions and permit effective skimmed removal of floating oil.
18. Treatment systems should be designed to avoid accidental discharge to the ground or off-site stormwater drainage systems. Adequately sized (with free-board) low permeability basins (seepage controlled to less than **3 centimetres/ year**) should be used to prevent escape of fluids during treatment. Refer to our Water Quality Protection Note: *Liners for containing pollutants, using engineered soils*.
19. Any oil separated from the wastewater system should be collected in secure containers, then be recycled or disposed of in an approved manner (see [Appendix A](#), Reference 4e).
20. Small quantities (**up to 250 litres**) of each liquid waste may be stored in drums within the workshop area. Larger quantities of liquid waste should be stored within secure tanks within a bunded compound. The compound should comply with the recommendations in DoE's Water Quality Protection Note: *Tanks- above ground chemical storage*.
21. Effluent from equipment wash-down areas should be managed as described in DoE's Water Quality Protection Note: *Mechanical equipment wash-down*.

Treated wastewater disposal

22. Waste oils, grease, solvents, lubricants, acids, brake fluid, radiator coolant or detergents should not be discharged to any soak-well, stormwater drain, land surface or water body. These liquid wastes are unsuitable to discharge on-site and should be held in secure containers pending removal offsite. They should then be recycled, or disposed of at an approved facility (see [Appendix A](#), Reference 4e).
23. Wastewater (treated or otherwise) should not be discharged to the environment unless it meets the quality criteria to maintain the values of local water resources. Local water resource values may include:
 - a. Protection of aquatic ecosystems (e.g. fish, birds, frogs, molluscs and their food sources)
 - b. Water for drinking supplies,
 - c. Industrial and agricultural water supplies,
 - d. Private water supply sources, including garden bores,
 - e. Aesthetic, cultural or recreational needs.
24. DoE uses the *Australian and New Zealand Guidelines for Fresh and Marine Water Quality 2000* to guide on quality criteria suited to maintaining the values for water resources (see [Appendix A](#), Reference 1a).
25. Treated wastewater, with contaminant levels suited to the chosen receiving environment, may be discharged:
 - a. To sewer, (where available and approved by the service provider e.g. the Water Corporation); or

- b. Discharged on-site to a soakage or evaporation basin provided it is routinely tested and consistently free of contaminant concentrations likely to harm the local environment, and has the written approval of relevant regulatory agencies.
26. Effluent quality analysis results should be retained on site for at least 2 years to allow for audits by environmental regulators.

Wastewater disposal provisions within PDWSAs

27. Process liquid discharge is incompatible with our management policy in Priority 1 and 2 areas, well-head protection zones and reservoir protection zone . Any liquids discharged to soakage in Priority 3 managed areas should conform to the guideline water quality criteria given in the *Australian Drinking Water Guidelines 1996* (current version).
28. Employees should be well-trained and reminded via signs or symbols of the risks to drinking water sources posed by chemicals accidentally or deliberately released to the local environment. Once in the environment many of these chemicals cannot be effectively removed by conventional water treatment processes.

Parts, chemical residues and solid waste storage and disposal

29. Used batteries, chemical containers, machinery parts, tyres and contaminated waste products should be stored inside the workshop; or in a contained, weather-proof area, (e.g. a lockable skip or sea container), until they can be moved offsite for recycling or to an approved disposal facility. For information on cleaner production, see the Internet site: <http://cleanerproduction.curtin.edu.au>.
30. Batteries, used solvent containers, water treatment process sludge, lubricants and other chemicals should be recycled or disposed of at an approved facility (see Appendix A, Reference 4e).

Spill containment

31. Any spilt fluids should drain to sealed collection sumps. These wastes should then be transferred to a sullage tank, pending either export off site or treatment prior to disposal. A contingency plan should be available on-site to address emergency situations, (e.g. accidents, fires, chemical spills and any vandalism) that could put local water resources at risk of contamination.
32. Staff should be trained and assigned roles in site emergency response procedures. Absorbent materials such as sawdust or inert adsorbent litter should be kept on-site to absorb any waste spilt on floors. Spills should initially be cleaned up using absorbents, prior to any wash-down. Chemical contaminated litter should be placed in a skip for off-site disposal as previously described.

Environmental monitoring and reporting

33. Any significant chemical spill (**exceeding 20 litres**) that escapes to the environment should immediately be reported to the Department of Environment (phone 9222 7123 during business hours, or 1800 018 800 at other times). If the spill is in a PDWSA, contact the Water Corporation (phone: 1800 652 897).

Site closure

34. In the event of permanent closure of the workshop, the site should undergo an environmental audit and if necessary remedial action taken to ensure soil conditions suit the needs of the next land-use.

More information

We welcome your views on this note. Feedback provided on this topic is held on our file no. **12899**. The note will be updated periodically as new information is received or industry/activity standards change. Updates are posted on our Internet site: <http://drinkingwater.environment.wa.gov.au>, select *Publications> Guidelines> Protection Notes*.

