

## APPENDIX A: FRAMEWORK TABLES

### Introductory notes

This Appendix comprises Framework Tables that set out, for each Australian jurisdiction, the extent to which its legislation, regulation and policy (**as at July 2009**) adopt the key elements of groundwater quality protection set out in the Groundwater Guidelines. For an explanation of the structure of the Framework Tables, see pages 8-14 of the main body of the Review.

The Framework Tables include both “operational” provisions of legislation (for example, provisions which require a decision-maker or other entity to take into account a particular matter, or do a particular thing), and also provisions which set out the objects of legislation. It is important to note that legislative objects are not merely aspirational—rather, they may assist in the interpretation of specific functions conferred by the legislation, or the legislation may explicitly require a decision-maker to “have regard to” them, “further” them, “act consistently” with them, or similar.

As a quick visual guide to readers, each Framework Table:

- presents in **bold** key terms used in legislation, regulation or policy; and
- uses one of three symbols (●, ◐ and ○) to indicate whether a Framework: explicitly provides for an element of the Guidelines, goes some way towards providing for an element of the Guidelines; or does not provide for an element of the Guidelines. These categories are intended to be helpful, but are certainly not scientific, since the distinction between these categories is sometimes blurred, and different jurisdictions adopt an element of the Guidelines in a different Framework than is usual for other jurisdictions. Note also that if a Framework explicitly provides for an element of the Guidelines, this does not necessarily mean that the element is regularly enforced, or used in practice. Accordingly, the symbols should be understood as a rough guide and no more.

Note that a small number of land-use planning policy measures are included at the end of the Commonwealth Environment Protection Framework – no separate table is provided, given that the Commonwealth does not have legislative powers in relation to land-use planning.

Also note the comments in Chapter 1 of the main report, as to the scope of legislation, regulation and policy considered in this Review.

To avoid unnecessary duplication, intergovernmental arrangements appear in relation to one jurisdiction only (for example, the National Water Initiative appears only in the Commonwealth Groundwater Management Framework Table).

**These Framework Tables do not constitute legal advice, nor do they offer a complete view of every aspect of the legislation, regulation and policy of the subject jurisdictions. Rather, they set out some key elements of legislation, regulation and policy, sufficient to give an indication of the extent to which, and important ways in which, the jurisdictions have implemented key aspects of the Groundwater Guidelines.**

## Table of Contents

AUSTRALIAN CAPITAL TERRITORY (1) Groundwater Management Framework Table .....	3
AUSTRALIAN CAPITAL TERRITORY (2) Environment Protection Framework Table .....	12
AUSTRALIAN CAPITAL TERRITORY (3) Land-Use Planning Framework Table .....	25
COMMONWEALTH (1) Groundwater Management Framework Table .....	34
COMMONWEALTH (2) Environment Protection Framework Table .....	50
NEW SOUTH WALES (1) Groundwater Management Framework Table .....	64
NEW SOUTH WALES (2) Environment Protection Framework Table .....	84
NEW SOUTH WALES (3) Land-Use Planning Framework Table .....	107
NORTHERN TERRITORY (1) Groundwater Management Framework Table .....	116
NORTHERN TERRITORY (2) Environment Protection Framework Table .....	124
NORTHERN TERRITORY (3) Land-Use Planning Framework Table .....	138
QUEENSLAND (1) Groundwater Management Framework Table .....	144
QUEENSLAND (2) Environment Protection Framework Table .....	158
QUEENSLAND (3) Land-Use Planning Framework Table .....	175
SOUTH AUSTRALIA (1) Groundwater Management Framework Table .....	183
SOUTH AUSTRALIA (2) Environment Protection Framework Table .....	202
SOUTH AUSTRALIA (3) Land-Use Planning Framework Table .....	219
TASMANIA (1) Groundwater Management Framework Table .....	229
TASMANIA (2) Environment Protection Framework Table .....	242
TASMANIA (3) Land-Use Planning Framework Table .....	257
VICTORIA (1) Groundwater Management Framework Table .....	264
VICTORIA (2) Environment Protection Framework Table .....	283
VICTORIA (3) Land-Use Planning Framework Table .....	306
WESTERN AUSTRALIA (1) Groundwater Management Framework Table .....	316
WESTERN AUSTRALIA (2) Environment Protection Framework Table .....	335
WESTERN AUSTRALIA (3) Land-Use Planning Framework Table .....	354

## AUSTRALIAN CAPITAL TERRITORY (1) Groundwater Management Framework Table

Key items of legislation, regulation and policy	Supplementary items of legislation, regulation and policy	Symbols, acronyms, and useful terminology
<p><i>Water Resources Act 2007</i> (ACT) (<b>Water Resources Act</b>)</p> <p><i>Water Resources Regulation 2007</i> (ACT) (<b>Water Resources Regulation</b>)</p>	<p><i>Water Resources Environmental Flow Guidelines 2006</i> (No. 1) (ACT) (<b>Environmental Flow Guidelines</b>)</p> <p><i>Water Resources (Water Management areas) Determination 2007</i> (No 1) (ACT) (<b>Water Management Areas Determination</b>)</p> <p><i>Water Resources (Water available from areas) Determination 2007</i> (No 1) (ACT) (<b>Available Water Determination</b>)</p> <p><i>Public Health Act 1997</i> (ACT) (<b>Public Health Act</b>)</p> <p><i>Public Health (Drinking Water) Code of Practice 2007</i> (No 1) (ACT) (<b>Drinking Water Code</b>) – made under the Public Health Act</p> <p><i>ACT Natural Resources Management Plan 2004-2014</i> (<b>NRM Plan</b>)</p> <p><i>Utilities Act 2000</i> (ACT) (<b>Utilities Act</b>)</p> <p><i>Water Supply and Sewerage Service Standards Code 2000</i> (ACT) (<b>Water Supply and Sewerage Code</b>) – made under the Utilities Act</p>	<p><b>Framework</b> = the collection of legislation, regulation and policy set out in this report for each jurisdiction, in relation to: (1) Groundwater Management; (2) Environment Protection; and (3) Land-Use Planning</p> <p><b>Guidelines</b> = <i>Guidelines for Groundwater Protection in Australia</i> (1995)</p> <p>● = Framework explicitly provides for this element of the Guidelines</p> <p>◐ = Framework goes some way towards providing for this element of the Guidelines</p> <p>○ = Framework does not provide for this element of the Guidelines</p>

**Note 1:** While the ACT does not presently draw urban water supplies from groundwater, the public health legislation governing water suppliers is included for discussion, to enable readers to compare the regime to that of other jurisdictions.

**Note 2:** *Think Water, ACT Water* (2004), the ACT's Territory-wide non-statutory water policy document, does not discuss groundwater in any detail. An objective is to "[p]rotect the water quality in ACT rivers, lakes and aquifers, to maintain and enhance environmental, amenity, recreational and designated use values..." (p.41, Vol.1). The corresponding action is surface water-based: "The Government will continue environmental and health water quality protection programs, working with the community to meet the aim of the same or better quality for water leaving the ACT as that entering." (p.42, Vol.1). There is a very brief discussion of groundwater (p.28, Vol.1). It notes that "very limited" information on groundwater quality or groundwater flow rates is available (p.40, Vol.2). This policy is not discussed in further detail in the table below.

Similarly, *Water ACT: A Draft Policy for Sustainable Water Management* (2003), which originally set out the challenges, objectives and targets which *Think Water, ACT Water* seeks to address, does not explicitly discuss groundwater quality.

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in the Australian Capital Territory	
1	Principles (primarily pp.9-13)	Precautionary principle (pp.11, 40)	○ Not explicitly mentioned in the Water Resources Act, nor in the Water Resources Regulation.
2		Polluter pays principle (p.11)	● Not explicitly mentioned in the Water Resources Act, nor in the Water Resources Regulation.  However, if the EPA takes action which a person failed to take, and which was required under a notice prohibiting or restricting the take of water (including for the reason of groundwater quality concerns), or a direction in relation to a bore (see below, row 22) the EPA may recover its reasonable costs: s77(5), Water Resources Act.
3		Equity considerations (p.12)	○ Not explicitly mentioned in the Water Resources Act, nor in the Water Resources Regulation.
4		Beneficial uses and values (pp.10-12, 39-41)	○ Not explicitly mentioned in the Water Resources Act, nor in the Water Resources Regulation.
5	Forms of intervention (pp.14-15)	Command (p.14)	● The Water Resources Act provides for licensing of bores and water extraction from bores (see below, rows 19, 20 and 25), methods of limiting extraction due to groundwater quality impacts or concerns (see below, row 22) and imposes requirements on drinking water suppliers (see below, rows 30-35).
6		Market (pp.14-15)	○ Not explicitly provided for in relation to groundwater quality, nor water quality generally.
7		Community participation and education (p.15)	● A function of the EPA includes “to foster public education about the management of water resources”: s64(1)(f), Water Resources Act.  Public consultation requirements apply to the NRM Plan (see below, row 14), and water utilities that supply drinking water must publicise water quality results (see below, row 32).
8	Reservation of special areas (p.16)	Stressed areas (p.16)	● The setting of <b>water management areas</b> enables management through a Water Management Determination (see below, row 23). There are several ways to limit the taking of groundwater in response to concerns regarding groundwater quality (see below, row 23).

	Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in the Australian Capital Territory		
9		Public water supply areas (p.16)	●	Dealt with in the ACT Land-Use Planning Framework.	
10		Other	N/A	N/A	
11	Management plans (pp.18-20)  (that is, a plan for regulating individual behaviour once a groundwater body is being used by many competing users)	Types of management plans for which the legislation or regulation provide	N/A	ACT NRM Plan – a Territory-wide non-statutory policy document, developed by the ACT NRM Board to provide a strategic framework for natural resource investment at the Territory and local scale.	Note: some policy documents refer to the Water Management Areas Determination and the Available Water Determination (see below, row 22), taken together, as the ACT's "Water Sharing Plan". However, this is not a term used in legislation or regulation.
12		Component studies (p.18)	○	Not explicitly provided for.	
13		Surface water – groundwater interaction (p.18)	○	Not explicitly provided for.  However, surface water-groundwater interaction, in terms of quantity, is recognised in the Environmental Flow Guidelines (see below, row 23).	
14		Public consultation (p.19)	●	The NRM Plan underwent extensive public consultation, involving community meetings and written submissions (pp.8-9).	
15		Coordination with other agencies	●	The NRM Plan states that it was developed in consultation with Territory agencies and surrounding local governments: s8.	
16		Market incentives (p.19)	◐	The NRM Plan includes, as an "on-ground action", to "Implement actions to ensure compliance with water quality standards as outlined in the Regulations of the Environment Protection Act 1997": p.50. This may occur through economic incentives (see, for example, p.15).	
17		Monitoring program (p.20)	●	The NRM Plan states that it will periodically be formally reviewed, and that a Monitoring, Evaluation and Reporting Strategy will be prepared consistent with the National Monitoring and Evaluation Framework (pp.63, 64).	
18		Enforcement (p.20)	○	Not enforceable.	

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in the Australian Capital Territory				
19	Controls on extraction (p.16)  - Licences and permits	Groundwater quality considered in allocating groundwater (pp.9, 19)	●	A <b>water access entitlement</b> is granted by the Minister, and provides a person with an entitlement to an amount of surface water or groundwater stated in the entitlement: s19, Water Resources Act. The Minister must not grant a water access entitlement if, among other reasons, there is insufficient water available for taking in the relevant water management area: s21(2)(a), Water Resources Act. The limit on the water available may be set with regard to the sustainable yield, in relation to which water quality may be relevant (see below, row 23).  A <b>water licence</b> is granted by the EPA, and entitles a person to take water, including water from a bore. It can generally only be granted if the person holds a water access entitlement: s30(2)(a)(i), Water Resources Act. The EPA must not grant a water licence if, among other reasons, issuing the licence would adversely affect “the environment” (which is not defined), in any way: s30(3)(b)(ii), Water Resources Act.		
20		Quality considered in setting conditions on taking water	●	A <b>water access entitlement</b> is subject to conditions prescribed by regulations or other conditions: s23, Water Resources Act. None of the conditions prescribed by the Water Resources Regulation are related to quality: reg5. The Water Resources Act provides some examples of conditions which may be imposed (s23), including that water may only be used for a stated purpose, which include use for groundwater protection purposes, but these examples are not exhaustive.  A <b>water licence</b> is subject to conditions prescribed by regulations or other conditions imposed by the EPA: s31(1), Water Resources Act.  Conditions could be tailored specifically to groundwater quality concerns. The EPA must have regard to the objects of the Water Resources Act when exercising its functions under that Act (s64(2)), one of which is “to protect aquatic ecosystems and aquifers from damage and, where practicable, to reverse damage that has already happened”: s6(b). Accordingly, the EPA may exercise its function of setting conditions on water licences so as to protect an aquifer from damage through water quality degradation.		
21		Enforcement (p.20)	●	It is generally an offence to take groundwater without a licence, and penalties apply: s28(1) and (2), Water Resources Act.		
22	Other methods of limiting extraction	Method of limiting extraction	N/A	Cap on volume that may be extracted	Direction of the EPA in relation to bores	Notice prohibiting taking of water
23		Water quality considerations (pp.9, 19)	●	The Minister determines, for each <b>water management area</b> , the total amount of groundwater available for taking: s17, Water Resources Act. Relevant	If the EPA is satisfied that something done or not done in relation to a bore may result,	The Minister may prohibit or restrict the taking of water if

	Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in the Australian Capital Territory			
			<p>considerations are: (1) the <b>Environmental Flow Guidelines</b>; and (2) “any investigations undertaken by the [EPA] to establish <b>sustainable yields</b> for the water management area”: s17, Water Resources Act. Any such investigation could reasonably consider water quality, though this is not explicitly required.</p> <p>The <b>Water Management Areas Determination</b> sets out water management areas, and the <b>Available Water Determination</b> sets out quantities of groundwater and surface water available for taking within these areas. The explanatory notes to the latter state that the amounts were determined “taking into account the environmental flow guidelines, the total water resources of the Territory, and specific investigations undertaken by the Environment Protection Authority to establish sustainable yields from groundwater in particular areas”: cl3.</p> <p>The Environmental Flow Guidelines (made under s12 of the Water Resources Act), which apply to groundwater as well as surface water, limit groundwater abstraction for all of the ecosystems covered, to 10% of the “long term recharge” (pp.26, 34, 35, 37, 40), and also recognise the interconnection of surface water and groundwater (p.15). However, although water quality requirements are discussed (p.13), they are not discussed in relation to groundwater.</p>	<p>directly or indirectly, in the pollution or deterioration of water, the EPA may serve on the owner or occupier of land where the bore is located a direction to do one or more of the following (among others) (s76, Water Resources Act):</p> <ul style="list-style-type: none"> <li>• shut off the supply of groundwater, restrict or limit the water taken from the bore, or discontinue use of the bore;</li> <li>• close, or partly or completely plug, seal off or backfill the bore in the way stated in the direction; or</li> <li>• do any stated thing necessary for the protection of groundwater or an aquifer.</li> </ul>	<p>satisfied that—</p> <p>(i) because of contamination of ground water, taking the water may pose a risk to the health or safety of people or of damage to property or the environment; or</p> <p>(ii) for any other reason, taking ground water may adversely affect the environment.</p> <p>(s71, Water Resources Act).</p>
24	Enforcement (p.20)	●	<p>The Minister considers the Water Management Areas Determination of the amount of water available when considering whether to grant a water access entitlement: s21(2)(a)(i), Water Resources Act.</p>	<p>It is an offence to contravene a direction, and penalties apply: s76(4), Water Resources Act. The EPA may also take the action required in the notice if the relevant person does not comply: s77, Water Resources Act.</p>	<p>It is an offence to contravene a notice, and penalties apply: s71(6), Water Resources Act.</p>

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in the Australian Capital Territory	
25	Well construction measures (p.16)	Bore licensing	<p>● A person who owns or occupies land on which a bore is constructed must hold a <b>bore work licence</b>: s37, Water Resources Act. The EPA may have regard to anything it considers relevant in determining whether to issue the bore licence: s39(2)(b)(ii), Water Resources Act.</p> <p>A bore work licence is subject to conditions prescribed by regulation or imposed on the licence by the EPA: s40(1), Water Resources Act. The Water Resource Regulation does not presently prescribe conditions for bore work licences.</p> <p>In determining whether to issue a bore work licence, and the conditions to impose on the licence, the EPA may, in relevant circumstances, have regard to groundwater quality: see above, note in row 20.</p>
26		Driller licensing (pp.16, 25)	<p>● The EPA issues <b>drillers' licences</b> (s34), which are required to do <b>bore work</b>, which is defined to mean drilling, constructing, altering, plugging, backfilling or sealing off a bore; removing, replacing, altering, slotting or repairing the casing, lining or screen of a bore; or deepening a bore (in the course of construction or otherwise): Dictionary, Water Resources Act.</p> <p>A driller's licence is subject to conditions prescribed by regulation or imposed on the licence by the EPA: s36(1), Water Resources Act. The Water Resource Regulation does not presently prescribe conditions for driller's licences.</p> <p>In determining whether to issue a driller's licence, and the conditions to impose on the licence, the EPA may, in relevant circumstances, have regard to groundwater quality: see above, note in row 20.</p>
27		Rules for bore construction (p.25)	<p>◐ Not explicitly set out in the Water Resources Act, nor the Water Resources Regulation. However, conditions on driller's licences or bore work licences may dictate bore construction requirements (see above, rows 25 and 26).</p>
28		Rules for operation and maintenance of bore (p.25)	<p>◐ Not explicitly set out in the Water Resources Act, nor the Water Resources Regulation. However, conditions on bore work licences may dictate bore operation and maintenance requirements (see above, row 25).</p>
29		Enforcement (p.20)	<p>● It is an offence to do bore work without holding a driller's licence, and penalties apply: s33, Water Resources Act.</p> <p>It is an offence for an owner or occupier of land to have bore work done on the land, without holding a <b>bore work licence</b>.</p> <p>It is an offence to contravene a condition of a licence: s58, Water Resources Act.</p>



Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in the Australian Capital Territory	
30	Water supply and protection of public water supply wells (pp.25-27)	Water supplier may control activities/ intervene in risky activities near bores (pp.16, 26)	● Dealt with by the ACT Land-Use Planning Framework (see rows 11 and 12 of that Framework).
31		Protection zone around supply bores (p.25)	● Dealt with by the ACT Land-Use Planning Framework (see rows 11 and 12 of that Framework). See also, row 33 below, in relation to coordination between catchment management authorities and water utilities for the protection of drinking water sources.
32		Requirements to monitor up-gradient and within zone (pp.25, 26)	◐ A water utility under the Utilities Act is subject to the requirements of an approved “technical code”: s25(2)(a)(iv), Utilities Act. Inspectors monitor and enforce compliance with technical codes: s69, Utilities Act. A utility may be served with a written direction to rectify a contravention of a technical code: s70, Utilities Act. Under the Water Supply and Sewerage Code, which is a technical code under the Utilities Act, a water utility must, if supplying customers with potable water, comply with the requirements of the Drinking Water Code: cl5.1(1). The Drinking Water Code is also enforceable under the Public Health Act: s20(1).  Under the Drinking Water Code, a utility that supplies drinking water must “conduct a comprehensive system performance monitoring program in accordance with the principles outlined in the Australian Drinking Water Guidelines (cl7.1), and must publicise an associated annual report, which presents water quality results for each geographical supply area (cl8). No more detailed monitoring requirements are imposed.
33		Response plan in event of contamination (p.25)	● <u>Public Health Act</u>  Under the Drinking Water Code under the Public Health Act (for further discussion, see above, row 32), a utility supplying drinking water: <ul style="list-style-type: none"> <li>• must, in consultation with the Chief Health Officer, and other Government agencies where appropriate, develop and deploy incident response procedures addressing the utility’s activities relating to the supply and management of the drinking water (cl11);</li> <li>• must develop an annual Strategic Water Quality Improvement Plan (SWQIP) for the water supply system, with the objective of identifying strategic risks to the water supply and develop appropriate strategies to mitigate the risks. The SWQIP must be developed by the Utility and approved by the Chief Health Officer (cl13); and</li> </ul>

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in the Australian Capital Territory	
34			<ul style="list-style-type: none"> <li>must participate with the relevant water catchment management bodies for the purpose of information exchange in relation to activities in and around the catchments, which may impact on water quality (including pesticides and agricultural chemical use) in all catchments, and must survey the catchments every 3 years to determine the nature and extent of likely contaminants entering the catchment (cl14).</li> </ul> <p>The Chief Health Officer under the Public Health Act may direct a utility that supplies drinking water to cease extraction of water from a raw source which he or she has reasonable grounds for believing poses a serious risk to public health: cl6.1, Drinking Water Code.</p> <p><u>Utilities Act</u></p> <p>The Emergency Planning Code, which is a technical code under the Utilities Act, requires a water utility to adopt and implement procedures for Emergency Events (cl4) and to prepare a draft Emergency Plan, which the Chief Executive approves (cl5).</p> <p>An Emergency Event is defined as “an incident that threatens, or affects, the supply of Utility Services to a significant number of Customers and that may lead to the declaration of an emergency under the <i>Emergency Management Act 1999</i>”: Dictionary, Emergency Planning Code. The Emergencies Act, which replaced the <i>Emergency Management Act 1999</i>, defines an emergency to mean “an actual or imminent event that requires a significant and coordinated response”, and gives shortage of water as an example. Therefore, it seems very likely that water quality could be considered in this context, and to the extent groundwater is a source, groundwater quality.</p>
	Reporting in the event of contamination (p.25)	●	<p>The Emergency Planning Code, which is a technical code under the Utilities Act, requires a water utility to provide to the Chief Executive both: (1) an immediate notification of the emergency; and (2) an Emergency Event Report, which must include remedial actions to be taken to prevent another such occurrence, shortly after the event: cl10. As set out in row 33, contamination of a groundwater supply may constitute an Emergency Event.</p> <p>The Public Health Act also imposes, on every person, a duty to notify the Chief Health Officer of any substance or matter (including a contaminant or pathogen) in water at a place the person occupies, which “the person has reasonable grounds for believing to constitute a significant public health hazard”: s112.</p>
	Enforcement (p.20)	●	<p>The Emergency Planning Code is a technical code under the Utilities Act. A utility licence is subject to each technical code that applies to the utility: s25(2)(a)(iv), Utilities Act. Inspectors monitor and enforce compliance with technical codes: s69, Utilities Act. A utility may be served with a written direction to rectify a contravention of a technical code: s70, Utilities Act.</p>

		Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in the Australian Capital Territory	
36	Other well-related measures	Well abandonment requirements (pp.16, 25)	●	Neither the Water Resources Act nor the Water Resources Regulation provide for abandoning or decommissioning wells. However, the EPA may make a direction in relation to a bore if it may cause pollution or deterioration of groundwater (see above, row 23).
37		Controls on disposal of waste via wells (p.16)	●	The ACT's Land-Use Planning Framework prohibits discharging wastewater to groundwater in each of the ACT's three catchment types: see row 20, ACT Land-Use Planning Framework.  A person must have a <b>recharge licence</b> in order to construct works, operate works or alter works for the purpose of increasing the quantity of groundwater: s47, Water Resources Act. Although groundwater quality is not explicitly mentioned as a consideration relevant to the EPA granting a recharge licence, the EPA may have regard to anything it considers relevant: s49(2)(e), Water Resources Act. A recharge licence is subject to conditions prescribed by regulation or imposed on the licence by the EPA: s50(1), Water Resources Act.
38	Gathering information	Strategic assessment of groundwater resources (p.38)	●	The functions of the EPA include “to keep the state and condition of the water resources of the Territory under review” and “to compile and maintain up-to-date information about the water resources of the Territory”: s64(1)(a), and (d), Water Resources Act.  More specifically, the EPA “must ensure, as far as possible, that a continuous program for the assessment of water resources of the Territory is carried out”: s68(1), Water Resources Act. For this purpose, the Authority has powers to drill bores, monitor groundwater levels, operate and maintain monitoring stations, and sample and analyse water: s68(2), Water Resources Act.
39		Monitoring of critical overdraw (p.16)	○	Not explicitly provided for.
40		Vulnerability mapping (pp.20-22)	○	Not explicitly provided for.
41		Aquifer classification systems (pp.22-23)	○	Not explicitly provided for.

## AUSTRALIAN CAPITAL TERRITORY (2) Environment Protection Framework Table

Key items of legislation, regulation and policy	Supplementary items of legislation, regulation and policy	Symbols, acronyms, and useful terminology
<p><i>Environment Protection Act 1997</i> (ACT) (<b>Environment Protection Act</b>)</p> <p><i>Environment Protection Regulation 2005</i> (ACT) (<b>Environment Protection Regulation</b>)</p> <p><i>Water Quality Environment Protection Policy 2008</i> (ACT) (<b>Water Quality EPP</b>)</p> <p><i>Planning and Development Act 2007</i> (ACT) (<b>Planning and Development Act</b>)</p> <p><b>Territory Plan</b> under the Planning and Development Act.</p>	<p><i>Commissioner for the Environment Act 1993</i> (ACT) (<b>Commissioner for the Environment Act</b>)</p> <p><i>Dangerous Substances Act 2004</i> (ACT) (<b>Dangerous Substances Act</b>)</p> <p><i>Dangerous Substances (General) Regulation 2004</i> (ACT) (<b>Dangerous Substances Regulation</b>)</p> <p><i>ACT Wastewater Reuse for Irrigation Environment Protection Policy 1999</i> (ACT) (<b>Wastewater Reuse for Irrigation EPP</b>)</p> <p><i>Hazardous Materials Environment Protection Policy 2000</i> (ACT) (<b>Hazardous Materials EPP</b>)</p> <p><i>Waste Minimisation Act 2001</i> (ACT) (<b>Waste Minimisation Act</b>)</p>	<p><b>Framework</b> = the collection of legislation, regulation and policy set out in this report for each jurisdiction, in relation to: (1) Groundwater Management; (2) Environment Protection; and (3) Land-Use Planning</p> <p><b>Guidelines</b> = <i>Guidelines for Groundwater Protection in Australia</i> (1995)</p> <p>● = Framework explicitly provides for this element of the Guidelines</p> <p>◐ = Framework goes some way towards providing for this element of the Guidelines</p> <p>○ = Framework does not provide for this element of the Guidelines</p>

	Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in the Australian Capital Territory	
1	Principles (pp.9-13)	Precautionary principle (pp.11, 40)	●	One of the objects of the Environment Protection Act is “to promote the principles of ecologically sustainable development”, one of which is “the precautionary principle, namely, that if there is a threat of serious or irreversible environmental damage, a lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation”: ss2(1)(g) and (2)(a), Environment Protection Act.
2		Polluter pays principle (p.11)	●	The objects of the Environment Protection Act include allocating costs such that polluters bear “the appropriate share of the costs that arise from their activities” (see below, row 3).

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in the Australian Capital Territory	
3			<p>If the EPA takes action to remedy environment harm because a person has breached the <b>general environmental duty</b> (see below, row 5), and caused harm, or because a person has not complied with an <b>environment protection order</b> (see below, row 23), the EPA may recover its reasonable costs and expenses: s160, Environment Protection Act.</p> <p>If the EPA takes action to assess whether land is contaminated, or remediates land in specified circumstances (see below, row 34), the EPA may recover its reasonable costs from an appropriate person: s91K, Environment Protection Act.</p> <p>If an inquiry panel is established to inquire into an environmental impact statement, the “direct and indirect costs to the Territory” of the conduct of an inquiry are recoverable from the proponent of the development proposal: s233, Planning and Development Act.</p> <p>The EPA may, as a condition of an environmental authorisation, require the holder of the authorisation to provide a <b>financial assurance</b> in respect of the amount that is likely to be needed to remedy the foreseeable environmental harm that could result from the conduct of the activity: s85(1), Environment Protection Act.</p>
	Equity considerations (p.12)	●	<p>The objects of the Environment Protection Act include “to allocate the costs of environmental protection and restoration equitably and in a way that encourages responsible use of, and reduces harm to, the environment with polluters bearing the appropriate share of the costs that arise from their activities”: s2(1)(i), Environment Protection Act.</p> <p>Under the Environment Protection Act, the term “environment” is defined to include water (see Environment Protection Act Dictionary).</p>
	Beneficial uses and values (pp.10-12, 39-41)	● (subject to some uncertainty)	<p><b>Environmental values</b> are set out in the Catchment and Water Use General Code of the Territory Plan. The relevant criteria (<b>ambient environmental standards</b>) are set out in the Environment Protection Regulation. These documents seem to suggest that ambient environmental standards do not apply to groundwater, and there is some uncertainty about whether environmental values apply to groundwater (see below, rows 9-15).</p> <p>The Water Quality EPP sets out guidelines to achieve the <b>environmental values</b> set by the Territory Plan under the Land and Development Act (see row 8, Land-Use Planning Framework; see also below, rows 9 and 10).</p>
5	Forms of intervention	Command (p.14)	<p>The Environment Protection Act contains three general duties:</p> <ul style="list-style-type: none"> <li>• <b>General environmental duty:</b> a person must take steps that are practicable and reasonable to prevent or minimise environmental harm or environmental nuisance caused, or likely to be caused, by an activity</li> </ul>

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in the Australian Capital Territory
		<p>conducted by that person: s22(1);</p> <p><b>Note:</b> The Environment Protection Act provides for the EPA to make environment protection policies. These policies set out, in accordance with relevant best practice, (1) guidelines to which the EPA must have regard in administering the Environment Protection Act, (2) guidelines for effective environmental protection and management within a particular industry, or for the community generally, or (3) matters that the EPA may take into account for the purposes of exercising a discretion under the Act: s24 Environment Protection Act.</p> <p>The Water Quality EPP is expressed in very general terms, as advice or guidelines on how to comply with the <b>general environmental duty</b>, and general explanation of the Environment Protection Act and Environment Protection Regulations in relation to water.</p> <ul style="list-style-type: none"> <li>• <b>Duty to notify of environmental harm:</b> If a person conducting an activity becomes aware that the activity has caused, is causing or is likely to cause serious or material environmental harm from pollution, that person must notify the EPA as soon as practicable: s23(3); and</li> <li>• <b>Duty to notify existence of contaminated land:</b> A lessee or occupier of land must notify the EPA as soon as practicable after becoming aware that the relevant land is contaminated in such a way as to present, or to be likely to present a significant risk of harm to human health; or a risk of material environmental harm or serious environmental harm: s23A.</li> </ul> <p>Note: both “serious environmental harm” and “material environmental harm” are defined terms.</p> <p>In addition, a person must not conduct certain listed activities, or an activity that the EPA specifies, unless the person holds an <b>environmental authorisation</b> in relation to the activity: s42(1), Environment Protection Act. Certain activities also require an environmental protection agreement to be in effect in relation to the activity: s42(2), Environment Protection Act. (For further detail, see below, row 17).</p> <p>The Environment Protection Act also contains a hierarchy of general offence provisions:</p> <ul style="list-style-type: none"> <li>• a person must not pollute the environment causing <b>serious environmental harm, material environmental harm, or environmental harm</b> (greater penalties apply for knowingly or recklessly, or negligently causing these types of harm): ss137-139;</li> <li>• a person must not cause an <b>environmental nuisance</b>: s141; and</li> <li>• a person must not cause or allow a pollutant or the source of a pollutant to be placed in a position as a result of</li> </ul>

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in the Australian Capital Territory
		<p>which the pollutant could reasonably be expected to cause environmental harm: s142.</p> <p>If a listed pollutant enters the environment at a level exceeding the prescribed level, this is taken to cause environmental harm: s5.</p> <p>The Environment Protection Regulation makes it an offence to:</p> <ul style="list-style-type: none"> <li>• allow a listed prohibited substance to enter a waterway: reg44(1). However, there is no equivalent offence in relation to groundwater;</li> <li>• move controlled waste interstate without fulfilling certain procedural requirements: regs58-61; and</li> <li>• store certain agricultural and veterinary chemical products other than as authorised by the Australian Pesticides and Veterinary Medicines Authority: reg55(1).</li> </ul> <p>The Dangerous Substances Act also provides for several offences in relation to failing to comply with a safety duty and exposing the environment (including the natural environment) to a “substantial risk of substantial damage”, or substantial damage: ss45 and 46. The precise nature of the safety duty varies according to the role of the person, for example a manufacturer, supplier, or handler of dangerous substances: ss23, 25, 26-28, 30, 31, 33-36, 39, Dangerous Substances act.</p> <p>The Dangerous Substances Regulation imposes requirements in relation to spills of dangerous substances at different types of premises: regs239-241 and 289-291.</p> <p><u>Complying with the general environmental duty</u></p> <p>Environment protection policies provide guidance on how to meet the general environmental duty in relation to water quality, but are not legally binding in themselves. The following EPPs are relevant to groundwater quality protection:</p> <ul style="list-style-type: none"> <li>• Water Quality EPP: The policy objective of the Water Quality EPP is “to provide information to the community and to maintain, and where appropriate enhance, the ACT’s water quality (as measured by standards prescribed by regulation or, when not available, other appropriate standards) by minimising or eliminating water pollution”: cl2. The Water Quality EPP sets out measures that should be undertaken to protect water quality in relation to business and industry, including (pp.8-10): <ul style="list-style-type: none"> <li>○ measures relating to stormwater, for example cutoff drains, silt pits, bunding, etc); and</li> </ul> </li> </ul>

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in the Australian Capital Territory	
6			<ul style="list-style-type: none"> <li>○ measures relating to waste, for example using hazardous waste contractors where necessary, complying with the <i>ACT NOWaste Development Control Code for Best Practice Waste Management in the ACT 1999</i>, keeping a spill kit on site, etc.)</li> <li>• The Wastewater Reuse for Irrigation EPP seeks to protect against, among other things, the contamination of groundwater by wastewater re-use (p.14). It sets out irrigation, environmental management and monitoring practices to protect against contamination. The relevant NWQMS documents are set out as reference materials (p.21).</li> <li>• The Contaminated Sites EPP provides an explanation of the legislative framework in relation to contaminated sites, and associated principles and policies.</li> <li>• The Hazardous Materials EPP provides an explanation of the legislative framework in relation to hazardous materials (including scheduled wastes, agricultural and veterinary chemicals, and controlled waste) and associated principles.</li> </ul> <p>Further, the Minister may accredit a code of practice that sets out ways of achieving compliance with the <b>general environmental duty</b>: s31 Environment Protection Act. An accredited code of practice applies to the commercial waste industry: <i>ACT Commercial Waste Industry Code of Practice</i> (1998), available at <a href="http://www.legislation.act.gov.au/di/1998-238/current/pdf/1998-238.pdf">http://www.legislation.act.gov.au/di/1998-238/current/pdf/1998-238.pdf</a>, viewed 15 August 2009.</p>
	Market (generally pp.14-15)  eg tradeable discharge permits (pp.45, 46) or taxes on contaminants (p.46)	●	<p>Under the Environment Protection Act, the EPA “may develop and implement schemes involving economic measures as a means of achieving the objects” of the Environment Protection Act, explicit examples of which include:</p> <ul style="list-style-type: none"> <li>• <b>bubble licence schemes</b>, which involve determining the aggregate measure of a pollutant that is permitted to enter the environment as a result of activities conducted by a group of people or on a group of sites, and apportioning the aggregate measure among the members of the group: s35, Environment Protection Act; and</li> <li>• <b>tradeable permit schemes</b>: s36, Environment Protection Act.</li> </ul> <p>Although the regulations may provide for these schemes (s37, Environment Protection Act), they do not presently do so.</p>
	Community participation and education (p.15)	●	<p>Public consultation provisions apply in relation to different aspects of the Environment Protection Act, including:</p> <ul style="list-style-type: none"> <li>• an application for an environmental authorisation: s48(1), Environment Protection Act;</li> </ul>



Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in the Australian Capital Territory																			
8	Water quality protection objectives and beneficial uses	●	<ul style="list-style-type: none"><li>• a draft environment protection policy: s25, Environment Protection Act; and</li><li>• accrediting a code of practice (the Minister must be satisfied that the code been prepared in consultation with specified persons): s31(2), Environment Protection Act.</li></ul> <p>One of the objects of the Environment Protection Act is to “provide for the monitoring and reporting of the environmental quality on a regular basis in conjunction with the commissioner for the environment”: s2(1)(k).</p> <p>The ACT’s Commissioner for the Environment periodically must prepare <b>state of the environment reports</b>. The reports must include (s19 Commissioner for the Environment Act):</p> <ul style="list-style-type: none"><li>• an assessment of the condition of the environment, including an assessment of water, as the Commissioner considers necessary; and</li><li>• an evaluation of the adequacy and effectiveness of environmental management.</li></ul> <p>The latest ACT state of the environment report (published in 2007) discusses groundwater quality briefly, but states that “[f]ew data that characterise groundwater quality for state of the environment reporting are available” (available <a href="http://www.environmentcommissioner.act.gov.au/soe/2007actreport/indicators07/groundwater07">http://www.environmentcommissioner.act.gov.au/soe/2007actreport/indicators07/groundwater07</a>).</p>																		
	9	Define beneficial uses and values (pp.39-40)	●  (subject to some uncertainty)	<p><b>Environmental values</b> are set out in the Water Use and Catchment Code of the Territory Plan (see below, row 10). These values are:</p> <table><tr><td>Aquatic habitat – mountain streams (AQUA/1)</td><td>Hydro-electric power generation</td></tr><tr><td>Aquatic habitat – lowland streams (AQUA/2)</td><td>Irrigation water supply (IRRIG)</td></tr><tr><td>Aquatic habitat – urban lakes and ponds (AQUA/3)</td><td>Waterscape (VIEW)</td></tr><tr><td>Aquatic habitat – urban wetlands (AQUA/5)</td><td>Water storage</td></tr><tr><td>Aquatic habitat – mountain reservoirs (AQUA/6)</td><td>Stockwater supply (STOCK)</td></tr><tr><td>Discharge – treated wastewater</td><td>Streamflow regulation</td></tr><tr><td>Discharge – stormwater</td><td>Water based recreation – boating (REC/2)*</td></tr><tr><td>Domestic water supply (DOM/1)</td><td>Water based recreation – swimming (REC/1)</td></tr><tr><td>Fishing</td><td></td></tr></table> <p>It is not entirely clear that environmental values set out in the Water Use and Catchment General Code apply to</p>	Aquatic habitat – mountain streams (AQUA/1)	Hydro-electric power generation	Aquatic habitat – lowland streams (AQUA/2)	Irrigation water supply (IRRIG)	Aquatic habitat – urban lakes and ponds (AQUA/3)	Waterscape (VIEW)	Aquatic habitat – urban wetlands (AQUA/5)	Water storage	Aquatic habitat – mountain reservoirs (AQUA/6)	Stockwater supply (STOCK)	Discharge – treated wastewater	Streamflow regulation	Discharge – stormwater	Water based recreation – boating (REC/2)*	Domestic water supply (DOM/1)	Water based recreation – swimming (REC/1)	Fishing
Aquatic habitat – mountain streams (AQUA/1)	Hydro-electric power generation																				
Aquatic habitat – lowland streams (AQUA/2)	Irrigation water supply (IRRIG)																				
Aquatic habitat – urban lakes and ponds (AQUA/3)	Waterscape (VIEW)																				
Aquatic habitat – urban wetlands (AQUA/5)	Water storage																				
Aquatic habitat – mountain reservoirs (AQUA/6)	Stockwater supply (STOCK)																				
Discharge – treated wastewater	Streamflow regulation																				
Discharge – stormwater	Water based recreation – boating (REC/2)*																				
Domestic water supply (DOM/1)	Water based recreation – swimming (REC/1)																				
Fishing																					

Form of protection suggested by the Guidelines				Whether implemented / Summary of implementation in the Australian Capital Territory	
10				groundwater within the categories of catchments, as well as surface water (see below, row 10).	
				<p>The term “environmental value” is defined in the Environment Protection Regulation as the value mentioned in the Water Use and Catchment Code of the Territory Plan “for the waterway”, but is not defined further: reg41. Since waterway is defined with reference to surface water, this suggests that these environmental values are not intended to apply to groundwater in the defined catchments (see below, row 10). On the other hand, the Planning and Development Act refers to the <b>environmental values</b> of an aquifer being set out in the Territory Plan (see below, row 19).</p> <p><b>Note: This Table assumes that environmental values do apply to aquifers in the relevant catchment categories, however this should be confirmed with the appropriate ACT agency.</b></p>	
11	Identify beneficial uses (pp.40-41)	● (subject to some uncertainty)		<p>The Water Use and Catchment Code (Part 11.8 of the Territory Plan under the Land and Development Act) categorises waters of the ACT and their catchments according to the predominant water use or environment value. The three types of water use are: conservation; water supply; and drainage and open space. The Water Use and Catchment Code sets out which <b>environmental values</b> apply to each category of catchment, and each individual catchment throughout the ACT (pp.3, 5, 8). It is not entirely clear that a particular catchment includes groundwater, since catchments are described by reference to river reaches.</p> <p>The conservation catchment policy, water supply catchment policy and drainage and open space catchment policy each has, as an objective, to “protect and conserve the water quality of groundwater resources of the Territory (pp.2, 5 and 7, Water Use and Catchment Code).</p> <p><b>Since it would be consistent with this objective to apply environmental values to groundwater, this Table assumes that environmental values do apply to aquifers in the relevant catchment category. However, this is subject to significant uncertainty and should be confirmed with the appropriate ACT agency.</b></p>	
	Apply criteria (narrative or prescriptive) (pp.41-42)	○		<p>The Environment Protection Regulation includes the ACT’s <b>ambient environmental standards</b>, which set out the indicators and the maximum acceptable concentrations of substances and materials acceptable for the maintenance of the <b>environmental values</b> for water outlined in the Territory Plan: Sch4.</p> <p>However, it seems that the ambient environmental standards set out in the Environment Protection Regulations are not intended to apply to groundwater, since they are expressed to be “ambient environmental standards for a waterway” (reg43(1)), and the definition of “waterway” covers only surface water (Dictionary, Environment Protection Act).</p>	
12	Points of application of	○		N/A – ambient environmental standards appear not to relate to groundwater.	

