



Water quality protection note 07

November 2012

Looking after all our water needs

Chemical blending facilities

Purpose

Many chemicals are corrosive or toxic. If released into the environment they can interfere with natural ecological processes. These chemicals have the potential to harm people if not managed correctly. Chemical blending operators need to carefully manage the chemicals that are stored, mixed, diluted or may be present in equipment wash waters to protect the quality of nearby water resources. This note encourages the use of best environmental practice by those involved in chemical blending so contamination of our waterways, wetlands and groundwater is minimised.

The Department of Water 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:

- information on the water contamination risks posed by land use activities and facilities
- guidance on acceptable practices and statutory measures used for protecting the quality of water resources
- a basis for the development of a multi-agency environmental code or guidelines that consider the views of industry, government and the community, while sustaining a healthy environment.

The note has been produced to inform industry operators, government officers, environmental consultants and community members on this activity from its establishment, through construction, operation and possible eventual closure.

Appendices provide supporting information to this note, including this department's role, intended usage and disclaimers, sensitive water resources description, environmental buffers, relevant statutes and administering agencies and information for assessment of development proposals. Appendices may also include relevant case studies, checklists, suggested contacts and explanatory diagrams.

Scope

Chemical blending is the conversion of raw materials (often bought in bulk) to finished products. Chemical blending facilities can involve:

- the storage of raw materials
- their transfer, dilution or mixing
- preparation and storage of finished products for distribution to customers

- chemical formulation immediately prior to their application at any site
- wash out of chemical storage containers.

Chemicals blended in Western Australia fall into two main categories:

- commercial and industrial chemicals (inorganic or organic) including acids, alkalis, coagulants, coolants, detergents, disinfectants, dyes, fertilisers, flocculants, paints, pharmaceutical products, polymers, salts and solvents
- pesticides, including fungicides, herbicides, insecticides and rodent baits.

This note applies to all premises or activities where chemicals or chemical products are stored, decanted, blended, diluted or packaged and could contaminate water resources in the event of spillage or discharge.

Advice and recommendations

Location of facilities

- 1 Chemical blending facilities should be located as follows:
 - a on a site that is zoned for this activity in the relevant local planning scheme
 - b with access available to essential services, including emergency response agencies, appropriate waste treatment, recycling and disposal facilities
 - c with sufficient on-site area for safe and effective management of waste products
 - d with sufficient area for any anticipated business expansion
 - e within a secure weatherproof building with flooring constructed and treated to contain and facilitate clean-up of chemical spills
 - f an appropriate separation distance provided to sensitive water resources (see Appendix A).

Within public drinking water source areas

- 2 Within priority areas P1 and P2, wellhead protection zones and reservoir protection zones, the establishment or expansion of chemical blending facilities is considered incompatible with water resource protection objectives. This department will oppose the development or expansion of blending facilities in these areas or zones.
- 3 Within priority areas P3, blending facilities are normally accepted with conditions in light industry zoned areas, provided facility operators implement best environmental management practice. Guidance on environmental management practice is provided in this note or via project-specific conditions set by regulatory agencies.

Near natural waterways

Waterways managed by this department include all natural creeks, streams, brooks, rivers, inlets estuaries, and surface drainage systems that flow intermittently.

- 4 Facilities should not be established on land subject to seasonal flooding, within defined flood plains or within waterway foreshore areas.

- 5 An adequate separation distance should be maintained between chemical blending facilities and waterways (including foreshore areas) to protect their ecological and social values and prevent degradation to water quality. Foreshore areas are determined on the basis of the waterway values, vulnerability to threats and biophysical criteria as described in our Foreshore policy 1 – *Identifying the foreshore area*. Our Water note 23 and River restoration report 16, both titled *Determining foreshore reserves*, provide supporting information on defining foreshore areas (reference 5).
- 6 Natural vegetation buffers can improve water quality by filtering water that may be contaminated before it enters a water body. Vegetation density and landform are important considerations when determining appropriate separation distances between land uses and waterways. For advice on buffer selection, see our Water quality protection note (WQPN) 06 *Vegetated buffers to sensitive water resources* (reference 5b).
- 7 To seek development approval near natural waterways or any waters in a proclaimed management area, project details (see Appendix D) should be provided to and advice sought from our local regional office.
- 8 Information on the location of sensitive water resources and waterway values is available from our local regional office (see <www.water.wa.gov.au> select *Contact us*). For online location information online, see <www.water.wa.gov.au> select *Tools and data > maps and atlases > geographic data atlas*. These interactive maps show proclaimed waterways management areas in the southwest of WA by opening the *Environment* layer. For general online information on waterways and guidance on best management practice see <www.water.wa.gov.au> select *waterways health > looking after our waterways*.