To comment on this note or for more information, please contact the Water Source Protection Branch at DoE's Hyatt offices in East Perth. Phone: (08) 9278 0300 (business hours); fax: (08) 9278 0585; or *E-mail Drinking Water* at our Internet site: <http://drinkingwater.environment.wa.gov.au>, citing topic and version.

For our regional office contact details: See our Internet site: www.environment.wa.gov.au, see offices listed under *Regional Information*, refer to the phone book or contact the department (details below).



Department of
Environment

Level 2, Hyatt Centre
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Telephone: (08) 9278 0300
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Swan-Canning Cleanup Program
Swan River Trust
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Telephone: (08) 9278 0900
www.swanrivertrust.wa.gov.au

Appendices

Appendix A – References and further reading

1. National Water Quality Management Strategy- Australian and New Zealand Environment and Conservation Council (ANZECC), Agriculture and Resource Management Council of Australia and New Zealand (ARMCANZ) and/ or National Health and Medical Research Council (NHMRC) documents:
 - a. ANZECC, ARMCANZ- *Australian and New Zealand Guidelines For Fresh and Marine Water Quality*, 2000;
 - b. ANZECC, ARMCANZ- *Australian Guidelines for Water Quality Monitoring and Reporting*, 2000;
See Internet site: <http://www.deh.gov.au/water/quality/nwqms/index.html>.
 - c. ARMCANZ, NHMRC- *Australian Drinking Water Guidelines*, 1996.
See Internet site: www.health.gov.au/nhmrc/publications/synopses/eh19syn.htm.
2. Standards Australia: AS 5667 *Water Quality-Sampling*
See Internet site: <http://www.standards.com.au/catalogue/script/search.asp>.
3. Wetland categories data:
 - a. RAMSAR wetlands- see Internet site: www.ramsar.org;
 - b. ANCA wetlands- Australian Nature Conservation Agency: *Directory of important wetlands in Australia*, see Internet site www.deh.gov.au/water/wetlands/databases.html, or contact the WA Department of Conservation and Land Management see Internet site: www.naturebase.net/national_parks/wetlands/wa_wetlands.html.
 - c. EPP wetlands – see Environmental Protection Authority publication *Swan Coastal Plain Lakes and Swan Coastal Plain Lakes*. See www.epa.wa.gov.au, select *Environmental Protection Policies(EPP)*. Maps of these sites may be accessed via local government libraries, referencing Hill, Semeniuk and Del Marco -*Wetlands of the Swan Coastal Plain*, WRC and DEP,1996.

- d. Wetland information is located on the WA land information system Internet site: www.walis.wa.gov.au, select *Natural Environment* for sites on the Swan coastal plain (Peel or Perth metro). Select the information layer- *Wetlands Geomorphic*. Use the *Help* icon if needed.
4. Department of Environment documents:
- a. Waterways policy and guidelines
- *Foreshore Policy 1- Identifying the Foreshore Area*, WRC November 2002
 - *Water Note 4- Wetland buffers*,
 - *Water Note 11- Identifying the riparian zone*,
 - *Water Note 22- Herbicide use in wetlands*,
 - *Water Note 23- Determining foreshore reserves*.
- See Internet site: <http://waterways.environment.wa.gov.au>, select *Publications*.
- b. Wetlands policy and guidelines
- *Encouraging Wise Use of Perth's Wetlands, (broadsheet) 1995*;
 - *Position statement: Wetlands*, WRC 2001;
 - *Wetlands of the Swan Coastal Plain*, WRC & DEP, 1996.
- See Internet site: <http://wetlands.environment.wa.gov.au>, select *Publications*.
- c. Drinking water source policy & Water Quality Protection Notes
- *Policy: Pesticide Use in Public Drinking Water Source Areas*, 2000
 - *Buffers to sensitive water resources*;
 - *Industrial sites near sensitive environments*;
 - *Irrigation of vegetated land with nutrient-rich wastewater*;
 - *Land use compatibility in Public Drinking Water Source Areas*;
 - *Liners for containing pollutants, using engineered soils*;
 - *Mechanical servicing and workshop facilities*;
 - *Nurseries and garden centres*;
 - *Nutrient and irrigation management plans*;
 - *Radiator repairers and reconditioners*;
 - *Tanks-above ground chemical storage*;
 - *Toxic and hazardous substances- storage and use*; and
 - *Wash-down of mechanical equipment*.
- See Internet site: <http://drinkingwater.environment.wa.gov.au>, select *Publications>Guidelines>Protection Notes*.
- d. Stormwater
- *Stormwater Management Manual for Western Australia*
- See Internet site: <http://stormwater.environment.wa.gov.au>, select *Publications>Manuals*.
- e. Waste management
- *ChemCollect*, 2000;
 - *Draft Strategy for the management of green and solid organic waste in WA*, Dec. 1997
 - *Guidelines for acceptance of solid waste to landfill*, Jan. 2001
 - *Landfill Waste Classification and Waste Definitions*, 2001
 - *Waste 2020, Towards Zero Waste*, 2001, and
 - *Western Australian Waste Reduction and Recycling Policy*, 1997.
- See Internet site: <http://wastemanagement.environment.wa.gov.au>, select *Publications*.
5. Motor Trade Association WA: Green stamp program
See Internet site: www.mtawa.com.au, select *Greenstamp program*.
6. Ohio (USA) Environmental Protection Agency: *Automotive Repair facilities*
See Internet site: www.epa.state.oh.us/opp/autoservice.