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in the Australian Capital Territory	
13	criteria (pp.42-43)		
	Monitoring and review program focusing on extent of implementation and extent to which goals are met (pp.46-47)	●	<p>The Planning and Development Act requires the Planning and Land Authority, at least once every 5 years, to consider whether the Territory Plan (which includes the Water Use and Catchment General Code) should be reviewed: s102(1). One of the relevant considerations is whether the Territory Plan “gives effect to its object in a way that gives effect to sustainability principles”: s102(2)(d), Planning and Development Act.</p> <p>The Environment Protection Act does not explicitly provide for monitoring or reviewing the effectiveness of environment protection policies, including the Water Quality EPP.</p>
14	Inter-agency coordination (p.48)	●	<p>No particular inter-agency coordination requirements apply to the ambient environmental standards, since they are part of the Environment Protection Regulation, rather than part of a separate policy document.</p> <p>In relation to a draft EPP, such as the Water Quality EPP, no particular inter-agency coordination requirements apply, separate from the general public consultation requirement: s25, Environment Protection Act.</p>
15	Enforcement of criteria for beneficial uses	○	N/A – ambient environmental standards appear not to relate to groundwater.
16	Controlling sources of contamination	●	<p>The objects of the Waste Minimisation Act include, among other things, to establish a waste management hierarchy for the ACT of the following order: (i) avoidance; (ii) reuse; (iii) recycling and reprocessing; (iv) disposal: s5, Waste Minimisation Act.</p> <p>The Act has two main tools: (1) the establishment and enforcement for an industry of an Industry Waste Minimisation Plan (<b>IWMP</b>) (Pt2, Waste Minimisation Act); and (2) the establishment of garbage services and for the disposal of waste, including facilities for disposal by way of reuse, recycling or landfill (Pt3, Waste Minimisation Act).</p> <p>The Act allows a member of an industry, or the Chief Executive Officer, to nominate an industry for an IWMP. The Minister may decide whether an IWMP is to be developed for the industry: s9, Waste Minimisation Act. Among other things, an IWMP may: identify opportunities to set waste reduction targets; identify the action to be taken to implement appropriate methods for reducing, reusing and recycling waste, identify actions for litter management and for the safe disposal of waste; includes time frames for the attainment of waste reduction targets; and establish monitoring and reporting arrangements: s8(2), Waste Minimisation Act.</p> <p>Penalties apply for contravening an IWRP: s18, Waste Minimisation Act.</p>

	Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in the Australian Capital Territory
17	Licensing of contaminants and point sources (p.30, App.1)	<p><u>Types of activities requiring authorisation under the Environment Protection Act</u></p> <p>The Environment Protection Act sets out three categories of activities which require authorisation:</p> <ul style="list-style-type: none"> <li>• a <b>class A activity</b>, for which a person must hold an environmental authorisation: s42(1);</li> <li>• a <b>class B activity</b>, for which a person must hold an environmental authorisation and be a party to an <b>environmental protection agreement</b>: s42(2); and</li> </ul> <p>Note: an environmental protection agreement is an agreement between the EPA and a person proposing to undertake a particular activity. The agreement may, among other things, require a person to comply with an industry standard or code of practice for the purpose of preventing, minimising or eliminating environmental harm, or to meet progressively higher standards for the prevention, minimisation or elimination of environmental harm caused by the activity: cl39 Environment Protection Act.</p> <ul style="list-style-type: none"> <li>• an activity specified by the EPA, and notified to a person, including an activity that the EPA has reasonable grounds for believing has caused, is causing, or may cause, serious or material environmental harm: s43.</li> </ul> <p>There are 47 listed class A activities, including (under cl1.2 of Sch1, Environment Protection Act):</p> <p>large commercial landfills; waste transport activities; sewage treatment; treatment, storage or handling of contaminated soil; dairies; milk processing; agricultural crop processing; large feedlots; poultry rearing; saleyards; abattoirs; tanneries and fellmongeries; electricity generation; storage or production of petroleum products; logging operations; composting facilities; wood preservation or processing.</p> <p>There are 7 class B activities, including (under cl1.3 of Sch1, Environment Protection Act):</p> <p>the manufacture of things in furnaces or kilns; the preservation of wood for commercial purposes using chemicals; forestry activities; major land development or construction activities; management of municipal stormwater services on unleased land; wastewater recycling activities; and the commercial collection of waste from commercial premises.</p> <p>When considering whether to grant an environmental authorisation, and what conditions to apply to the authorisation, the EPA is required to take into account, among other things:</p> <ul style="list-style-type: none"> <li>• the potential for the activity to cause environmental harm: s61(a), Environment Protection Act. and</li> </ul>

Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in the Australian Capital Territory
	<ul style="list-style-type: none"> <li>• “any relevant environment protection policy”: s61(c), Environment Protection Act – for example the Water Quality EPP, the Wastewater Reuse for Irrigation EPP, the Contaminated Sites EPP, and the Hazardous Materials EPP (see above, row 5).</li> </ul> <p><u>Conditions on authorisations under the Environment Protection Act</u></p> <p>The EPA may grant an environmental authorisation subject to conditions: s49(1)(a), Environment Protection Act. The EPA may impose conditions “for the purposes of ensuring compliance with [the Environment Protection Act] and relevant practice” or any condition the EPA considers necessary: s51. In particular, conditions may require the holder of the authorisation to:</p> <ul style="list-style-type: none"> <li>• comply with a specified provision of an industry standard or code of practice that relates to minimising environmental harm: s51(a)(vii) Environment Protection Act.</li> <li>• prepare an <b>environmental improvement plan</b> (see below, row 22),</li> <li>• prepare an <b>emergency plan</b> (which deals with foreseeable but unplanned pollution: s84, Environment Protection Act);</li> <li>• provide a <b>financial assurance</b> (see above, row 6); or</li> <li>• comply with monitoring and reporting requirements (see below, row 22).</li> </ul> <p>Standard conditions apply to particular types of authorisation. For example, standard conditions apply to an authorisation for the commercial use of pest control chemicals: Attachment S3.A, Environment Protection Regulation. The standard conditions include conditions relating to storage requirements to prevent chemicals from entering a water supply.</p> <p>Penalties apply for contravening an environmental authorisation: s45, Environment Protection Act.</p> <p><u>Other licensing regimes</u></p> <p>A separate licensing regime applies to activities in relation to dangerous substances under the Dangerous Substance Act and Dangerous Substances Regulation. A licence under that regime may also include conditions to protect the environment: s53, Dangerous Substances Act.</p>

	Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in the Australian Capital Territory
18	Inter-agency coordination (p.48)	● In relation to the grant of an environmental authorisation, there are no specific inter-agency consultation requirements, separate from the general public consultation requirements: s48, Environment Protection Act.
19	Requirements for impact assessment (p.32)	<p>● <u>Environmental Impact Statements</u></p> <p>An environmental impact statement (<b>EIS</b>) may be required in relation to:</p> <ul style="list-style-type: none"> <li>• an activity which is the subject of an application for an environmental authorisation – the EPA may request the Minister to direct that an EIS be prepared in relation to the possible environmental impact of a specified activity: s49(1)(d), Environment Protection Act; and</li> <li>• a development application for certain types of development proposals, which are in the <b>impact track</b> must include a completed EIS in relation to the proposal, unless the application is exempted by the Minister. The impact track applies to a development proposal if it is (s123, Planning and Development Act): <ul style="list-style-type: none"> <li>○ listed in a development table in the Territory Plan (a development table sets out how a particular type of development should be assessed in each zone – see row 8, ACT Land-Use Planning Framework);</li> <li>○ listed in Sch4 of the Planning and Development Act;</li> <li>○ the subject of a declaration by the Minister administering the Planning and Development Act, or the Public Health Act Minister; or</li> <li>○ determined to be a “controlled action” under the <i>Environment Protection Biodiversity Conservation Act 1999</i> (Cth) which is permitted to be assessed under the Planning and Development Act (see ACT Land-Use Planning Framework).</li> </ul> </li> </ul> <p>Examples of activities which are listed in Sch4 of the Planning and Development Act include:</p> <ul style="list-style-type: none"> <li>• a proposal with “the potential to have a significant impact on...a prescribed environmental value mentioned in the territory plan, (water use catchment general code) of a natural waterway or aquifer”;</li> <li>• a proposal involving land on the register of contaminated sites, or land “potentially contaminated in a way that is causing, or is likely to cause, a significant risk of harm to people’s health or the environment”;</li> <li>• a large petroleum storage facility, construction of a waste management facility, transfer station or material</li> </ul>

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in the Australian Capital Territory	
20			<p>recycling facility;</p> <ul style="list-style-type: none"> <li>• a sewage treatment plant or sewer reticulation system, use of land for landfill, in an area with a high watertable, highly permeable soils, sodic soils or saline soils; and</li> <li>• a wastewater treatment plant in an area with a high watertable or highly permeable soils.</li> </ul> <p>EISs are prepared under the Planning and Development Act. The content of an EIS must fulfil a large number of requirements which are set out in the Planning and Development Regulation (reg50), including a description of the proposal, its potential impacts, ways of managing those impacts, and an evaluation of alternatives to the proposal. If the proposal is particularly significant, the Minister may decide to establish an inquiry panel to inquire about the EIS: s228, Planning and Development Act.</p> <p><u>Strategic Environmental Assessments</u></p> <p>The Minister may direct the ACT Planning and Land Authority to prepare a strategic environmental assessment in relation to a proposal regarding a major policy matter, for example a major land use policy initiative, or a major variation to the Territory Plan, rather than in relation to an individual development proposal: s99, Planning and Development Act.</p>
	Prescription of activities/discharges in protected areas (p.45)	●	The Water Use and Catchment General Code prohibits the discharge of wastewater to groundwater resources in a Conservation Catchment, Water Supply Catchment, or Drainage and Open Space Catchment (pp.4, 6, 9). It also generally requires that “land use and management provisions” shall be consistent with “land use capability” in relation to Conservation Catchments and Drainage and Open Space Catchments, (pp.4, 9).
21	Monitoring requirements (p.45)	●	<p>A condition of an <b>environmental authorisation</b> may require the holder to conduct specified environmental monitoring or testing: s51(a)(vi), Environment Protection Act.</p> <p>An <b>environmental improvement plan</b> (see below, row 34) may include a requirement that specified monitoring or testing be conducted to assess the environmental impact of the activity: s68(2), Environment Protection Act.</p> <p>An <b>environmental protection agreement</b> (see above, row 17) may include monitoring requirements: ss19(1)(h) and 39, Environment Protection Act.</p> <p>An <b>environment protection order</b> (see below, row 34) may include monitoring requirements: ss19(1)(h) and 125, Environment Protection Act.</p>

	Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in the Australian Capital Territory
22	Contingency measures, including clean-up requirements (pp.47-48)	<p>●</p> <p>The EPA may serve an <b>environment protection order</b> on a person who:</p> <ul style="list-style-type: none"> <li>the EPA believes has contravened or is contravening an environmental authorisation or a provision of the Environment Protection Act: s125(1), Environment Protection Act; and</li> <li>is the occupier or lessee of contaminated land, in specified circumstances: s125(2) and (3), Environment Protection Act.</li> </ul> <p>An environment protection order may require a person to take or stop specified action, including action to remedy, prevent or mitigate environmental harm: s125(4) and (5), Environment Protection Act.</p> <p>The EPA may require a person to prepare a draft <b>environmental improvement plan</b> for the EPA's approval. The EPA may require this, among other reasons, if it has reasonable grounds for believing that, in conducting a particular activity, a person has contravened or is likely to contravene an <b>environmental authorisation</b>, an <b>environment protection order</b>, or a provision of the Environment Protection Act, thereby causing serious or material environmental harm: s69.</p> <p>The EPA may serve on an appropriate person:</p> <ul style="list-style-type: none"> <li>an <b>assessment order</b>, which is an order to assess whether land is contaminated, where the assessment must be audited by an approved environmental auditor. The EPA may serve such an order if it has reasonable grounds to believe that the land is contaminated and is likely to cause a significant risk of material or serious environmental harm, or a significant risk to human health: s91C, Environment Protection Act;</li> <li>a <b>remediation order</b>, which is an order to remediate land, if the EPA has reasonable grounds to believe that land audited under s91C is contaminated and is likely to cause a significant risk of material or serious environmental harm, or a significant risk to human health: s91D, Environment Protection Act.</li> </ul>
23	Controls on diffuse source contamination (pp.17, 30)	<p>●</p> <p>The Environment Protection Regulation makes it an offence to discharge stormwater with a suspended solids concentration of greater than 60mg/L from a stormwater retention area into "receiving waters", which is defined to include groundwater: reg50.</p>



## AUSTRALIAN CAPITAL TERRITORY (3) Land-Use Planning Framework Table

Key items of legislation, regulation and policy	Supplementary items of legislation, regulation and policy	Symbols, acronyms, and useful terminology
<p><i>Planning and Development Act 2007</i> (ACT) (<b>Planning and Development Act</b>)</p> <p><i>Planning and Development Regulation 2008</i> (ACT) (<b>Planning and Development Regulation</b>)</p> <p><i>Territory Plan 2008</i> (<b>Territory Plan</b>) – under the Planning and Development Act</p> <p><i>Australian Capital Territory (Planning and Land Management) Act 1988</i> (Cth) (<b>Cth Planning Act</b>)</p>	<p><i>Contaminated Sites Environment Protection Policy 2000</i> (ACT) (<b>Contaminated Sites EPP</b>)</p>	<p><b>Framework</b> = the collection of legislation, regulation and policy set out in this report for each jurisdiction, in relation to: (1) Groundwater Management; (2) Environment Protection; and (3) Land-Use Planning</p> <p><b>Guidelines</b> = <i>Guidelines for Groundwater Protection in Australia</i> (1995)</p> <p>● = Framework explicitly provides for this element of the Guidelines</p> <p>◐ = Framework goes some way towards providing for this element of the Guidelines</p> <p>○ = Framework does not provide for this element of the Guidelines</p>

1	Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in the Australian Capital Territory	
	Principles (pp.9-13)	Precautionary principle (pp.11, 40)		
			●	<p>The Planning and Development Act refers to <b>sustainable development</b> in several contexts which are relevant to groundwater quality. Sustainable development is defined to mean “the effective integration of social, economic and environmental considerations in decision-making processes, achievable through implementation of” several principles including the precautionary principle. The precautionary principle is defined to mean “if there is a threat of serious or irreversible environmental damage, a lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation”: s9, Planning and Development Act.</p> <p>Sustainable development is used in the following ways:</p> <ul style="list-style-type: none"> <li>the planning and land authority must exercise its functions in a way that, as far as practicable, gives effect to sustainable development: s12(3)(a), Planning and Development Act;</li> <li>the statement of strategic directions in the Territory Plan (which guides environmental impact statements, planning</li> </ul>

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in the Australian Capital Territory	
2  3  4			<p>reports and strategic environmental assessments, among other things) may include principles for sustainable development: s52(1), Planning and Development Act; and</p> <ul style="list-style-type: none"> <li>the Planning Strategy for the ACT must set out “long term planning policy and goals to promote the orderly and sustainable development of the ACT, consistent with the social, environmental and economic aspirations of the people of the ACT”, and the main object of the Planning Strategy is to “promote the orderly and sustainable development of the ACT...”: ss105 and 107, Planning and Development Act.</li> </ul> <p>The Territory Plan also provides that “Where there are threats of serious or irreversible damage, lack of full scientific certainty should not be used as a reason for failing to prevent environmental degradation” (cl1.4, Statement of Strategic Directions).</p>
	Polluter pays principle (p.11)	○	Not explicitly provided for.
	Equity considerations (p.12)	●	The definition of sustainable development refers to the <b>inter-generational equity principle</b> in the same ways as it refers to the precautionary principle (see row 1, above). The inter-generational equity principle is defined to mean “that the present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations”: s9 Planning and Development Act.
	Beneficial uses and values (pp.10-12, 39-41)	●	<p>Under the Planning and Development Act, a development proposal requires an EIS if it has “the potential to have a significant impact on...a prescribed environmental value mentioned in the territory plan, (water use catchment general code) of a natural waterway or aquifer”: item 5, Part 4.3, Sch4, Planning and Development Act.</p> <p>The National Capital Plan's Policies and Standards for the Environment provide that:</p> <p>Nationally recognised guidelines and standards will be the minimum basis for assessing environmental quality in relation to the Authority's policies and in the approval of projects by the Authority. (cl11.3(b))</p>
5	Forms of intervention	●	<p>The Commonwealth, a Commonwealth authority, the Territory or a Territory authority “shall not do any act that is inconsistent with” the National Capital Plan: s11(2), Cth Planning Act (see below, row 8).</p> <p>The Territory, the Executive, a Minister or a Territory authority must not do any act, or approve the doing of an act, that is inconsistent with the Territory Plan: s50 Planning and Development Act (see below, row 8).</p> <p>The planning system also requires development approvals and works approvals (see below, rows 8 and 10).</p>

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in the Australian Capital Territory	
6	Market (generally pp.14-15)	○	Not explicitly provided for.
7	Community participation and education (p.15)	●	Public consultation requirements apply to the National Capital Plan and the Territory Plan, and to development applications (see below, row 20).
8	Specific approaches to protection	N/A	<p><u>Territory-level planning documents – the National Capital Plan and development assessments under it</u></p> <p>The National Capital Plan under the Cth Planning Act sets out:</p> <ul style="list-style-type: none"> <li>• general planning principles and policies for the ACT; and</li> <li>• detailed conditions of planning, design and development for Designated Areas, because of their particular importance to the special character of the national capital.</li> </ul> <p>Note: this table focuses on the general planning principles, rather than requirements that apply to Designated Areas.</p> <p><u>Territory-level planning documents – the Territory Plan and development assessments under it.</u></p> <p>The Territory Plan is the key statutory planning document in the ACT, providing the policy framework for the administration of planning in the ACT. The Territory Plan includes a statement of strategic directions, a map which sets out zones and precincts in the ACT, objectives and development tables applying to each zone as well as a series of general, development and precinct codes. It also includes structure plans and concept plans for the development of future urban areas. It must not be inconsistent with the National Capital Plan.</p> <p>The ACT Territory Plan has 11 different <b>Zones</b>. Each Zone applies different planning policies to different land areas and types of land uses. The <b>Development Table</b> for each zone lists developments in three categories: (1) <b>exempt developments</b>, which do not require planning approval; (2) <b>assessable developments</b>, which must be assessed in one of three different ways; and (3) <b>prohibited developments</b>, which are not permitted in the zone except in special circumstances.</p> <p>Development Tables also list the applicable <b>Codes</b>, which identify planning, design and environmental controls for differing land uses, development types, Zones, and precincts. A development application is assessed against the rules or criteria within the applicable Code. The Water Use and Catchment General Code is one such Code.</p> <p>Approval is required for a “development” which is not exempt from assessment. “Development” includes, among other things, beginning or</p>

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in the Australian Capital Territory		
9				changing a land use, building or structure, or carrying out work that would affect the landscape of the land: s7, Planning and Development Act.
	Use of land-use risk matrix to judge compatibility of land uses with water quality protection (p.44)	●	Not explicitly provided for.	The Territory Plan's Statement of Strategic Directions states that: "The pattern of development is to reflect land capability constraints" resulting from a range of factors, including "geotechnical factors" and drainage, and that particular attention will be given to the need to conserve water: cl1.6.
10	Land zoning taking into account underlying groundwater (pp.43-44)	●	The National Capital Plan sets out Designated Areas, rather than zones. The relevant determinant is whether the area has "the special characteristics of the National Capital" (s10(1), Cth Planning Act) – groundwater quality is not an explicit consideration in setting a	There are 11 Zones in the Territory Plan, grouped into Residential Zones, Commercial Zones, Industrial Zones, Community Facility Zones, Parks and Recreation Zones, Transport and Services Zones, and Non-Urban zones.  Planning controls for each Zone are documented within the relevant Development Tables and Codes.

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in the Australian Capital Territory		
11			<p>Designated Area.</p> <p>The approval of the National Capital Authority is required to carry out any "works" in a Designated Area under the National Capital Plan: s12(1), Cth Planning Act. "Works" includes the construction, alteration, extension or demolition of buildings or structures; landscaping; tree-felling; or excavations: s4 Cth Planning Act.</p>	<p>A Development Table may require certain developments to be assessed in the "merit track", requiring them to be assessed not only against the objectives of the Zone, but also against "the suitability of the land" for the development, and the probable environmental impact of the proposed development, among other things: s120(c) and (f) Planning and Development Act.</p> <p>For example:</p> <ul style="list-style-type: none"> <li>in the General Industrial Zone, hazardous waste facilities and service stations must be assessed in the "merit track"; and</li> <li>in the Broadacre Zone, hazardous waste facilities and service stations are prohibited developments, and agriculture, animal husbandry and transport depots must be assessed in the "merit track".</li> </ul> <p>Codes for particular zones may also require consideration to be given to groundwater quality impacts. For example, the Industrial Zones Development Code requires a proponent of a development to provide a statement that "the potential for land contamination has been assessed in accordance with the <i>ACT Government Strategic Plan – Contaminated Sites Management 1995</i> and the [Contaminated Sites EPP], and it is demonstrated that the land is suitable for the proposed development", or that the application be referred to the relevant agency in the absence of such a statement: p.14.</p> <p>Overlays identify special attributes of land that are sensitive to the effects of development or may constrain development.</p> <p>In any case, developments listed in Sch4 of the Planning and Development Act must be assessed in the "impact track", which requires the preparation of an EIS (see row 19, ACT Environment Protection Framework).</p>
	Protection for water supply protection areas (p.27)	●	See below, row 12.	<p>Codes may impose requirements on development in relation to water supply areas.</p> <p>For example, if the Non-Urban Zones Development Code applies to a development, the following criterion is relevant to assessing the development:</p>

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in the Australian Capital Territory		
12				<p>an Assessment of Environmental Effects under s120(f) of the Planning and Development Act, addressing “impacts on water supply catchments”: p.9, Non-Urban Zones Development Code.</p> <p>Further the Water Use and Catchment General Code applies throughout the ACT, and sets out objectives and policies for Water Supply Catchments, including <b>environmental values</b> for waterways (see rows 9-10, ACT Environment Protection Framework), and including the following objectives in relation to Water Supply Catchments (p.5):</p> <ul style="list-style-type: none"> <li>to “protect and conserve the water quality of groundwater resources of the Territory”; and</li> <li>to “ensure that water and catchment land uses are consistent with maintaining a safe and reliable water supply (protection of quality and quantity) and other values of the catchment”.</li> </ul>
	Protection of groundwater recharge zones (p.28)	●	The National Capital Plan provides that certain areas should be protected for water supply requirements. In this context, it mentions an “aquifer intake” in the Southern Tablelands: p.181.	The Water Use and Catchment General Code does not explicitly refer to groundwater recharge. However, it does refer generally to a policy of protecting and conserving the water quality of groundwater resources of the ACT: pp.3, 5, 7.
	Controls on land clearing due to connection with groundwater quality (p.28)	◐	Not explicitly provided for.	In a small number of situations, clearing vegetation in excess of a certain area must be controlled, for example the clearing of more than 0.5ha of native vegetation requires an EIS (Pt4.3 of Sch4, Planning and Development Act). However, groundwater quality is not explicitly mentioned in this context.
	Controls on land development due to connection with groundwater quality (p.28) For example	●	<p>The National Capital Plan’s Policies and Standards for the Environment state that:</p> <p>The ecological resources of the ACT shall be planned and managed in an integrated manner to maintain or enhance the overall quality and stability of the environment of the</p>	<p>The Territory Plan’s Statement of Strategic Directions states that policies for environmental planning and management will “minimise pollution”: cl1.11.</p> <p>Zones control development by setting out developments which are prohibited, and those which are permitted if they are assessed, and those which are permitted without assessment. Developments which may pose a risk to groundwater quality generally must be assessed according to relatively</p>

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in the Australian Capital Territory		
15	controls on mining, quarrying, waste disposal (p.28)		National Capital, having regard to such issues as... salinity control and protection of water quality: cl11.3(c).	stringent requirements, under either the “merit track” or the “impact track” – the latter requires an EIS.  Developments listed in Sch4 of the Planning and Development Act, which appear to pose the most serious threats to groundwater quality, must be assessed in the “impact track”, which requires the preparation of an EIS (see row 19, ACT Environment Protection Framework).
	Controls on rural and urban runoff (p.28)	●	The National Capital Plan discusses stormwater only in the context of surface water impacts. Its general policy for infrastructure refers to minimising the impacts of stormwater runoff on various lakes and rivers (p.133).	Codes may impose requirements on development in relation to stormwater quality within particular zones, or generally.  In the relation to particular types of Zones, for example: <ul style="list-style-type: none"> <li>the Industrial Zones Development Code (p.13); and</li> <li>the Transport and Services Zone Development Code (p.10),</li> </ul> both require a proponent of a development to provide evidence of a modelled 40% to 60% reduction in average annual stormwater pollutant load of several water quality parameters, compared to an urban catchment with no water quality management controls.  Within the Water Use and Catchment General Code, an <b>environmental value</b> is “discharge - stormwater”. The relevant criteria ( <b>ambient environmental standards</b> ) for this environmental value are set out in the Environment Protection Regulation (see ACT Environment Protection Framework).
16	Controls over use of sewage effluent (p.44)	●	The National Capital Plan discusses stormwater only in the context of surface water impacts, rather than impacts on groundwater or land. Its general policy for infrastructure refers to minimising the impacts of wastewater on various lakes and rivers (p.133).	Within the Water Use and Catchment General Code, an <b>environmental value</b> is “discharge - wastewater”. The relevant criteria ( <b>ambient environmental standards</b> ) for this environmental value are set out in the Environment Protection Regulation (see ACT Environment Protection Framework).  The Water Use and Catchment General Code also states that the discharge of wastewater is not permitted anywhere in a Water Supply Catchment: p.6.
17	Manage land	●	Not explicitly provided for.	A development application may be approved subject to conditions: s162(1)(b),

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in the Australian Capital Territory		
18	uses to reduce risks of contamination (p.44)			Planning and Development Act. Conditions may include “that stated things be done to prevent or minimise adverse environmental impacts”: s165(3)(h), Planning and Development Act.  See also row 5, ACT Environment Protection Framework – Wastewater Reuse for Irrigation EPP.
	Veto or referral rights for water and environment agencies in relation to land development (p.45)	●	<p>The National Capital Plan frequently calls for consultation with the ACT Planning and Land Authority.</p> <p>The policy of the National Capital Authority is to consult Territory agencies in relation to wastewater and stormwater: National Capital Authority, <i>Works Approval Process</i>, available at <a href="http://www.nationalcapital.gov.au/index.php?option=com_content&amp;view=article&amp;id=712&amp;Itemid=386">http://www.nationalcapital.gov.au/index.php?option=com_content&amp;view=article&amp;id=712&amp;Itemid=386</a>.</p> <p>The Cth Planning Act does not require the National Capital Authority to consult with another agency in relation to considering whether to approve an application for works in a Designated Area.</p>	<p>The planning and land authority must refer a development application prescribed by regulation to an entity prescribed by regulation, unless the entity as a written agreement with the applicant, agreeing to the development: s148, Planning and Development Act.</p> <p>Among the entities prescribed by the Planning and Development Regulation in relation to developments which must be assessed at the highest level (the “impact track”) are the following, which are relevant to groundwater quality protection: ACTEW Corporation Limited; ActewAGL Distribution; the EPA; the Chief Executive of the Health Department: reg26.</p> <p>The Territory Plan may also prescribe entities to which referrals must be made: reg26(3) Planning and Development Regulation.</p> <p>Development proposals in the impact track must not be approved if approval would be inconsistent with the advice of a referral entity, unless the approver is satisfied in relation to several specified matters (eg, that the development is consistent with the objects of the Territory Plan): s128(2), Planning and Development Act.</p>
19	Other inter-agency coordination (pp.28, 35)	◐	The National Capital Authority must consult with the ACT Planning and Land Authority in relation to preparing the National or any amendment to it: ss15(2) and 23, Cth Planning Act.	N/A
20	Public consultation (p.28)	●	Public consultation requirements apply to the National Capital Plan, and any amendment to it, in the form of inviting written submissions on a draft plan or	<p>Public consultation requirements apply to varying the Territory Plan: s63, Planning and Development Act.</p> <p>Further, development applications which are in the “merit track” or “impact</p>



Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in the Australian Capital Territory		
21			amendment: ss15(1) and 23, Cth Planning Act.	track” are subject to a public consultation process: ss121 and 130, Planning and Development Act.
	Monitoring and review (pp.46-47)	●	One of the functions of the National Capital Authority is “to keep the Plan under constant review and to propose amendments to it when necessary”: s6(b), Cth Planning Act.	The planning and land authority has the function “to continually review the territory plan and propose amendments as necessary”: s12(1)(b), Planning and Development Act.  The planning and land authority must, at least once every 5 years, consider whether the Territory Plan should be reviewed, considering whether it is consistent with the objects of the Planning and Development Act, the object of the Territory Plan, and whether it gives effect to its object in a way that gives effect to “sustainability principles”: s102, Planning and Development Act.
22	Enforcement (p.20)	●	An enactment that is inconsistent with the National Capital Plan has no effect to the extent of the inconsistency: s11(1), Cth Planning Act.  The Commonwealth, a Commonwealth authority, the Territory or a Territory authority shall not do any act that is inconsistent with the National Capital Plan: s11(2), Cth Planning Act.	The Territory, the Executive, a Minister or a territory authority must not do any act, or approve the doing of an act, that is inconsistent with the Territory Plan: s50 Planning and Development Act.