Within proclaimed waterways management areas

Five management areas have been declared under the *Waterways Conservation Act 1976* to provide special protection to some rivers, inlets and estuaries. These areas are considered especially vulnerable to degradation. They are the Albany Waterways, Avon River, Leschenault Inlet, Peel-Harvey Estuary and Wilson Inlet management areas.

- 9 Development approval from this department is required in proclaimed management areas. Proponents should contact our local regional office and provide projects details for assessment (Appendix D). To discuss any technical aspects, contact our Statewide Waterways Management Branch in Perth (see Feedback details at rear of note).

Disturbance to bed or banks of a waterway

- 10 A permit from this department under the *Rights in Water and Irrigation Act 1914* may be required to undertake any works that will alter the bed or banks of a waterway within a proclaimed river, surface water management area or irrigation district. Permits, if granted, may contain conditions such as a requirement to stabilise waterway banks or restore waterway vegetation.

Near the Swan-Canning Estuary

11 The Swan River Trust is responsible for the protection and management of the Swan-Canning river system. Activities and development close to the Swan, Canning, Helena or Southern rivers are likely to have an effect on the waters of the river system. Any proposals abutting the Trust's development control area (DCA) should be referred to the Trust for comment.

Developments distant from the DCA, but near tributaries or drainage systems or likely to affect groundwater flows, should also be referred to the Trust for comment and advice. For more details see online information at <www.swanrivertrust.wa.gov.au>, phone the Trust on 9278 0900 or email <planning@swanrivertrust.wa.gov.au>.

Near wetlands with conservation values

The Department of Environment and Conservation (DEC) has lead responsibility for the management and protection of conservation-valued wetlands in WA (see Appendix A).

12 The DEC may assess proposals and define conditions for activities that pose a significant risk to the ecology of conservation wetlands or are likely to discharge harmful chemical residues within wetland buffers. Wetland buffers should be based on the values of the wetland and the threats posed by the adjacent land use (see references 2 and 6).

Buffer distances to other sensitive water values

13 The buffer distance from the infrastructure boundary of any chemical blending facility to any drinking water supply bores, wells, full supply level of reservoirs and their feeder streams should be at least 100 m.

14 Variations to recommended separation buffers to water bodies may be proposed to regulators for consideration provided they are supported with valid, comprehensive and site-specific scientific studies indicating how contamination risks are managed. Different buffers may be needed to manage noise, light spill or community safety.

15 A minimum vertical separation buffer of 2 m for free-draining soils should be maintained from infrastructure to the maximum (wet season) watertable level to avoid waterlogging and allow for soil filtration and aerobic microbial degradation of any contaminants.

Approvals of development or expansion proposals

16 Plans for development or expansion of chemical blending facilities require planning approval from both Western Australian and local government agencies (Appendix B).

17 Activities that may affect sensitive water resources should be referred to this department for assessment and response (see Appendix D for assessment data). Within any underground water pollution control areas P3 area, this department's

approval in writing is required for the storage of hazardous chemical and/ or fuel containers with a capacity exceeding 250 L.

- 18 Under the *Environmental Protection Act 1986 - Part V*, chemical blending facilities processing more than 50 tonnes per year require *Works approval* from the Department of Environment and Conservation prior to their construction or expansion. These facilities, once operating, generally require either a licence or registration for the processing of chemicals. The regulatory requirements differ depending on the quantity of chemicals being produced each year. These are summarised in Appendix C.
- 19 The Department of Mines and Petroleum regulates chemical storage and management of prescribed chemicals via the *Dangerous Goods Safety Act 2004*, (Appendix B and reference 4).

Operation and management

Stormwater

Activities associated with chemical blending have the potential to contaminate stormwater should it mix with process wastewater, stored chemicals or run-off from areas likely to be subject to chemical spills.