Legend: WRC = Water and Rivers Commission; DEP = Department of Environmental Protection

Appendix B - Sensitive water resources

Sensitive water resources may support one or more of the environmental values described below, and are located where they could be affected by any site condition or land use activity posing a risk to water quality. These water resources may be the water-table accessed by water supply wells, or surface drainage channels, estuaries, lakes, rivers, streams, and wetlands. Community acceptance of these values, defined management objectives for the waters, and a practical attainment strategy using natural resource management tools are regarded as key elements in protecting and where practical enhancing the quality of these water resources. Sensitive water resources include:

- a. Public drinking water source areas;
- b. Private drinking water supply sources (supplies for people or animals);
- c. Commercial or industrial water sources e.g. servicing aquaculture, food processing or crop irrigation (which require clean uncontaminated water supplies);
- d. Aquatic ecosystems- pristine or conservation valued, (not highly disturbed, unless subject to active management to restore historic environmental values), including the following:
 - Policy areas protecting water features as defined via the *Environmental Protection Act 1986*, e.g. *Environmental Protection (Swan Coastal Plain Lakes) Policy*, 1992;
 - Waterways managed via the *Waterways Conservation Act 1976*;
 - The Swan-Canning Estuary and adjoining lands managed via the *Swan River Trust Act 1988*;
 - Wetlands of regional, national and international ecological importance, including: Conservation Category Wetlands (CCW) and Resource Enhancement Wetlands (REW) as defined by this Department, Ramsar convention listed wetlands, and those listed in *A Directory of Important Wetlands in Australia* (ANCA, 2001); and
 - Areas of unconfined ground-water defined by policy that sustain significant ecological functions.
- e. Established private water sources, which if contaminated, are likely to affect the health or well-being of people coming into contact with those waters, e.g. garden or municipal irrigation sources; and
- f. Surface water bodies meeting significant and publicly recognised cultural or social needs, e.g. waters used for community swimming, fishing or valued for their visual appeal.

For information on the location and protection of these sensitive water resources: see [Appendix A References and further reading](#), this Department's Internet site: www.environment.wa.gov.au, or contact your nearest regional DoE office. Key information necessary for this Department to assess development proposals near sensitive water resources is provided at [Appendix D](#).

Appendix C - Statutory requirements and approvals relevant to this note include:

What's regulated	Statute	Regulatory body/ agency
Land zoning and development approval	<i>Town Planning and Development Act, 1928</i>	Local Government (Council); Department for Planning and Infrastructure
Impact of significant development proposals on the values and ecology of land or natural waters	<i>Part IV of Environmental Protection Act, 1986</i>	Minister for the Environment advised by the Environmental Protection Authority
Licensing of prescribed premises that pollute;	<i>Part V of the Environmental Protection Act, 1986;</i>	Department of Environment– regional office
Licensed transport and disposal of scheduled harmful substances.	<i>Environmental Protection (Controlled Waste) Regulations 2004</i>	
Licence to take surface water and groundwater	<i>Rights in Water and Irrigation Act, 1914</i>	
Industrial sites in existing public drinking water source areas	<i>Metropolitan Water Supply Sewerage and Drainage (MWS,S & D) Act, 1909; or Country Areas Water Supply (CAWS) Act 1947</i>	
Licence to discharge waters into managed waterways.	<i>Waterways Conservation Act, 1976</i>	
Discharges into the Swan-Canning Estuary	<i>Swan River Trust Act, 1988</i>	Swan River Trust
Storage of fuels, solvent, explosives and dangerous goods	<i>Explosives and Dangerous Goods Act, 1961 and Regulations</i>	Department of Industry and Resources
Management of human wastes, community health issues	<i>Health Act 1911</i>	Local Government; Department of Health
Emergency response planning	<i>Fire and Emergency Services Authority of WA Act, 1998</i>	Fire and Emergency Services Authority
Discharge to sewer (industrial waste permit) or to main drain	<i>MWS,S & D Act, 1909; or Country Towns Sewerage Act, 1948</i>	Water Corporation; Designated water service providers

Appendix D- Development proposals near sensitive water resources

Where facilities are to be constructed or upgraded in sensitive environments, including PDWSAs, Waterways Management Areas, the Swan River Trust area or within 500 metres of any conservation category wetland, proponents should supply a notice of intent to this Department, including the following details:

- a. Site owner or operating tenant's contact name and address details;
- b. A site plan showing the location of the facility;
- c. Description of the activities that will be carried out;
- d. Description of materials/chemicals stored or handled on site;
- e. Description of the types and quantities of waste that will be generated at the facility;
- f. Proposals for chemical containment, waste management and disposal (with design sketches); and
- g. Details of any contingency measures to minimise the impacts of chemical spills, and disposal of contaminated waters from fire, flood or other emergency.