## COMMONWEALTH (1) Groundwater Management Framework Table

Key items of legislation, regulation and policy	Supplementary items of legislation, regulation and policy	Symbols, acronyms, and useful terminology
<p><i>Water Act 2007</i> (Cth) (<b>Water Act</b>)</p> <p><i>Water Regulations 2008</i> (Cth) (<b>Water Regulations</b>)</p> <p><i>Intergovernmental Agreement on a National Water Initiative</i> (2004) (<b>NWI</b>)</p> <p>Great Artesian Basin Consultative Council, <i>Great Artesian Basin Strategic Management Plan</i> (2000) (<b>GAB Management Plan</b>), available at <a href="http://www.gabcc.org.au/public/content/ViewCategory.aspx?id=29">http://www.gabcc.org.au/public/content/ViewCategory.aspx?id=29</a>, viewed on 20 July 2009.</p>	<p>Council of Australian Governments' Water Reform Framework (1994) (<b>CoAG Water Reform Agreement</b>)</p> <p>Agriculture and Resource Management Council of Australia and New Zealand and standing Committee on Agriculture and Resource Management, <i>Allocation and Use of Groundwater – A National Framework for Improved Groundwater Management in Australia</i> (1996) (<b>National Groundwater Framework</b>) – prepared pursuant to a CoAG request under section 3, CoAG Water Reform Agreement.</p> <p><i>National Water Commission Act 2004</i> (Cth) (<b>NWC Act</b>)</p>	<p><b>Framework</b> = the collection of legislation, regulation and policy set out in this report for each jurisdiction, in relation to: (1) Groundwater Management; (2) Environment Protection; and (3) Land-Use Planning</p> <p><b>GDE</b> = groundwater dependent ecosystem</p> <p><b>Guidelines</b> = <i>Guidelines for Groundwater Protection in Australia</i> (1995)</p> <p><b>IGAE</b> = <i>Intergovernmental Agreement on the Environment</i> 1992</p> <p>● = Framework explicitly provides for this element of the Guidelines</p> <p>◐ = Framework goes some way towards providing for this element of the Guidelines</p> <p>○ = Framework does not provide for this element of the Guidelines</p>

	Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in the Commonwealth	
1	Principles (primarily pp.9-13)	Precautionary principle (pp.11, 40)	●	<p>The National Groundwater Framework recommends that “Groundwater management policies should employ the principles of ecologically sustainable development and should be directed at achieving sustainable use of the resource”: p.9. The precautionary principle is one of the <b>principles of ecologically sustainable development</b> (see row 1, Cth Environment Protection Framework).</p> <p>When the MDBA prepares the Basin Plan under the Water Act, and when the Commonwealth Water Minister considers whether to adopt it, each must “take into account the <b>principles of ecologically sustainable development</b>” (s21(4)(a), Water Act), which are defined to include the precautionary principle: s4(2)(b), Water Act.</p>

	Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in the Commonwealth
2	Polluter pays principle (p.11)	<p>● Under the CoAG Water Reform Agreement, the Council of Australian Governments (<b>CoAG</b>) agreed to the concept of “full cost-recovery” (cl3), though not explicitly in the water quality context.</p> <p>The parties to the NWI agreed to:</p> <ul style="list-style-type: none"> <li>• “bring into effect consistent approaches to...attributing costs of water planning and management by 2006”, although costs associated with water quality management are not specifically mentioned: cl67, NWI; and</li> <li>• “continue to examine the feasibility of using market based mechanisms such as pricing to account for positive and negative environmental externalities associated with water use, and...implement pricing that includes externalities where found to be feasible”: cl173(ii) and (iii), NWI.</li> </ul> <p>When the MDBA prepares the Basin Plan under the Water Act, and when the Commonwealth Water Minister considers whether to adopt it, each must “take into account the <b>principles of ecologically sustainable development</b>” (s21(4)(a), Water Act), which are defined to include “<b>improved valuation, pricing and incentive mechanisms should be promoted</b>”: s4(2)(e), Water Act.</p> <p>The National Groundwater Framework recommends that “Groundwater management policies should employ the principles of ecologically sustainable development and should be directed at achieving sustainable use of the resource”: p.9. The polluter pays principle is one of the <b>principles of ecologically sustainable development</b>: see row 2, Cth Environment Protection Framework.</p> <p>The National Groundwater Framework recommends that:</p> <p style="padding-left: 40px;">The full cost of groundwater management should be identified by the States. The cost of direct management activities should be recovered from users and, within the context of the overall water cycle, appropriate apportionment of indirect costs be given consideration: p.14.</p> <p>In this context, “indirect costs” refers to the cost of “indirect management activities - policy, investigation, assessment, monitoring, maintenance of technical data bases and related activities”: p.12.</p>
3	Equity considerations (p.12)	<p>● The National Groundwater Framework recommends that “Groundwater management policies should employ the principles of ecologically sustainable development and should be directed at achieving sustainable use of the resource”: p.9. The principle of intergenerational equity is one of the <b>principles of ecologically sustainable development</b> (see row 3, Cth Environment Protection Framework).</p>

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in the Commonwealth	
4			<p>When the MDBA prepares the Basin Plan under the Water Act, and when the Commonwealth Water Minister considers whether to adopt it, each must “take into account the <b>principles of ecologically sustainable development</b>” (s21(4)(a), Water Act), which are defined to include each of the following:</p> <p>decision-making processes should effectively integrate both long-term and short-term economic, environmental, social and equitable considerations...</p> <p>the principle of inter-generational equity—that the present generation should ensure that the health, biodiversity and productivity of the environment is maintained or enhanced for the benefit of future generations</p> <p>(s4(2)(a) and (c), Water Act)</p>
	Beneficial uses and values (pp.10-12, 39-41)	●	Not explicitly provided for in the Water Act. However, the Basin Plan must impose on lower-level water resources plans (which are generally prepared by the States, and would roughly correspond to the plans described in the Groundwater Management Frameworks) particular requirements set out in the Water Act: s22(3), including that a water resource plan include <b>water quality and salinity objectives</b> for the water resource plan area: s22(3)(f), Water Act.
5	Forms of intervention (pp.14-15)	Command (p.14)	● While historically, most Commonwealth action in relation to water resources has been policy-oriented, and geared towards gaining consistent national approaches to water-related issues, the Water Act imposes significant and binding obligations on numerous persons to act consistently with the Basin Plan, and with water resource plans (see below, rows 11 and 18).
6		Market (pp.14-15)	● Under the NWI, the parties agree to investigate and consider implementing any recommendations relating to: <p>establishing market mechanisms such as tradeable salinity and pollution credits to provide incentives for investment in water-use efficiency and farm management strategies and for dealing with environmental externalities: cl61(iii).</p>
7		Community participation and education (p.15)	● Under the CoAG Water Reform Agreement, CoAG agreed, in relation to consultation and public education, “to the principle of public consultation by government agencies and service deliverers where change and/or new initiatives are contemplated involving water resources...”: cl7(a). <p>The NWI seeks to “engage water users and other stakeholders in achieving the objectives of [the NWI]”: cl93, NWI. The parties agreed to “ensure open and timely consultation with all stakeholders in relation to...the periodic review of water plans” (cl95(ii)), and to provide accurate and timely information to stakeholders regard the implementation of water plans, and the science underpinning the identification and implementation of <i>environmental and other public benefit outcomes</i> [which is defined to include water quality]”: cl96, NWI.</p>

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in the Commonwealth					
			<p>The National Groundwater Framework states:</p> <p>The need to increase general community awareness of groundwater processes is considered to be essential to facilitate good groundwater management. This especially applies to understanding the implications of the interaction between groundwater and the environment: p.15.</p> <p>It promotes the States developing “appropriate awareness programs”: p.15.</p> <p>The Water Act gives the MDBA the function of engaging and educating the Australian community about the Basin water resources: s172(1)(j). Note that the term “Basin water resources” is defined to include groundwater and associated GDEs: s4(1), Water Act (definitions of “Basin water resources” and “water resources”).</p>				
8	Reservation of special areas (p.16)	Stressed areas (p.16)	●	Under the Basin Plan, a long-term average sustainable diversion limit ( <b>SDL</b> ) may be set for a water resource plan area (see below, rows 22-24). In the case of stressed areas, as for all areas, the SDL must reflect an <b>environmentally sustainable level of take</b> : s23(1), Water Act. Groundwater quality impacts will be relevant to determining an environmentally sustainable level of take. Accordingly, when the Basin Plan comes into effect in stressed areas, the level of groundwater extraction may be reduced if the pre-existing level did not reflect an environmentally sustainable level of take (noting that there may be a phase-in period in which higher levels of take are allowed, through a “temporary diversion provision”: s24, Water Act).			
9		Public water supply areas (p.16)	○	Not explicitly provided for. However, the concept of “ecosystem services” may be relevant in the case of public water supply areas. If that is the case, then the fact that an area is a public water supply area may influence the level of the SDL set for that area, depending on the other factors relevant to determining a SDL (see below, row 23).			
10		Other	N/A	The parties to the NWI agreed that their water access entitlements and planning framework would “identify and acknowledge surface and groundwater systems of high conservation value, and manage these systems to protect and enhance those values”: cl25(x).			
11	Management plans (pp.18-20)	Types of management plans for which the legislation or regulation provide	N/A	<u>NWI</u>  The NWI has as a key focus the concept of “ <b>environmental and other public benefit outcomes</b> ”. The	<u>Basin Plan under the Water Act</u>  Note: a reference in this column to a section is a reference to a section of the Water Act.  The Water Act provides for	<u>Water resource plans under the Water Act</u>  Note: a reference in this column to a section is a reference to a section of the Water Act.	<u>GAB Management Plan</u>  The GAB Management Plan sets out a strategic framework agreed by the Commonwealth, Queensland, South Australia, New South Wales and the Northern

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in the Commonwealth			
		<p>definition of this term includes water quality as an “environmental outcome”: SchB(i), NWI.</p> <p>Under the NWI, water planning frameworks will “provide a statutory basis for environmental and other public benefit outcomes [including water quality] in surface and groundwater systems to protect water sources and their dependent ecosystems”: cl25(ii), NWI.</p>	<p>the Murray-Darling Basin Authority (<b>MDBA</b>) to prepare a Basin Plan, the purpose of which is to “provide for the integrated management of the Basin water resources in a way that promotes the objects of this Act”: s20. These purposes include giving effect to international agreements, and promoting the use and management of the Basin water resources in a way that optimises economic, social and environmental outcomes: s3.</p> <p>The Basin Plan applies to <b>Basin water resources</b>, which includes all the water resources beneath the Murray-Darling Basin, but does not include groundwater that forms part of the Great Artesian Basin, nor prescribed water resources: s4(1). The term <b>water resource</b> includes groundwater, an aquifer, and all aspects of the water resource, including water, organisms and other components and ecosystems that contribute to the physical state and environmental value of the water resource: s4(1).</p>	<p>Water resource plans, which would usually be prepared by Basin States for “water resource plan areas” which are set out in the Basin Plan.</p> <p>Water resources plans must be consistent with the Basin Plan in order to be accredited by the Commonwealth Water Minister: s56.</p> <p>The Basin Plan must set out the requirements that a water resource plan must comply with for it to be accredited by the Commonwealth Water Minister: item 11, table in s22(1).</p> <p>The Basin Plan must impose particular requirements set out in the Water Act: s22(3), including that a water resource plan include water quality and salinity objectives for the water resource plan area: s22(3)(f).</p>	<p>Territory, for “responsible groundwater and related natural resource management in the Great Artesian Basin”: p.3.</p> <p>An objective of the GAB Management Plan is to “manage quantity, quality and pressure of Basin flows to maximise socioeconomic, environmental and cultural heritage values”: p.11.</p> <p>Key strategies for protecting groundwater quality are:</p> <ul style="list-style-type: none"><li>• renewal and maintenance of bore casings and headworks and plugging of unwanted bores and piping of artesian water within 15 years;</li><li>• development and implementation of a maintenance and monitoring schedule for ongoing management of bore-casings and headworks; and</li><li>• development of groundwater pollution and contamination management planning practices for Basin recharge zones: pp.37-38.</li></ul>

	Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in the Commonwealth				
12				<p>Accordingly, water quality may be included within the term “water resource”, as it applies to groundwater, as a component that contributes to the physical state or environmental value of a groundwater resource. However, there has been no judicial consideration of this term in the Water Act to confirm this.</p> <p>Note that the Basin Plan may not directly regulate the control of pollution: s22(10) and (11).</p>		
	Component studies (p.18)	●	<p>The NWI provides that a State or Territory will determine, for a water plan, “the amount of resources devoted to its preparation based on an assessment of the level of development of water systems, projected future consumptive demand and the risks of not having a detailed plan”: cl38, NWI.</p> <p>Schedule E to the NWI</p>	<p>Subject to overriding considerations as to environmental issues, in preparing the Basin Plan, the MDBA must “act on the basis of the best available scientific knowledge and socio-economic analysis”: s21(4)(b).</p> <p>The Basin Plan must include 13 mandatory elements listed in s22(1), many of which will, in practice, require studies to be undertaken (for example, “the size, extent, connectivity, variability and condition of the Basin water resources”: item 1, table in s22(1)).</p>	<p>The Basin Plan must require a water resource plan to include requirements in relation to “the scientific information or models on which the water resource plan is to be based”: s22(3)(k).</p>	<p>The GAB Management Plan includes a general objective “to enhance the knowledge and technology base to improve resource management practices and support better decision making”: p.14.</p> <p>Accompanying strategies relate to coordinating and managing research and development trials to fill “strategically important knowledge gaps relating to Basin groundwater resource management” (p.12).</p>

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in the Commonwealth			
			<p>sets out characteristics and components to guide States and Territories in preparing water plans, though it does not specifically discuss studies required.</p>	<p>The Water Act grants the MDBA functions, which it may use in this context, including:</p> <ul style="list-style-type: none"> <li>measuring, monitoring and recording the quality and quantity of the Basin water resources, and the condition of water-dependent ecosystems associated with the Basin water resources: s172(1)(b) and (c);</li> <li>supporting, encouraging and conducting research and investigations about the Basin water resources: s172(d); and</li> <li>adopting measurements, records and conclusions made by a Basin State or an agency of a Basin State; or requesting a Basin State to carry out any measuring, monitoring or recording within the State's geographical limits that the Authority considers necessary: s172(2).</li> </ul>	



	Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in the Commonwealth	
13	Surface water – groundwater interaction (p.18)	<p>● An objective of the NWI is a system of managing surface and groundwater resources, achieving “recognition of the connectivity between surface and groundwater resources and connected systems managed as a single resource”, although quality was not explicitly mentioned: cl23(x) NWI.</p> <p>Under the NWI, water plans should include “an assessment of the level of connectivity between surface (including overland flow) and groundwater systems”, though quality is not explicitly mentioned: cl5(ii) of SchE, NWI.</p> <p>The MDBA must prepare the Basin Plan having regard to the NWI: s21(4)(a) (see column to left).</p> <p>The Basin Plan sets water resource plan areas for the purposes of the Water Act. The Water Act explicitly provides that one water resource plan area may cover both surface water and groundwater, and accordingly the resources would be managed together: item 2, table in s22(1).</p> <p>However, the Water Act does not explicitly mention surface water-groundwater interactions in the quality context.</p> <p>The Water Act does not explicitly mention surface water-groundwater interactions in the quality context.</p>	N/A
14	Public consultation (p.19)	<p>● The parties to the NWI agreed to “ensure open and timely consultation with all stakeholders in relation to...the periodic review of water plans”: cl95(ii), NWI.</p> <p>In preparing the Basin Plan, the MDBA must consult with the Basin Community Committee, which is comprised of community representatives, and may undertake such other consultation as it considers</p>	<p>Not explicitly provided for. Presumably the Basin State which prepares a water resource plan would undertake public consultation.</p> <p>The GAB Management Plan contains numerous strategies that relate to working collaboratively with various elements of the public, for example, industry groups, resource management groups and Indigenous groups, and resource users and managers (pp.13 and</p>

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in the Commonwealth				
15			Under Schedule E of the NWI, water planning processes include “consultation with stakeholders including those within or downstream of the plan area”: cl6, Sch E, NWI.	appropriate: s42(1)(c) and (3).  The Authority must also seek public submissions on a proposed Basin Plan: s43(4).		14).
	Coordination with other agencies	●	Under Schedule E of the NWI, water planning processes include: <ul style="list-style-type: none"> <li>reference to broader regional natural resource management planning processes; and</li> <li>consideration of, and synchronisation with, cross-jurisdictional water planning cycles</li> </ul> (cll6(iv) and (v), SchE, NWI)	In preparing the Basin Plan, the MDBA must consult with the Basin States and the Basin Officials Committee (which is comprised of representatives of the Basin States): s42(1)(a) and (b).  After public consultations on the proposed Basin Plan, the MDBA must consult with each member of the Murray-Darling Basin Ministerial Council, each of which is a Basin State representative: s43A.	The MDBA may advise, or assist, a Basin State in preparing a water resource plan, or an amendment of a water resource plan, to be given to the Minister for accreditation: s67.	The GAB Management Plan, by its nature, works on the basis of agency coordination, since it has been approved by all the GAB jurisdictions.
16	Market incentives (p.19)	◐	Not explicitly provided for.	Not explicitly provided for.	Not explicitly provided for.	The GAB Management Plan promotes “resource management partnerships and shared investment” by government, water users and community groups: p.8.  The GAB Management Plan includes the following strategy

	Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in the Commonwealth				
17						(p.12):  Build on existing financial instruments to foster water use efficiency and to create clear incentives for sustainable use of Basin groundwater resources.
	Monitoring program (p.20)	●	<p>The parties to the NWI agreed that</p> <p>In the implementation of water plans, the Parties will, consistent with the nature and intensity of resource use:</p> <p>i) monitor the performance of water plan objectives, outcomes and water management arrangements: cl40(i), NWI</p> <p>One of the functions of the National Water Commission is, in 2010-2011, to review the NWI comprehensively, including assessing the extent to which actions taken under the NWI have improved the sustainable management of Australia's water resources: s7(2)(i),</p>	<p>The Basin Plan must include a program for monitoring and evaluating the effectiveness of the Basin Plan, and this program must include 5-yearly reviews of the water quality and salinity targets in the water quality and salinity management plan: item 13 in the table in s22(1).</p> <p>The MDBA must review the Basin Plan every 10 years: s50.</p> <p>The National Water Commission has the power to conduct 5-yearly audits of the effectiveness of the implementation of the Basin Plan and the water resource plans: ss87 and 88.</p>	<p>The Basin Plan must require a water resource plan to include requirements in relation to "reviews of the water resource plan and amendments of the plan arising from those reviews": s22(3)(j).</p>	<p>The GAB Management Plan includes the following strategy (p.12):</p> <p>Monitor and evaluate:</p> <ul style="list-style-type: none"> <li>• pressure, quality, quantity and values of Basin bore discharge and natural surface discharge; and</li> <li>• extent of access for new uses.</li> </ul> <p>Key strategies for achieving monitoring objectives are (p.45):</p> <ul style="list-style-type: none"> <li>• monitoring the quality, quantity and values of Basin productive flows and natural surface discharge;</li> <li>• monitoring resource management practices including bore and water distribution infrastructure, water allocation and research and development;</li> <li>• monitoring institutional arrangements including resource legislation, bureaucratic structures, taxation and incentives;</li> <li>• monitoring implications for</li> </ul>

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in the Commonwealth				
18			NWC Act.			groundwater-dependent and water-remote ecosystems; and  • monitoring management practices to ensure ongoing compliance with requirements.
	Enforcement (p.20)	●	The NWI is an intergovernmental agreement and is unlikely to be enforceable.	The Basin Plan is binding on the MDBA, other agencies of the Commonwealth, the Basin Officials Committee, agencies of a Basin State, an operating authority, an infrastructure operator, or the holder of a water access right: ss34 and 35, 86G and 86H.	Accredited water resource plans are binding on the same entities as are bound by the Basin Plan: ss58 and 59.	Not enforceable in itself.
19	Controls on extraction (p.16) - Licences and permits	Groundwater quality considered in allocating groundwater (pp.9, 19)	●	<p>Under the NWI, water planning, which assists in the determination of allocation decisions, will describe the <i>environmental and other public benefit outcomes</i> (a term which is defined to include water quality) for water systems and defined the appropriate water management arrangements to achieve those outcomes: cl136 and 37.</p> <p>The parties to the NWI also agreed that regulatory approvals enabling water use at a particular site for a particular purpose would take into account environmental impacts of use, although water quality impacts were not specifically mentioned: cl1(iii), SchD, NWI.</p> <p>The making of groundwater allocations is not specifically provided for under the Water Act, but the ability to grant allocations under State legislation may be affected by the Basin Plan, for example, the SDL, which will limit the take of groundwater (see below, row 23).</p>		
20		Quality considered in setting conditions on taking water	◐	Not explicitly provided for, but the elements of row 19, above, may suggest using conditions to protect groundwater quality.		
21		Enforcement (p.20)	●	The parties to the NWI agreed that the authority responsible for regulatory approvals needs to “have the necessary legal authority and resources to monitor and enforce the conditions of a water use or works licence”: cl2(ii), SchD, NWI.		

	Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in the Commonwealth	
22	Other methods of limiting extraction	Method of limiting extraction	N/A	Long-term average sustainable diversion limits ( <b>SDLs</b> ) in the Basin Plan under the Water Act. A SDL may be set for the Basin as a whole, the water resources of a water resource plan area, or part of the water resources of a water resource plan area: item 6, table in s22(1), Water Act.
23		Water quality considerations (pp.9, 19)	●	<p>A SDL must reflect an <b>environmentally sustainable level of take</b>: s23(1), Water Act. That term is defined to mean, for a water resource (s4(1), Water Act),</p> <p style="padding-left: 40px;">the level at which water can be taken from that water resource which, if exceeded, would compromise:</p> <ul style="list-style-type: none"> <li>(a) key environmental assets of the water resource; or</li> <li>(b) key ecosystem functions of the water resource; or</li> <li>(c) the productive base of the water resource; or</li> <li>(d) key environmental outcomes for the water resource.</li> </ul> <p><b>Environmental assets</b> are defined to include water-dependent ecosystems and ecosystem services: s4(1), Water Act. <b>Environmental outcomes</b> include ecosystem function, biodiversity, water quality, and water resource health: s4(1), Water Act. The terms “ecosystem function” and “productive based” are not defined.</p> <p>However, it is clear that a consideration relevant to determining a SDL is the level at which taking water from the resource, if exceeded, would compromise key water quality outcomes, which are key environmental outcomes (element (d)). Water quality may also be relevant to ecosystem function (element (b)), the requirements of key environmental assets (element (a)), and the productive based (element (c)).</p>
24		Enforcement (p.20)	●	A SDL is part of the Basin Plan and may be part of a water resource plan, and has the enforceability of these instruments (see above, row 18).
25	Well construction measures (p.16)	Bore licensing	◐	Bore licensing is not specifically provided for under the Water Act, but the ability to grant bore licences under State legislation may be affected by the Basin Plan, for example, the SDL, which will limit the take of groundwater (see above, row 23).
26		Driller licensing (pp.16, 25)	◐	The National Groundwater Framework recommends that “[a]ll States should adopt the National Drillers Licensing system for water production wells by 1997 and should seek to expand the system to all drilling”: p.9.

*Note: The National Groundwater Framework states that “It is essential that sustainable yield incorporate water quality considerations”: p.8.*

	Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in the Commonwealth	
27		Rules for bore construction (p.25)	●	<p>The GAB Management Plan includes the following strategy (p.12):</p> <p>Establish appropriate codes of practice for judicious use of Basin groundwater and for the design, construction and operation of bores and distribution systems.</p> <p>The GAB Management Plan also states:</p> <p>Basin management plans should ensure bores are maintained in sound condition to avoid cross-contamination between aquifers. Codes of practice for bore construction and maintenance need to support this: p.39.</p> <p>Not otherwise explicitly provided for.</p>
28		Rules for operation and maintenance of bore (p.25)	●	<p>The GAB Management Plan includes the following strategies (p.11):</p> <p>Develop and implement a monitoring and maintenance schedule for bore casing, headworks and water reticulation systems by ensuring that all water infrastructure complies with regulatory requirements.</p> <p>Develop and implement a bore and piped water reticulation maintenance training program for bore owners and operators.</p> <p>Not otherwise explicitly provided for.</p>
29		Enforcement (p.20)	○	The GAB Management Plan is not enforceable.
30	Water supply and protection of public water supply wells (pp.25-27)	Water supplier may control activities/ intervene in risky activities near bores (pp.16, 26)	N/A	Not explicitly provided for – drinking water supply is not an area of Commonwealth legislative responsibility.
31		Protection zone around supply bores (p.25)	N/A	Not explicitly provided for – drinking water supply is not an area of Commonwealth legislative responsibility.
32		Requirements to monitor up-gradient and	N/A	Not explicitly provided for – drinking water supply is not an area of Commonwealth legislative responsibility.

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in the Commonwealth		
33		within zone (pp.25, 26)		
		Response plan in event of contamination (p.25)	N/A	Not explicitly provided for – drinking water supply is not an area of Commonwealth legislative responsibility.
	34	Reporting in the event of contamination (p.25)	N/A	Not explicitly provided for – drinking water supply is not an area of Commonwealth legislative responsibility.
35		Enforcement (p.20)	N/A	Not explicitly provided for – drinking water supply is not an area of Commonwealth legislative responsibility.
36	Other well-related measures	Well abandonment requirements (pp.16, 25)	◐	Not explicitly provided for. However, the Basin Plan may set requirements for water resources plans that deal with well abandonment, since well abandonment requirements are “matters that are relevant to the sustainable use and management of the water resources of the water resource plan area” and may be considered “broad approaches to the way risks to the water resources of the water resource plan area should be addressed”: item 11 of the table in s22(1), and s22(3)(h), Water Act.
37		Controls on disposal of waste via wells (p.16)	○	Not explicitly provided for.
38	Gathering information	Strategic assessment of groundwater resources (p.38)	●	<p>The National Groundwater Framework provides that (p.14):</p> <p>Sound groundwater management depends fundamentally upon an adequate information base and an adequate information base requires resourcing. States will need to ensure that there is sufficient understanding of the groundwater resources and their vulnerability to quantity and quality degradation available as a basis for planning.</p> <p>The GAB Management Plan includes the following strategy (p.12):</p> <p>Monitor and evaluate:</p> <ul style="list-style-type: none"> <li>• pressure, quality, quantity and values of Basin bore discharge and natural surface discharge; and</li> </ul>

	<b>Form of protection suggested by the Guidelines</b>	<b>Whether implemented / Summary of implementation in the Commonwealth</b>
		<ul style="list-style-type: none"> <li>• extent of access for new uses.</li> </ul> <p>An object of the Water Act (s3(h)) is:</p> <p>to provide for the collection, collation, analysis and dissemination of information about:</p> <p>(i) Australia's water resources; and</p> <p>(ii) the use and management of water in Australia.</p> <p>Under the Water Act, the Bureau of Meteorology has the function of collecting, holding, managing, interpreting and disseminating water information, and also undertaking and commissioning investigations to enhance understanding of Australia's water resources: s120. The Director of the Bureau of Meteorology has powers to request information (s127, Water Act) and may publish water information (s123, Water Act).</p> <p>The Water Act also grants the MDBA the functions of:</p> <ul style="list-style-type: none"> <li>• measuring, monitoring and recording the quality of Basin water resources (including groundwater) and the condition of associated GDEs: s172(1)(b) and (c);</li> <li>• supporting, encouraging and conducting research and investigations about the Basin water resources, including investigations about improving the quality of the Basin water resources: s172(1)(d)(iii);</li> <li>• collecting, analysing and interpreting information about the Basin water resources and associated water-dependent ecosystems: s172(1)(h).</li> </ul> <p>Further, one of the mandatory elements which the Basin Plan must include is "an identification of the risks to the condition, or continued availability, of the Basin water resources", including the effects of climate change and "the limitations on the state of knowledge on the basis of which estimates about matters relating to Basin water resources are made": item 3, table in s22(1), Water Act.</p>
39	Monitoring of critical overdraw (p.16)	<ul style="list-style-type: none"> <li>● The NWI deals with addressing overallocation or overuse of water systems (for example, by the parties completing plans to address overallocation of groundwater resources: cl26(i), NWI), but does not make any explicit prescriptions in relation to monitoring overallocation or overuse.</li> </ul> <p>The Basin Plan under the Water Act implicitly requires an assessment of critical overdraw, since it must identify the risk posed by the taking and use of water to the continued availability of the Basin water resources: item 3, table in s22(1), Water Act.</p>



Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in the Commonwealth	
40	Vulnerability mapping (pp.20-22)	<input type="radio"/>	Not explicitly provided for.
41	Aquifer classification systems (pp.22-23)	<input type="radio"/>	Not explicitly provided for.

## COMMONWEALTH (2) Environment Protection Framework Table

Key items of legislation, regulation and policy	Supplementary items of legislation, regulation and policy	Symbols, acronyms, and useful terminology
<p><i>Environment Protection and Biodiversity Conservation Act 1999</i> (Cth) (<b>EPBC Act</b>)</p> <p><i>EPBC Act Policy Statement 1.1: Significant Impact Guidelines – Matters of National Environmental Significance</i> (May 2006) (<b>EPBC Significant Impact Guidelines</b>), available at <a href="http://www.environment.gov.au/epbc/publications/pubs/nes-guidelines.pdf">http://www.environment.gov.au/epbc/publications/pubs/nes-guidelines.pdf</a>, viewed 20 July 2009.</p> <p><i>Water Act 2007</i> (Cth) (<b>Water Act</b>)</p> <p><i>Murray-Darling Basin Agreement</i>, set out in Schedule 1, <i>Water Act</i> (<b>MDB Agreement</b>)</p> <p><i>National Environment Protection Council Act 1994</i> (Cth) (<b>NEPC Act</b>)</p> <p>Note: the NEPC Act is implemented in all jurisdictions through parallel legislation: <i>National Environment Protection Council Act 1994</i> (ACT); <i>National Environment Protection Council (Northern Territory) Act 1994</i> (NT); <i>National Environment Protection Council (New South Wales) Act 1995</i> (NSW); <i>National Environment Protection Council (Queensland) Act 1994</i> (QLD); <i>National Environment Protection Council (South Australia) Act</i></p>	<p><i>Natural Heritage Trust of Australia Act 1997</i> (Cth) (<b>Natural Heritage Trust Act</b>)</p> <p><i>National Strategy for Ecologically Sustainable Development</i> (Ecologically Sustainable Development Steering Committee, endorsed by CoAG, 1992) (<b>National Strategy for ESD</b>), available at <a href="http://www.environment.gov.au/esd/national/nсед/index.html">http://www.environment.gov.au/esd/national/nсед/index.html</a>, viewed 20 July 2009</p> <p><i>Native Vegetation Policy – Reversing the Decline in the Quality and Extent of Australia's Native Vegetation Cover: Policy Statement</i> (Minister for the Environment and Heritage, 2001) (<b>Native Vegetation Policy</b>), available at <a href="http://www.environment.gov.au/land/publications/vegetation-policy.html">http://www.environment.gov.au/land/publications/vegetation-policy.html</a>, viewed 20 July 2009)</p> <p><i>National Framework for the Management and Monitoring of Australia's Native Vegetation</i> (Natural Resource Management Ministerial Council and Department of Environment and Heritage, 2001) (<b>Native Vegetation Framework</b>), available</p> <p><i>Product Stewardship (Oil) Act 2000</i> (Cth) (<b>Oil Stewardship Act</b>)</p> <p><i>Product Stewardship (Oil) Regulations 2000</i> (Cth) (<b>Oil Stewardship Regulations</b>)</p> <p><i>Hazardous Waste (Regulation of Exports and Imports) Act 1989</i> (Cth) (<b>Hazardous Waste Act</b>)</p> <p><i>National Environment Protection Measures (Implementation) Act 1998</i> (Cth) (<b>Cth NEPM Act</b>)</p> <p><i>National Environment Protection (Movement of Controlled Waste between States and Territories) Measure</i> (as varied December 2004) (<b>Controlled Waste NEPM</b>), available at <a href="http://www.ephc.gov.au/sites/default/files/MCW_NEPMVar_MCW_NEPM_as_varied">http://www.ephc.gov.au/sites/default/files/MCW_NEPMVar_MCW_NEPM_as_varied</a></p>	<p><b>EPHC</b> = Environment Protection and Heritage Council, which has taken over the statutory functions of the former National Environment Protection Council</p> <p><b>Framework</b> = the collection of legislation, regulation and policy set out in this report for each jurisdiction, in relation to: (1) Groundwater Management; (2) Environment Protection; and (3) Land-Use Planning</p> <p><b>Guidelines</b> = <i>Guidelines for Groundwater Protection in Australia</i> (1995)</p> <p><b>IGAE</b> = <i>Intergovernmental Agreement on the Environment 1992</i></p> <p><b>NEPM</b> = National Environment Protection Measure, made by the National Environment Protection Council</p> <p>● = Framework explicitly provides for this element of the Guidelines</p> <p>◐ = Framework goes some way towards providing for this element of</p>

<p>1995 (SA); <i>National Environment Protection Council (Tasmania) Act 1995</i> (TAS); <i>National Environment Protection Council (Victoria) Act 1995</i> (VIC); and <i>National Environment Protection Council (Western Australia) Act 1996</i> (WA).</p>	<p><a href="#">Final_200412.pdf</a>, viewed 13 August 2009.</p> <p><i>National Environment Protection (Assessment of Site Contamination) Measure 1999</i> (Cth) (<b>Site Contamination NEPM</b>), available at <a href="http://www.ephc.gov.au/sites/default/files/ASC_NEPM_ASC_NEPM_199912.pdf">http://www.ephc.gov.au/sites/default/files/ASC_NEPM_ASC_NEPM_199912.pdf</a>, viewed 13 August 2009. (Implemented in the States as set out in row 19).</p> <p><i>National Strategy for the Management of Coastal Acid Sulfate Soils</i> (National Working Party on Acid Sulfate Soils 2000), (<b>Acid Sulfate Soils Strategy</b>) available at <a href="http://www.mincos.gov.au/data/assets/pdf_file/0003/316065/natass.pdf">http://www.mincos.gov.au/data/assets/pdf_file/0003/316065/natass.pdf</a>, viewed 15 August 2009.</p>	<p>the Guidelines</p> <p>○ = Framework does not provide for this element of the Guidelines</p>
---	--	--

	Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in the Commonwealth
1	<p>Principles (pp.9-13)</p> <p>Precautionary principle (pp.11, 40)</p>	<p>●</p> <p>The Environment Minister must take into account the <b>principles of ecologically sustainable development</b> when deciding whether or not to approve the taking of an action, and what conditions to attach to an approval, under the EPBC Act: s136(2)(a). One of these principles is:</p> <p style="padding-left: 40px;">if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation: s3A(b), EPBC Act.</p> <p>The EPBC Act explicitly requires the Environment Minister to take account of the precautionary principle in making a decision about whether an action is a <b>controlled action</b>, and whether or not to approve the taking of an action, among other things: s391(1), EPBC Act (see below, row 19).</p> <p>The precautionary principle is “that lack of full scientific certainty should not be used as a reason for postponing a measure to prevent degradation of the environment where there are threats of serious or irreversible environmental damage”: s391(2), EPBC Act.</p> <p>The EPBC Significant Impact Guidelines state, in the context of determining whether an action is likely to have a significant impact on a matter of national environmental significance (and therefore be a controlled action):</p> <p style="padding-left: 40px;">If there is scientific uncertainty about the impacts of your action and potential impacts are serious or irreversible, the precautionary principle is applicable. Accordingly, a lack of scientific certainty about the potential impacts of an action will not itself justify a decision that the action is not likely to have a significant impact on the environment: p.4.</p> <p>When the NEPC makes a NEPM, it must have regard to whether the measure is consistent with the precautionary principle:</p>

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in the Commonwealth	
2			s15, NEPC Act and s3.5.1, Schedule to the NEPC Act (IGAE).
	Polluter pays principle (p.11)	●	<p>The EPBC Act does not include, as a general object, the polluter pays principle.</p> <p>However, the EPBC Act may require, as a condition of approval of an action, financial security to be given to meet any costs of the Commonwealth to repair or mitigate damage caused by a contravention of the Act: s134(3)(a), EPBC Act. (See also below, row 23.) A condition of an approval may also require the proponent to make a specified financial contribution to a person for the purposes of supporting activities which protect a matter of national environmental significance: s134(3)(ab), EPBC Act.</p> <p>When the NEPC makes a NEPM, it must have regard to whether the measure is consistent the principle of improved valuation, pricing, and incentive mechanisms, which includes the polluter pays principle: s15, NEPC Act and s3.5.4, Schedule to the NEPC Act (IGAE).</p>
	Equity considerations (p.12)	●	<p>The Environment Minister must take into account the <b>principles of ecologically sustainable development</b> when deciding whether or not to approve the taking of an action, and what conditions to attach to an approval, under the EPBC Act: s136(2)(a). These principles include (s3A(a) and (c), EPBC Act) :</p> <p>decision-making processes should effectively integrate both long-term and short-term economic, environmental, social and equitable considerations [and]</p> <p>the principle of inter-generational equity—that the present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations</p> <p>When the NEPC makes a NEPM, it must have regard to whether the measure is consistent the principle of intergenerational equity: s15, NEPC Act and s3.5.2, Schedule to the NEPC Act (IGAE).</p>
4	Beneficial uses and values (pp.10-12, 39-41)	●	Schedule B(6) of the Contaminated Site NEPM, which deals with the assessment of groundwater contamination, recognises and applies the “approaches, policies and water quality criteria developed to protect groundwater under the [NWQMS]” (see below, row 19). Indeed, its entire approach to site assessment is based on the goals and approaches of the Groundwater Guidelines.
5	Forms of intervention	●	<p>The EPBC Act requires licensing of particular actions if they are likely to have a significant impact on a matter of national environmental significance (see row 17, below).</p> <p>The EPBC Regulations prohibit potentially polluting activities in Commonwealth reserves and conservation zones (see below, row 20).</p>

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in the Commonwealth	
6	Market (generally pp.14-15)  eg tradeable discharge permits (pp.45, 46) or taxes on contaminants (p.46)	●	<p>The Oil Stewardship Act and Regulations provides for benefits to be given for the sale or consumption of recycled oil that has been recycled in Australia, in order to encourage the recycling and recovery of used oil.</p> <p>The Native Vegetation Framework encourages the use of incentive programs, for example, “salinity rights”, grants, non-binding programs, binding measures such as covenants on title, financial assistance in exchange for stewardship arrangements (para5, Appendix B), to achieve its outcomes, which include outcomes in relation to groundwater quality (see below, row 25).</p> <p>When the NEPC makes a NEPM, it must have regard to whether the measure is consistent the principle of improved valuation, pricing and incentive mechanisms, which includes:</p> <p style="padding-left: 40px;">environmental goals, having been established, should be pursued in the most cost effective way, by establishing incentive structures, including market mechanisms, which enable those best placed to maximise benefits and/or minimise costs to develop their own solutions and responses to environmental problems: s15, NEPC Act and s3.5.4, Schedule to the NEPC Act (IGAE).</p>
	Community participation and education (p.15)	●	<p>Before making a NEPM, the EPHC must undertake public consultation by exhibiting the proposed NEPM and inviting submissions: s18, NEPC Act.</p> <p>Under the EPBC Act, public consultation requirements apply in relation to each form of EIA which may be used in relation to <b>controlled actions</b> (see below, row 19): Pt8, EPBC Act.</p> <p>Chapter 32 of the National Strategy for ESD is devoted to community awareness, education and participation. The objectives include developing community awareness of ESD, promoting open and effective communication on ESD issues among various stakeholders, and ensuring timely and informed contributions from stakeholders to the implementation of ESD initiatives.</p>
8	Water quality protection objectives and beneficial uses	●	<p>The Natural Heritage Trust Act establishes the National Land and Water Resources Audit, and gives it the following primary objectives of:</p> <p style="padding-left: 40px;">(a) to estimate the direct and indirect causes and effects of land and water degradation on the quality of the Australian environment and to estimate the effects of land and water degradation on Australia’s economy;</p> <p style="padding-left: 40px;">(b) to provide a baseline for the purposes of carrying out assessments of the effectiveness of land and water degradation policies and programs: s12.</p> <p>Every 5 years, the Minister for the Environment, Heritage and the Arts must publish a State of the Environment Report which covers the matters set out in the regulations: s516B, EPBC Act. The EPBC Regulations do not currently specify any matters in relation to state of the environment reporting.</p>
	Define beneficial		<u>Basin Plan under the Water Act</u>
9			

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in the Commonwealth	
10	uses and values (pp.39-40)	●	The Basin Plan under the Water Act (see row 11, Commonwealth Groundwater Management Framework) must contain a <b>water quality and salinity management plan</b> (item 10, table in s22(1), Water Act), which includes <b>water quality and salinity objectives</b> for the Basin water resources. The term “Basin water resources” is defined to include groundwater (see row 11, Commonwealth Groundwater Management Framework). The precise nature of these objectives is not specified.
	Identify beneficial uses (pp.40-41)	●	<p>When the MDBA prepares the water quality and salinity management plan, and when the Minister decides whether to adopt the Basin Plan, including the water quality and salinity management plan, each must “have regard to the National Water Quality Management Strategy endorsed by the Natural Resource Management Ministerial Council”: s25(3), Water Act.</p> <p>The Basin Plan also sets requirements for water resource plans at local levels. One type of requirement which must be included is water quality objectives for the water resource plan areas: s22(3)(f), Water Act.</p> <p>Further, the Basin Plan, in general, must be prepared having regard to environmental issues as the paramount consideration. In particular, the Basin Plan must “promote sustainable use of the Basin water resources to protect and restore the ecosystems, natural habitats and species that are reliant on the Basin water resources and to conserve biodiversity”: s21(2)(b), Water Act. Accordingly, the water quality and salinity management plan could be expected to consider the water quality requirements of groundwater dependent ecosystems, since they are “reliant on the Basin water resources”.</p> <p>Note: the MDB Agreement, set out in the Water Act, provides for a <i>Basin Salinity Management Strategy 2001-2015</i>, which is implemented through Schedule B to that Agreement. The MDB Agreement sets a surface water <b>Basin Salinity Target</b> of the average daily salinity at Morgan at a simulated level of less than 800 E.C. for at least 95% of the time. Although this is a surface water target, the States which are party to the MDB Agreement undertake groundwater pumping works to prevent salinity reaching the River Murray as part of their obligations in relation to the overall Basin Salinity Target. Schedule B is thus peripherally relevant to groundwater quality. It is not discussed further.</p>
11	Apply criteria (narrative or prescriptive) (pp.41-42)	●	<p><u>Basin Plan under the Water Act</u></p> <p>In addition to objectives, the water quality and salinity management plan must include <b>water quality and salinity targets</b> for the Basin water resources: s25(1)(b), Water Act.</p>
12	Points of application of criteria (pp.42-43)	●	A salinity target in the water quality and salinity management plan may specify the place at which the target is to be measured, and may specify a target in terms of a particular level of salinity being met for a particular percentage of time: s25(2), Water Act. The Water Act does not make any further provision for targets for other water quality parameters.