- 20 Process wastewater or contaminated surface water should not be discharged into the stormwater management systems. Discharge of contaminating materials to soakage or drains is an offence under the Environmental Protection (Unauthorised discharges) Regulations 2004 (see Appendix B).
- 21 All wastewater should be collected in well-maintained, fully contained, weatherproof areas for recycling or treatment and disposal at an authorised disposal site.
- 22 Any stormwater that becomes contaminated should be contained, treated and used for process make-up water, or disposed as for process wastewater. Contaminated stormwater should be collected and stored in an impervious lined holding pond or tank for treatment (see reference 5b). Once effectively treated and shown by testing to be decontaminated, clean stormwater may be discharged to soakage.
- 23 Contaminated stormwater is a threat to groundwater and any nearby wetlands and waterways. If on-site disposal is proposed, then any regulatory agency conditions should ensure any end-of-pipe discharge or site monitoring facility consistently meets quality criteria for maintenance of the local water resources values (references 1c and 1d).
- 24 For further information on stormwater management and treatment, see our WQPN 52 *Stormwater management at industrial sites* and the *Stormwater management manual for Western Australia* (references 5b and 5d).

Chemical storage

- 25 The design, construction and operation of chemical storage facilities should be guided by advice from the Resource safety section of the Department of Mines and Petroleum to ensure chemicals are securely stored (see reference 4). Areas where chemicals are

stored, mixed or transferred (such as loading and unloading bays) should be contained to ensure any spilt substances can be collected for recycling, or treatment and safe disposal.

- 26 Any containment compounds should have a minimum storage of 110 per cent of the capacity of the largest chemical container, plus 25 per cent of the capacity of all other containers held within the compound, plus adequate stormwater capture freeboard for outdoor installations.
- 27 For further information on bulk chemical and fuel storage, see:
 - a WQPN 56 *Tanks for above ground chemical storage*
 - b WQPN 61 *Tanks of ground level chemical storage*
 - c WQPN 65 *Toxic and hazardous substances: storage and use.*
- 28 Any chemicals that are incompatible or reactive should be stored within separate containment compounds.

Waste management

- 29 Any waste produced should be managed and disposed of in accordance with the *Environmental Protection (Controlled Waste) Regulations 2004* administered by the Department of Environment and Conservation (see Appendix B).
- 30 A controlled waste tracking permit is required to remove controlled waste from any site. Any carriers, operators and vehicles transporting controlled waste must be licensed.
- 31 To apply for a controlled waste permit, or for more information about waste regulations, contact the DEC (reference 2).

Accidents and emergency response

- 32 An emergency response plan should be in place to deal with equipment malfunctions or chemical spills. All staff should be trained in efficient emergency response procedures to ensure that chemical spills and leaks are prevented from polluting groundwater, stormwater, drains, wetlands and waterways. Copies of these procedures should be made available to the Westplan–HAZMAT coordinator of the Fire and Emergency Services Authority in Perth (see Appendix B).
- 33 Immediate action should be taken in the event of a chemical spill, including use of containment spill kits, followed by chemical recovery or disposal at an approved site. Spill kits should be located in workshops in areas of high spill risk, identified with signage and should be easily accessible. They should be clearly labelled and contain absorbent materials (such as barrier pillows, sawdust, rags or 'kitty litter'), mops, brooms and dustpans and appropriate protective clothing. Employee occupational health and safety issues should be considered when implementing measures to prevent contamination of the nearby environment.
- 34 Where a chemical spill escapes and has the potential to contaminate surface or groundwater, the Department of Environment and Conservation should be notified as soon as practical (phone 1300 784 782).

35 For further information about preparing an emergency response plan, see our WQPN 10 *Chemical spills - emergency response* (reference 5b).

Monitoring and reporting

36 Where a premises does not require a licence or registration under the *Environmental Protection Act 1986*, the site should be periodically inspected by the local government authority to check that the site operator is adhering to development approval conditions and community health requirements.

37 Where on-site wastewater treatment and disposal is approved, the site operator should monitor the effluent quality to confirm system performance. A typical monitoring program may include:

- a physical parameters; including pH, electrical conductivity and turbidity; at commissioning and then at weekly intervals
- b chemical and biological parameters relevant to materials held on site, at commissioning, and then at monthly intervals
- c periodic investigations of any effects on local water resources determined in consultation with regulatory agencies.

38 Records and results of the monitoring program should be retained on site for at least two years for inspection or reporting if requested by regulatory agencies.

39 Further advice on water quality monitoring is contained in *Australian standard 5667* (reference 10) and the *Australian guidelines for water quality monitoring and reporting* (reference 1e).

Appendix A: Information on sensitive water resources, note limitations and updates

Sensitive water resources

Our water resources sustain ecosystems, aquatic recreation and aesthetic values as well as providing drinking, industry and irrigation supplies. Along with breathable air, uncontaminated water is essential for viable communities. Natural water resources should remain within defined quality limits to retain their ecological, social and economic values. Hence they require appropriate protection measures to minimise contamination risks.

Information on water quality parameters and processes to maintain water values are published in the Australian Government's national water quality management strategy papers. These papers are available online at <www.environment.gov.au> select *water* > *water policy and programs* > *water quality*.

The Department of Water strives to improve community awareness of catchment protection measures (for both surface water and groundwater) as part of a multi-barrier protection approach to sustain acceptable water resource quality. Human activity and many land uses pose a risk to water quality if contaminants in significant quantities are washed or leached into water resources.

Sensitive waters include estuaries, natural waterways, wetlands and groundwater. These waters support one or more of the environmental values described below.

Public drinking water sources

Overview

Public drinking water source area (PDWSA) is the collective name given to any area proclaimed to manage and protect a community drinking water source. PDWSA include underground water pollution control areas, water reserves and catchment areas administered by the Department of Water under the provisions of the *Metropolitan Water Supply, Sewerage and Drainage Act 1909* or the *Country Areas Water Supply Act 1947*.

For online information on the location of PDWSA, see < www.water.wa.gov.au > select *tools and data* > *maps and atlases* > *geographic data atlas*, then open *environment* > *public drinking water source areas*.

Within PDWSA, priority areas are defined (P1, P2 or P3) via publicly consulted drinking water source protection plans or land use and water management strategies. Priority areas are used to guide land planning, rezoning and development approval processes. Priority areas are assigned considering the current local planning scheme zoning, land tenure, the water source's strategic value and its vulnerability to harm. Each priority area is managed using a specific risk-based strategy to provide for effective water resource protection. The Department of Water develops these documents in consultation with other government agencies, landowners, industry and the community.

P1 areas are defined to ensure human activity does not degrade a water source. These areas are declared over land where the provision of high-quality drinking water for public use is the primary beneficial land value. P1 areas typically cover land controlled by the state government or one of its agencies. These areas are managed under the principle of *risk avoidance*, so most land development and human activity is normally opposed.

P2 areas are defined to ensure there is *no increased risk of pollution* to the water source once a source protection plan has been published. These areas are declared over land where low-intensity development exists (involving rural usage such as dry land grazing or cropping). Protection of public water supply sources is a high priority in P2 areas. These areas are managed in accordance with the principle of *risk minimisation*, and so the intensity of development should be restricted (via management conditions) and activities with a low water contamination risk are normally considered acceptable.

P3 areas are defined to *manage the risk of pollution* to the water source. These areas are declared over land where public water supply sources must co-exist with other land uses such as residential, commercial and/or light industrial development. Protection of P3 areas is mainly achieved through land use management measures e.g. contamination barriers. Environmental guidance (such as these notes) or site-specific development approval conditions are used to limit the water resources contamination risk from the land use or activity. If, however, the water source becomes contaminated, then water supplied from P3 sources may need to be more intensively treated or an alternative water supply source commissioned.

Additional protection zones are defined close to the point where drinking water is extracted or stored. These zones are called *wellhead protection zones (WHPZ)* and *reservoir protection zones (RPZ)*. Statutory land use constraints apply to activities within these zones surrounding sources to safeguard these waters most vulnerable to contamination.

WHPZ are assigned around water production wells based on hydrological factors. Statutory land use restrictions apply within these zones as groundwater moves rapidly towards wells due to aquifer depressurisation by pumping. Any contaminants leaching from the ground surface in a WHPZ could rapidly migrate into scheme water supplies (before effective remedial action can occur). In sedimentary basins, WHPZ are usually circular, with a radius of 500 metres in P1 areas and 300 metres in P2 and P3 areas. These zones do not extend outside PDWSA boundaries.

RPZ are defined over and around public water supply storage or pipe-head reservoirs. Statutory access and land use restrictions apply in RPZ. The aim is to restrict the likelihood of contaminants being deposited or washing into water sources in any runoff. RPZ are normally within state-controlled areas encompassing land up to two kilometres measured outward from the reservoir top water-level and include the inundated area when the reservoir is full.