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in the Commonwealth	
13	Monitoring and review program focusing on extent of implementation and extent to which goals are met (pp.46-47)	●	The Water Act provides for monitoring and review of the Basin Plan as a whole: see row 17, Commonwealth Groundwater Management Framework.
14	Inter-agency coordination (p.48)	●	The Water Act provides for inter-agency consultation in relation to the Basin Plan as a whole: see row 15, Commonwealth Groundwater Management Framework.
15	Enforcement of criteria for beneficial uses	●	The Water Act provides for the enforcement of the Basin Plan as a whole: see row 18, Commonwealth Groundwater Management Framework.
16	Controlling sources of contamination	●	<p>The National Strategy for ESD includes as objectives, “to improve the efficiency of resource use and reduce the impact on the environment of waste disposal” (objective 19.1), and “to avoid the generation of hazardous wastes, improve management of those wastes which are generated and improve mechanisms for their clean up” (objective 19.2).</p> <p>See also, above row 6, in relation to the Oil Stewardship Act and Regulations.</p>
17	Licensing of contaminants and point sources (p.30, App.1)	●	<p>Under the NWI (cl34):</p> <p>The Parties agree that there may be special circumstances facing the minerals and petroleum sectors that will need to be addressed by policies and measures beyond the scope of this Agreement... the Parties note that specific project proposals will be assessed according to environmental, economic and social considerations, and that factors specific to resource development projects, such as isolation, relatively short project duration, water quality issues, and obligations to remediate and offset impacts, may require specific management arrangements outside the scope of this Agreement.</p> <p><u>Approval under the EPBC Act</u></p> <p>If an action is a <b>controlled action</b> under the EPBC Act (see row 19, below), the Minister must approve it. The approval must set out the conditions attached to the approval: s133(2)(f), EPBC Act.</p>

Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in the Commonwealth
	<p>The Minister may attach a condition to the approval if he or she is satisfied that the condition is necessary or convenient for protecting a <b>matter of national environmental significance</b> (see below, row 19), or for repairing or mitigating damage to a matter of national environmental significance. The conditions may, for example, require specified activities to be undertaken, require a <b>financial security</b>, require periodic environmental audits, require specified environmental monitoring or testing to be carried out, or require compliance with a specified industry standard or code of practice: s134, EPBC Act.</p> <p><u>Basin Plan under the Water Act</u></p> <p>Note that the Basin Plan may not <b>directly regulate</b> the control of pollution: s22(10)(c), Water Act. In this context, “directly regulate” is defined to include (s22(11), Water Act):</p> <ul style="list-style-type: none"> <li>• prohibiting a person from undertaking an activity;</li> <li>• requiring a person to undertake an activity, or to undertake an activity in a particular way; or</li> <li>• imposing an obligation on a person to obtain a consent or approval for an activity.</li> </ul> <p><u>Controlled Waste NEPM</u></p> <p>Note that NEPMs are confined to “ambient” measures, and cannot directly control industry or individuals: Gerry Bates, <i>Environmental Law in Australia</i> (6<sup>th</sup> ed., 2006), p.381-382.</p> <p>The Controlled Waste NEPM ensures that controlled wastes that are to be transported between states and territories are properly identified, transported, and handled in was that are consistent with environmentally sound practices. The Controlled Waste NEPM does not have direct effect—rather, it is implemented in the States through State laws.</p> <p><u>Hazardous Waste</u></p> <p>The Hazardous Waste Act regulates the import and export of hazardous waste which is intended for disposal, rather than use. It provides for a system of ministerial permits for the import, export and transit of hazardous waste: ss12-13B. The ministerial permit system includes such considerations as whether the import or export proposal would be consistent with the environmentally sound management of the hazardous waste (s17(1), Hazardous Waste Act), or carrying out the transit permit will not pose a significant risk of injury or damage to human beings or the environment (s17A(2), Hazardous Waste Act).</p> <p>Note: the <i>Industrial Chemicals (Notification and Assessment) Act 1989</i> (Cth) also provides for potentially hazardous chemicals by prohibiting a person from importing or manufacturing industrial chemicals which are not included on a particular inventory,</p>



Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in the Commonwealth	
18	Inter-agency coordination (p.48)	●	<p>unless he or she holds a particular authorisation.</p> <p>Inter-jurisdictional coordination is typified by the IGAE, to which all governments are signatory, the referrals of power from the Basin States which form the basis for some provisions of the Water Act, and the EPHC, which was established by the Council of Australian Governments.</p> <p>In relation to approvals under the EPBC Act, before the Minister decides whether or not to approve, the taking of an action, and what conditions (if any) to attach to an approval, he or she must consult with any other Minister who he or she believes to have administrative responsibilities relating to the action: s131, EPBC Act.</p> <p>The EPBC Act also provides for the making of bilateral agreements between the Commonwealth and the States and Territories, to allow the Commonwealth to “accredit” a State or Territory assessment process or approval decision, for the purposes of the EPBC Act: Ch3, EPBC Act. This effectively delegates to the State or Territory the responsibility for conducting environmental assessments, and in some cases, granting environmental approvals, thereby reducing duplication.</p>
	Requirements for impact assessment (p.32)	●	<p><u>EPBC Act</u></p> <p>Environmental impact assessment procedures apply to any <b>controlled action</b> under the EPBC Act – these involve Commonwealth land, actions of Commonwealth agencies (both of which are not discussed further here), or actions that affect <b>matters of national environmental significance</b>, being:</p> <ul style="list-style-type: none"> <li>• An action that has or will have, or is likely to have a significant impact on: <ul style="list-style-type: none"> <li>○ a declared World Heritage property: s12, EPBC Act;</li> <li>○ a National Heritage place (if the action is taken by the Commonwealth or a Commonwealth agency): s15B;</li> <li>○ the ecological character of a declared Ramsar wetland: s16, EPBC Act;</li> <li>○ listed threatened species or endangered communities: s18, EPBC Act;</li> <li>○ on listed migratory species: 20, EPBC Act;</li> </ul> </li> <li>• A nuclear action that results or will result in a significant impact on the environment (if the action is taken by a constitutional corporation or some Commonwealth agencies): s22A, EPBC Act;</li> <li>• An action prescribed by the regulations that is of national environmental significance: s25, EPBC Act (although none has</li> </ul>

Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in the Commonwealth
	<p>yet been prescribed).</p> <p>Whether a proposal will have, or is likely to have a significant impact is determined by the Minister for the Environment, Heritage and the Arts. A controlled action requires approval from the Minister. Therefore, an action involving groundwater pollution will need approval if it has a <b>significant impact</b> on one of the matters above.</p> <p>The EPBC Significant Impact Guidelines assist proponents to decide whether or not to refer an action to the Minister for an assessment of whether it is a controlled action. Although these Guidelines do not explicitly refer to groundwater quality impacts, they list considerations which are particularly relevant in the groundwater quality context, such as (p.7):</p> <ul style="list-style-type: none"> <li>• the sensitivity of the environment which will be impacted;</li> <li>• the duration of the impacts;</li> <li>• the total impact which can be attributed to the action over the entire geographic area affected, and over time; and</li> <li>• the degree of confidence with which the impacts of the actions are known and understood.</li> </ul> <p>If the Minister determines that an action is a controlled action, he or she will determine that one of several approaches is to be used to assess the action—an accredited assessment process (see row 18, above), assessment on referral information (that is, preliminary documentation), public environment report, environmental impact statement, or public inquiry: s87(1), EPBC Act.</p> <p><u>Contaminated Site NEPM</u></p> <p>The Contaminated Site NEPM establishes a nationally consistent approach to the assessment of site contamination. It comprises a recommended process for the assessment of site contamination (Schedule A) and 10 general guidelines for the assessment of site contamination (Schedule B). Schedule B(6): <i>Guideline on Risk Based Assessment of Groundwater Contamination</i> (available at <a href="http://www.ephc.gov.au/sites/default/files/ASC_NEPMsch_06_Groundwater_199912.pdf">http://www.ephc.gov.au/sites/default/files/ASC_NEPMsch_06_Groundwater_199912.pdf</a>, viewed 13 August 2009) deals with contamination from point sources, and specifically recognises and applies the “approaches, policies and water quality criteria developed to protect groundwater under the [NWQMS]”: cl2.1. It also states that (cl2.3):</p> <ul style="list-style-type: none"> <li>• both current uses and realistic future uses of groundwater are considered, consistent with the Guidelines;</li> <li>• the risk assessment process must consider any impact from site contamination on groundwater quality which causes groundwater parameters to differ from ambient quality; and</li> <li>• for each environmental value set out in the ANZECC Guidelines (and reflected in the Groundwater Guidelines), the criteria</li> </ul>

	Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in the Commonwealth
		<p>defined in the ANZECC Guidelines are used as investigation levels at the point of extraction and as response levels at the point of use.</p> <p>The Contaminated Site NEPM does not have direct effect in the states – rather, it requires State implementation. The Contaminated Site NEPM has effect in the States through the following mechanisms:</p> <ul style="list-style-type: none"> <li>• ACT: through the Contaminated Sites Environment Protection Policy under the <i>Environment Protection Act 1997</i>;</li> <li>• Commonwealth: through guidelines under the Cth NEPM Act;</li> <li>• NSW: under guidelines issued under the <i>Contaminated Land Management Act 1997</i> and through the <i>Protection of the Environment Operations (Underground Petroleum Storage Systems) Regulation 2008</i>;</li> <li>• NT: through the <i>Waste Management and Pollution Control Act 1998</i> and the <i>Planning Act 1999</i>;</li> <li>• Qld: through the <i>Integrated Planning Act 1997</i>, the <i>Environment Protection Act 1994</i> and the <i>EPA Guidelines for the Assessment and Management of Contaminated Land in Queensland</i> (May 1998);</li> <li>• SA: the Contaminated Site NEPM has the status of an Environment Protection Policy under the <i>Environment Protection Act 1993</i>;</li> <li>• Tas: the Contaminated Site NEPM has the status of State Policy under the <i>State Policies and Projects Act 1993</i>;</li> <li>• Vic: through the <i>State Environment Protection Policy (Prevention and Management of Contamination of Land)</i>, the <i>State Environment Protection Policy (Groundwaters of Victoria)</i>, the <i>Industrial Waste Management Policy (Prescribed Industrial Waste)</i> and the <i>Planning and Environment Act 1987</i>; and</li> <li>• WA: through the <i>Contaminated Sites Act 2003</i> and the <i>Contaminated Sites Regulations 2006</i>.</li> </ul>
20	Prescription of activities/ discharges in protected areas (p.45)	<ul style="list-style-type: none"> <li>● The <b>matters of national environmental significance</b> are essentially protected areas, and actions that have a <b>significant impact</b> on such a matter require approval.</li> </ul> <p>The EPBC Regulations prohibit the following, in relation to Commonwealth reserves and conservation zones (which are declared under Div5, Pt 15, EPBC Act), unless approved:</p> <ul style="list-style-type: none"> <li>• discharging or leaving minerals, mineral waste, other solid waste, and any noxious, offensive or polluting substance: regs12.14(1) and 13.02(2)(f);</li> </ul>

	Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in the Commonwealth	
21			<ul style="list-style-type: none"> <li>releasing liquid or gaseous material if the release is likely to pollute water: regs12.14(2)(a) and 13.02(2)(f);</li> <li>using or introducing a pesticide, herbicide or other poisonous substance, unless for domestic purposes: regs12.15 and 13.02(2)(g);</li> <li>interfere with anything in a cave or release a substance into waters that flow through a cave or karst area: regs12.17(b) and (c) and 13.02(2)(i); and</li> <li>carrying out a commercial activity: regs12.36 and 13.02(2)(p).</li> </ul>
	Monitoring requirements (p.45)	●	<p>A condition of an approval under the EPBC Act may require specified monitoring or testing to be carried out: s134(3)(f), EPBC Act.</p> <p>A remediation determination may also require monitoring in relation to an action taken to mitigate damage caused by a contravention in relation to a matter of national environmental significance: s480E(2)(i), EPBC Act.</p>

22

## Form of protection suggested by the Guidelines

## Whether implemented / Summary of implementation in the Commonwealth

Contingency measures, including clean-up requirements (pp.47-48)

●	<p><u>EPBC Act</u></p> <p><b>Remediation orders</b> and <b>remediation determinations</b> are available to repair or mitigate environmental damage resulting from a contravention of the EPBC Act:</p> <ul style="list-style-type: none"> <li>• The Federal Court may make a <b>remediation order</b> requiring the person to take action to repair or mitigate damage that may or will be, or that has been, caused to the environment by a contravention of the EPBC Act: s480A, EPBC Act.</li> <li>• The Minister may make a <b>remediation determination</b> requiring a person to take action to repair or mitigate damage that may or will be, or that has been, caused by the contravention, to a matter of national environmental significance: s480D, EPBC Act. A remediation determination may require specific action to be taken, require a person to comply with an industry standard or code of practice in undertaking the action, and may provide for monitoring, auditing, or reporting to the Minister: s480E, EPBC Act.</li> </ul> <p>The Minister may also take steps to <b>repair conditions</b> or <b>mitigate damage</b> that arises as a result of a contravention of the EPBC Act, or <b>prevent damage</b> that is likely to occur due to a contravention of the EPBC Act: s499(1), EPBC Act.</p> <p>The Minister may enter into a <b>conservation agreement</b> with a person that the Minister considers has breached the EPBC Act relating to a protected matter, including a matter of national environmental significance: s305, EPBC Act. The agreement may include measures to repair or mitigate damage to the protected matter: s307A, EPBC Act.</p> <p><u>Contaminated Site NEPM</u></p> <p>The Contaminated Site NEPM suggests that the assessor of a contaminated site should take into account a preferred hierarchy of options for site clean-up and/or management, consisting of (cl16):</p> <ul style="list-style-type: none"> <li>• if practicable, on-site treatment of the contamination so that it is destroyed or the associated risk is reduced to an acceptable level; and</li> <li>• off-site treatment of excavated soil, so that the contamination is destroyed or the associated risk is reduced to an acceptable level, after which soil is returned to the site; or, if the above are not practicable,</li> <li>• consolidation and isolation of the soil on site by containment with a properly designed barrier; and</li> <li>• removal of contaminated material to an approved site or facility, followed, where necessary, by replacement with appropriate material;</li> </ul> <p>or,</p> <ul style="list-style-type: none"> <li>• where the assessment indicates remediation would have no net environmental benefit or would have a net adverse environmental effect, implementation of an appropriate management strategy.</li> </ul> <p><u>Hazardous Waste Act</u></p> <p>Under the Hazardous Waste Act, if a person has imported, exported or carried out a transit proposal in relation to hazardous waste in contravention of the Act, and the Minister is satisfied that this has resulted in significant injury or damage to human beings or the environment, the person may be required to take steps to remedy or mitigate the damage: s36(1)(b).</p>
---	--

A -61

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in the Commonwealth	
23	Controls on diffuse source contamination (pp.17, 30)	●	<p>Not explicitly provided for.</p> <p>Unrelated actions are assessed separately under the EPBC Act.</p> <p>The Acid Sulfate Soils Strategy refers to the threat that pumping groundwater in coastal areas containing ASS or sulfidic sediments can cause widespread acidification of the aquifer, and initiate oxidation of ASS and result in acidification of the groundwater, and possible release of high metal concentrations: pp.10 and 37.</p>
24	<b>Land-use planning</b> Controls on land clearing due to connection with groundwater quality (p.28)	●	<p>The Native Vegetation Policy refers to the “weight of evidence” that clearing results in “water degradation”, and states that:</p> <p style="padding-left: 40px;">All states need to ensure that every precaution is taken in assessing clearing applications, especially where insufficient information is available on the likely impacts of clearing on land degradation, salinity and biodiversity. The precautionary principle is not just a fine sentiment to include in policy statements - it is a guiding principle for actions.</p> <p>The Native Vegetation Policy also states that:</p> <p style="padding-left: 40px;">Governments need to ensure that planning for vegetation management takes into account the full suite of environmental values and the desirability to achieve multiple benefits such as...arresting salinity and improving water quality at the landscape scale.</p> <p>The Native Vegetation Framework includes “conservation, and where appropriate, restoration of native vegetation to...protect water quality” as an outcome of the Framework (para3.3), and in particular, “revegetation of recharge areas to slow or reverse rising groundwater tables and ameliorate dryland salinity” (para3.3.3).</p> <p>The Native Vegetation Framework encourages the use of incentive programs as one way to achieve these outcomes (see above, row 6).</p> <p>The Natural Heritage Trust Act establishes the National Vegetation Initiative, and among other objectives, gives it the objective of reversing the long-term decline in the extent and quality of Australia’s native vegetation cover by “restoring, by means of revegetation, the environmental values and productive capacity of Australia’s degraded land and water”: s10(c).</p>
25	Controls on land development due to connection with groundwater quality (p.28)	●	<p>The National Strategy for ESD states that</p> <p style="padding-left: 40px;">Governments will work to ensure that development decisions which impact on water resources are based on acceptable water quality and quantity criteria, and that management requirements to meet those criteria on a sustainable basis are recognised. Efforts will be focussed on... minimising pollution: Ch18.</p>

	Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in the Commonwealth
26	Protection of groundwater recharge zones (p.28)	<p>● The GAB Management Plan includes, as a strategy, developing a “groundwater protection strategy for Basin recharge zones”, which would seek to ensure that (p.11):</p> <ul style="list-style-type: none"> <li>• recharge zones are identified and protected from inappropriate land uses or land use change through land use planning mechanisms; and</li> <li>• recharge water is of acceptable quality.</li> </ul> <p>The GAB Management Plan also includes as a strategy “Develop and implement a monitoring schedule for water levels and quality in recharge zones”: p.12. In particular, “[l]and use management plans in the Basin should not permit any land use or management practice causing deep leaching of contaminants in recharge areas” (p.39), and</p> <p>Natural resource management and land use planning agencies, research groups and landholders need to work collaboratively to adequately define the extent of recharge areas, protect recharge areas and ensure that quality of recharge water is maintained. Those involved in making land-use decisions in recharge areas should understand the need for unimpeded and uncontaminated recharge water to enter the Basin. The integrity of the quantity and quality of Basin water supply must be the overriding consideration in all landuse decisions that may affect recharge areas: p.39.</p>

## NEW SOUTH WALES (1) Groundwater Management Framework Table

Key items of legislation, regulation and policy	Supplementary items of legislation, regulation and policy	Symbols, acronyms, and useful terminology
<p><i>Water Management Act 2000</i> (NSW) (<b>Water Management Act</b>)</p> <p><i>NSW Groundwater Quality Protection Policy: A Component Policy of the NSW State Groundwater Policy</i> (NSW Department of Land and Water Conservation, 1998) (<b>Groundwater Quality Policy</b>), available at <a href="http://www.dwe.nsw.gov.au/water/pdf/quality_groundwater_nsw_state_groundwater_quality_policy.pdf">http://www.dwe.nsw.gov.au/water/pdf/quality_groundwater_nsw_state_groundwater_quality_policy.pdf</a>, viewed 26 July 2009.</p> <p><i>NSW State Groundwater Policy Framework Document</i> (NSW Department of Land and Water Conservation, 1997) (<b>Groundwater Policy Framework</b>), available at <a href="http://www.dwe.nsw.gov.au/.../avail_ground_nsw_state_groundwater_policy_framework_document.pdf">www.dwe.nsw.gov.au/.../avail_ground_nsw_state_groundwater_policy_framework_document.pdf</a>, viewed 26 July 2009.</p> <p><i>NSW State Groundwater Dependent Ecosystems Policy: A Component Policy of the NSW State Groundwater Policy Framework Document</i> (NSW Department of Land and Water Conservation, 2002) (<b>GDE Policy</b>), available at <a href="http://www.dwe.nsw.gov.au/.../groundwater_dependent_ecosystem_policy_300402.pdf">www.dwe.nsw.gov.au/.../groundwater_dependent_ecosystem_policy_300402.pdf</a>, viewed 27 July 2009.</p> <p><i>Water (Part 5—Drillers' Licences) Regulations 1995</i> (NSW) (<b>Drilling Regulations</b>)</p> <p><i>Catchment Management Authorities Act 2003</i> (NSW) (<b>CMA Act</b>)</p>	<p><i>Water Management (General) Regulations 2004</i> (NSW) (<b>Water Management Regulations</b>)</p> <p><i>State Water Corporation Act 2004</i> (NSW) (<b>State Water Corporation Act</b>)</p> <p><i>Public Health Act 1991</i> (NSW) (<b>Public Health Act</b>)</p> <p><i>Public Health (General) Regulations 2002</i> (NSW) (<b>Public Health (General) Regulations</b>)</p> <p><i>Local Government Act 1993</i> (NSW) (<b>Local Government Act</b>)</p> <p><i>Water Management (Water Supply Authorities) Regulations 2004</i> (NSW) (<b>Water Supply Authorities Regulations</b>)</p> <p><i>NSW Water Quality and River Flow Objectives</i> (non-statutory) (<b>Water Quality Objectives</b>), available at <a href="http://www.environment.nsw.gov.au/ieo/">http://www.environment.nsw.gov.au/ieo/</a>, viewed 15 August 2009.</p> <p><i>Guidelines for Best-Practice Management of Water Supply and Sewerage</i> (August 2007) (Water Supply Guidelines) – guidelines for the purposes of s409(6)(a), Local Government Act, available at <a href="http://www.dwe.nsw.gov.au/water_urban/pdf/town_planning_water_utilities_best-practice_management_of_water_supply_and_sewerage_guidelines_2007.pdf">http://www.dwe.nsw.gov.au/water_urban/pdf/town_planning_water_utilities_best-practice_management_of_water_supply_and_sewerage_guidelines_2007.pdf</a>, viewed 27 July 2009.</p>	<p><b>CMA</b> = catchment management authority under the CMA Act</p> <p><b>Framework</b> = the collection of legislation, regulation and policy set out in this report for each jurisdiction, in relation to: (1) Groundwater Management; (2) Environment Protection; and (3) Land-Use Planning</p> <p><b>Guidelines</b> = <i>Guidelines for Groundwater Protection in Australia</i> (1995)</p> <p><b>Health Minister</b> = Minister for Health</p> <p><b>Water Minister</b> = Minister for Water</p> <p>● = Framework explicitly provides for this element of the Guidelines</p> <p>◐ = Framework goes some way towards providing for this element of the Guidelines</p> <p>○ = Framework does not provide for this element of the Guidelines</p>

Note: this Table does not deal with the *Water Act 1912* (NSW), the operation of which is being phased out.



Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in the New South Wales	
1	Principles (primarily pp.9-13)	Precautionary principle (pp.11, 40)	<p>● <u>Water Management Act</u></p> <p>An object of the Water Management Act is to “apply the <b>principles of ecologically sustainable development</b>”: s3(a). Under the Water Management Act, the following entities must exercise their functions under that Act consistently with the <b>principles of ecologically sustainable development</b>: a management committee preparing a management plan (s14(3)); a water supply authority (s292(3)); and the Ministerial Corporation (s372(4)). In these contexts, the principles of ecologically sustainable development include the precautionary principle: Dictionary, Water Management Act and s6(2), PEO Act (see row 1, NSW Environment Protection Framework).</p> <p>In relation to the Groundwater Quality Policy and Groundwater Policy Framework, see row 1, NSW Environment Protection Framework.</p>
2		Polluter pays principle (p.11)	<p>● <u>Water Management Act</u></p> <p>An object of the Water Management Act is to “apply the <b>principles of ecologically sustainable development</b>”: s3(a). Under the Water Management Act, the following entities must exercise their functions under that Act consistently with the <b>principles of ecologically sustainable development</b>: a management committee preparing a management plan (s14(3)); a water supply authority (s292(3)); and the Ministerial Corporation (s372(4)). In these contexts, the principles of ecologically sustainable development include the polluter pays principle: Dictionary, Water Management Act and s6(2), PEO Act (see row 2, NSW Environment Protection Framework).</p> <p>An approval to construct and use a water supply work, or to carry out an aquifer interference activity (for example, mining which interferes with water in an aquifer, may be granted subject to a <b>security deposit</b>: reg36, Water Management Act. The security deposit reflects the cost of performing the approval holder’s obligations under the approval in the event that the holder fails to perform those obligations, and may be useful if a condition in relation to protecting groundwater quality is applied to the approval.</p> <p>In relation to the Groundwater Quality Policy, see row 2, NSW Environment Protection Framework.</p>
3		Equity considerations (p.12)	<p>●</p> <p>An object of the Water Management Act is to “provide for the orderly, efficient and equitable sharing of water from water sources”: s3(e).</p> <p>An object of the Water Management Act is to “apply the <b>principles of ecologically sustainable development</b>”: s3(a). Under the Water Management Act, the following entities must exercise their functions under that Act consistently with the <b>principles of ecologically sustainable development</b>: a management committee preparing a management plan (s14(3)); a</p>

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in the New South Wales	
4			<p>water supply authority (s292(3)); and the Ministerial Corporation (s372(4)). In these contexts, the principles of ecologically sustainable development include the principle of intergenerational equity: Dictionary, Water Management Act and s6(2), PEO Act (see row 1, NSW Environment Protection Framework).</p> <p>In relation to the Groundwater Quality Policy and Groundwater Policy Framework, see row 3, NSW Environment Protection Framework.</p>
	Beneficial uses and values (pp.10-12, 39-41)	●	<p><b>Water quality objectives</b> are formulated in a non-statutory way, as set out in rows 9-15, NSW Environment Protection Framework.</p> <p><b>Water quality objectives</b> are not expressly mentioned in the Water Management Act. However, the Water Management Act provides for a <b>State Water Management Outcomes Plan</b>, which guides every person who exercises a function under that Act, and with which <b>management plans</b> must be consistent (see below, row 18). In the past, it has been the State Water Management Outcomes Plan (the most recent of which has now expired) which provides for water quality objectives within the NSW Groundwater Management Framework. The 2002 State Water Management Outcomes Plan includes as a target, that all management plans incorporate the water quality objectives (see below, row 11).</p> <p>The Groundwater Policy Framework promotes the objective of integrating the management of surface waters and groundwater resources, including through links between “the setting of environmental objectives for surface and groundwaters”: p.19.</p> <p>According to the NSW Water Quality Objectives, catchment action plans (see row 11, below) will include regional targets which will provide a framework to guide work towards the Water Quality Objectives.</p>
5	Forms of intervention (pp.14-15)	●	<p><u>Water Management Act</u></p> <p>The Water Management Act provides for the following types of authorisations:</p> <ul style="list-style-type: none"> <li>• <b>water use approvals</b>, which confer a right on the holder to use water for a particular purpose at a particular location: s89(1);</li> <li>• <b>water management work approvals</b>, which include <b>water supply works approvals</b>, which authorise the holder to construct and use a specified water supply work (which is defined to include a water pump or water bore: Dictionary) at a specified location: s90(2) (see below, row 25);</li> <li>• <b>activity approvals</b>, which include:</li> </ul>

6	Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in the New South Wales	
		<ul style="list-style-type: none"> <li>○ <b>controlled activity approvals</b>, which confer a right on the holder to carry out a specified controlled activity at a specified location in, on or under waterfront land: s91(2). A <b>controlled activity</b> includes the carrying out of works under the EP&amp;A Act, removing material (for example, vegetation) from land or depositing material on land (including by way of landfill operations), or the carrying out of any other activity that affects the quantity or flow of water in a water source: Dictionary.</li> </ul> <p>It is a <b>water management principle</b> under the Water Management Act that “the carrying out of controlled activities must avoid or minimise land degradation, including...contamination, acidity, waterlogging... or, where appropriate, salinity”: s5(4)(a). All persons exercising functions (for example, licensing functions), have a duty to take reasonable steps to do so “in accordance with, and so as to promote, the water management principles”: s9(1)(a), Water Management Act.</p> <ul style="list-style-type: none"> <li>○ <b>aquifer interference approvals</b>, which confer a right on the holder to carry out one or more specified aquifer interference activities at a specified location, or in a specified area, in the course of carrying out specified activities: s91(3). <b>Aquifer interference activities</b> are activities which penetrate an aquifer, interfere with water in an aquifer, obstruct the flow of water in an aquifer, or take or dispose of water taken from an aquifer in the course of carrying out mining or another activity prescribed in the regulations: Dictionary.</li> </ul> <p>The Water Management Act also allows the Water Minister to give <b>directions</b> to take particular measures (eg repair damage or rehabilitate a water source) in relation to the construction or use of water management work (which includes a water bore) or a controlled activity or aquifer interference activity, which in the Water Minister’s opinion is having, has had, or is likely to have, an adverse effect on a water source: s333, Water Management Act.</p> <p><u>Local Government Act</u></p> <p>It is an offence to wilfully or negligently do any act which damages or pollutes (or is likely to damage or pollute) a public water supply, or a source of that supply: s639, Local Government Act.</p>	
	Market (pp.14-15)	<ul style="list-style-type: none"> <li>● An object of the CMA Act is “to provide a framework for financial assistance and incentives to landholders in connection with natural resource management”: s3(h). The term “natural resource management” is defined to include water and salinity, among other things: s4, CMA Act.</li> </ul> <p>A function of a CMA is to “provide loans, grants, subsidies or other financial assistance for the purposes of the catchment activities it is authorised to fund”: s15, CMA Act.</p>	

	Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in the New South Wales					
7		Community participation and education (p.15)	●	<p>An object of the Water Management Act is to “recognise the role of the community, as a partner with government, in resolving issues relating to the management of water sources”: s3(d).</p> <p>The Groundwater Policy Framework stresses the importance of fostering a “stewardship ethic” in relation to groundwater throughout the community through raising community awareness about groundwater management, and a groundwater education campaign: p.16. The GDE Policy states that brochures and other education material relating to groundwater dependent ecosystems, their values and relevant threats, focused on the community level, will be prepared for different groundwater management regions: p.28.</p> <p>The Water Management Regulations provide for applications for bores for the taking of water to be advertised, and people may raise an objection in respect of the application: reg32.</p> <p>An object of the CMA Act is to “involve communities in each catchment in decision making and to make best use of catchment knowledge and expertise”: s3(e).</p>				
8	Reservation of special areas (p.16)	Stressed areas (p.16)	●	The Water Minister may, by order published in the Gazette, constitute any land as a <b>water management area</b> : s11(1), Water Management Act. A management plan may be made for such an area (see below, row 11), and an embargo on taking water may be declared, for reasons of protecting water quality, among others: see below, rows 22-24.				
9		Public water supply areas (p.16)	●	<p>The Governor may, on the recommendation of the Water Minister, by order published in the Gazette, declare an area of land described in the order to be a <b>special area</b> for a water supply authority: s302, Water Management Act. The Water Minister may make such a recommendation if, in the Minister’s opinion, the exercise of the State’s water rights could be adversely affected unless the order is made: s302(2), Water Management Act.</p> <p>For further details, see below, row 31.</p>				
10		Other	N/A	N/A				
11	Management plans (pp.18-20)  (that is, a plan for regulating individual	Types of management plans for which the legislation or regulation provide	N/A	<u>Groundwater Policy Framework, Groundwater Quality Policy, and GDE Policy (together, <b>Groundwater</b></u>	<u>State Water Management Outcomes Plan (SWMOP) under the Water Management Act</u>  Note 1: there is	<u>Management plans under the Water Management Act</u>  Note: a reference in this column to a section is a reference to a section of the Water Management Act.  A management plan is prepared by a management committee, or by the Water Minister, and approved by the Water Minister: ss15 and 41.	<u>Catchment action plan under the CMA Act</u>  Note: a reference in this column to a section is a reference to a section of the CMA Act.	

Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in the New South Wales				
behaviour once a groundwater body is being used by many competing users)		<p><b><u>Policy Documents</u></b></p> <p>The Groundwater Policy Documents are inter-related non-statutory policies which are “intended to be an aid to catchment managers, planners and resource managers by providing a basis for decision making to achieve sustainable natural resource management”: p.8, Groundwater Quality Policy, and see also p.10, Groundwater Policy Framework.</p> <p>They were expressly designed to be consistent with the Guidelines: p.14, Groundwater Quality Policy, and p.7, Groundwater Policy Framework.</p>	<p>currently no SWMOP in effect. The SWMOP made in 2002 has ceased to have effect.</p> <p>Note 2: a reference in this column to a section is a reference to a section of the Water Management Act.</p> <p>The SWMOP is a plan for the development, conservation, management and control of the State’s water resources: s6(1).</p> <p>Its objects include setting the over-arching policy context, targets and strategic outcomes for the management of the State’s water sources and promoting the <b>water management principles</b> of the Act: s6(2).</p> <p>The SWMOP must be consistent with “State government</p>	<p>A management plan may relate to (among other things) water sharing and water source protection: s15(1)(a)(i) and (ii).</p> <p>The Water Management Act expressly provides many ways in which a management plan may (or must) deal with water quality. It:</p> <ul style="list-style-type: none"> <li>• may contain provisions with respect to the preservation and enhancement of the quality of water: s17(a),</li> <li>• may contain provisions with respect to the kinds of monitoring and reporting requirements that should be imposed as conditions of approvals: s17(b);</li> <li>• may contain provisions with respect to the conditions to which access licences and approvals are to be subject (<b>mandatory conditions</b>): s17(c);</li> <li>• the water sharing provisions may contain water sharing measures for the protection and enhancement of the quality of water in the water sources in the area or for the restoration or rehabilitation of water sources or their dependent ecosystems: s21(d);</li> <li>• the water use provisions: <ul style="list-style-type: none"> <li>○ must identify those uses and activities which have adverse impacts, including cumulative impact, on water sources or their dependent ecosystems or on other water users: s23(b);</li> <li>○ must identify the occurrence of land degradation, including... contamination,</li> </ul> </li> </ul>	<p>A catchment action plan is prepared by a CMA.</p> <p>It sets out the results expected to be achieved by the implementation of the plan, and priorities for funding, and other things which the Minister directs must be included: s20(1).</p> <p>A catchment action plan explicitly may also include “provisions that relate to water quality or other non-regulatory water management issues”: s20(1A)(a).</p> <p>A catchment action plan must comply with State-wide natural resource management standards, and promote the achievement of relevant State-wide targets: s23(2).</p> <p>A catchment action</p>

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in the New South Wales				
			<p>A key principle of the GDE Policy relates to the groundwater quality requirements of GDEs, as follows (p.7):</p> <p>Priority should be given to ensuring that sufficient groundwater of suitable quality is available at the times when it is needed:</p> <ul style="list-style-type: none"><li>• for protecting ecosystems which are known to be, or are most likely to be, groundwater dependent; and,</li><li>• for groundwater dependent ecosystems which are under an immediate or high degree of threat from groundwater-related activities.</li></ul>	<p>policy, including State government policy in relation to the environmental objectives for water quality”: s6(3)(c).</p> <p>The 2002 SWMOP (now expired) included the following target in order to “improve water quality” and “protect essential water supplies and recreational values”:</p> <p><b>Target 35</b> All management plans incorporating water quality objectives that have considered Government approved Interim Environmental Objectives, the current ANZECC Guidelines and the recommendations of relevant Healthy Rivers Commission Inquiries: Div11, Pt2, 2002 SWMOP.</p>	<p>acidity, waterlogging...or, where appropriate, salinity within the area and any impacts on water sources: s23(c);</p> <ul style="list-style-type: none"><li>○ may deal with the preservation and enhancement of the quality of water of the water sources in the area affected by water use and related practices: s24(e);</li></ul> <ul style="list-style-type: none"><li>• the drainage management provisions:<ul style="list-style-type: none"><li>○ must deal with the ecological impacts and impacts on water quality, including cumulative impacts, of the drainage works in the area: s26(d);</li><li>○ may deal with the preservation and enhancement of the quality of water of the water sources in the area affected by drainage management: s27(d); and</li></ul></li><li>• the parts of a management plan that deal with controlled activities and aquifer interference activities must specify the types of activities and interferences which require approvals: s32.</li></ul> <p>The water sharing, water use, drainage management, floodplain management and controlled activity provisions may all deal with the preservation and enhancement of the quality of water in the water sources (ss21(d), 24(e), 27(d), 30(e), 33(d)), ensuring that water quality is addressed from numerous angles.</p> <p>A management plan may contain certain types of <b>environmental protection provisions</b> in respect of developments, which must be included within a regional environmental plan (see NSW Land-Use Planning Framework).</p>	<p>plan also includes provisions relating to a CMA’s <b>environmental water functions</b> (s30A(6)), which include the improvement of water quality: s30A(1)(b).</p>

	Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in the New South Wales				
					<p>Among other things, a management plan must be consistent with the SWMOP, with any State environmental planning policy under the EP&amp;A Act, and with “State government policy, including State government policy in relation to the environmental objectives for water quality”: s16(1).</p> <p>Management plans are also affected by the <b>water management principles</b>, which include: water use, drainage management, floodplain management, controlled activities and aquifer interference activities each “must avoid or minimise land degradation, including...contamination, acidity, waterlogging... or, where appropriate, salinity and, where possible, land must be rehabilitated”: ss5(4)(a), (5)(a), (6)(a), 7(a) and 8(a).</p>	
12	Component studies (p.18)	●	Not explicitly provided for. However, the GDE Policy promotes appropriate research into the sensitivity of groundwater dependent ecosystems to changes in groundwater quality and availability, and the severity of threats, as a matter of urgency: pp.25 and 29.	Not explicitly provided for.	Management plans must set out various types of biophysical information (for example, the adverse impacts on water uses and activities on water sources or their dependent ecosystems in a water management area: s23(b)), however there is no requirement to carry out any particular studies in order to obtain this information.	Not expressly provided for.

	Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in the New South Wales				
13			The GDE Policy provides a Rapid Assessment Process for Groundwater Dependent Ecosystems, which includes assessing the vulnerability of an ecosystem to contamination: pp.36-38.			
	Surface water – groundwater interaction (p.18)	●	<p>A principle of the Groundwater Quality Policy (p.21) and Groundwater Policy Framework (p.7) is that: groundwater quality protection and management should be integrated with the management of groundwater quantity.</p> <p>Further, in the context of this Principle:</p> <p>Groundwater quality protection decisions</p>	<p>Not explicitly provided for in the Water Management Act.</p> <p>However, the 2002 SWMOP (which has now expired) contained the following target:</p> <p><b>Target 10</b> Degree of connectivity between aquifers and rivers assessed, and zones of high connectivity mapped to enable baseflows to the river to be maintained or improved</p> <p>One of the purposes</p>	<p>A management plan may relate to surface water, or groundwater or both.</p> <p>In formulating a groundwater management plan, regard may be had to activities that are affecting a connected surface water source:</p> <p>Due regard may... be had, in the formulation of the plan's proposals, to the effect within each water management area or water source to which the plan applies of activities occurring, or likely to occur, outside each such area or water source: s18(2).</p> <p>More specifically (though not expressly in relation to water quality):</p> <p>The floodplain management provisions of a management plan for a water management area must identify the ecological benefits of flooding in the area, with particular regard to wetlands and other floodplain ecosystems and groundwater recharge: s29(b).</p>	Not expressly provided for.



	Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in the New South Wales				
			<p>should not occur in isolation from groundwater sharing decisions. All groundwater management plans and other catchment plans should integrate both and make clear the linkages. (p.21).</p> <p>The Policy sets out groundwater quality issues in the context of the water cycle (p.11, Groundwater Quality Policy), and discusses the importance of surface-groundwater interaction in the setting of a level of protection of an aquifer: p.17, Groundwater Quality Policy.</p>	for this target was expressed to be “to improve water quality”: Div4, 2002 SWMOP.		
14	Public consultation (p.19)	●	The Groundwater Quality Policy and the Groundwater Policy Framework were developed in	Not explicitly provided for.	<p>A draft management plan must be publicly notified and exhibited, and public submissions must be invited: s38.</p> <p>The management committee preparing a management plan must provide comments in relation to public submissions to the Water Minister: s40(1).</p>	A CMA is to consult widely on a draft catchment action plan, by notifying the public of the plan and

Form of protection suggested by the Guidelines Whether implemented / Summary of implementation in the New South Wales						
15	Coordination with other agencies	●	association with a groundwater policy working group, comprised of community representatives and relevant agency staff: p.7, Groundwater Quality Policy, and p.14, Groundwater Policy Framework.	Not explicitly provided for.	If a draft management plan contains <b>environmental protection provisions</b> (see above, row 11), the Water Minister must consult with the Minister for Urban Affairs and Planning before making a decision as to whether the plan is suitable for public exhibition: s38(3).  Before making a management plan, the Water Minister must obtain the concurrence of the Minister for Climate Change and the Environment to the making of the plan: s41(2).	exhibiting it: s21.  In formulating the plan, a CMA must have regard to relevant environmental planning instruments: s20(2)(a).
	Market incentives (p.19)	◐	The Groundwater Policy Framework briefly mentions the establishment of tradeable groundwater entitlements and pricing to reflect resource management objectives, but does not explicitly mention quality in this context: p.26.	Not explicitly provided for.	Not explicitly provided for.	Not expressly provided for in relation to catchment action plans, although annual implementation programs may do so: ss27 and 29.
	Monitoring program (p.20)	●	The Groundwater Quality Policy will be formally reviewed on a 5-yearly basis: p.9, Groundwater Quality Policy.	The Minister is to ensure that the work and activities of the Department are reviewed at least every five years for the purpose of	The Water Minister is to ensure that a management plan is audited by an audit panel, at least every 5 years, for the purpose of ascertaining whether its provisions are being given effect to: s44.	An authority is to keep its catchment action plan under regular and periodic review: s26(1).  A catchment plan is

Form of protection suggested by the Guidelines Whether implemented / Summary of implementation in the New South Wales						
18				<p>determining whether they have been effective in giving effect to the <b>water management principles</b> and the SWMOP: s10(1).</p> <p>The Minister may also appoint expert advisory panels, the functions of which include investigating and reporting on the SWMOP: s387(3)(a).</p>		audited at least every 5 years by the Natural Resources Commission or by an independent panel: s26(3).
	Enforcement (p.20)	●	Not enforceable – policy only.	<p>It is the duty of all persons involved in the administration of the Water Management Act to exercise their functions under that Act in a manner that gives effect to the SWMOP.</p> <p>Management plans must be consistent with the SWMOP: s16(1)(a).</p>	An approval may not be granted in contravention of the provisions of any relevant management plan: s95(3).	A catchment action plan is strategic, rather than intended to be enforceable.
19	Controls on extraction (p.16)	●	<p>An <b>access licence</b> and water allocation credited to that access licence, are generally required to take water from a water source: s60A, Water Management Act. In relation to groundwater, the main relevant category of access licence is an <b>aquifer access licence</b>: s57(1)(e), Water Management Act. The Water Minister must not grant an access licence unless he or she is satisfied:</p>			

20	Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in the New South Wales
	<p>- Licences and permits</p> <p>groundwater (pp.9, 19)</p>	<ul style="list-style-type: none"> <li>that the grant is permitted by a management plan: s63(2)(a), Water Management Act: and</li> <li>“adequate arrangements are in force to ensure that no more than minimal harm will be done to any water source as a consequence of water being taken from the water source under the licence”: s63(2)(b), Water Management Act.</li> </ul> <p>An access licence is granted subject to:</p> <ul style="list-style-type: none"> <li><b>mandatory conditions</b>, which the Water Management Act or a <b>water management plan</b> requires to be imposed: s66(1)(a), Water Management Act, and</li> <li><b>discretionary conditions</b>, as the Water Minister thinks fit, which relate to protection of the environment: s66(1)(b)(ii), Water Management Act.</li> </ul> <p>The following are <b>water management principles</b> under the Water Management Act:</p> <ul style="list-style-type: none"> <li>“the water quality of all water sources should be protected and, wherever possible, enhanced: s5(2)(c), Water Management Act; and</li> <li>“the cumulative impacts of water management licences and approvals and other activities on water sources and their dependent ecosystems, should be considered and minimised”: s5(2)(d), Water Management Act.</li> </ul> <p>All persons exercising functions (for example, licensing functions), have a duty to take reasonable steps to do so “in accordance with, and so as to promote, the <b>water management principles</b>”: s9(1)(a), Water Management Act. This suggests that when determining whether to grant an <b>access licence</b>, and the conditions to which it should be subject, the Water Minister has a duty to take reasonable steps to protect or enhance water quality, and consider and minimise any negative water quality impacts of granting the licence.</p> <p>The 2002 SWMOP (now expired) stated that measures should be taken to ensure that groundwater extraction did not pose a threat to water quality vulnerability zones (see below, row 41). Licensing decisions under the Water Management Act must be carried out so as to give effect to a SWMOP (see above, row 18).</p>
	<p>Quality considered in setting conditions on taking water</p>	<p>● See above, row 19.</p>

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in the New South Wales			
21		Enforcement (p.20)	●	It is an offence to take water from a water source without holding an access licence, or to take water otherwise than in accordance with the conditions of that access licence: ss60A and 60B, Water Management Act.	
22	Other methods of limiting extraction	Method of limiting extraction	N/A	<u>Management plan for a water management area under the Water Management Act</u>	<u>Temporary or permanent embargo on approvals under the Water Management Act</u>
23		Water quality considerations (pp.9, 19)	●	<p>The water sharing provisions of a <b>management plan</b> may deal with the rates, times and circumstances under which water may be taken from any water source in the area, or the quantity of water that may be taken from any water source in the area: s21(a), Water Management Act.</p> <p>The Water Minister (in the case of a temporary embargo) or the Governor (in the case of a permanent embargo) may, by order published in the Gazette, declare an embargo on the making of applications for approvals (either generally, or in relation to specific types of approvals) with respect to any <b>water management area</b>: ss110 and 111, Water Management Act.</p> <p>No particular considerations expressly apply to the declaration of an embargo. However, a <b>water management principle</b> under the Water Management Act relates to protecting or enhancing water quality, and any person exercising a function under that Act must take reasonable steps to exercise that function so as to promote the water management principles (see below, row 25). That suggests that an embargo could be declared for a reason related to protecting or enhancing water quality.</p>	<p>Temporary water restrictions under the Water Management Act</p> <p>The Minister may order that the taking of water from a particular aquifer, or from any other aquifer that is above, below or adjacent to that aquifer, is prohibited, or is subject to specified restrictions, if satisfied that it is necessary to do so (among other reasons) (s324(2)(b) and (d), Water Management Act):</p> <ul style="list-style-type: none"> <li>to maintain, protect or improve the quality of water in an aquifer...</li> <li>to protect groundwater-dependent ecosystems.</li> </ul>
24		Enforcement (p.20)	●	An approval may not be granted in contravention of the provisions of any relevant management plan: s95(3), Water Management Act.	An application to which an embargo applies is a “nullity”, and ineffective: s112(2), Water Management Act.
					A person who fails to comply with a direction is guilty of an offence: s336C(1), Water Management Act.

	Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in the New South Wales
25	Well construction measures (p.16)	<p><b>Bore licensing</b></p> <ul style="list-style-type: none"> <li>● <u>Water Management Act</u></li> </ul> <p>Under the Water Management Act, a <b>water supply work approval</b> is required to construct or use a <b>water supply work</b>, which includes a water pump or water bore: s91B. An application for approval must, if required by the Water Minister, include or be accompanied by an assessment of the likely impact of the water supply work: regs31(1)(b) and (3), Water Management Regulations.</p> <p>In determining an application for an approval, the Water Minister must take into account any prescribed matters (no relevant matters have yet been prescribed by regulation) and such other matters as the Minister considers relevant: s96, Water Management Act. An approval may not be granted in contravention of the provisions of any relevant <b>water management plan</b>: s95(3), Water Management Act. An approval is subject to:</p> <ul style="list-style-type: none"> <li>• <b>mandatory conditions</b>, which the Water Management Act or a <b>water management plan</b> requires to be imposed: s100(1)(a), Water Management Act, and</li> <li>• <b>discretionary conditions</b>, as the Water Minister thinks fit, which relate to protection of the environment: s100(1)(b)(ii), Water Management Act.</li> </ul> <p>The <b>water management principles</b> under the Water Management Act which relate to protecting and enhancing water quality, and considering and minimising cumulative impacts of approvals apply to the exercise of the Water Minister's function of granting a water supply work approval (see above, row 19).</p> <p>The water sharing provisions of a management plan for a water management area under the Water Management Act may deal with the kinds of water supply works that may be constructed and used in the area: s21(b), Water Management Act.</p>
26	Driller licensing (pp.16, 25)	<ul style="list-style-type: none"> <li>● A person must not construct a water bore of any kind otherwise than in accordance with a bore driller's licence that is held by that person and that authorises the person to construct water bores of that kind: s346, Water Management Act.</li> </ul> <p>The Drilling Regulations provide for a person to apply for a driller's licence. They set out 6 different classes of drillers' licences: reg4.</p>
27	Rules for bore construction (p.25)	<ul style="list-style-type: none"> <li>◐ Not explicitly deal with. However, such matters could be dealt with in a management plan, since they may generally contain provisions with respect to the preservation and enhancement of the water of water (see above, row 11).</li> </ul> <p>See, for example, cl57(b) of the Water Sharing Plan for the Lower Murray, which imposes mandatory conditions on water supply work (bore) approvals in relation to well construction standards.</p>

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in the New South Wales	
28	Rules for operation and maintenance of bore (p.25)	●	Not explicitly deal with. However, such matters could be dealt with in a management plan, since they may generally contain provisions with respect to the preservation and enhancement of the water of water (see above, row 11).
29	Enforcement (p.20)	●	It is an offence to construct or use a <b>water supply work</b> , which includes a water pump or water bore, without a water supply work approval, or otherwise than in accordance with the relevant water supply work approval: s91B(1) and (2), Water Management Act.  Penalties apply to unlicensed bore drilling: s346, Water Management Act.
30	Water supply and protection of public water supply wells (pp.25-27)	●	<p><u>Public Health Act</u></p> <p>Under the Public Health Act, if the Health Minister has reason to suspect that water from a particular source is not fit for human consumption, or is likely to constitute a risk to public health, he or she may take action, and give such directions by notice to any person, where the Minister considers this is necessary (s10I, Public Health Act):</p> <ul style="list-style-type: none"> <li>• to restrict or prevent the use of any water to which this section applies, and</li> <li>• to bring the water to such a condition that it is no longer unfit for human consumption or a risk (or a likely risk) to public health.</li> </ul> <p><u>Local Government Act</u></p> <p>Under the Local Government Act, the Minister for Land and Water Conservation may direct a local council to take specified measures in relation to water supply works where there is an emergency which constitutes a threat to public health: s62.</p> <p>A council may also give an <b>environment protection notice</b> to a person (see row 22, NSW Environment Protection Framework): s124, Local Government Act.</p> <p><u>Water Management Act and Water Supply Authorities Regulations</u></p> <p>If water supplied by a water supply authority under the Water Management Act is being polluted, the water supply authority may, after giving reasonable notice to persons likely to be affected by its action, dig up the ground and try to find the source of the pollution: s301(1), Water Management Act. The State Water Corporation has the same power under the State Water Corporation Act: s28.</p>

	Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in the New South Wales
31	Protection zone around supply bores (p.25)	<p>● <u>Groundwater Quality Policy</u></p> <p>An objective of the Groundwater Quality Policy is “[t]own water supplies should be afforded special protection against contamination”: p.7.</p> <p><u>Water Management Act and Water Supply Authorities Regulations</u></p> <p>Certain activities are regulated in <b>special areas</b>, including certain actions by public agencies, livestock farming, sewage disposal, removing timber, bringing and leaving on the areas waste or pollutants, carrying out any work or erecting any building, and using pesticides, herbicides and other toxic materials: Divs1-3, Pt 6, Water Supply Authorities Regulations and s304, Water Management Act.</p> <p>A water supply authority may grant a person a certificate of compliance for development carried out, or proposed to be carried out, within the water supply authority’s <b>special area</b> (see above, row 9): s305(1), Water Management Act.</p>
32	Requirements to monitor up-gradient and within zone (pp.25, 26)	<p>◐ <u>Public Health Act</u></p> <p>The Director-General, Department of Health, may give a notice to a supplier of drinking water, to direct the supplier to carry out specified tests on water that it has available for supply, or on any substance used in or produced by the treatment of such water: s10G(1), Public Health Act. The tests required may relate to water in its raw state, water which is undergoing treatment, or water which has been treated or partly treated: s10G(2), Public Health Act. However, monitoring a borefield up-gradient is not specifically provided for.</p>
33	Response plan in event of contamination (p.25)	<p>○ Not explicitly provided for in the legislation, regulation and policy reviewed. However, such measures may be included through region-specific laws (such as the <i>Sydney Water Act 1994</i>, or the <i>Hunter Water Act 1991</i>).</p>
34	Reporting in the event of contamination (p.25)	<p>● <u>Public Health Act</u></p> <p>If a public authority considers, on reasonable grounds, that a situation has arisen in which the health of the public is, or is likely to be, at risk, the public authority is to notify the relevant Medical Officer of Health: reg18, Public Health (General) Regulations.</p>
35	Enforcement (p.20)	<p>● Penalties apply to a person who is given a direction by the Health Minister under the Public Health Act (see above, row 30), and who does not comply with it: s10L(4), Public Health Act.</p>



Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in the New South Wales	
36	Other well-related measures	Well abandonment requirements (pp.16, 25)	<p>● Not explicitly deal with. However, such matters could be dealt with in a management plan, since they may generally contain provisions with respect to the preservation and enhancement of the water of water (see above, row 11).</p> <p>See, for example, cl57(d) and (h) of the Water Sharing Plan for the Lower Murray, which impose mandatory conditions on water supply work (bore) approvals in relation to well abandonment.</p>
37		Controls on disposal of waste via wells (p.16)	<p>● Not explicitly dealt with in the Groundwater Management Framework. A licence under the <i>Protection of the Environment Operations Act 1997</i> is required to dispose of waste via wells (see NSW Environment Protection Framework).</p>
38	Gathering information	Strategic assessment of groundwater resources (p.38)	<p>● The functions of the Ministerial Corporation established by the Water Management Act include (ss372(1)(a1) and (b), Water Management Act):</p> <ul style="list-style-type: none"> <li>to construct, maintain and operate gauging stations and other monitoring equipment; and</li> <li>to conduct research and collect information in relation to water management.</li> </ul>
39		Monitoring of critical overdraw (p.16)	<p>● Not explicitly provided for.</p> <p>However, in the context of overdraw, it is relevant to consider the monitoring and research functions set out in row 39, above, in the context of the <b>water management principles</b>. The Ministerial Corporation has a duty to take reasonable steps to exercise these functions “in accordance with, and so as to promote, the water management principles”: s9(1)(a), Water Management Act. A relevant <b>water management principle</b> in the context of monitoring critical overdraw, is that extraction of water must not prejudice the water source and its dependent ecosystems: s5(3)(c), Water Management Act.</p>
40		Vulnerability mapping (pp.20-22)	<p>● <u>Groundwater Quality Policy</u></p> <p>The Groundwater Quality Policy supports groundwater vulnerability maps: p.16. NSW has produced some groundwater vulnerability maps, which show the vulnerability (or level of risk) of aquifers to contamination relating to physical characteristics of the location, such as the depth to the water table and soil type. The Department of Water and Energy suggests that “[t]he maps should be used by groundwater managers, planners, developers, and regulating agencies to make better informed judgements on where to locate potentially polluting activities so as to minimise the risk to groundwater”: NSW Department of Water and Energy, <i>Water Management: Groundwater Quality Protection</i> (undated), available at <a href="http://www.dwe.nsw.gov.au/water/quality_groundwater.shtml">http://www.dwe.nsw.gov.au/water/quality_groundwater.shtml</a>, viewed 26 July 2009.</p>

	Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in the New South Wales
		<p><u>Water Management Act</u></p> <p>The 2002 SWMOP, prepared under the Water Management Act (see above, row 11), but which has now expired, included the following target for the express purposes of protecting groundwater quality and protecting domestic water supplies:</p> <p><b>Target 38</b> Aquifer water quality vulnerability zones mapped and extraction limits reviewed to reduce the risk of lateral intrusion of poor quality water</p> <p>In relation to this target, the 2002 SWMOP stated (Div 4, Pt2)</p> <p>Water quality changes resulting from water extractions should not reduce the beneficial uses (environmental values) of an aquifer....Areas or zones where significant groundwater quality changes are a threat (water quality vulnerability zones) should be identified and measures taken to protect against this threat including:</p> <ul style="list-style-type: none"> <li>• setting distance limits between high and low quality groundwater interface within which intensive pumping cannot occur, and</li> <li>• setting groundwater quality criteria at appropriate monitoring bores which when approached, trigger a change in the extraction rate for licensed bores.</li> </ul>
41	Aquifer classification systems (pp.22-23)	<p>● <u>Groundwater Quality Policy</u></p> <p>The Groundwater Quality Policy states that groundwater systems have been subject to a process of (p.9):</p> <p>assessment, classification and prioritisation of groundwater systems according to their level of risk (low, medium or high) from over extraction and contamination. The classification of the States' aquifers was completed in April 1998 and has been used to determine the priority for the development of groundwater management plans.</p> <p><u>Water Management Act</u></p> <p>The Water Management Act provides for the Water Minister, with the agreement of the Minister for Climate Change and the Environment, to classify water sources as follows (s7(3)):</p> <ul style="list-style-type: none"> <li>(a) as to the extent to which they are at risk (that is, the extent to which harm to the water source or its dependent ecosystems is likely to occur),</li> <li>(b) as to the extent to which they are subject to stress (that is, the extent to which harm to the water source or its dependent ecosystems has occurred or is occurring),</li> <li>(c) as to the extent of their conservation value (that is, the extent to which their intrinsic value merits protection from risk and</li> </ul>

Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in the New South Wales
	<p>stress).</p> <p>The Minister, in consultation with a management committee appointed for a management area, is then to establish a bulk access regime through a management plan for each water source that is classified high risk, high stress or high conservation value: s7(4)(b) and (5), Water Management Act.</p> <p>The 2002 SWMOP, which has now ceased to have effect (see above, row 11), noted that groundwater dependent ecosystems “may be adversely affected by changes in groundwater quality”, and state that the groundwater requirements (presumably in relation to quality as well as quantity, given the previous note) of groundwater dependent ecosystems should be assessed for priority ecosystems and habitats: Div4, Pt 2, 2002 SWMOP.</p>

## NEW SOUTH WALES (2) Environment Protection Framework Table

Key items of legislation, regulation and policy	Supplementary items of legislation, regulation and policy	Symbols, acronyms, and useful terminology
<p><i>Protection of the Environment Administration Act 1991</i> (NSW) (<b>PEA Act</b>)</p> <p><i>Protection of the Environment Operations Act 1997</i> (NSW) (<b>PEO Act</b>)</p> <p><i>Protection of the Environment Operations (General) Regulation 2009</i> (NSW) (<b>PEO General Regulations</b>)</p> <p><i>Contaminated Land Management Act 1997</i> (NSW) (<b>Contaminated Land Act</b>)</p> <p><i>Environmental Planning and Assessment Act 1979</i> (NSW) (<b>EP&amp;A Act</b>)</p> <p><i>Environmental Planning and Assessment Regulation 2000</i> (NSW) (<b>EP&amp;A Regulation</b>)</p> <p>NSW State Groundwater Policy Framework Document, (NSW Department of Land and Water Conservation, 1997) (<b>Groundwater Policy Framework</b>), available at <a href="http://www.dwe.nsw.gov.au/.../avail_ground_nsw_state_groundwater_policy_framework_document.pdf">www.dwe.nsw.gov.au/.../avail_ground_nsw_state_groundwater_policy_framework_document.pdf</a>, viewed 26 July 2009.</p> <p><i>NSW Groundwater Quality Protection Policy: A Component Policy of the NSW State Groundwater Policy</i> (NSW Department of Land and Water Conservation, 1998) (<b>Groundwater Quality Policy</b>), available at <a href="http://www.dwe.nsw.gov.au/water/pdf/quality_groundwater_nsw_state_groundwater_quality_policy.pdf">http://www.dwe.nsw.gov.au/water/pdf/quality_groundwater_nsw_state_groundwater_quality_policy.pdf</a>, viewed 26 July 2009.</p> <p><i>NSW State Groundwater Dependent Ecosystems Policy: A Component Policy of the NSW State Groundwater Policy Framework Document</i></p>	<p><i>Environmentally Hazardous Chemicals Act 1985</i> (NSW) (<b>Hazardous Chemicals Act</b>)</p> <p><i>Pesticides Act 1999</i> (NSW) (<b>Pesticides Act</b>)</p> <p><i>NSW Diffuse Source Water Pollution Strategy</i> (NSW Department of Environment and Climate Change, June 2009) (<b>Diffuse Pollution Strategy</b>), available at <a href="http://www.environment.nsw.gov.au/water/dswp.htm">www.environment.nsw.gov.au/water/dswp.htm</a>, viewed 26 July 2009.</p> <p><i>Guidelines on the Duty to Report Contamination under the Contaminated Land Management Act 1997</i> (NSW) (June 2009) (<b>Reporting Contamination Guidelines</b>) – issued under s105, Contaminated Land Act, available from <a href="http://www.environment.nsw.gov.au/resources/clm/09438gldutycontclma.pdf">http://www.environment.nsw.gov.au/resources/clm/09438gldutycontclma.pdf</a>, viewed 27 July 2009.</p> <p><i>Guidelines for the Assessment and Management of Groundwater Contamination</i> (NSW) (March 2007) (<b>Groundwater Contamination Guidelines</b>) – issued under s105, Contaminated Land Act, available from <a href="http://www.environment.nsw.gov.au/resources/clm/groundwaterguidelines07144.pdf">http://www.environment.nsw.gov.au/resources/clm/groundwaterguidelines07144.pdf</a>, viewed 27 July 2009.</p> <p><i>Waste Avoidance and Resource Recovery Act 2001</i> (NSW) (<b>Waste Avoidance Act</b>)</p> <p><i>NSW Waste Avoidance and Resource Recovery Strategy 2007</i> (Department of Environment and Climate Change, 2007) (<b>Waste Strategy</b>), available at:</p>	<p><b>Environment Minister</b> = Minister for Climate Change and the Environment</p> <p><b>Framework</b> = the collection of legislation, regulation and policy set out in this report for each jurisdiction, in relation to: (1) Groundwater Management; (2) Environment Protection; and (3) Land-Use Planning</p> <p><b>Guidelines</b> = <i>Guidelines for Groundwater Protection in Australia</i> (1995)</p> <p>● = Framework explicitly provides for this element of the Guidelines</p> <p>◐ = Framework goes some way towards providing for this element of the Guidelines</p>

<p>(NSW Department of Land and Water Conservation, 2002) (<b>GDE Policy</b>), available at <a href="http://www.dwe.nsw.gov.au/.../groundwater_dependent_ecosystem_policy_300402.pdf">www.dwe.nsw.gov.au/.../groundwater_dependent_ecosystem_policy_300402.pdf</a>, viewed 27 July 2009.</p> <p><i>Considering Environmental Values of Water when Issuing Prevention Notices</i> (May 2006) (<b>Prevention Notice Guidelines</b>) – guidelines issued by the EPA under s96(3A) of the PEO Act, available at <a href="http://www.environment.nsw.gov.au/resources/water/envvalueswater06171.pdf">http://www.environment.nsw.gov.au/resources/water/envvalueswater06171.pdf</a>, viewed 26 July 2009.</p> <p><i>NSW Water Quality and River Flow Objectives</i> (non-statutory) (<b>Water Quality Objectives</b>), available at <a href="http://www.environment.nsw.gov.au/ieo/">http://www.environment.nsw.gov.au/ieo/</a>, viewed 15 August 2009.</p> <p><i>Using the ANZECC Guidelines and Water Quality Objectives in NSW</i> (NSW Department of Environment and Conservation, June 2006), (<b>Using WQOs in NSW</b>), available at <a href="http://www.environment.nsw.gov.au/.../water/anzeccandwqos06290.pdf">www.environment.nsw.gov.au/.../water/anzeccandwqos06290.pdf</a>, viewed 26 July 2009.</p>	<p><a href="http://www.environment.nsw.gov.au/warr/WARRStrategy2007.htm">http://www.environment.nsw.gov.au/warr/WARRStrategy2007.htm</a>, viewed 29 July 2009.</p> <p><i>NSW Salinity Strategy</i> (NSW Government, 2000) (<b>Salinity Strategy</b>), available at: <a href="http://www.environment.nsw.gov.au/salinity/government/documents.htm">http://www.environment.nsw.gov.au/salinity/government/documents.htm</a>, viewed 29 July 2009.</p> <p><i>Acid Sulfate Soils Remediation Guidelines for Coastal Floodplains in New South Wales</i> (Department of Environment and Climate Change, 2007) (<b>ASS Remediation Guidelines</b>), available at: <a href="http://www.environment.nsw.gov.au/resources/acidsulfatesoil/20070321acidsulfatesoils.pdf">http://www.environment.nsw.gov.au/resources/acidsulfatesoil/20070321acidsulfatesoils.pdf</a>, viewed 29 July 2009.</p> <p><i>Mining Act 1992</i> (NSW) (<b>Mining Act</b>)</p> <p><i>Petroleum (Onshore) Act 1991</i> (NSW) (<b>Petroleum Act</b>)</p> <p><i>Protection of the Environment Operations (Underground Petroleum Storage Systems) Regulation 2008</i> (NSW) (<b>Petroleum Storage Regulations</b>)</p>	<p>○ = Framework does not provide for this element of the Guidelines</p>
---	--	--

Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in the New South Wales
<p>1</p> <p>Principles (pp.9-13)</p> <p>Precautionary principle (pp.11, 40)</p>	<p>●</p> <p>Under the PEA Act, the objectives of the EPA include to protect, restore and enhance the quality of the environment in New South Wales, having regard to the need to maintain <b>ecologically sustainable development</b>, which can be achieved through the implementation of (ss6(1)(a) and (2)(a)):</p> <p>the precautionary principle—namely, that if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.</p> <p>In the application of the precautionary principle, public and private decisions should be guided by:</p> <p>(i) careful evaluation to avoid, wherever practicable, serious or irreversible damage to the environment, and</p> <p>(ii) an assessment of the risk-weighted consequences of various options...</p>

	Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in the New South Wales
2		<p>The Groundwater Quality Policy notes that the precautionary principle “is particularly applicable to groundwater management in NSW” (p.14), as does the Groundwater Policy Framework (p.13). A principle of the GDE Policy is:</p> <p>Where scientific knowledge is lacking, the Precautionary Principle should be applied to protect groundwater dependent ecosystems. The development of adaptive management systems and research to improve understanding of these ecosystems is essential to their management: p8.</p> <p>Under the Contaminated Land Act, the EPA is to have regard to the precautionary principle in the exercise of its functions under that Act and is to seek the implementation of that principle in the management by other persons of contaminated land: s9(1) and (3)(a).</p>
	Polluter pays principle (p.11)	<p>● Under the PEA Act, the objectives of the EPA include to protect, restore and enhance the quality of the environment in New South Wales, having regard to the need to maintain <b>ecologically sustainable development</b>, which can be achieved through the implementation of ss6(1)(a) and (2)(d):</p> <p>improved valuation, pricing and incentive mechanisms—namely, that environmental factors should be included in the valuation of assets and services, such as:</p> <p>(i) polluter pays—that is, those who generate pollution and waste should bear the cost of containment, avoidance or abatement...</p> <p>A person who is given a <b>clean-up notice</b> or a <b>prevention notice</b> under the PEO Act must pay a fee to enable regulatory authority to recover the administrative costs of preparing and giving clean-up notices: ss94 and 100, PEO Act. The same applies to a <b>clean-up notice</b> or a <b>prevention notice</b> under the Pesticides Act: ss21 and 27.</p> <p>The following are principles of the Groundwater Quality Policy:</p> <p>A groundwater pumper shall bear the responsibility for environmental damage or degradation caused by using groundwaters that are incompatible with soil, vegetation or receiving waters: p.7.</p> <p>Where possible and practical, environmentally degraded areas should be rehabilitated and their ecosystem support functions restored. Where groundwater systems are found to be contaminated, every effort needs to be made to locate the polluter and ensure clean up of the groundwater system (although it is often difficult to trace the source of pollution). The ‘polluter pays’ principle shall apply as shall the provisions of the <i>Protection of the Environmental Operations Act</i>: p.22.</p> <p>The PEO General Regulations provide for load-based licensing, linking fees to pollutant emissions, to provide an incentive for licensees to reduce their impacts on the environment.</p>

	Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in the New South Wales
3		<p><u>Contaminated Land Act</u></p> <p>Under the Contaminated Land Act, the EPA is to have regard to the polluter pays principle in the exercise of its functions under that Act and is to seek the implementation of that principle in the management by other persons of contaminated land: s9(1) and (3)(d)(i).</p> <p><u>Pesticides Act</u></p> <p>The Pesticides Act provides for a public authority to recover the costs of preventing, controlling, abating or mitigating pesticide pollution, and making good environmental damage, from a person who is convicted of an offence under the Pesticides Act: s96.</p> <p><u>Mining Act</u></p> <p>A condition to give and maintain financial security may be imposed in relation to an exploration licence (s26), an assessment lease (s44), and a mining lease (s70). The Minister for Mineral Resources may retain a security in relation to one of these until he or she is satisfied that the holder of the authority has fulfilled the obligations arising under the Mining Act: s169, Mining Act. If the holder fails to fulfil an obligation, the money may be applied for the purposes of fulfilling that obligation: s169, Mining Act.</p> <p><u>Petroleum Act</u></p> <p>A condition to give and maintain financial security may be imposed in relation to a petroleum title: s16(1), Petroleum Act. All or part of the security is forfeited if the holder of the title fails to fulfil obligations (including environmental obligations) imposed under or arising out of the Petroleum Act: s16A, Petroleum Act.</p>
	Equity considerations (p.12)	<p>● Under the PEA Act, the objectives of the EPA include to protect, restore and enhance the quality of the environment in New South Wales, having regard to the need to maintain <b>ecologically sustainable development</b>, which can be achieved through the implementation of (ss6(1)(a) and (2)(b)):</p> <p style="padding-left: 40px;">inter-generational equity—namely, that the present generation should ensure that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations</p> <p>The Groundwater Policy Framework refers to providing “equity within and between generations”: p.13.</p> <p><u>Contaminated Land Act</u></p> <p>Under the Contaminated Land Act, the EPA is to have regard to the principle of inter-generational equity in the exercise of its</p>

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in the New South Wales	
4			functions under that Act and is to seek the implementation of that principle in the management by other persons of contaminated land: s9(1) and (3)(b).
	Beneficial uses and values (pp.10-12, 39-41)	●	NSW uses primarily non-statutory water quality objectives developed through a comprehensive public consultation process: see rows 9-15, below.
5	Forms of intervention	●	<p><u>PEO Act</u></p> <p>In addition to imposing licensing requirements (see below, row 17), the PEO Act creates the following offences in relation to pollution (among others):</p> <ul style="list-style-type: none"> <li>• wilfully or negligently <b>disposing of waste</b> in a manner that harms or is likely to harm the environment: s115;</li> <li>• wilfully or negligently causing <b>any substance to leak, spill or otherwise escape</b> (whether or not from a container) in a manner that harms or is likely to harm the environment (or causing or contributing to the conditions that gave rise to this offence): s116;</li> <li>• <b>polluting any waters</b> (except if this occurs consistently with a licence or regulation): ss120-122;</li> <li>• <b>polluting land</b> (except if this occurs consistently with a licence or regulation): s142A-142C;</li> <li>• transporting waste to an unlicensed waste facility, depositing waste at an unlicensed waste facility, and using land as a waste facility without lawful authority: ss143, 144 and 144A; and</li> <li>• (in relation to an occupier of premises) failing to maintain any control equipment installed at the premises in an efficient condition: s167.</li> </ul> <p>The PEO Act also imposes a general duty on persons carrying on an activity, an employee engaged in carrying on an activity, an employer, an occupier of premises, and agents, to notify an appropriate regulatory authority of a pollution incident: s148.</p> <p>The Petroleum Storage Regulations under the PEO Act impose requirements in relation to commissioning and decommissioning storage systems, groundwater monitoring, and record-keeping.</p> <p><u>Contaminated Land Act</u></p>



Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in the New South Wales
	<p>Under the Contaminated Land Act, a person whose activities have contaminated land, or an owner of contaminated land, must notify the EPA in writing in accordance that the land has been so contaminated: s60.</p> <p>The Reporting Contamination Guidelines, issued under s105 of the Contaminated Land Act, set out triggers for this notification duty, and how the Department of Environment and Climate Change will assess whether or not contamination is significant enough to warrant regulation. Under these Guidelines, notification is required if the a contaminant has entered, or will foreseeably enter groundwater, and the concentration of the contaminant is or will foreseeably be above the concentration set out for that contaminant, and that concentration is or will foreseeably remain above that level: p.11, Reporting Contamination Guidelines.</p> <p><u>Hazardous Chemicals Act</u></p> <p>The Hazardous Chemicals Act provides for the EPA to declare a <b>chemical waste</b>, where the EPA is satisfied that a chemical substance is likely to be dumped or abandoned (s10), and to make a <b>chemical control order</b> after making an assessment of a chemical (s20), or after declaring a chemical waste (s11).</p> <p>A <b>chemical control order</b> may prohibit the carrying on of an activity in relation to the chemical or chemical waste without a relevant authorisation: s24, Hazardous Chemicals Act. The EPA may make such an order if it has reasonable grounds to believe that the making of an order is necessary to prevent or minimise any adverse effect on the environment that may result from the carrying on of that particular activity: s22(1), Hazardous Chemicals Act.</p> <p><u>Pesticides Act</u></p> <p>The Pesticides Act prohibits the possession or use, without a permit, of chemicals that are not registered under the Commonwealth Agvet Code (ss12 and13), and the use of registered chemicals contrary to the approved label (ss14 and 15).</p> <p>The Pesticides also provides for the EPA to publish a <b>pesticide control order</b>, which may prohibit or control the use of a pesticide or class of pesticide: ss38 and 39. For example, it may specify an application rate in which the pesticide may or may not be used: s39(2)(f), Pesticides Act.</p>
<p>6</p> <p>Market (generally pp.14-15)</p> <p>eg tradeable discharge</p>	<p>● <u>PEO Act</u></p> <p>Under the PEO Act, the EPA “may develop and implement schemes involving economic measures as a means of achieving cost-effective environmental regulation or environment protection”, and may approve of the development and implementation of such a scheme by other regulatory authorities: s293(1) and (2).</p>

Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in the New South Wales
permits (pp.45, 46) or taxes on contaminants (p.46)	<p>As examples, the PEO Act specifically provides for <b>tradeable emissions schemes</b>, and <b>green offsets</b>, both of which may be given effect through licence conditions: Pt9.3A and 9.3B. Green offset schemes may provide for the creation of offset credits, markets for the credits, and contractual arrangements to implement the scheme: s295O(2), PEO Act. The purpose of a green offset scheme may be to restore or enhance the environment that is related to a licensed activity, to prevent, control, abate, mitigate or otherwise offset any harm to the environment arising from any licensed activity, or to make good any environmental damage arising (wholly or partly) from a licensed activity: s295O(1), PEO Act.</p> <p>An environment protection licence under the PEO Act may require the holder to provide a <b>financial assurance</b> or take out <b>insurance</b> for clean-up costs or damage: ss70 and 72. Financial assurances secure or guarantee funding for or towards the carrying out of works or programs (such as remediation work or pollution reduction programs) required by or under a licence: see generally, Pt9.4, PEO Act.</p> <p><u>PEA Act</u></p> <p>Under the PEA Act, the objectives of the EPA include to protect, restore and enhance the quality of the environment in New South Wales, having regard to the need to maintain <b>ecologically sustainable development</b>, which can be achieved through the implementation of (ss6(1)(a) and (2)(d)(iii)):</p> <p style="padding-left: 40px;">improved valuation, pricing and incentive mechanisms—namely, that environmental factors should be included in the valuation of assets and services, such as...</p> <p style="padding-left: 80px;">(iii) environmental goals, having been established, should be pursued in the most cost effective way, by establishing incentive structures, including market mechanisms, that enable those best placed to maximise benefits or minimise costs to develop their own solutions and responses to environmental problems.</p> <p><u>Diffuse Pollution Strategy</u></p> <p>The Diffuse Pollution Strategy includes the following management actions (called “MAs” in the Strategy):</p> <ul style="list-style-type: none"> <li>• “Deliver targeted programs (education, incentives, on-ground works) that motivate stakeholders to take action”: MA3, p.22;</li> <li>• “Deliver incentives to landholders in diffuse source water pollution hotspots to undertake best management practice to reduce sediment, nutrient and pathogen loads”: MA4, p.23; and</li> <li>• “Scope the application of a legal framework for implementing market-based instruments or incentives that could be used to address diffuse sources of water pollution”: MA8, p.25. This may include an investigation into establishing <b>green offset</b></li> </ul>

	Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in the New South Wales	
7			<p><b>schemes</b> for this purpose under the PEO Act: p.25.</p> <p><u>Contaminated Land Act</u></p> <p>Under the Contaminated Land Act, the EPA is to have regard to the same principle as set out above in relation to the PEA Act, in the exercise of its functions under that Act and is to seek the implementation of the principle in the management by other persons of contaminated land: s9(1) and (3)(d)(iii).</p> <p>In relation to policy support for market instruments in the context of groundwater quality and acid sulphate soils, see below, row 23.</p>
	Community participation and education (p.15)	●	<p><u>PEO Act</u></p> <p>The objects of the PEO Act include: to provide increased opportunities for public involvement and participation in environment protection, and to ensure that the community has access to relevant and meaningful information about pollution: s3(b) and (c).</p> <p>The PEO Act provides for the public to be involved in, among other things:</p> <ul style="list-style-type: none"> <li>• making submissions in relation to a protection of the environment policy: s17;</li> <li>• making submissions in relation to the grant of an environment protection licence: s45(l); and</li> <li>• a public inquiry conducted by the EPA into any matter relating to the protection of the environment: Pt9.6.</li> </ul> <p><u>PEA Act</u></p> <p>Under the PEA Act, the objectives of the EPA include promoting community involvement in decisions about environmental matters and conducting public education and awareness programs about environmental matters: s6(1)(b). The EPA has a general power to invite and consider public submissions when it formulates environment protection plans, when it develops objectives, guidelines or policies or when it issues, renews or amends licences under the environment protection legislation: s8(f), PEA Act.</p> <p>The PEA Act:</p> <ul style="list-style-type: none"> <li>• establishes Region Environment Protection Consultation Forums, the function of which is to advise the EPA on community concerns and attitudes about environmental protection (ss23-25);</li> </ul>

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in the New South Wales	
8			<ul style="list-style-type: none"> <li>establishes a New South Wales Council on Environmental Education, which has a wide range of functions, coordinating the preparation of environmental education plans and undertaking related community consultation, monitoring the plans and preparing advisory papers for environmental education providers: s27; and</li> <li>empowers the EPA to establish advisory committees, the members of which represent a range of interests and expertise, to advise the Authority on such matters as the Authority determines: ss29-31.</li> </ul> <p><u>Groundwater Quality Policy</u></p> <p>The Groundwater Quality Policy emphasises the importance of education as a part of policy implementation, and mentions catchment planners, educators, groundwater users and environmentalists in this context: p.24.</p> <p><u>Mining Act</u></p> <p>The Mining Act provides for public consultation in relation to the granting of <b>assessment leases</b> and <b>mining leases</b>: Sch1.</p>
	Water quality protection objectives and beneficial uses	Strategic assessment of groundwater resource (p.38)	<ul style="list-style-type: none"> <li> <p><u>State of the Environment Report</u></p> <p>The EPA is required to make a report on the state of the environment every 3 years: s10, PEA Act. This report must include, among other things, an assessment of the status and conditions of the major environmental resources of New South Wales and an examination of environmental trends, including the implications for the environment and human health: s10(3)(a) and (b), PEA Act.</p> <p><u>Functions of the EPA</u></p> <p>The EPA has general responsibility for establishing a database on the state of the environment: s7(2)(f), PEA Act. Further, the EPA is required to “monitor the state of the environment for the purpose of assessing trends and the achievement of environmental quality objectives, guidelines, policies and standards”: s9(1)(b), PEA Act.</p> <p>The EPA also has general powers to carry out or commission research into environment protection and to publish reports and information on any aspect of environment protection: s6(b) and (c).</p> </li> </ul>
		Define beneficial uses and values (pp.39-	<ul style="list-style-type: none"> <li> <p><u>PEO Act</u></p> <p>The PEO Act defines <b>environmental values of water</b> to mean</p> </li> </ul>

Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in the New South Wales
40)	<p>the environmental values of water specified in the <i>Australian and New Zealand Guidelines for Fresh and Marine Water Quality 2000</i>, published by the Australian and New Zealand Environment and Conservation Council and the Agriculture and Resource Management Council of Australia and New Zealand, as in force from time to time.</p> <p>The PEO Act uses this in the context of considerations relevant to environment protection licensing functions (s45(f1), PEO Act) and determining whether an activity causes or is likely to cause water pollution in the context of <b>prevention notices</b> (s96, PEO Act) (see below, row 22).</p> <p><u>Groundwater Quality Policy</u></p> <p>An objective of the Groundwater Quality Policy is “[a]ll groundwater systems should be managed such that their most sensitive identified beneficial use (or environmental value) is maintained”: p. 7. It adopts the five beneficial uses suggested by the Guidelines, namely: ecosystem protection; recreation and aesthetics; raw water for drinking water supply; agricultural water; and industrial water: p.16. The Groundwater Quality Policy states that (p.16):</p> <p style="padding-left: 40px;">The Government, in consultation with local and regional communities, will classify all major groundwater systems according to their beneficial use(s), and tabulate information or publish maps showing this classification.</p> <p>This beneficial use classification system will then be the basis for setting water quality objectives for groundwater systems in NSW: p.10.</p> <p>The Groundwater Quality Policy places particular emphasis on the environmental values associated with groundwater dependent ecosystems. A key principle of the policy is “[g]roundwater dependent ecosystems will be afforded protection” (p.21), and in this context (p.21):</p> <p style="padding-left: 40px;">Ecosystem protection may be sought for a number of reasons, including:</p> <ul style="list-style-type: none"> <li>• maintenance of intrinsic environmental value, particularly where groundwater dependent ecosystems support threatened species, populations and communities, or critical habitat as defined in the Threatened Species Conservation Act 1995;</li> <li>• conservation of special or representative areas: the State’s wetlands may, in particular, require special protection against excessive groundwater pumping, particularly where these are given protection under other policies, planning instruments, or international agreements. Likewise they need to be protected against inappropriate land use.</li> </ul> <p>Buffer zones that restrict certain activities should be developed in groundwater management areas that include sensitive wetlands, stream banks and remnant vegetation.</p>

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in the New South Wales	
10			<p>In discussing the environmental values of groundwater, the Guidelines for Contaminated Groundwater also provide for cultural and spiritual values:</p> <p>Cultural and spiritual values that are associated with the environment, including groundwater, should also be protected. Cultural and spiritual values may include spiritual relationships, sacred sites, customary uses, the plants and animals associated with the water, drinking water supplies and recreational activities. In managing groundwater contamination, it is generally considered that cultural and spiritual values will be protected where groundwater quality protects all other relevant environmental values on a site: p.45.</p>
	Identify beneficial uses (pp.40-41)	●	<p><u>NSW Water Quality Objectives</u></p> <p>The NSW Water Quality Objectives identify 11 different types of water quality objectives for 31 catchments using a non-statutory process, with a focus on extensive public consultation. The process involved over 100 scheduled briefings, community discussion meetings, Aboriginal community meetings, and written submissions (see “A Review of Community Consultation”, available at <a href="http://www.environment.nsw.gov.au/ieo/Review/review.htm">http://www.environment.nsw.gov.au/ieo/Review/review.htm</a>, viewed 27 July 2009).</p>
11	Apply criteria (narrative or prescriptive) (pp.41-42)	●	<p>According to the Using WQOs in NSW document, the process of using <b>water quality objectives</b>, once they have been set, along with protection levels for particular water bodies, consists of:</p> <ul style="list-style-type: none"> <li>determining the issues or problems which might threaten the achievement of local environmental values, and applying a case-by-case “risk-based approach” by determining the level of risk these pose for local environmental values (pp.3-4);</li> <li>choosing indicators for the issues or problems for local environmental values, using those set out in the ANZECC Guidelines: p.4;</li> <li>applying trigger values to the relevant indicators to assess the risk to an environmental value. When applying a trigger value, a decision-maker should have regard to local conditions, and following the process for refining the trigger values which is set out in the ANZECC Guidelines, or alternatively use target loads, descriptive statements or an index of ecosystem health: p.5.</li> </ul>
12	Points of application of criteria (pp.42-43)	◐	<p>Not explicitly provided for.</p> <p>The Guidelines for Groundwater Contamination under the Contaminated Land Act set out a process of selecting site-specific criteria and applying them either at the point of use, or the point of extraction: p.28.</p>
13	Monitoring and review	○	Not explicitly provided for.

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in the New South Wales	
14	program focusing on extent of implementation and extent to which goals are met (pp.46-47)		
	Inter-agency coordination (p.48)	●	The NSW Water Quality Objectives including extensive community consultation which also provided opportunity for agency input: see <a href="http://www.environment.nsw.gov.au/ieo/Review/review.htm">http://www.environment.nsw.gov.au/ieo/Review/review.htm</a> , viewed 15 August 2009.
15	Enforcement of criteria for beneficial uses	●	<p>The Using WQOs in NSW document states that <b>water quality objectives</b> “are not intended to be applied directly as regulatory criteria, limits or conditions, but are one factor to be considered by industry, the community, planning authorities or regulators...”: p.3.</p> <p>However, in general, the EPA may, in consultation with another public authority, direct that authority to do anything within the powers of the authority which will, in the opinion of the EPA, contribute to environment protection, or direct that authority to cease doing anything which, in the opinion of the EPA, adversely affects environment protection: s12, PEA Act. The NSW Water Quality Objectives may be a relevant consideration in this context.</p>
16	Controlling sources of contamination	Waste hierarchy (p.29)	<p>●</p> <p><u>PEO Act</u></p> <p>An object of the PEO Act is to reduce risks to human health and prevent the degradation of the environment by the use of mechanisms that promote (among other things) (s3(d)):</p> <ul style="list-style-type: none"> <li>(i) pollution prevention and cleaner production,</li> <li>(ii) the reduction to harmless levels of the discharge of substances likely to cause harm to the environment,</li> <li>(iia) the elimination of harmful wastes,</li> <li>(iii) the reduction in the use of materials and the re-use, recovery or recycling of materials,</li> <li>(iv) the making of progressive environmental improvements, including the reduction of pollution at source...</li> </ul> <p>Various tools are available under the PEO to advance the waste hierarchy, including:</p> <ul style="list-style-type: none"> <li>• conditions on <b>environment protection licences</b> that require pollution studies and a pollution reduction program to be undertaken (s68) and conditions that require the holder of the licence to implement a re-use, recovery, recycling or take-back and utilisation scheme in respect of any product or item manufactured or sold by the holder that creates waste</li> </ul>

Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in the New South Wales
	<p>(s75(5)(d));</p> <ul style="list-style-type: none"> <li>• <b>prevention notices</b> – under the PEO Act, an activity is being carried out in an “environmentally unsatisfactory manner”, which may lead to the issuing of a <b>prevention notice</b> (see below, row 22), if “it is not carried on by such practicable means as may be necessary to prevent, control or minimise pollution...or the generation of waste”: s95(c). A prevention notice may require a relevant person to prepare and carry out a plan of action to control, prevent or minimise pollution or waste: s96(3)(i), PEO Act; and</li> <li>• <b>environmental audits</b>. A purpose of an environmental audit is to enable persons managing the relevant activity to determine whether the way the activity is carried on can be improved in order to protect the environment and to minimise waste: s172, PEO Act.</li> </ul> <p><u>Waste Avoidance Act</u></p> <p>An object of the Waste Avoidance Act is “to ensure that resource management options are considered against a hierarchy of the following order: (i) avoidance of unnecessary resource consumption; (ii) resource recovery (including reuse, reprocessing, recycling and energy recovery); and (iii) disposal”: s3(b).</p> <p>The Waste Avoidance Act:</p> <ul style="list-style-type: none"> <li>• requires the Director-General of the Department of Environment and Climate Change to develop a waste strategy for the state: s12(1);</li> <li>• allows for the Minister to recommend the making of regulations for or with respect to <b>extended producer responsibility schemes</b>: s17(1); and</li> <li>• requires that, every two years, the Director General prepare and deliver to the Minister, reports on waste production and management in NSW: s24.</li> </ul> <p><u>Waste Strategy</u></p> <p>The Waste Strategy recognises the <b>waste hierarchy</b> as an important guide to effective resource management: p.30. The Waste Strategy proposes priority areas, actions and targets to minimise environmental harm from waste disposal and in relation to the conservation and efficient use of resources.</p> <p>A key target of the Waste Strategy is “Outcome 3: reducing toxic substances in products and materials”: p.18. To this end, by 2014 or earlier, the Government intends to “phase out priority substances in identified products as a first choice or, if not possible, to achieve maximum recovery for re-use”: p.32.</p>



	Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in the New South Wales
17	Licensing of contaminants and point sources (p.30, App.1)	<p>● <u>Licences under the PEO Act</u></p> <p>An <b>environment protection licence</b> is required to undertake <b>scheduled activities</b>, to carry out <b>scheduled development work</b> and to control non-scheduled activities for the purpose of regulating water pollution: ss43, 47-52, PEO Act.</p> <p><b>Scheduled development work is</b></p> <p>Work at any premises at which scheduled activities of a class listed in Schedule 1 to the Act are carried on that is designed to enable scheduled activities of a different class listed in that Schedule not authorised by a licence to be carried on at the premises: reg46, PEO General Regulations.</p> <p><b>The general categories of scheduled activities</b> include (s5 and Sch1, PEO Act):</p> <p>Agricultural processing; Brewing and distilling; Cement or lime works; Ceramic works; Chemical production; Chemical storage; Coal works; Coke production; Composting; Concrete works; Container reconditioning; Contaminated soil treatment; Contaminated groundwater treatment; Crushing, grinding or separating; Electricity generation; Energy recovery; Extractive activities; Helicopter-related activities; Irrigated agriculture; Livestock intensive activities; Livestock processing activities; Logging operations; Metallurgical activities; Mineral processing; Mining for coal; Mining for minerals; Paper or pulp production; Petroleum and fuel production; Printing, packaging and visual communications; Railway systems activities; Resource recovery; Road construction; Sewage treatment; Shipping in bulk; Sterilisation activities; Waste disposal (application to land); Waste disposal (thermal treatment); Waste processing (non-thermal treatment); Waste storage; Wood or timber milling or processing; Wood preservation; Mobile waste processing; Transport of trackable waste</p> <p>When assessing applications for environment protection licences, the regulatory authority is required to consider, among other things (s45, PEO Act):</p> <ul style="list-style-type: none"> <li>• protection of the environment policies;</li> <li>• the objectives of the EPA;</li> <li>• the pollution likely to be caused and the likely impact;</li> <li>• practical measures that could be take to prevent, control, abate or mitigate that pollution, and to protect the environment from harm as a result of that pollution;</li> <li>• any relevant green offset scheme, green offset works or tradeable emission scheme or other scheme involving economic</li> </ul>

Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in the New South Wales
	<p>measures;</p> <ul style="list-style-type: none"> <li>• in relation to an activity or work that causes, is likely to cause or has caused water pollution: the environmental values of water affected by the activity or work, and the practical measures that could be taken to restore or maintain those environmental values;</li> <li>• any relevant environmental impact statement, or other statement of environmental effects, prepared or obtained by the applicant under the EP&amp;A Act;</li> <li>• any relevant species impact statement prepared or obtained by the applicant under the Threatened Species Conservation Act;</li> <li>• any waste strategy in force under the Waste Avoidance Act;</li> <li>• public submissions under the PEO Act and under the EP&amp;A Act; and</li> <li>• if the regulatory authority is not the EPA—any guidelines issued by the EPA to the authority relating to the exercise of functions.</li> </ul> <p>An <b>environment protection licence</b> may be subject to conditions: s63(1), PEO Act. Examples set out in the PEO Act include: conditions requiring monitoring (s66); conditions requiring a mandatory environmental audit program (s67); conditions requiring the licence holder to undertake environmental impact studies or a pollution reduction program (s68); conditions implementing tradeable emission schemes, green offsets and other schemes involving economic measures (s69); conditions relating to financial assurances or insurance cover for the costs of clean-up action (ss70 and 72); conditions requiring the carrying out of remediation work (s71); conditions requiring an environmental waste management plan (s75); and conditions as to a closure plan (s76).</p> <p><u>Mining Act</u></p> <p>The Mining Act provides for exploration licences, assessment leases, mining leases, mineral claims, opal prospecting licences. Before granting any of these titles, the decision-maker must take into account the need to conserve and protect flora and fauna (presumably including groundwater-dependent ecosystems), and may undertake environmental studies necessary to enable a decision to be made: s237, Mining Act.</p> <p>These titles may be granted subject to conditions: s26 (exploration licence); s44 (assessment lease), s70 (mining leases), s192 (mineral claims), s229 (opal prospecting licences). These conditions may include, if appropriate, conditions relating to the conservation and protection of flora and fauna, and conditions as to rehabilitation: ss238 and 239, Mining Act.</p>

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in the New South Wales	
18			<p><u>Petroleum Act</u></p> <p>The Petroleum Act provides for petroleum production titles. Before granting a title, the decision-maker must take into account the need to conserve and protect flora and fauna (presumably including groundwater-dependent ecosystems), and may undertake environmental studies necessary to enable a decision to be made: s74, Petroleum Act. An applicant must submit a Petroleum Operations Plan prior to the commencement of any operations, and Annual Environmental Management Reports.</p> <p>Petroleum production titles may be subject to conditions (s23, Petroleum Act), including conditions relating to the conservation and protection of flora and fauna, and features of geological interest, and conditions as to rehabilitation of the site: ss75 and 76, Petroleum Act.</p> <p><u>Pesticides Act</u></p> <p>The Pesticides Act provides for <b>certificates of competency</b>, which authorise a person to use or possess a restricted pesticide, and may be subject to conditions: ss56 and 57.</p> <p><u>Hazardous Chemicals Act</u></p> <p>The Hazardous Chemicals Act provides for <b>licences</b> in relation to an activity covered by a chemical control order: s28 (see above, row 5).</p>
	Inter-agency coordination (p.48)	●	<p>Before granting a <b>mining lease</b>, the Minister for Mineral Resources must notify the Director of Planning: s88, Mining Act.</p> <p>A rehabilitation condition imposed on a title under the Mining Act must be in a form approved by the Commissioner of the Soil Conservation Service and after consultation with the Director of National Parks and Wildlife: s239(3), Mining Act.</p> <p>A condition on a petroleum title relating to rehabilitation must be in a form approved by the Commissioner of the Soil Conservation Service and after consultation with the Director of National Parks and Wildlife: s76(4), Petroleum Act. A Government Department or statutory authority, or local council may object to the granting of a production lease: ss51 and 57, Petroleum Act.</p>
19	Requirements for impact assessment (p.32)	●	<p><u>EP&amp;A Act</u></p> <p>In New South Wales, environmental impact assessment processes and land-use planning processes are integrated. Environmental impact assessment is required for two categories of development:</p>

Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in the New South Wales
	<ul style="list-style-type: none"> <li> <b>designated development</b>, which requires an environmental impact statement (<b>EIS</b>): s78A(8), EP&amp;A Act. A type of development is declared a <b>designated development</b> either in an <b>environmental planning instrument</b> made under the EP&amp;A Act, or under regulations. Designated development types include (reg4 and Sch3, EP&amp;A Regulation): <p>Agricultural produce industries; Aircraft facilities; Bitumen pre-mix and hot-mix industries; Breweries and distilleries; Cement works; Ceramic and glass industries; Chemical industries and works; Chemical storage facilities; Coal mines; Coal works; Composting facilities or works; Concrete works; Contaminated soil treatment works; Crushing, grinding or separating works; Drum or container reconditioning works; Electricity generating stations; Extractive industries; Limestone mines and works; Livestock intensive industries; Livestock processing industries; Mineral processing or metallurgical works; Mines; Paper pulp or pulp products industries; Petroleum works; Railway freight terminals; Sewerage systems and sewer mining systems; Shipping facilities; Turf farms; Waste management facilities or works; Wood or timber milling or processing works; Wood preservation works</p> <p>Note: Whether a development falls within one of these categories depends, in some cases, on whether the development is “within a drinking water catchment”, or “in an area of high watertable, highly permeable soils, acid sulphate, sodic or saline soils”, or near an “environmentally sensitive area”, which includes land reserved under the Crown Lands Act: Sch2, EP&amp;A Regulation.</p> </li> <li> any <b>activity</b> which a “determining authority” determines is likely to have a <b>significant impact</b> on the environment or on threatened species, populations or ecological communities, or their habitats: s112, EP&amp;A Act. In determining whether this “significant impact” threshold is met, certain factors must be taken into account, including (reg228, EP&amp;A Regulations): factors listed in relevant guidelines, “any long-term effects on the environment”, “any degradation of the quality of the environment”, “any reduction in the range of beneficial uses of the environment”, and “any pollution of the environment”. <p>An EIS must contain the matters referred to in the guidelines that apply to developments of the relevant type, or matters listed in general guidelines, or (if no such guidelines exist), scheduled matters (regs72 and 230 and Sch2, EP&amp;A Regulation). The scheduled matters include: a statement of environmental objectives; an analysis of feasible alternatives; a description of the likely impacts and proposed mitigation measures; and a justification of the development having regard to the precautionary principle, intergenerational equity, conservation of biological diversity and ecological integrity, and improved valuation, pricing and incentive mechanisms, including the polluter pays principle.</p> <p>An EIS must be exhibited and any person may make written submissions to the consent authority: s79 EP&amp;A Act (in relation to a designated development), s113 (in relation to an EIS for an activity likely to significantly affect the environment).</p> <p>An EIS is reviewed by a different body, depending the type of development:</p> </li> <li> activities likely to significant affect the environment – Department of Planning and the EPA if the development is a </li> </ul>

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in the New South Wales	
20			<p>scheduled activity under the PEO Act: s113, EP&amp;A Act; and</p> <ul style="list-style-type: none"> <li>designated developments – the consent authority, which is usually the local council: s79C(1)(b), EP&amp;A Act; and</li> <li>major projects – the Minister: s75I(1), EP&amp;A Act.</li> </ul>
	Prescription of activities/ discharges in protected areas (p.45)	●	<p>The nature of the site is considered in the context of licensing under the PEO Act, for example, the “likely impact” of pollution (see above, row 17).</p> <p>Whether a development is a <b>designated development</b> requiring an EIS under the EP&amp;A Act depends, in some cases, on whether the development is within a drinking water catchment proclaimed under the Local Government Act: Pt1 and cl38, Sch 2, EP&amp;A Regulations.</p>
21	Monitoring requirements (p.45)	●	<p><u>PEO Act</u></p> <p>The PEO Act provides for monitoring through:</p> <ul style="list-style-type: none"> <li>the objects of the Act, which include reducing risks to human health and preventing the degradation of the environment by the use of mechanisms that promote “the monitoring and reporting of environmental quality on a regular basis”: s3(d)(v);</li> <li>conditions on an <b>environment protection licence</b>, which may require the holder of the licence to monitor (among other things) discharges from premises and relevant ambient conditions prevailing on or outside premises (s66(1)), or may require the holder to implement a closure plan which includes monitoring (s76(2)(b));</li> <li><b>prevention notices</b> (see below, row 22), which may require “monitoring, sampling or analysing any pollution or otherwise ascertaining the nature and extent of pollution or the risk of pollution”: s96(3)(g);</li> <li><b>tradeable emissions schemes</b>, which may include, as an element, “monitoring and reporting levels of pollution and emission of pollutants”: s295B(1)(b); and</li> <li>empowering the EPA to disclose monitoring data supplied by the holders of environment protection licences in relation to discharges from premises, relevant ambient conditions prevailing on or outside premises, or other matters: s320(1) and (2). This information is available to any person under Freedom of Information legislation: s320(3).</li> </ul> <p><u>Groundwater Quality Policy</u></p> <p>The Groundwater Quality Policy notes that several levels of groundwater quality monitoring should occur (p.25):</p>

	Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in the New South Wales	
22			<ul style="list-style-type: none"> <li>• measuring general water quality parameters on a regular basis at key sites in major groundwater systems across the State, so that inter-valley comparisons can be made on the health of groundwater systems.</li> <li>• measuring the attenuation and degradation of pollutants over time at selected sites of groundwater pollution. This will provide valuable information on natural and enhanced degradation rates;</li> <li>• recording contaminated groundwater sites and the level of activity to clean up the problem; and</li> <li>• recording the level of activity in preparing groundwater management plans, vulnerability maps, beneficial use maps, wellhead protection plans and supporting industry guidelines.</li> </ul> <p>It notes that appropriate groundwater and dependent ecosystem indicators need to be developed and monitored: p.26.</p>
	Contingency measures, including clean-up requirements (pp.47-48)	●	<p><u>PEO Act</u></p> <p>The PEO Act offers the following tools in response to pollution:</p> <ul style="list-style-type: none"> <li>• <b>clean-up notices</b>, which require specified clean-up action to be taken. A regulatory authority may give such a notice to a person the authority reasonably suspects of causing or having caused a pollution incident; or to an occupier or premises where the authority reasonably suspects that a pollution incident has occurred or is occurring: s91. A notice may also be served on a public authority: s92;</li> <li>• <b>prevention notices</b>, which require specified action to be taken, for example, ceasing an activity, carrying out the activity in a particular manner, undertaking monitoring, or preparing and carrying out a plan of action to control, prevent or minimise pollution or waste. An appropriate regulatory authority may give such a notice to the occupier or premises or the person carrying out the activity, when the authority reasonably suspects that an activity has been or is being carried on in an environmentally unsatisfactory manner at any premises or by any person: s96.</li> </ul> <p>If the notice is in relation to an activity that causes, is likely to cause or has caused water pollution, in considering what action to require, the regulatory authority must consider (among other things) the <b>environmental values</b> of water affected by the activity, the practical measures that could be taken to restore or maintain those <b>environmental values</b>: s96(3A).</p> <p>The Prevention Notice Guidelines guide appropriate regulatory authorities on the requirements of section 96 of the PEO Act. It discusses how to consider environmental values of water, including the key risks generated by the activity, how to consider the practical measures that could be taken, and principles that apply. One such principle is that “the manner of consideration should reflect the risk and specific circumstances” (p.16), derived from the principle in the ANZECC Guidelines that:</p> <p>that the intensity of assessment of water quality status or impacts on water quality should reflect the level and risk of potential</p>

Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in the New South Wales
	<p>impacts on ambient water quality and the achievement and protection of environmental values: p.16</p> <ul style="list-style-type: none"> <li>• <b>prohibition notices</b>, which directs an occupier of premises or the person carrying on the activity to cease carrying on the activity, or any specified aspect of it. The Environment Minister may give such a notice on the recommendation of the EPA, if the EPA believes that the emission or discharge of pollutants from (or within) any premises in which any activity is carried on (among other things): is causing or is likely to cause harm to the environment, or to be injurious to public health, such that the notice is warranted: s101.</li> </ul> <p>In the case of <b>prevention notices</b> and <b>prohibition notices</b>, if the relevant person does not comply, the EPA may take the action required by the notice (ss98 and 103) and recover its costs: s104.</p> <p><u>Contaminated Land Act</u></p> <p>The following tools are available in response to pesticide pollution under the Contaminated Land Act:</p> <ul style="list-style-type: none"> <li>• in relation to land which has been declared to be <b>significantly contaminated land</b> (s11), the EPA may service on an appropriate person a <b>management order</b>, which directs the person to submit a <b>plan of management</b>, or carry out specified actions, which may include carrying out remediation of the land, and monitoring the effectiveness of the remediation (ss14-16);</li> <li>• a <b>voluntary management proposal</b>, in relation to <b>significantly contaminated land</b>, which the EPA may approve: s17;</li> <li>• an <b>ongoing maintenance order</b>, in relation to land that has been the subject of a <b>management order</b> or an approved <b>voluntary management proposal</b>. The order requires a person to carrying out specified ongoing management of the land, and to report specified things to the EPA: s28; and</li> <li>• a <b>notice</b> or <b>direction</b> under the PEO Act in relation to <b>significantly contaminated land</b>: s46.</li> </ul> <p>If a person fails to comply with a requirement of an order, the EPA may carry out the requirement, and recovery its costs from the person who was required to comply: ss30 and 35, Contaminated Land Act.</p> <p>The Groundwater Contamination Guidelines, issued as guidelines under s105 of the Contaminated Land Act, outline a best-practice framework for assessing and managing contaminated groundwater in NSW. The Groundwater Contamination Guidelines set out the following clean-up hierarchy, in order of preference:</p> <ul style="list-style-type: none"> <li>• “Clean up so that natural background water quality is restored”, which is the ideal goal, and even when not practicable in the short term, should remain the long-term remedial objective: p.27;</li> </ul>

	Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in the New South Wales	
23			<ul style="list-style-type: none"> <li>• “Clean up to protect the relevant environmental values of groundwater, and human and ecological health”, which may require numerical site-specific clean-up criteria to measure the success of remedial actions. These criteria should be developed through a site-specific assessment of risks, and a comprehensive evaluation of all action and potential exposure pathways: p.28;</li> <li>• “Clean-up to the extent practicable”, where a proponent can demonstrate that clean-up to restore the protection of environmental values is impracticable, taking account of technical capability, costs, the value of the groundwater resource, and the threats posed to human or ecological health: pp.28-31.</li> </ul> <p>The Groundwater Contamination Guidelines make several references to the Guidelines for Groundwater Protection, but substantively only in the context of the importance of public involvement: p.21.</p> <p><u>Groundwater Quality Policy</u></p> <p>Appendix D of the Groundwater Quality Policy repeats the levels of action set out in the Guidelines, and links each of the seven levels to the type of assessment that should be required in the context of a proposed development: p.30, Groundwater Quality Policy.</p> <p><u>Pesticides Act</u></p> <p>The following tools are available in response to pesticide pollution under the Pesticides Act:</p> <ul style="list-style-type: none"> <li>• <b>clean-up notices:</b> the EPA may direct relevant persons to take specified action to clean up pesticide pollution: s19;</li> <li>• a public authority may take necessary clean-up action in response to pesticide pollution that has occurred or is occurring: s20; and</li> <li>• <b>prevention notices:</b> if the EPA reasonably suspects that any pesticide is being, or has been, used in an environmentally unsatisfactory manner, the EPA may direct a person to take specified action to ensure that the pesticide, or the pesticide and any other pesticide, is in the future used in an environmentally satisfactory manner: s24.</li> </ul>
	Controls on diffuse source contamination (pp.17, 30)	●	<p><u>PEO Act</u></p> <p><b>Protection of the environment policies</b> may be made for the purpose of declaring policies to be observed with respect to protecting the environment and, in particular, for the purpose of “managing the cumulative impact on that environment of existing and future human activities”: s10(b), PEO Act. It appears that no protection of the environment policy has yet been</p>



Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in the New South Wales
	<p>made.</p> <p>The EPA can issue an <b>environment protection licence</b> to regulate water pollution from a non-scheduled activity (scheduled activities are generally significant point sources): s43(d), PEO Act.</p> <p><u>Diffuse Pollution Strategy</u></p> <p>The Diffuse Pollution Strategy is a non-statutory plan for determining Statewide priority problems and an agreed set of management actions to guide investment decisions and focus efforts: p5. It aims to improve water quality for all surface and groundwater (p.1), and to contribute to the <b>Water Quality Objectives</b> and Statewide NRM targets in the NSW State Plan: p.5, Diffuse Pollution Strategy. Management actions are categorised by the Statewide NRM targets to which they are aimed, and which include Statewide NRM target E4(6): “By 2015 there is an improvement in the ability of groundwater systems to support groundwater-dependent ecosystems and designated beneficial uses”: p.19, Diffuse Pollution Strategy.</p> <p>The following management actions are aimed at Statewide NRM target E4(6):</p> <ul style="list-style-type: none"> <li>• developing an approach to identifying pollution hotspots (MA1, p.21);</li> <li>• delivering incentives to landholders in diffuse water source pollution hotspots to undertake best management practices (MA4, p.23);</li> <li>• promoting associated demonstration sites (MA5, p.23);</li> <li>• including land management objectives in land management plans (MA6, p.24);</li> <li>• developing and implementing best management practice guidelines or standards (MA7 p.26);</li> <li>• implementing relevant market-based instruments (MA8, p.25); and</li> <li>• strengthening relevant environmental legislation, regulations and policies to better manage the impacts of diffuse source water pollution (MA12, p.27).</li> </ul> <p><u>Salinity Strategy</u></p> <p>The Salinity Strategy sets out a number of key tools to be used to achieve salinity management outcomes, including: targets; market based solutions; strategic investments; business opportunities; smarter regulation; the provision of government advice; salinity information and data analysis; further research; and planning.</p>

Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in the New South Wales
	<p>In particular, the NSW Government proposes to facilitate market mechanisms that make it commercially viable for land managers to undertake activities which provide salinity control. These include the following economic measures:</p> <ul style="list-style-type: none"> <li>• a salinity control credit trading scheme: p.36;</li> <li>• a market information system: p.36;</li> <li>• various taxation incentives, levies and subsidies: p.38;</li> <li>• an Environmental Services Investment Fund that is guided by strong market signals: p.38; and</li> <li>• a Salinity Business Development Program: p.44.</li> </ul> <p><u>Groundwater Quality Policy</u></p> <p>An objective of the Groundwater Quality Policy is “[t]he cumulative impacts of developments on groundwater quality should be recognised by all those who manage, use, or impact on the resource”: p.8.</p> <p><u>ASS Remediation Guidelines</u></p> <p>The ASS Remediation Guidelines provide a landscape-based framework for designing effective acid sulfate soil (ASS) remediation projects, and provide land managers with information to design, implement, manage and monitor an ASS remediation project. The ASS Remediation Guidelines provide extensive and detailed information on the role of groundwater in acid production and transport. The Guidelines recognise that “the long term impacts on groundwater need to be acknowledged, and steps taken to reduce those long term impacts, such as watertable management that is more appropriate to the site and elevation”: p.29. The ASS Remediation Guidelines state that manipulation of groundwater is often a key objective of many remediation projects (p.63), and provide guidance on establishing monitoring programs for groundwater levels and quality.</p> <p>The ASS Remediation Guidelines state that, in relation to market based instruments, “the range of options currently applicable to coastal floodplains is limited”: p.71. However, the ASS Remediation Guidelines do describe several incentives that can be used to facilitate or consolidate ASS Remediation projects, including: information extension; direct funding; and incentives for providing environmental services: p.71.</p>

## NEW SOUTH WALES (3) Land-Use Planning Framework Table

Key items of legislation, regulation and policy	Supplementary items of legislation, regulation and policy	Symbols, acronyms, and useful terminology
<p><i>Environmental Planning and Assessment Act 1979</i> (NSW) (<b>EP&amp;A Act</b>)</p> <p><i>Standard Instrument (Local Environmental Plans) Order 2006</i> (NSW) (<b>Standard LEP Instrument</b>) – made under s33A, EP&amp;A Act, available at <a href="http://www.planning.nsw.gov.au/planning_reforms/p/2006-155.pdf">http://www.planning.nsw.gov.au/planning_reforms/p/2006-155.pdf</a>, viewed 2 August 2009.</p> <p><i>NSW Groundwater Quality Protection Policy: A Component Policy of the NSW State Groundwater Policy</i> (NSW Department of Land and Water Conservation, 1998) (<b>Groundwater Quality Policy</b>), available at <a href="http://www.dwe.nsw.gov.au/water/pdf/quality_groundwater_nsw_state_groundwater_quality_policy.pdf">http://www.dwe.nsw.gov.au/water/pdf/quality_groundwater_nsw_state_groundwater_quality_policy.pdf</a>, viewed 26 July 2009.</p>	<p><i>Protection of the Environment Administration Act 1991</i> (NSW) (<b>PEA Act</b>)</p> <p><i>Water Management Act 2000</i> (NSW) (<b>Water Management Act</b>)</p> <p><i>Native Vegetation Act 2003</i> (NSW) (<b>Native Vegetation Act</b>)</p> <p><i>Native Vegetation Regulation 2005</i> (NSW) (<b>Native Vegetation Regulation</b>)</p> <p><i>Native Vegetation Regulation 2005 Environmental Outcomes Assessment Methodology 2007</i> (NSW) (<b>Assessment Methodology</b>), available at <a href="http://www.environment.nsw.gov.au/resources/vegetation/eoam.pdf">http://www.environment.nsw.gov.au/resources/vegetation/eoam.pdf</a>, viewed 2 August 2009</p> <p><i>NSW State Groundwater Policy Framework Document</i> (NSW Department of Land and Water Conservation, 1997) (<b>Groundwater Policy Framework</b>), available at <a href="http://www.dwe.nsw.gov.au/.../avail_ground_nsw_state_groundwater_policy_framework_document.pdf">www.dwe.nsw.gov.au/.../avail_ground_nsw_state_groundwater_policy_framework_document.pdf</a>, viewed 26 July 2009.</p> <p><i>NSW State Groundwater Dependent Ecosystems Policy: A Component Policy of the NSW State Groundwater Policy Framework Document</i> (NSW Department of Land and Water Conservation, 2002) (<b>GDE Policy</b>), available at <a href="http://www.dwe.nsw.gov.au/.../groundwater_dependent_ecosystem_policy_300402.pdf">www.dwe.nsw.gov.au/.../groundwater_dependent_ecosystem_policy_300402.pdf</a>, viewed 27 July 2009.</p> <p><i>State Environmental Planning Policy (Rural Lands) 2008</i> (NSW) (<b>Rural Lands SEPP</b>)</p> <p><i>State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007</i> (NSW) (<b>Mining and Petroleum SEPP</b>)</p> <p><i>State Environmental Planning Policy No 55—Remediation of Land 1998</i> (NSW) (<b>Land Remediation SEPP</b>)</p> <p><i>State Environmental Planning Policy No 30—Intensive Agriculture 1989</i> (NSW) (<b>Intensive Agriculture SEPP</b>)</p>	<p><b>EPI</b> = environmental planning instrument under the EP&amp;A Act</p> <p><b>Framework</b> = the collection of legislation, regulation and policy set out in this report for each jurisdiction, in relation to: (1) Groundwater Management; (2) Environment Protection; and (3) Land-Use Planning</p> <p><b>Guidelines</b> = <i>Guidelines for Groundwater Protection in Australia</i> (1995)</p> <p>● = Framework explicitly provides for this element of the Guidelines</p> <p>◐ = Framework goes some way towards providing for this element of the Guidelines</p> <p>○ = Framework does not provide for this element of the Guidelines</p>

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in New South Wales	
1	Principles (pp.9-13)	Precautionary principle (pp.11, 40)	<p>● The objects of the EP&amp;A Act include “to encourage <b>ecologically sustainable development</b>” (s5(a)(vii)), a term which is defined to include the precautionary principle, in the same way as under the PEA Act (see row 1, NSW Environment Protection Framework).</p> <p>The Planning Minister has the responsibility of promoting and co-ordinating environmental planning and assessment for the purpose of carrying out the objects of the EP&amp;A Act, and an EPI may be made for the purposes of achieving any of those objects: ss7 and 24(1), EP&amp;A Act.</p>
2		Polluter pays principle (p.11)	<p>● The objects of the EP&amp;A Act include “to encourage <b>ecologically sustainable development</b>” (s5(a)(vii)), a term which is defined to include the polluter pays principle, in the same way as under the PEA Act (see row 2, NSW Environment Protection Framework).</p> <p>The objects are implemented as set out above, row 1.</p>
3		Equity considerations (p.12)	<p>● The objects of the EP&amp;A Act include “to encourage <b>ecologically sustainable development</b>” (s5(a)(vii)), a term which is defined to include the principle of <b>intergenerational equity</b>, in the same way as under the PEA Act (see row 3, NSW Environment Protection Framework).</p> <p>The objects are implemented as set out above, row 1.</p>
4		Beneficial uses and values (pp.10-12, 39-41)	<p>◐ The Groundwater Quality Policy and the Groundwater Policy Framework, which contain provision relevant to land-use planning (see rows 8-22) below, do so in the context of extensive discussion of water quality objectives (see rows 9-15, NSW Environment Protection Framework).</p>
5	Forms of intervention	Command (p.14)	<p>● <u>EP&amp;A Act</u></p> <p>Under the EP&amp;A Act, a development may require a permit, or be prohibited, under the terms of an environmental planning instrument (see row 8, below). The EP&amp;A Act also requires EIA, in some circumstances (see row 19, NSW Environment Protection Framework).</p> <p>When a decision-maker is considering whether to grant a permit, for a proposed development which requires consent, the decision-maker is to have regard to, among other things, “the likely impacts of that development, including environmental impacts on both the natural and built environments, and social and economic impacts in the locality”: s76C(1)(b), EP&amp;A Act.</p>

	Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in New South Wales
		<p><u>Crown Lands Act</u></p> <p>The Crown Lands Act provides for the management of Crown land for uses such as pastoral uses, commercial uses, nature reserves and reserves for other public purposes. An object of the Act, which the Minister is responsible for achieving (s12), is the management of Crown land having regard to the “principles of Crown land management” (s10(b)), which include:</p> <ul style="list-style-type: none"> <li>(a) that environmental protection principles be observed in relation to the management and administration of Crown land, [and]</li> <li>(b) that the natural resources of Crown land (including water, soil, flora, fauna and scenic quality) be conserved wherever possible: s11(a) and (b), Crown Lands Act.</li> </ul> <p>The Crown Lands Act provides for a system of leases, licences and permits over Crown land: Pt4. The Minister may impose terms and conditions on such a holding: s34(1).</p> <p>Reserve Trusts manage Crown reserves (s92, Crown Lands Act), and may prepare plans of management for a reserve which must include such matters as the Minister requires: s112, Crown Lands Act.</p> <p>It is an offence to “interfere with any substance, whether on or in, or forming part of, public land” (which may include groundwater) without authorisation: s155(h), Crown Lands Act.</p> <p><u>Water Management Act</u></p> <p>The carrying out of works under the EP&amp;A Act is a “<b>controlled activity</b>” under the Water Management Act and must be approved under that Act: see NSW Groundwater Management Framework.</p> <p>Management plans under the Water Management Act may contain the following <b>environment protection provisions</b> in respect of any aspect of water management (s34):</p> <ul style="list-style-type: none"> <li>(a) provisions identifying zones in which development should be controlled in order to minimise any harm to water sources in the area...</li> <li>(b) provisions identifying development that should be controlled in any such zone,</li> <li>(c) provisions identifying the manner in which any such development should be controlled in any such zone,</li> <li>(d) provisions to which State agencies and local authorities (including local councils) should be subject when taking action and making decisions concerning any such development,</li> <li>(e) provisions requiring development consent to the carrying out of any such development,</li> <li>(f) provisions requiring the Minister’s concurrence to the granting of any such development consent,</li> </ul>

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in New South Wales	
6			(g) provisions requiring the establishment of action plans to encourage the abandonment of existing uses that cause harm to water sources, and to encourage the carrying out of remedial measures to minimise or alleviate any harm already caused to water sources by the continuance of existing uses.
	Market (generally pp.14-15)	●	Property vegetation plans under the Native Vegetation Act (see below, row 13) may provide for proposals to enable landholders to obtain financial incentives for the management of natural resources related to native vegetation: s28(d), Native Vegetation Act.
7	Community participation and education (p.15)	●	An object of the EP&A Act is to “provide increased opportunity for public involvement and participation in environmental planning and assessment”: s5(c). The EP&A Act provides for public submissions in relation to EPIs as a matter of ministerial discretion (see below, row 20).
8	Specific approaches to protection	N/A	<p><u>Groundwater Policy Framework, Groundwater Quality Policy, and GDE Policy (together, <b>Groundwater Policy Documents</b>)</u></p> <p>The Groundwater Quality Documents are non-statutory policies. The Groundwater Quality Policy states that groundwater management plans will identify groundwater issues that need to be addressed in development control plans, local environmental plans, regional environmental plans and state environment planning policies: p.24.</p> <p>A key principle of the GDE Policy is:</p> <p>Planning, approval and management of developments and land use activities should aim to minimise adverse impacts on groundwater dependent ecosystems by... not polluting or causing adverse changes in groundwater quality; and rehabilitating degraded groundwater systems where practical: p.8.</p> <p><u>Environmental planning instruments (<b>EPIs</b>) under the EP&amp;A Act</u></p> <p>Note: a reference to a section in this column is a reference to a section of the EP&amp;A Act.</p> <p>EPIs include State environmental planning policies (<b>SEPPs</b>) and local environmental plans (<b>LEPs</b>): s24(2). The provisions of SEPP generally prevail over the provisions of a LEP: s36 and cl9(1), Standard LEP Instrument.</p> <p>EPIs can make provision for several things, including (s26(1)(a) and (c)):</p> <ul style="list-style-type: none"> <li>protecting, improving or utilising, to the best advantage, the environment; and</li> <li>using land for a public purpose.</li> </ul> <p>An EPI may require a consent to be obtained for a specified development, and state the relevant considerations; or may prohibit a specified development: ss30 and 31.</p> <p>An EPI may set out different types of development, which are:</p>

	Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in New South Wales
		<ul style="list-style-type: none"> <li>• allowed without consent: s76;</li> <li>• allowed only with consent: s76A(1);</li> <li>• allowed if it is carried out in accordance with predetermined development standards (<b>complying development</b>): s76A(5); or</li> <li>• prohibited: s76B.</li> </ul> <p>LEPs are made for each local government area by the Planning Minister or a delegate of the Planning Minister: s53(1).</p> <p>SEPPs are made by the Governor: s37.</p>
9	Use of land-use risk matrix to judge compatibility of land uses with water quality protection (p.44)	<ul style="list-style-type: none"> <li>● A principle of the Groundwater Quality Policy is (p.20): For new developments, the scale and scope of work required to demonstrate adequate groundwater protection shall be commensurate with the risk the development poses to a groundwater system and the value of the resource.  The risk assessment should be based on three variables: “the threat factor; the vulnerability of the groundwater system, and the beneficial use or environmental values of the groundwater system (e.g. groundwater dependent ecosystems”: p.20.  Appendix D of the Groundwater Quality Policy repeats the levels of action set out in the Guidelines, and links each of the seven levels to the type of assessment that should be required in the context of a proposed development: p.30, Groundwater Quality Policy.  The GDE Policy encourages undertaking risk</li> </ul> <p>Not explicitly provided for.</p>

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in New South Wales		
10			assessments where developments are proposed in areas within the zone of influence of a significant groundwater dependent ecosystem, and especially in groundwater recharge areas: p.25.	
	Land zoning taking into account underlying groundwater (pp.43-44)	●	Not explicitly dealt with.	Under the Land Remediation SEPP, land must not be developed if it is unsuitable for a proposed use because it is contaminated. If the land is unsuitable, remediation must take place before the land is developed (cl7). The policy makes remediation permissible across the State (cl8), defines when consent is required, requires all remediation to comply with standards.
11	Protection for water supply protection areas (p.27)	●	The Groundwater Quality Policy states that it is critical that bores that supply drinking water in towns are given a high level of protection, and that wellhead protection plans can be developed as part of groundwater management plans: p.24.	An EPI may provide for prohibited developments or developments that require consent in areas associated with water supply.  In particular, a council must act in accordance with the following Rural Planning Principle of the Rural Lands SEPP:  the identification and protection of natural resources, having regard to...the importance of water resources and avoiding constrained land: cl7(e), Rural Lands SEPP
12	Protection of groundwater recharge zones (p.28)	●	The Groundwater Quality Policy discusses the possibility of recharge areas for town groundwater supplies being contaminated by incompatible land-use practices, and mentions well-head protection zones as a way to afford town water supplies special protection: p.19.  See also row 9, above.	See row 11, above.
13	Controls on land clearing due to connection with	●	Not explicitly deal with.	A development consent may be required for land clearing under the EP&A Act.



	Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in New South Wales	
14	groundwater quality (p.28)		<p>Land clearing in rural areas generally is regulated under the Native Vegetation Act. Under the Native Vegetation Act, it is necessary either to have a development consent under that Act or a property vegetation plan: s12(1), Native Vegetation Act.</p> <p>Clearing will not be permitted unless it will improve or maintain environmental outcomes, calculated using the Assessment Methodology under the Native Vegetation Regulation (reg24). This Assessment Methodology includes assessing salinity impacts of clearing (Ch 4).</p>
	<p>Controls on land development due to connection with groundwater quality (p.28)</p> <p>For example controls on mining, quarrying, waste disposal (p.28)</p>	<p>● Risky developments are dealt with in the Groundwater Quality Policy – see above, row 9.</p>	<p>Under the Mining and Petroleum SEPP, mining, petroleum production and extractive industries are generally permissible developments, with consent. However, before granting consent:</p> <p>the consent authority must consider whether or not the consent should be issued subject to conditions aimed at ensuring that the development is undertaken in an environmentally responsible manner, including conditions to ensure... that impacts on significant water resources, including surface and groundwater resources, are avoided, or are minimised to the greatest extent practicable: cl14(1)(a), Mining and Petroleum SEPP.</p> <p>The Intensive Agriculture SEPP requires a development consent for intensive agricultural operations above a certain size: cl6. A statement of environmental effects must accompany the development application: cl7(2). In determining whether to grant consent, the consent authority must consider, among other things, “the potential for the pollution of surface water and ground water”: cl7(3)(c), Intensive Agriculture SEPP.</p>

	Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in New South Wales	
15	Controls on rural and urban runoff (p.28)	●	Urban runoff is noted as a threat to groundwater quality (p.13), but is not otherwise explicitly dealt with.	May be provided for in zones which specify standards for complying development, for example, or through conditions on a development consent: s80A.
16	Controls over use of sewage effluent (p.44)	●	Not explicitly provided for in the Groundwater Quality Policy. However the Groundwater Policy Framework emphasises the importance of not carrying out “inefficient effluent irrigation...in areas which are vulnerable to groundwater contamination”: p.20.	Under the Local Government Act, a person may only “operate a system of sewage management”, which includes using “trenches, vegetation and other effluent polishing, dispersal or re-use arrangements in related land application areas”, with council approval: ss68 and 68A.
17	Manage land uses to reduce risks of contamination (p.44)	●	The Groundwater Quality Policy promotes “an integrated approach to groundwater management”, under which groundwater issues are considered in relation to land use planning decisions: p.14.	May be provided for in zones which specify standards for complying development, for example, or through conditions on a development consent: s80A.
18	Veto or referral rights for water and environment agencies in relation to land development (p.45)	●	Not explicitly provided for.	An EPI may provide that specified development may be carried out only with the consent of a specified Minister or public authority: s30(2).
19	Other inter-agency coordination (pp.28, 35)	●	The Groundwater Quality Policy states that it has been developed “with advice from a working group consisting of community and Government members”, who will continue to be involved during the implementation processes: p.15.	Special consultation provisions with other government departments apply in relation to threatened species: s34A.
20	Public consultation (p.28)	●		In relation to a SEPP, the Minister must take such steps as he or she thinks appropriate or necessary to seek public submissions – there is no mandatory public consultation process: s38(b).  In relation to a LEP, the Minister may determine that public consultation or a public hearing is required: s56(2)(c) and (e) and 57.

	Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in New South Wales	
21		Monitoring and review (pp.46-47)	● Co-ordination and review of the Groundwater Quality Policy is carried out through a “working group comprising agency and community representatives”, which (according to the Policy) will meet periodically to review policy performance and ensure implementation is progressing, while the Policy will be formally reviewed every five years: p.26.	The Director-General shall keep SEPPs and councils shall keep their LEPs under “regular and periodic review for the purpose of ensuring that the objects of [the EP&A Act] are, having regard to such changing circumstances as may be relevant, achieved to the maximum extent possible”: s73.
22		Enforcement (p.20)	● Not enforceable – policy only.	If a development requires consent under an EPI, a person must not carry out the development without that consent (s76A.), and a person must not carry out a development which is prohibited by a relevant EPI: s76B. Doing these things is an offence (s125) and penalties apply: s126.

## NORTHERN TERRITORY (1) Groundwater Management Framework Table

Key items of legislation, regulation and policy	Supplementary items of legislation, regulation and policy	Symbols, acronyms, and useful terminology
<p><i>Water Act 1992</i> (NT) (<b>Water Act</b>)</p> <p><i>Water Supply and Sewerage Services Act 2000</i> (NT) (<b>Water Supply Act</b>)</p> <p><i>Public Health (Night-soil, Garbage, Cesspits, Wells and Water) Regulations 1960</i> (NT) (<b>Public Health Wells Regulations</b>)</p>	<p><i>Water Regulations 1992</i> (NT) (<b>Water Regulations</b>)</p> <p><i>Public Health Act 1952</i> (NT) (<b>Public Health Act</b>)</p>	<p><b>Administrator</b> = administers the government of the Northern Territory (equivalent to a State Governor)</p> <p><b>Chief Health Officer</b> = Chief Health Officer, appointed under s5, Public Health Act</p> <p><b>Controller</b> = the Controller of Water Resources, appointed under s18, Water Act</p> <p><b>DNR</b> = Department of Natural Resources, Environment, the Arts and Sport</p> <p><b>EPA</b> = Environment Protection Authority</p> <p><b>Framework</b> = the collection of legislation, regulation and policy set out in this report for each jurisdiction, in relation to: (1) Groundwater Management; (2) Environment Protection; and (3) Land-Use Planning</p> <p><b>Guidelines</b> = <i>Guidelines for Groundwater Protection in Australia</i> (1995)</p> <p><b>Environment Minister</b> = Minister for Natural Resources, Environment and Heritage</p> <p>● = Framework explicitly provides for this element of the Guidelines</p> <p>◐ = Framework goes some way towards providing for this element of the Guidelines</p> <p>○ = Framework does not provide for this element of the Guidelines</p>

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in the Northern Territory	
1	Principles (primarily pp.9-13)	Precautionary principle (pp.11, 40)	○ Not explicitly provided for.
2		Polluter pays principle (p.11)	● Not explicitly provided for.  However, a water allocation plan under the Water Act is to ensure that, in a water control district, “as far as possible – the full cost for water resources management is to be recovered through administrative charges to licensees and operational contributions from licensees”: s22B(5)(d), Water Act. It is unclear whether “water resources management” includes management in relation to preventing or mitigating pollution, though this interpretation may be possible.
3		Equity considerations (p.12)	○ Not explicitly provided for.
4		Beneficial uses and values (pp.10-12, 39-41)	● The Water Act provides for beneficial use declarations – see rows 9-15, NT Environment Protection Framework.
5	Forms of intervention (pp.14-15)	Command (p.14)	● The Water Act imposes licensing requirements in relation to constructing bores, taking groundwater, and also provides for drilling licences (see below, rows 19, 25 and 26). Both the Water Act and the Public Health Act provide for directions to be given in response to groundwater quality which poses a health risk (see below, rows 22-24).  If the Controller is satisfied that an act or omission by a person in relation to a bore may result, directly or indirectly, in the pollution or deterioration of water, the Controller may serve a notice on the owner or occupier of the relevant land requiring that person to take certain actions: s70, Water Act. In particular the Controller may require the person to take action to prevent waste from entering the bore, seal the bore, treat waste before it is allowed to enter the bore, or restrict the amount of waste entering the bore: ss70(e)-(h), Water Act.
6		Market (pp.14-15)	○ Not explicitly provided for.
7		Community participation and education (p.15)	● The Water Act provides for public notification and submissions processes in relation to a decision about a water extraction licence (including a licence to take water from a bore): s71B(4). The Controller must take into account public submissions in making the decision: s71C(2), Water Act.

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in the Northern Territory	
8	Reservation of special areas (p.16)	●	The Administrator may declare a <b>water control district</b> within the NT, and declare the beneficial uses of water in that district: ss22 and 22A, Water Act. Water allocation plans may be declared for a water control district: s22B, Water Act.
9	Public water supply areas (p.16)	●	Not explicitly provided for within the Groundwater Management Framework. However, land-use planning zones achieve this (see row 11, NT Land-Use Planning Framework). A water control district for which a beneficial use declaration names “water supply” as a beneficial use would also achieve this in a different way.
10	Other	N/A	N/A
11	Management plans (pp.18-20) (that is, a plan for regulating individual behaviour once a groundwater body is being used by many competing users)	N/A	The Environment Minister may declare a <b>water allocation plan (WAP)</b> for a water control district: s22B, Water Act. The WAP governs water resource management in the district: s22B(4), Water Act. A key purpose of a WAP is to ensure that water is allocated within the “estimated sustainable yield to beneficial uses”: s22B(5)(a), Water Act.
12	Component studies (p.18)	○	Not explicitly provided for.
13	Surface water – groundwater interaction (p.18)	○	Not explicitly provided for.
14	Public consultation (p.19)	◐	Not explicitly provided for. However, although not required, the Environment Minister may appoint members of the public to a Water Advisory Committee which is established to advise the Controller on the effectiveness of a WAP (see below, row 15), or to a Water Resources Review Panel, which is established to advise the Minister in reviewing his or her actions (for example, the action of declaring a WAP): s24, Water Act.
15	Coordination with other agencies	◐	Not explicitly provided for. However, although not required, the Environment Minister may appoint members of other agencies to a Water Advisory Committee which is established to advise the Controller on the effectiveness of a WAP (see below, row 15), or to a Water Resources Review Panel, which is established to advise the Minister in reviewing his or her actions (for example, the action of declaring a WAP): s24, Water Act.
16	Market incentives (p.19)	○	Not explicitly provided for.

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in the Northern Territory			
17	Monitoring program (p.20)	●	The Environment Minister may appoint a Water Advisory Committee for a water control district: s23(1A), Water Act. One of its functions is to advise the Controller “on the effectiveness of the water allocation plan in maximising economic and social benefits within ecological restraints”: s23(1B)(a), Water Act.		
18	Enforcement (p.20)	●	The Controller must take into account a relevant WAP when determining whether to grant a water investigation permit, bore construction permit, licence to take groundwater, underground waste disposal licence, recharge licence or waste discharge licence: s90(1)(ab), Water Act.		
19	Controls on extraction (p.16) - Licences and permits	●	<p>The Water Act provides for <b>water investigation permits</b>, which permit a person to explore for water, and carry out associated works (s36) and <b>licences to take water from a bore</b> (s60), which are a type of <b>water extraction licence</b>: s4(1).</p> <p>In determining whether to grant a water investigation permit or a licence to take groundwater, and what conditions to apply, the Controller must consider specific factors, including the following, which are relevant to groundwater quality (s90, Water Act):</p> <ul style="list-style-type: none"> <li>the designated beneficial uses of the water and the quality criteria pertaining to the beneficial uses: s90(1)(e), Water Act;</li> <li>the adverse effects, if any, likely to be created by such drainage water resulting from activities under the licence on the quality of any other water: s90(1)(h), Water Act; and</li> <li>the provisions under the <i>Planning Act</i> relating to the development or use of land in the area in question: s90(1)(j), Water Act.</li> </ul> <p>The Controller must make available to the public a decision in relation to a licence to take groundwater, including the way that the Controller has taken into account the factors set out above, if relevant: s71C(3)(b), Water Act.</p>		
20	Quality considered in setting conditions on taking water	●	Both water investigation permits and licences to take groundwater are subject to terms and conditions specified in the permit or licence document: ss36(2) and 60(2), Water Act. The Controller must consider the groundwater quality factors set out in row 19, above, in setting conditions:		
21	Enforcement (p.20)	●	It is prohibited to take groundwater unless authorised under the Water Act: s59, Water Act. Penalties apply in relation to contravening a condition of a permits or licences: ss37 and 61, Water Act.		
22	Other	Method of limiting	N/A	Cap on volume that may	Direction of the Minister Notice of the Chief Health Officer

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in the Northern Territory			
23	methods of limiting extraction	extraction		be extracted	
		Water quality considerations (pp.9, 19)	●	A WAP (see above, row 11) is to “ensure that water is allocated within the estimated sustainable yield to beneficial uses”: s22B(5)(a), Water Act.	The Environment Minister may publish a notice temporarily or permanently prohibiting the taking or use of water from a source under a Water Act licence, or under the Mining Act, when, in the opinion of the Controller, the taking of the water would be dangerous to health: s96, Water Act.
24		Enforcement (p.20)	●	See above, row 18, in relation to the enforceability of a WAP.	Penalties apply for contravening a notice: s96(3), Water Act.
25	Well construction measures (p.16)	Bore licensing	●	<p>A <b>bore construction permit</b> is required to authorise a bore to be drilled, constructed, altered, plugged, backfilled or sealed off; the casing, lining or screen of a bore to be removed, replaced, altered, slotted or repaired; or a bore to be deepened: ss56(1) and 57, Water Act. A bore construction permit may be granted subject to the terms and conditions set out in the permit document: s57(2), Water Act. While not explicit in the Water Act, it may be possible for a permit to contain conditions relevant to maintaining groundwater quality.</p> <p>Under the Public Health Wells Regulations, the approval of a Health Surveyor is required for the construction of a well or to use water from a new well: reg60.</p>	
26		Driller licensing (pp.16, 25)	●	<p>A person must hold a <b>drilling licence</b> to drill or construct a bore, deepen or enlarge a bore, remove, replace, alter or repair the casing, lining or screen of a bore, or plug, backfill or seal off a bore: s48(1), Water Act.</p> <p>A drilling licence may be granted subject to the terms and conditions set out in the licence document: s49(2), Water Act. While not explicit in the Water Act, it may be possible for a licence to contain conditions relevant to maintaining groundwater quality.</p> <p>The Water Act also establishes a Drillers’ Qualifications Advisory Committee (s54), which advises the Controller in relation to the granting, renewal or variation of drilling licences: reg 13, Water Regulations.</p>	
27		Rules for bore construction (p.25)	◐	Specific rules apply to the construction of wells for domestic purposes: reg58, Public Health Wells Regulations.	



Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in the Northern Territory	
28	Rules for operation and maintenance of bore (p.25)	●	Not explicitly provided for. However, it may be possible for a drilling licence to contain conditions in relation to operation and maintenance of a bore, which are relevant to maintaining groundwater quality.
29	Enforcement (p.20)	●	Under the Water Act, penalties apply to constructing a bore without authorisation under the Water Act (s56), to drilling a bore without a driller's licence (s48), and to a bore driller not complying with the conditions of a driller's licence (s50).
30	Water supply and protection of public water supply wells (pp.25-27)	●	Not explicitly provided for.  The Chief Health Officer has the power to give relevant directions, but only to a licensee under the Water Supply Act, and only in an emergency (see below, row 33).  Note that the general offences and duties under the Waste and Pollution Act prohibit carrying out activities that are likely to cause pollution or generate waste (see row 5, NT Environment Protection Framework).
31	Protection zone around supply bores (p.25)	●	Under the Water Supply Act, a person must not pollute a "groundwater recharge area, bore, borefield, aqueduct, water storage tank or other infrastructure that is used or constructed to hold or supply water for human consumption": s99(1). See also NT Land-Use Planning Framework.
32	Requirements to monitor up-gradient and within zone (pp.25, 26)	●	Under the Water Supply Act, a licensee must monitor his or her performance against the minimum water quality standards using an approved methodology (s49), but there is no explicit requirement to monitor water in the zone around supply bores.
33	Response plan in event of contamination (p.25)	●	The Chief Health Officer may, for the purposes of ensuring minimum standards of drinking water, give directions to a licensee under the Water Supply Act regarding emergency precautions that the licensee must implement in an emergency: s46(1), Water Supply Act.
34	Reporting in the event of contamination (p.25)	●	A licensee under the Water Supply Act must notify the Chief Health Officer as soon as possible after he or she becomes aware of an incident that may adversely affect the licensee's ability to comply with minimum drinking water quality standards: s46(3), Water Supply Act.
35	Enforcement (p.20)	●	Penalties apply to polluting a groundwater recharge area, borefield, etc that is used to supply water for human consumption: s99(1), Water Supply Act.

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in the Northern Territory	
36	Other well-related measures	Well abandonment requirements (pp.16, 25)	● The Water Act requires an owner or occupier of land on which there is a bore that is no longer in use to ensure that it is properly plugged, sealed off or backfilled: s69(1).
37		Controls on disposal of waste via wells (p.16)	<p>● The Water Act prohibits the unauthorised disposal of waste via a bore, whether or not this causes serious or material environmental harm: s62. The Controller may grant an <b>underground waste disposal licence</b>, subject to terms and conditions specified in the licence document: s63, Water Act.</p> <p>In determining whether to grant an underground waste disposal licence, and the conditions to apply, the Controller must take into account the groundwater quality factors set out in row 19, above: s90(1), Water Act.</p> <p>The Water Act prohibits the unauthorised construction, operation or alteration of works for the purpose of increasing the water contained in an aquifer: s66. The Controller may grant a <b>recharge licence</b>, subject to terms and conditions specified in the licence document: s67, Water Act.</p> <p>In determining whether to grant a recharge licence, and the conditions to apply, the Controller must take into account the groundwater quality factors set out in row 19, above: s90(1), Water Act.</p>
38	Gathering information	Strategic assessment of groundwater resources (p.38)	<p>● A duty of the Controller is to ensure that</p> <p style="padding-left: 40px;">as far as possible that a continuous program for the assessment of water resources of the Territory is carried out, including the investigation collection, collation and analysis of data concerning the occurrence, volume, flow, characteristics, quality, flood potential and use of water resources...: s34, Water Act.</p> <p>For this purpose, the Controller may construct, operate, and maintain investigation and monitoring bores, and sample and analyse water and waste: s34(b) and (c), Water Act.</p> <p>The Environment Minister also has the power to arrange for the construction, maintenance, operation, etc, of works for investigating, observing, measuring or assessing waste or water: s79(1), Water Act.</p> <p>The EPA also has the general function of advising the Territory in relation to ecologically sustainable development, for example “issues affecting the Territory's capacity to achieve ecologically sustainable development” and “emerging environmental issues”, in relation to which groundwater quality issues may be relevant: s5, EPA Act.</p>
39		Monitoring of critical overdraw (p.16)	○ Not explicitly provided for.

	Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in the Northern Territory	
40		Vulnerability mapping (pp.20-22)	<input type="radio"/>	Not explicitly provided for.
41		Aquifer classification systems (pp.22-23)	<input type="radio"/>	Not explicitly provided for.