For additional explanatory information on PDWSA, see our Water quality protection note (WQPN) 25 *Land use compatibility in public drinking water source areas*, WQPN 36 *Protecting public drinking water source areas*, WQPN 75 *Proclaimed public drinking water source areas*, note 76 *Land use planning in PDWSA* and WQPN 77 *Risk assessment in PDWSA*. These notes are available online at <www.water.wa.gov.au> select *publications* > *find a publication* > *series browse*.

Established activities within PDWSAs

Many land use activities were approved and established before publication of a source protection plan or land use and water management strategy.

Activity operators should ensure that modern environmental facilities and practices are progressively implemented and maintained so that the water resource contamination risk is minimised (within practicable and economic constraints).

New or expanded activities in PDWSA

Any development proposals that could affect a drinking water source should be referred to this department's local regional office with detailed supporting information for an assessment and written response.

The development proposal may be:

- approved (with or without conditions)
- delayed pending receipt of additional information before a decision is made; or
- opposed due to a statutory or policy conflict or inadequate protective measures provided to safeguard the water source.

To assist the assessment, operators should demonstrate that under all operating conditions the facilities and processes used on-site do not pose a significant water contamination risk.

Buffers to water supply sources

Native vegetation buffers should be used to separate compatible land use areas from the sources of drinking water including the full supply margins of reservoirs, their primary feeder streams and/or production bores. Advice on suitable buffer forms and dimensions is provided in our WQPN 6 *Vegetated buffers to sensitive water resources*.

Within clearing control catchments

Controls on vegetation clearing for salinity management in country areas are provided under part IIA of the *Country Areas Water Supply Act 1947*.

These controls apply in the Wellington Dam, Harris River Dam, Mundaring Weir and Denmark River catchment areas and the Kent River and Warren River water reserves.

Details of clearing controls may be obtained from our regional offices, see online information at <www.water.wa.gov.au>, select *Contact us*.

Private water supply sources

Private water sources vulnerable to contamination include:

- drinking water sources for people or domesticated animals
- commercial or industrial water supply sources (requiring specific qualities that support activities such as aquaculture, cooling, food and mineral processing or crop irrigation)
- urban or municipal irrigation sources (where water quality may affect vegetation performance or people's health and wellbeing).

Underground ecosystems

Important underground ecological functions that may be at risk of contamination include groundwater- and cave-dwelling animals and microorganisms (generally located within soils that have open pore spaces such as sand, gravel and limestone).

Waterway ecological and social values

Waterways that have high social and conservation significance are described in the Western Australian Environmental Protection Authority (EPA) Guidance statement 33 *Environmental guidance for planning and development*, section B5.2.2. This statement is available online at <www.epa.wa.gov.au> select *policies and guidelines > environmental assessment guidelines > guidance statements*.

The Department of Water manages natural waterways under Section 9 of the *Water Agencies (Powers) Act 1984* and the *Rights in Water and Irrigation Act 1914*. For online information, see <www.water.wa.gov.au> and select *managing water*. Apart from aquatic ecosystems and water sources, waterways provide social values including aesthetic appeal, drainage pathways and recreational opportunities for watercraft use, fishing, tourism, swimming and related aquatic activities. Engineered drains and constructed water

features are normally not assigned ecological values because their primary function and operational factors outweigh their ecological value.

This department also administers the *Waterways Conservation Act 1976* which defines Western Australian waterways subject to specific regulatory controls. Currently proclaimed waterways include the Avon River, Peel-Harvey Inlet, Leschenault Inlet, Wilson Inlet and Albany waterways management areas.

Within the Swan-Canning Estuary catchment

The Swan River Trust is responsible for the protection and management of the Swan-Canning River system. The Trust safeguards ecological and social values under the *Swan and Canning Rivers Management Act 2006*. Written approval is needed for any land- or water-based development within the Swan, Canning, Helena or Southern Rivers and their associated foreshore areas within the *Swan River Trust development control area (DCA)*. Human activity and development close to these areas are likely to have an effect on the waters of the river system. Development proposals within or abutting the DCA should be referred to the Trust for assessment.

Developments outside the DCA, but near river tributaries or drainage systems should also be referred to the Trust for assessment and advice. This is because water quality within the area may be affected by chemicals leached into groundwater flow. For detailed information, see online advice at <www.swanrivertrust.wa.gov.au>, phone 9278 0900 or email: planning@swanrivertrust.wa.gov.au.

Wetland ecology

Many important wetlands have been given conservation status under the Ramsar convention (described online at <www.ramsar.org>), Japan and Australia migratory bird agreement (JAMBA), China and Australia migratory bird agreement (CAMBA), and Republic of Korea and Australia migratory bird agreement (ROKAMBA).

Wetlands are also protected under various national and Western Australian government policies. Conservation wetland data to guide land planning and development activities is provided via the following publications:

- *Directory of important wetlands in Australia* defines wetlands scheduled by the Australian Government. It is available online at <www.environment.gov.au> select *water > water topics > wetlands*.
- Wetlands with defined high conservation significance are described in the EPA (WA) guidance statement 33 *Environmental guidance for planning and development* (section B4.2.2). This statement is available online at <www.epa.wa.gov.au> select *policies and guidelines > environmental assessment guidelines > guidance statements*.

The Department of Environment and Conservation (DEC) is the custodian of the state wetland datasets, and is responsible for maintaining and updating relevant information. These datasets are available online at <www.dec.wa.gov.au> search *maps wetlands* or select *management and protection > wetlands > wetlands data*. Guidance on viewing the wetlands is provided online at *water > wetlands > data* or by phoning DEC's nature conservation division on 9334 0333.

Wetlands datasets identified for conservation value or for resource enhancement include:

- *Geomorphic wetlands of the Swan Coastal Plain*
- *South coast significant wetlands*
- *Geomorphic wetlands Augusta to Walpole* (this dataset awaits detailed evaluation).

Wetlands that are highly disturbed by land use, or have been landscaped to provide a social amenity or drainage control function in urban settings, may not be assigned conservation values unless they are actively managed to maintain these values.

Note limitations

Many Western Australian aquifers, waterways and wetlands await detailed scientific evaluation, present data on their quality is sparse and their values remain unclassified. Unless demonstrated otherwise, any natural waters that are slightly disturbed by human activity are considered to have sensitive environmental values. Community support for these water values, the setting of practical management objectives, provision of sustainable protection services and effective implementation are vital to protecting or restoring water resources for both current needs and those of future generations.

This note provides a general guide on environmental issues, and offers solutions based on data searches, professional judgement and precedents. Recommendations made in this note do not override any statutory obligation or government policy statement. Alternative practical environmental solutions suited to local conditions may be considered. This note's recommendations shall not be used as this department's policy position on a specific matter, unless confirmed in writing. In addition, regulatory agencies should not use this note's recommendations in place of site-specific development conditions based on a project's assessed environmental risks. Any regulatory conditions should consider local environmental values, the safeguards in place and take a precautionary approach.

Where a conflict arises between this note's recommendations and any activity that may affect a sensitive water resource, this note may be used to assist stakeholder negotiations. The negotiated outcome should not result in a greater water quality contamination risk than would apply if the recommended protection measures were used.

Water quality protection note updates

This note will be updated as new information is received, industry/activity standards change and resources permit. The currently approved version is available online at <www.water.wa.gov.au> select *publications* > *find a publication* > *series browse* > *water quality protection notes*.

Appendix B: WA statutory approvals relevant to this note include-

What's regulated?	Western Australian statutes	Regulatory office
Regulation of prescribed premises that could pollute	<i>Environmental Protection Act 1986</i> , Part V Environmental regulation	Department of Environment and Conservation www.dec.wa.gov.au
Chemical blending or mixing of 50 tonnes per year requires a works approval and a licence above 500 tonnes per year. Regulation of activities that could harm the environment	Environmental Protection Regulations 1987 Environmental Protection (Controlled Waste) Regulations 2004 Environmental Protection (Unauthorised Discharges) Regulations 2004	
Management of human wastes Community health issues	<i>Health Act 1911</i>	Department of Health www.health.wa.gov.au Local government <a href="http://www.<LGA name>.wa.gov.au">www.<LGA name>.wa.gov.au
Transport, storage and handling of fuels, solvents, explosive and dangerous goods	<i>Dangerous Goods Safety Act 2004</i> ; Dangerous goods safety regulations 2007	Department of Mines and Petroleum – Resources safety division www.dmp.wa.gov.au
Licence to take surface water, groundwater or disturb waterways	<i>Rights in Water and Irrigation Act 1914</i>	Department of Water - regional office www.water.wa.gov.au
Discharge of waters to managed waterways	<i>Waterways Conservation Act 1976</i>	
Activities in proclaimed public drinking water source areas	<i>Metropolitan Water Supply, Sewerage and Drainage Act 1909</i> <i>Country Areas Water Supply Act 1947</i>	
Emergency response planning	<i>Fire and Emergency Services Authority of WA Act 1998</i>	Fire and Emergency Services Authority www.fesa.wa.gov.au
Statutory policies covering wetlands, drinking water catchments and estuaries	<i>Environmental Protection Act 1986</i> , Part III Environmental protection policies	Minister for the Environment advised by the Environmental Protection Authority www.epa.wa.gov.au
Impact of significant development proposals on the values and ecology of land or natural waters	<i>Environmental Protection Act 1986</i> , Part IV Environmental impact assessment	
Discharges into the Swan-Canning Estuary	<i>Swan and Canning Rivers Management Act 2006</i>	Swan River Trust www.swanrivertrust.wa.gov.au
Discharge to sewer (industrial waste permit) or to main drain	<i>Metropolitan Water Supply, Sewerage and Drainage Act 1909</i> <i>Country Towns Sewerage Act 1948</i>	Water Corporation www.watercorporation.com.au Designated water services provider

What's regulated?	Western Australian statutes	Regulatory office
Subdivision of land Land zoning and development approval	<i>Planning and Development Act 2005</i>	Western Australian Planning Commission Department of Planning www.planning.wa.gov.au Local government (council)

Relevant statutes are available from the *State Law Publisher* at <www.slp.wa.gov.au>.

Appendix C: *Environmental Protection Act 1986*, Part V - regulation of chemical blending facilities

Prescribed premises description	Category number	Annual production/ design capacity	Regulatory requirement (see key below)
Chemical manufacturing	31	100 tonnes or more	WA and L
	72	Less than 100 tonnes	WA and L or R
Chemical blending or mixing (causing a discharge)	74	50 to 500 tonnes	WA and L or R
Chemical blending or mixing (causing /likely to cause a discharge)	33	More than 500 tonnes	WA and L
Chemical blending or mixing (not causing a discharge)	75	More than 5000 tonnes	WA and L or R
Pesticides manufacturing	32	All facilities	WA and L
Bulk storage of chemicals	73	More than 1000 cubic metres	WA and L or R

KEY: WA = works approval, L = licence, R = registration

Appendix D: Data needed for development assessments

Where facilities near sensitive waters are to be constructed or upgraded, the following data should be supplied with the development proposal:

- 1 Site owner/ operating tenant's name and contact details.
- 2 A site plan showing the location of the project relative to lots and roads. The plan should show the topography, remnant vegetation cover, existing and proposed development areas and onsite water features/ sources.
- 3 Details of site investigation of soil strata, depth to water table (if applicable) and available data on the hydrology and quality of local water resources.
- 4 The present local government land use zoning. Current land use description, any site contamination history and its remediation.

- 5 Full description and scale of the activities planned for the project site, (site amenities, crops, animals, and chemical applications), construction and operating workforce and planned project operational life. Describe intended commissioning date, operating hours and any expansion options.
- 6 Details of any proposed vegetation clearing, environmental buffers, site earthworks and services including water supply, sewage and drainage.
- 7 Description of all materials/ chemicals to be stored or handled on site in commercial quantities, including a water use budget.
- 8 Description of the types, quantities and quality of solid and liquid waste (if applicable) that will be generated or disposed from the facility.
- 9 Description of planned material containment, waste management (treatment and disposal); with an environmental management plan and nutrient and irrigation management plan (where applicable)
- 10 Details of any environmental modelling conducted to demonstrate the effects of the project on local water resources
- 11 Planned operational and equipment maintenance procedures.
- 12 Details of any contingency measures proposed to minimise the impacts of chemical spills and safely dispose of contaminated waters that may result from storms, fire, flood or equipment malfunction or vandalism. Information should include workforce training, site monitoring and emergency response facilities.
- 13 Any project contractual agreements or regulatory approvals received.

For major projects, development proponents should engage the services of a qualified and experienced consultant to professionally prepare their development proposal. This should ensure that government agencies can efficiently assess and respond to the proposal without delays caused by inadequate or poorly defined information.

References and further reading

- 1 Australian government - national water quality management strategy papers available online at <www.environment.gov.au> select *water*> *water policy and programs*> *water quality*> *national water quality management strategy*:
 - a *Paper 2 - Policies and principles, 1994*
 - b *Paper 3 - Implementation guidelines, 1998*
 - c *Paper 4 - Australian and New Zealand guidelines for fresh and marine water quality, 2000*
 - d *Paper 6 - Australian drinking water guidelines, 2011*
 - e *Paper 7 - Australian guidelines for water quality monitoring and reporting, 2000*
 - f *Paper 21 – Australian guidelines for water recycling: Managing health and Environmental risks (phase1), 2006.*

To obtain printed copies of the papers, see internet site <www.awa.asn.au>, request by email at <bookshop@awa.asn.au> or obtain them from a library.

- 2 Department of Environment and Conservation (WA) publications available online at <www.dec.wa.gov.au>
 - a Wetlands policy and guidelines, select *Management and protection > wetlands > publications > wetlands position statement*
Position statement: Wetlands, WRC 2001.
 - b Waste management papers, select *pollution prevention> waste management> publications> guidelines*
 - *Controlled waste guidelines*
 - *Landfill waste classification and waste definitions as amended.*or see online information at <www.zerowastewa.com.au>
 - c Contaminated sites - guidance series, select *Pollution prevention > contaminated sites.*
- 3 Department of Health (WA) publication available online at <www.health.wa.gov.au> select *public health >water*, then search *household chemicals*
Safe use of household chemicals.
- 4 Department of Mines and Petroleum (WA) - dangerous goods codes, guidelines and licences. For online publications see <www.dmp.wa.gov.au> select *resources safety > publications > dangerous goods safety.*
- 5 Department of Water (WA) publications available online at <www.water.wa.gov.au>
 - a Water resource management policies, select *publications> find a publication> series browse> State-wide policies*
Foreshore policy 1 – Identifying the foreshore area, WRC 2002
 - b Water quality protection notes (WQPN), select *publications> find a publication> series browse> water quality protection notes:*
 - *WQPN 06 Vegetated buffers to sensitive water resources*
 - *WQPN 10 Chemical spills – emergency response*
 - *WQPN 22 Irrigation with nutrient-rich wastewater*
 - *WQPN 25 Land use compatibility in public drinking water source areas*
 - *WQPN 26 Liners for containing pollutants, using synthetic membranes*
 - *WQPN 27 Liners for containing pollutants, using engineered soils*
 - *WQPN 30 Groundwater monitoring bores*
 - *WQPN 33 Nutrient and irrigation management plans*
 - *WQPN 52 Stormwater management at industrial sites*
 - *WQPN 56 Tanks for above ground chemical storage*
 - *WQPN 61 Tanks for ground level chemical storage*
 - *WQPN 65 Toxic and hazardous substances - storage and use*

- WQPN 93 *Light industry – establishment and management*.
 - c Waterways guidelines, select *publications*> *find a publication*> *series browse*> *water notes* or *river restoration manual*
 - Water note 23 *Determining foreshore reserves*
 - River restoration report 16 *Determining foreshore reserves*
 - d Stormwater manual, select *waterways health*> *stormwater and drainage*> *stormwater management manual*
Stormwater management manual for Western Australia.
- 6 Environmental Protection Authority (WA) publications available online at <www.epa.wa.gov.au> select *guidance statements*
 - a Guidance statement 3 *Industrial-residential buffer guidelines*
 - b Guidance statement 33 *Environmental guidance for planning and development*.
 - 7 Engineers Australia publication available for purchase at <www.engineersmedia.com.au> search *EA books*
Australian rainfall and runoff (current edition).
 - 8 Fire and Emergency Services Authority publication available online at <www.fesa.wa.gov.au> search *Hazardous materials*
Hazardous materials safety procedures.
 - 9 Plastics and chemicals industries association (PACIA) publications available online at <www.pacia.org.au>
 - a *Code of practice cross reference guide – manufacturing process safety 2001*
 - b *Code of practice –environmental protection 2002*.
 - 10 Standards Australia publication available for purchase at <www.saiglobal.com> select *publications*
AS 5667 Water quality – sampling.
 - 11 Western Australian Planning Commission policy available online at <www.planning.wa.gov.au> select *publications*
State industrial buffer policy, draft 2004.

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Feedback

We welcome your thoughts on this note. Feedback will help us prepare future versions.

To comment on this note or seek any clarification, please contact our water source protection planning branch (details below), citing the note topic and version.

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