## NORTHERN TERRITORY (2) Environment Protection Framework Table

Key items of legislation, regulation and policy	Supplementary items of legislation, regulation and policy	Symbols, acronyms, and useful terminology
<p><i>Waste Management and Pollution Control Act 1998</i> (NT) (<b>Waste and Pollution Act</b>)</p> <p><i>Waste Management and Pollution Control (Administration) Regulations 1998</i> (NT) (<b>Waste and Pollution Regulations</b>)</p> <p><i>Mining Management Act 2001</i> (NT) (<b>Mining Management Act</b>)</p> <p><i>Environmental Assessment Act 1982</i> (NT) (<b>EIA Act</b>)</p> <p><i>Environmental Assessment Administrative Procedures 1984</i> (NT) (<b>EIA Procedures</b>)</p>	<p><i>Petroleum Act 1984</i> (NT) (<b>Petroleum Act</b>)</p> <p><i>Mining Act 1980</i> (NT) (<b>Mining Act</b>)</p> <p><i>Energy Pipelines Act 1981</i> (NT) (<b>Energy Pipelines Act</b>)</p> <p><i>Dangerous Goods Act 1998</i> (NT) (<b>Dangerous Goods Act</b>)</p> <p><i>Water Act 1992</i> (NT) (<b>Water Act</b>)</p> <p><i>Agricultural and Veterinary Chemicals (Control of Use) Act 2004</i> (NT) (<b>AGVET Act</b>)</p> <p><i>Agricultural and Veterinary Chemicals (Control of Use) Regulations 2005</i> (WA) (<b>AGVET Regulations</b>)</p> <p><i>Agricultural and Veterinary Chemicals (Northern Territory) Act 1994</i> (NT) (<b>AGVET NT Act</b>) (Note: other States have equivalent laws)</p> <p>Agricultural and Veterinary Chemicals Code, Schedule 1 to the <i>Agricultural and veterinary Chemicals Code Act 1994</i> (Cth) (<b>National AGVET Code</b>)</p> <p><i>Environment Protection Authority Act 2007</i> (NT) (<b>EPA Act</b>)</p> <p>Note: in the NT, the EPA is not directly involved in regulating or enforcing environment protection standards. Rather, its functions relate to giving advice, carrying out investigations on referral from the Environment Minister, etc.</p>	<p><b>Administrator</b> = administers the government of the Northern Territory (equivalent to a State Governor)</p> <p><b>CEO</b> = means the Chief Executive Officer of the agency administering the Waste and Pollution Act, presently the DNR</p> <p><b>Chemicals Coordinator</b> = Chemicals Coordinator, appointed under s85, AGVET Act.</p> <p><b>Controller</b> = the Controller of Water Resources, appointed under s18, Water Act</p> <p><b>DNR</b> = Department of Natural Resource, Environment, the Arts and Sport</p> <p><b>EPA</b> = Environment Protection Authority</p> <p><b>Framework</b> = the collection of legislation, regulation and policy set out in this report for each jurisdiction, in relation to: (1) Groundwater Management; (2) Environment Protection; and (3) Land-Use Planning</p> <p><b>Guidelines</b> = <i>Guidelines for Groundwater Protection in Australia</i> (1995)</p> <p><b>Resources Minister</b> = Minister for Primary Industry, Fisheries and Resources</p> <p>● = Framework explicitly provides for this element of the Guidelines</p> <p>◐ = Framework goes some way towards providing for this element of the Guidelines</p> <p>○ = Framework does not provide for this element of the Guidelines</p>

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in the Northern Territory	
1	Principles (pp.9-13)	Precautionary principle (pp.11, 40)	○ Not explicitly provided for.
2		Polluter pays principle (p.11)	<p>● Not explicitly provided for. However, the principle finds expression through licensing conditions and provisions relating to clean-up and fees.</p> <p>A condition of an approval or licence under the Waste and Pollution Act may require a <b>financial assurance</b> to be given, which must reflect the likely costs of preventing, minimising or making good environmental damage that may result from the relevant activity: s36. Conditions as to <b>financial security</b> may also be imposed under the Petroleum Act (s79), the Mining Management Act (s43), and the Energy Pipelines Act (s18).</p> <p>Where action is taken to clean up or prevent pollution, or remedy environmental harm under the Waste and Pollution Act, Water Act, or Mining Management Act, the costs are recoverable from the person whose action, or lack of action, make the clean-up or remedy necessary (see below, row 34).</p> <p>Under the Waste and Pollution Regulations, the annual fee for a licence for certain activities depends on the volume of waste handled: reg3B.</p>
3		Equity considerations (p.12)	<p>● In exercising its powers and performing its functions, the EPA must have regard to “the principle that decision making processes and frameworks should effectively integrate both long-term and short-term economic, environmental and social equity considerations”: s7(2)(d), EPA Act.</p> <p>Not explicitly provided for in the key items.</p>
4		Beneficial uses and values (pp.10-12, 39-41)	<p>● The Water Act defines 7 categories of beneficial uses, and allows for <b>beneficial use declarations</b> to be made in respect of particular water or classes of water (see below, rows 9-15).</p> <p>Under the Waste and Pollution Act, a beneficial use declaration is classified as an <b>environment protection objective</b> (s18), which makes it relevant to licensing and other decisions under that Act (see below, row 15).</p>
5	Forms of intervention	Command (p.14)	<p>● <u>Waste and Pollution Control Act</u></p> <p>The Waste and Pollution Act imposes the following general environmental duties, relevant to groundwater quality protection:</p> <ul style="list-style-type: none"> <li>• a <b>general environmental duty</b>—A person who conducts an activity, or performs an action, that causes or is</li> </ul>

Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in the Northern Territory
	<p>likely to cause pollution resulting in environmental harm, or that generates or is likely to generate waste, must take all measures that are reasonable and practicable to prevent or minimise the pollution or environmental harm and reduce the amount of the waste: s12(1). A person who complies with an approved code of practice complies with this duty: s12(2).</p> <p>Note: Codes of practice have been approved for the automotive repairs industry and service station operations, among others (available from NT Department of National Resources, Environment, the Arts, and Sport, <i>Codes of Practice</i>, <a href="http://www.nt.gov.au/nreta/environment/waste/codes.html">http://www.nt.gov.au/nreta/environment/waste/codes.html</a>, viewed 20 July 2009).</p> <ul style="list-style-type: none"> <li>• <b>duty to notify incidents</b>—where an incident occurs in the conduct of an activity, causing or threatening to cause material environmental harm or serious environmental harm, the person conducting the activity must notify the DNR as soon as practicable, and within 24 hours: s14(1).</li> </ul> <p>The Waste and Pollution Act also provides for the following offences:</p> <ul style="list-style-type: none"> <li>• polluting the environment (intentionally or otherwise) where serious or material environmental harm results or might result: s83(1)-(4);</li> <li>• causing an environmental nuisance: s83(5); and</li> <li>• causing or permitting a contaminant or waste to be stored such that it is reasonably likely that a leak or spill could cause environmental harm: s83(6) and (7).</li> </ul> <p><u>Water Act</u></p> <p>The Water Act makes it an offence to, without authorisation, either directly or indirectly, cause waste to come into contact with water, or water to be polluted, whether or not this causes serious or material environmental harm: s16.</p> <p><u>Other resources Acts</u></p> <p>The Mining Management Act also provides for a number of general environmental duties, which apply to different categories of persons – every person on a site, the site operator, the site owner, workers and contractors: ss13-18, 33. For example, duties:</p> <ul style="list-style-type: none"> <li>• in relation to every person on a mining site—to “take care of the environment” (s13), and to follow directions of the operation in relation to preventing environmental harm: s14(2);</li> </ul>

Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in the Northern Territory
	<ul style="list-style-type: none"> <li>• in relation to any person—not to wilfully or recklessly cause environmental harm on a mining site, or interfere with or misuse anything provided on a mining site for environmental protection: s14(3); and</li> <li>• in relation to the operator—to ensure that the environmental impact of mining activities is limited to what is necessary for the establishment, operation and closure of the site, by various means, include establishing and implementing an appropriate environment protection management system: s16.</li> </ul> <p>The Petroleum Act (s117AC), Mining Management Act (s27) and Energy Pipelines Act (s58C) also set out offences similar to those in the Waste and Pollution Act. The Energy Pipelines Act also imposes a specific requirement on licensees to not permit a substance to escape from a pipeline: s39(c).</p> <p><u>AGVET Act and AGVET NT Act</u></p> <p>The AGVET NT Act applies the National AGVET Code as law in the NT: s5. The National AGVET Code controls all aspects of agvet chemicals until the point of retail sale, being registration, labelling and standards (Pt2), manufacture (Pt8) and supply (Pt4) of pesticides and veterinary medicines, up to and including the point of sale. Labels must contain instructions relating to, among other things, the circumstances in which the product should be used, how it should be used, and the disposal of the product: s14(3)(g), National AGVET Code.</p> <p>For registration of an active constituent or a chemical product, the APVMA must consider whether its use would (among other things) be:</p> <ul style="list-style-type: none"> <li>• “an undue hazard to... people using anything containing its residues” (s14(3)(e)(i), National AGVET Code), where soil and water are “protected commodities” (s3) in or on which “residues” (s3) may persist; and</li> <li>• likely to have an unintended effect that is harmful to the environment: s14(3)(e)(iii), National AGVET Code.</li> </ul> <p>Once sold, pesticides are regulated by the AGVET Act. The AGVET Act imposes a general, enforceable, duty on a person who uses a chemical product, fertiliser or stockfood, to take all measures that are reasonable and practicable to ensure the use does not result in harm to “the environment” (s13(c), AGVET Act). The “environment” is defined to include “water”, which is in turn defined to include “ground water”: s4(1), AGVET Act.</p> <p>The AGVET Act also provides for the following enforceable directions to be given, “if necessary to protect the environment”:</p> <ul style="list-style-type: none"> <li>• the Resources Minister may prohibit or impose conditions on the manufacture, possession, sale or use of a</li> </ul>

	Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in the Northern Territory
6		<p>chemical product, fertiliser or stockfood (s53(1)(a)ii)) or direct a manufacturer or wholesale distributor to recall a chemical product, fertiliser or stockfood: s54(3)(b); and</p> <ul style="list-style-type: none"> <li>the Chemicals Coordinator may direct a person to take specified action, or to cease action: s87(1)(b)(ii).</li> </ul> <p>The AGVET Regulations prescribe, among other things, standards, for example, the maximum level of certain heavy metals in fertilisers: regs33-34.</p> <p><u>Dangerous Goods Act</u></p> <p>Although it does not explicitly mention groundwater or the environment, the Dangerous Goods Act regulates the manufacture, packaging, labelling, import and export, sale, transport, storage, use and disposal of all classes of dangerous goods other than radioactive substances, to avoid “damage to property”: ss9-15. This would assist in preventing groundwater contamination.</p> <p>Further, the Dangerous Goods Regulations prohibit the doing of an act, which is not reasonably necessary, that may cause the spillage or escape of dangerous goods: reg13. They also set out detailed requirements for all aspects of dealing with dangerous goods, including establishing disposal sites: regs94E.</p>
	<p>Market (generally pp.14-15)</p> <p>eg tradeable discharge permits (pp.45, 46) or taxes on contaminants (p.46)</p>	<p>● In exercising its powers and performing its functions, the EPA must have regard to “the need to adopt cost effective and flexible policy instruments, including, for example, improved valuation, pricing and incentive mechanisms”: s7(2)(h), EPA Act.</p> <p>The Waste and Pollution Act provides for two types of licences: an <b>environment protection licence</b> (which is standard), or a <b>best practice licence</b>. The latter is available to a person who has held a licence and complied with the Act for two years, who implements each of (1) voluntary environmental audits; (2) an improvement plan which leads to environmental performance which is beyond compliance; (3) an environmental management system (EMS); and (4) a public reporting program: s33, Waste and Pollution Act. The holder of a best practice licence may receive direct benefits such as reduced or waived annual fees: s42(4), Waste and Pollution Act.</p>
7	<p>Community participation and education (p.15)</p>	<p>● In exercising its powers and performing its functions, the EPA must have regard to “the need to facilitate community involvement (reflecting the diversity of the community) relating to issues affecting the community”: s7(2)(i), EPA Act.</p> <p>The Mining Management Act provides for the appointment of mining officers, whose functions include providing advice and information to the public in relation to mining: s61(g).</p>



Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in the Northern Territory	
			The Waste Management and Pollution Control Act provides for public submissions in relation to environment protection objectives: eg s19(3)(d).
8	Water quality protection objectives and beneficial uses	●	The functions of the EPA include advising and making recommendations in relation to emerging environmental issues: s5(2)(f), EPA Act. See also row 39, NT Groundwater Management Framework.
9		●	The Water Act provides for the following beneficial uses of water (s4(3)): (a) agriculture – to provide irrigation water for primary production including related research; (b) aquaculture – to provide water for commercial production of aquatic animals including related research; (c) public water supply – to provide source water for drinking purposes delivered through community water supply systems; (d) environment – to provide water to maintain the health of aquatic ecosystems; (e) cultural – to provide water to meet aesthetic, recreational and cultural needs; (f) industry – to provide water for industry, including secondary industry and a mining or petroleum activity, and for other industry uses...; (g) rural stock and domestic – to provide water for the purposes permitted under sections 10, 11 and 14 [of the Water Act].
10		●	The Administrator may, by a notice, declare the beneficial uses, quality standards, criteria or objectives which apply to or in relation to any waste or class of waste, or water or class of water ( <b>beneficial use declaration</b> ): s73(1), Water Act.
11		●	Criteria may be included in a beneficial use declaration under the Water Act (see row 10, above) – there is no requirement that criteria be either narrative or prescriptive.  DNR states that it “works to the water quality guidelines and the Beneficial Use process set out in National Water Quality Management Strategy (NWQMS)”: DNR, <i>Fact Sheet: Beneficial Use Declarations</i> , undated, available at <a href="http://www.nt.gov.au/nreta/publications/natres/pdf/BU DS.pdf">http://www.nt.gov.au/nreta/publications/natres/pdf/BU DS.pdf</a> , viewed 21 July 2009.  For example, the gazetted beneficial use declaration for groundwater in the Katherine region uses the water quality guidelines in the <i>Australian Water Quality Guidelines for Fresh and Marine Waters</i> (1992) in relation to the specified beneficial uses (NT Gazette, G22, 9 June 1999, available at <a href="http://www.nt.gov.au/nreta/water/beneficial/pdf/katherineregiongroundwaterqn.pdf">http://www.nt.gov.au/nreta/water/beneficial/pdf/katherineregiongroundwaterqn.pdf</a> , viewed 21 July 2009.
12		○	Not explicitly provided for.

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in the Northern Territory	
13		Monitoring and review program focusing on extent of implementation and extent to which goals are met (pp.46-47)	○ Not explicitly provided for.
14		Inter-agency coordination (p.48)	○ Not explicitly provided for.
15		Enforcement of criteria for beneficial uses	● <p>When a beneficial use declaration is in force (see above, row 8):</p> <ul style="list-style-type: none"> <li>every licence, permit or consent granted under the Water Act before or after the publication of the notice is generally subject to the condition that nothing shall be done under the licence, permit or consent which prejudices the beneficial use, quality, standard, criteria or objective specified in the relevant notice: s73(2), Water Act;</li> <li>if a person was, immediately before the declaration, causing waste to come into contact with water, or otherwise polluting water in a way that would have breached the declaration, the person generally has 3 months to comply: s73(3), Water Act.</li> </ul> <p>Further, a beneficial use declaration must be considered when the CEO is determining whether to grant an <b>environment protection approval</b> or <b>environment protection licence</b> (see below, row 17), or a <b>compliance plan</b> (s60(1)(b); see below row 34) under the Waste and Pollution Act.</p>
16	Controlling sources of contamination	Waste hierarchy (p.29)	◐ The objectives of the Waste and Pollution Act include avoiding and reducing the generation of waste, increasing the re-use and re-cycling of waste, and effectively managing waste disposal: s5(a).
17		Licensing of contaminants and point sources (p.30, App.1)	● <p><u>Approvals under the Waste and Pollution Act</u></p> <p>An <b>approval</b> is required to construct, install, or carry out works in relation to premises for the following types of activities, or modify or alter premises where the activity is conducted (some exemptions apply):</p> <p>Landfills; a facility for storing, recycling, treating, or disposing of listed (hazardous) wastes on a commercial basis (but not sewerage treatment plants); a large liquefied natural gas (LNG) and/or methanol plant (s30(1) and (2) and Pt 1 of Sch2, Waste and Pollution Act)</p>

Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in the Northern Territory
	<p>In determining whether to grant an approval, and what conditions to apply, the CEO must have regard to, among other things (ss32(1) and 35(2), Waste and Pollution Act):</p> <ul style="list-style-type: none"> <li>• all relevant environment protection objectives (including a beneficial use, etc, under the Water Act);</li> <li>• the sensitivity of the surrounding land use and environment (where “environment” is defined to include water: s4(1)); and</li> <li>• any environmental assessment, environmental audit, or best practice environmental management in relation to the activity.</li> </ul> <p>Conditions may include a requirement for <b>financial assurance</b>, compliance with specified standards, carrying out specified measures to effectively management wastes, prevent pollution, etc; carry out testing or monitoring, or prepare and implement a public environmental management plan: s35(3), Waste and Pollution Act.</p> <p><u>Licences under the Waste and Pollution Act</u></p> <p>A <b>licence</b> (either an <b>environment protection licence</b> or a <b>best practice licence</b>) is required to:</p> <p style="padding-left: 40px;">operate a landfill which serves a population of 1,000 persons or more; collect, transport, store, recycle, treat or dispose of listed (hazardous) wastes on a commercial basis (but not sewerage treatment plants); operate a facility for storing, recycling, treating, or disposing of listed (hazardous) wastes on a commercial basis (but not sewerage treatment plants); operate a liquefied natural gas (LNG) and/or methanol plant which produces more than 500,000 tonnes per annum.</p> <p style="padding-left: 40px;">(s30(3) and Pt 1 of Sch2, Waste and Pollution Act)</p> <p>Considerations relevant to granting a licence, and conditions on a licence, are as for approvals (see above): s35, Waste and Pollution Act.</p> <p><u>Licences under the Water Act</u></p> <p>The Controller may grant a <b>waste discharge licence</b> to authorise a person to carry out an action that would contravene applicable beneficial uses, quality standards, criteria or objectives: s74, Water Act. In determining whether to grant a waste discharge licence, and what conditions to apply, the Controller must consider specific factors, including the following, which are relevant to groundwater quality (s90, Water Act):</p>

Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in the Northern Territory
	<ul style="list-style-type: none"> <li>the designated beneficial uses of the water and the quality criteria pertaining to the beneficial uses: s90(1)(e), Water Act;</li> <li>the adverse effects, if any, likely to be created by such drainage water resulting from activities under the licence on the quality of any other water: s90(1)(h), Water Act; and</li> <li>the provisions under the Planning Act relating to the development or use of land in the area in question: s90(1)(j), Water Act (see NT Land-Use Planning Framework).</li> </ul> <p><u>Licensing under the Petroleum Act</u></p> <p>In relevant part, the Petroleum Act provides for <b>exploration permits</b> and <b>production licences</b>: Divs2 and 4 of Pt 2, Petroleum Act.</p> <p>An application for a <b>production licence</b> must be accompanied by “proposals for the protection of the environment, including proposed measures to be undertaken by the applicant for the rehabilitation of the licence area or other affected areas”: s45(1)(f), Petroleum Act.</p> <p>Both exploration permits and production licences are subject to whatever conditions the Resources Minister thinks fit to impose (ss27 and 54(1)), but also to specific environment-related conditions, namely that the permit holder or licensee (s58(c) and (f), Petroleum Act):</p> <p style="padding-left: 40px;">carry out the technical works programme and other activities in relation to the exploration permit or licence area in such a way as to cause as little disturbance as practicable to the environment and comply with such directions, if any, as the Minister, from time to time, gives for minimizing that disturbance, or restoring or rehabilitating the disturbed surface area, of the land... [and]</p> <p style="padding-left: 40px;">comply with lawful directions, if any, of the Minister in relation to the protection of the environment in or upon the exploration permit or licence area or adjacent areas which are or may be affected by his operations...</p> <p>The Resources Minister may require the applicant for a permit or licence to lodge a <b>financial security</b> to secure the applicant’s compliance with the Petroleum Act and with the conditions of the permit or licence (s79, Petroleum Act). The Resources Minister may also, by a condition on a production licence, require a licensee to maintain an insurance policy for “damages arising out of damage to property or the environment, including by pollution, seepage or contamination”: s54(2)(f)(ii), Petroleum Act.</p>

Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in the Northern Territory
	<p><u>Licensing under the Mining Act and Mining Management Act</u></p> <p>The Mining Act provides for mining titles, for example exploration licences and mineral leases in relation to mining, and extractive mineral leases and extractive mineral permits in relation to extractive minerals (eg clay, stone): PtsIV, VI and VIII, Mining Act. Although each of these types of titles is subject to such conditions as the granter thinks fit (ss112(2) and 166(1), Mining Act), and some standard conditions (ss24, 66 and 166, Mining Act), none of these deals specifically with environmental protection, except in the case of parks and reserves: s176A, Mining Act (see also below, row 18).</p> <p>Rather, the Mining Management Act provides for environmental protection in the mining industry. In addition to imposing general environmental duties (see above, row 5), the Mining Management Act requires the operator for a mining site to have an <b>Authorisation</b> to carry out mining activities: s35(1). This process provides for environmental protection through:</p> <ul style="list-style-type: none"> <li>• a requirement that the Resources Minister only grant an Authorisation if he or she is satisfied that the management system to be implemented on the mining site will promote protection of the environment, and that mining will occur in accordance with good practice: s36(2), Mining Management Act; and</li> <li>• conditions on the Authorisation, which may be imposed as the Resources Minister considers appropriate: s37(2)(b), Mining Management Act. For example, conditions may relate to the protection of the environment, the outcomes of an environmental assessment, requirement to provide a financial security, and reporting: s37(3), Mining Management Act.</li> </ul> <p>Further, the Mining Management Act requires that the mining management plan in relation to the activities include details of the implementation of a management system to address environmental issues, and a plan and costing of closure activities: s40.</p> <p><u>Licensing under the Energy Pipelines Act</u></p> <p>The Energy Pipelines Act provides for the grant of <b>permits</b> to enter and survey land to determine the route of energy pipelines (s8); and <b>licences</b> to construct and operate such pipelines: s15.</p> <p>The Resources Minister may impose such conditions on a permit (s9(1), Energy Pipelines Act) and a licence (s17(1), Energy Pipelines Act) as he or she thinks fit, although conditions for general environment protection (as opposed to flora and fauna) are not explicitly mentioned.</p>

	Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in the Northern Territory
18		<p><u>Licensing under the Dangerous Goods Act</u></p> <p>Under the Dangerous Goods Regulations, a licence is required to manufacture, store, convey, sell, import, export, possess dangerous goods: regs3-5, 5B5D.</p> <p><u>Licensing under the AGVET Act</u></p> <p>The AGVET Act requires a person to hold permit for various activities in relation to agricultural and veterinary chemicals, fertilisers and stockfoods. Most relevantly, in the context of groundwater quality, the AGVET Act requires a person to hold a permit use a registered agricultural chemical product (s22(1)), and to hold a licence to conduct an aerial or ground spraying business: ss57-60.</p>
	Inter-agency coordination (p.48)	<p>● The CEO must, before granting an approval or licence under the Waste and Pollution Act, consult with and have regard to the requirements of or comments from agencies that have functions in relation to waste management or pollution that are relevant to the application; and any other persons the CEO thinks fit: s32(3), Waste and Pollution Act.</p> <p>The Resources Minister must not grant:</p> <ul style="list-style-type: none"> <li>• a permit or licence for petroleum exploration or production: s15, Petroleum Act; or</li> <li>• exploration licence, mineral lease, extractive mineral permit or extractive mineral lease: s176A, Mining Act,</li> </ul> <p>in a park or reserve, or in a wilderness zone, except in consultation with the Minister administering the <i>Territory Parks and Wildlife Conservation Act</i>.</p> <p>Before making a direction, necessary to protect the environment, to prohibit or impose conditions on the manufacture, possession, sale or use of a chemical product, fertiliser or stockfood under the AGVET Act, the Minister must consult with the Environment Minister and consider the advice of the Chemicals Coordinator: s53(2)(b), AGVET Act.</p>
19	Requirements for impact assessment (p.32)	<p>● <u>EIA Act</u></p> <p>The EIA Act and the EIA Procedures, made under the EIA Act (s7), set out the major environmental requirements in the Northern Territory. The object of the EIA Act is to ensure, in relation to the formulation of proposals, the carrying out of works and other matters,</p>

	Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in the Northern Territory
		<p>to the greatest extent practicable, that each matter affecting the environment which is, in the opinion of the Minister, a matter which could reasonably be considered to be capable of having a significant effect on the environment, is fully examined and taken into account... : s4, EIA Act.</p> <p>The EIA Procedures give effect to this object: s7, EIA Act. Under the EIA Procedures, a minister who is informed of a “proposed action” (that is, the minister who is primarily responsible for authorising the action) notifies the Minister for Natural Resources, Environment and Heritage (<b>Environment Minister</b>). The Environment Minister then determines whether or not a <b>public environmental report</b> or an <b>environmental impact statement</b> is required, based on information that the Minister directs the proponent to provide: cl6.</p> <p>If the Environment Minister determines that assessment is necessary, after public consultation, he or she directs the proponent to prepare a public environment report or an environmental impact statement dealing with the environmental matters set out in the direction: cl8, EIA Procedures. Ultimately, after consulting with various entities and seeking further information, if necessary, the Environment Minister provides to the responsible minister comments, suggestions or recommendations in relation to the proposed action, including proposed conditions to which it should be subject, for the protection of the environment: cl11, EIA Procedures.</p> <p><u>Other Acts</u></p> <p>In exercising a power or performing a function under the Mining Management Act in connection with a mining site or mining activities, the Minister or CEO must have regard to the outcomes of any environmental assessment of the mining activities under the Environmental Assessment Act: s82, Mining Management Act.</p> <p>Under the Mining Act, if there are objections to the grant of a mineral lease, a mining warden convenes a hearing at which environmental impacts may be discussed, and the warden may require an environmental study to be carried out in relation to a specific element of the environment (for example, water). The study may be required to include a description of proposed environmental conditions to avoid, minimise or ameliorate adverse environmental effects: s58, Mining Act.</p>
20	Prescription of activities/discharges in protected areas (p.45)	<p>● In relation to parks, reserves, and wilderness zones, see row 18, above.</p> <p>If satisfied that it is necessary to protect the environment, which is defined to include groundwater, the Resources Minister may declare an area to be a <b>chemical control area</b>, and prohibit or impose conditions on the use of chemicals in that area: s74(1), AGVET Act.</p>

	Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in the Northern Territory
21	Monitoring requirements (p.45)	<ul style="list-style-type: none"> <li>● The following Acts explicitly provide that authorisations may be subject to conditions as to monitoring: <ul style="list-style-type: none"> <li>• an <b>approval</b> or <b>licence</b> under the Waste and Pollution Act: s35(3), Waste and Pollution Act; and</li> <li>• a <b>waste discharge licence</b> under the Water Act: s77(1), Water Act.</li> </ul> </li> </ul> <p>The Mining Management Act provides for mining officers, whose functions include monitoring the management systems on mine sites, assessing levels of environmental risk, and ensuring that action is taken to prevent environmental harm or risk of environmental harm: s61(b)-(d).</p> <p>Under other Acts, general conditions provisions would likely allow the imposition of conditions relating to monitoring, although this is not explicit.</p>
22	Contingency measures, including clean-up requirements (pp.47-48)	<p><u>Waste and Pollution Act</u></p> <p>The following tools are available in response to pollution, under the Waste and Pollution Act:</p> <ul style="list-style-type: none"> <li>● <b>compliance plans</b>, which allow a person to comply with a provision of the Regulations or of an environment protection objective in stages of improvements, so that they comply at the end of the program: ss55, 58, 59;</li> <li>● <b>performance agreements</b> between the Minister and a person who is conducting an activity that is likely to cause pollution or environmental harm, or the owner or occupier of polluted land. The agreement sets out a program to protect the environment, or prevent or clean up pollution or environmental harm: s66; and</li> <li>● <b>pollution abatement notices</b>, which require a person to comply with a code of practice, with the general environmental duty (see above, row 5), with a requirement of the Act, to prevent an action causing pollution, or to take remediation action to “return polluted land as far as possible to a specified condition that the Minister thinks appropriate for the protection of the environment or the use of the land”: ss77-80.</li> <li>● taking action: <ul style="list-style-type: none"> <li>○ if a person does a prohibited act, or fails to do something that is required under this Act (noting that “this Act” includes a beneficial use declaration: s4(1)), the CEO may take action to prevent pollution or environmental harm, or clean up pollution and rectify environmental harm that results: s101(1). The CEO may recover the costs of doing so from the person who did the prohibited act, or failed to meet the requirement: s101(3).</li> </ul> </li> </ul>



23	Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in the Northern Territory
			<ul style="list-style-type: none"> <li>○ where a licence or approval under the Act required a financial assurance, the CEO may take action necessary to prevent, minimise or make good environmental damage that results from or may result from a contravention of the approval or licence, and recover the costs from the financial assurance: s103.</li> </ul> <p>The CEO may require a licence or approval holder to carry out an environmental audit, which may, among other things, evaluate the effectiveness of actions for the clean up of pollution: ss47(b) and 48, Waste and Pollution Act.</p> <p><u>Water Act</u></p> <p>The Controller may, in emergency circumstances, take action for the prevention, abatement or mitigation of water pollution and may recover the reasonable cost of doing so from the person whose action or omission caused, or was one of the causes of, that pollution: s97(4), Water Act.</p> <p><u>Mining Management Act</u></p> <p>The Resources Minister may take action to remedy a contravention of the Mining Management Act or an Authorisation under that Act, or to rectify environmental harm that results from a mining activity, or to complete rehabilitation of a mining site: s83(1)-(3), Mining Management Act. The relevant costs and expenses are recoverable from the person whose act or failure made the action necessary: s83(5), Mining Management Act.</p> <p><u>AGVET Act</u></p> <p>If the Resources Minister is satisfied that there is a serious threat posed or likely to be posed by the concentration of a substance in produce that is growing on contaminated land, he or she may direct the grower of that produce to implement a remedial plan, which may include measures to rehabilitate that land: ss79-80, AGVET Act.</p>
	Controls on diffuse source contamination (pp.17, 30)	●	<p>Not explicitly provided for.</p> <p>However, the AGVET Act imposes a general, enforceable, duty on a person who uses a chemical product, fertiliser or stockfood, to take all measures that are reasonable and practicable to ensure the use does not result in harm to “the environment”: s13(c), AGVET Act (see above, row 5).</p>

## NORTHERN TERRITORY (3) Land-Use Planning Framework Table

Key items of legislation, regulation and policy	Supplementary items of legislation, regulation and policy	Symbols, acronyms, and useful terminology
<p><i>Planning Act 1999</i> (NT) (<b>Planning Act</b>)</p> <p><i>Northern Territory Planning Scheme 2007</i> (NT) (<b>NT Planning Scheme</b>), made under s28, Planning Act, available at <a href="http://www.nt.gov.au/lands/planning/scheme/index.shtml">http://www.nt.gov.au/lands/planning/scheme/index.shtml</a>, viewed 21 July 2009.</p>	<p>DNR, <i>Land Clearing Guidelines</i> (2006) (<b>Land Clearing Guidelines</b>), available at <a href="http://www.nt.gov.au/lands/planning/scheme/documents/clearing_guidelines_2006.pdf">http://www.nt.gov.au/lands/planning/scheme/documents/clearing_guidelines_2006.pdf</a>, viewed 21 July 2009.</p> <p><i>Water Act 1992</i> (NT) (<b>Water Act</b>)</p> <p><i>Crown Lands Act 1992</i> (NT) (<b>Crown Lands Act</b>)</p>	<p><b>consent authority</b> = the entity which has the role of consenting to an application for a development permit under the Planning Act. This varies, depending on the relevant area of land.</p> <p><b>Controller</b> = the Controller of Water Resources, appointed under s18, Water Act.</p> <p><b>Framework</b> = the collection of legislation, regulation and policy set out in this report for each jurisdiction, in relation to: (1) Groundwater Management; (2) Environment Protection; and (3) Land-Use Planning</p> <p><b>Guidelines</b> = <i>Guidelines for Groundwater Protection in Australia</i> (1995)</p> <p>● = Framework explicitly provides for this element of the Guidelines</p> <p>◐ = Framework goes some way towards providing for this element of the Guidelines</p> <p>○ = Framework does not provide for this element of the Guidelines</p>

Form of protection suggested by the Guidelines			Whether implemented / Summary of implementation in the Northern Territory	
1	Principles (pp.9-13)	Precautionary principle (pp.11, 40)	◐	Not explicitly provided for in the Planning Act, nor in the NT Planning Scheme.
2		Polluter pays principle (p.11)	◐	Not explicitly provided for in the Planning Act, nor in the NT Planning Scheme.
3		Equity considerations (p.12)	◐	Not explicitly provided for in the Planning Act.

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in the Northern Territory	
4	Beneficial uses and values (pp.10-12, 39-41)	●	<b>Beneficial use declarations</b> (see rows 9-15, NT Environment Protection Framework) are considered in applications for development permits under the Planning Act: s51(s), Planning Act.
5	Forms of intervention	●	<p><u>Planning Act</u></p> <p>A development permit is required if a planning scheme provides that development is only allowed with the consent of the consent authority, and in certain other cases: s44, Planning Act. Development permits must be granted consistent with the NT Planning Scheme, which applies in most areas. The NT Planning Scheme provides for zones to protect groundwater quality, and restricts developments that could threaten groundwater quality in particular zones. See below, rows 8-22.</p> <p><u>Crown Lands Act</u></p> <p>The Crown Lands Act provides for the management of Crown land for uses such as pastoral uses, commercial uses, nature reserves and reserves for other public purposes.</p> <p>The Crown Lands Act provides for a system of leases, licences and permits over Crown land: Pts3 and 7. The Minister may impose conditions on a lease or licence, as the Minister thinks necessary: s27(j) and Pt7, Crown Lands Act.</p> <p>Trustees manage reserved Crown land (including reserves for water conservation purposes), and may make by-laws in relation to activities that are prohibited on the reserve: s79, Crown Lands Act.</p>
6	Market (generally pp.14-15)	○	Not explicitly provided for in the Planning Act, nor in the NT Planning Scheme.
7	Community participation and education (p.15)	●	<p>The object of the Planning Act—to provide for the orderly use and development of land—is to be achieved by, among other things, “ensuring, as far as possible, that planning reflects the wishes and needs of the community through appropriate public consultation and input in both the formulation and implementation of planning schemes”: s2A(2)(f), Planning Act.</p> <p>Processes for public consultation and public submissions apply to applications for development permits and proposals to amend the NT Planning Scheme (see below, row 20).</p>

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in the Northern Territory	
8	Specific approaches to protection	N/A	<p><u>NT Planning Scheme and development permits in accordance with the Planning Scheme</u></p> <p>Note 1: A clause reference in rows 8-22 refers to a clause in the NT Planning Scheme.</p> <p>Note 2: A section reference in row 8-22 refers to a section of the Planning Act.</p> <p>The NT Planning Scheme applies to the whole of the NT, except for certain excluded areas: s7. It contains principles, provisions that permit, prohibit or impose conditions on use and development (particularly, using zones and development tables), guidelines and assessment criteria, and maps and plans.</p> <p>When considering an application for a development permit, a consent authority must have regard to the following principles, among others:</p> <ul style="list-style-type: none"> <li>• promoting “best practice environmental management”: cl4.1(a)(vi); and</li> <li>• contributing to the sustainable use and development of land and water resources so that the use and development of land is consistent with the principles of sustainable development and avoids pollution and minimises degradation of the environment...: cl4.1(b).</li> </ul>
	Use of land-use risk matrix to judge compatibility of land uses with water quality protection (p.44)	●	<p>Not explicitly provided for, but see above, row 8, for general environmental principles to which a consent authority must have regard, under the NT Planning scheme.</p> <p>However, an application for a development permit must be accompanied by a description of “the land’s suitability for the purposes of the proposed development and the effect of development on that land”: s46(3)(e).</p> <p>When considering a development application, a consent authority must take into account the capability of the relevant land to support the proposed development and the effect of the development on the land: s51(j).</p>
10	Land zoning taking into account underlying groundwater (pp.43-44)	○	<p>The NT Planning Scheme provides for 27 different zones. There is no explicit requirement that the application of these zones should consider underlying groundwater.</p> <p>When considering a development application, a consent authority must take into account an applicable planning scheme, which includes land zoning provisions: s51(a). The Planning Act’s provisions in relation to land zoning do not explicitly mention groundwater.</p>

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in the Northern Territory	
11	Protection for water supply protection areas (p.27)	●	<p>The NT Planning Scheme provides for a “water management zone”, the purpose of which is to “restrict development within a water catchment area or other area providing surface or ground water for public supplies”: cl5.25. The zone prohibits certain activities, and states that development should “be of a nature or intensity which does not risk contamination of the surface or ground water supply”: cl10.4. Further provisions also apply to particular areas.</p> <p>Further, when considering a development application, a consent authority must take into account an applicable <b>beneficial use declaration</b> under the Water Act: s51(s). “Public water supply” is a beneficial use under the Water Act (see row 9, NT Environment Protection Framework).</p> <p>Note that under the Crown Lands Act, the Minister may reserve Crown land for the purposes of water conservation: s76.</p>
12	Protection of groundwater recharge zones (p.28)	●	See above, row 11.
13	Controls on land clearing due to connection with groundwater quality (p.28)	●	<p>The NT Planning Scheme regulates land clearing (cl10.2), and states that the Land Clearing Guidelines are relevant when considering an application for a development permit. These Guidelines urge caution in clearing areas with “seasonally waterlogged soils”, and seepage zones must not be cleared: p.7.</p> <p>Further, a person must not clear native vegetation except as authorised under the Planning Act (for example, under a development permit or the NT Planning Scheme): s75A.</p>
14	<p>Controls on land development due to connection with groundwater quality (p.28)</p> <p>For example controls on mining, quarrying, waste disposal (p.28)</p>	●	<p>For each zone, the NT Planning Scheme sets out whether particular uses are prohibited, permitted without consent, or discretionary (that is, permitted with consent): cl2.2.</p> <p>Among others, the following types of development are subject to control: abattoirs, agriculture, fuel depots, general industry, horticulture, intensive animal husbandry, light industry, motor repair stations, recycling depots, rural industry, service stations, and transport terminals (Part 3, NT Planning Scheme).</p> <p>Further, in general terms, the Planning Act cites “control of development to provide protection of the natural environment, including by sustainable use of land and water resources” as a way to achieve its object: s2A(2)(d).</p> <p>A development permit must also be consistent with the NT Planning Scheme (s52), so that controls on particular developments which may threaten groundwater quality apply through zoning.</p>

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in the Northern Territory	
15	Controls on rural and urban runoff (p.28)	●	Landscaping on a site is generally required to facilitate “on-site infiltration of stormwater run-off”: cl6.12.
16	Controls over use of sewage effluent (p.44)	○	Not explicitly provided for within the Land-Use Planning Framework.
17	Manage land uses to reduce risks of contamination (p.44)	◐	<p>Although the Planning Act does not explicitly provide for environmental conditions in general, a development permit may be subject to any conditions that the consent authority thinks fit: s55.</p> <p>For a small number of special areas, the NT Planning Scheme requires a development permit to be subject to conditions relating to waste disposal (clISKA and SLB, Sch1), or stormwater (clSL6, Sch1).</p>
18	Veto or referral rights for water and environment agencies in relation to land development (p.45)	●	<p>The Planning Act provides that the NT Planning Scheme may specify that a consent authority must not consent to a development unless it has consulted with, or obtained the agreement of, a specified referral authority, which may be any specified Agency or minister: s60(2).</p> <p>If the NT Planning Scheme requires a consent authority to consult with, or obtain the agreement of a referral authority in relation to a development, the consent authority must not consent to the development unless consultation has been undertaken, or the agreement obtained: s60(5).</p> <p>Under the present NT Planning Scheme, several uses and developments in special zones require that the Controller be satisfied as to particular factors, for example, that sufficient groundwater is available, or that the proposed wastewater management system is appropriate: eg clISL5 and SL6, Sch1.</p> <p>In relation to an application for a development permit, the consent authority must notify a local authority which has a council area which includes the proposed development, and the local authority may make submissions: ss48 and 49.</p>
19	Other inter-agency coordination (pp.28, 35)	●	If a proposal to amend the NT Planning Scheme relates to land in a council area, the local authority for that area must be notified, and invited to make submissions: s19, Planning Act.
20	Public consultation (p.28)	●	<p>A proposal to amend the NT Planning Scheme is subject to a process of public exhibition and submissions (s17, and Div4 of Pt2, Planning Act.)</p> <p>A development application is subject to public notice requirements and a public submission process: ss47 and 49.</p>

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in the Northern Territory	
21	Monitoring and review (pp.46-47)	<input type="radio"/>	Not explicitly provided for.
22	Enforcement (p.20)	<input checked="" type="radio"/>	<p>Penalties apply for using or developing land in contravention of a planning scheme, except in accordance with a permit: s75.</p> <p>If land is being used or developed in contravention of the applicable planning scheme, or development permit, or the Planning Act, the consent authority may, by written notice, require the relevant person to ceasing doing so: s76.</p> <p>Penalties apply for failing to comply with a notice: s76(5).</p>

## QUEENSLAND (1) Groundwater Management Framework Table

Key items of legislation, regulation and policy	Supplementary items of legislation, regulation and policy	Symbols, acronyms, and useful terminology
<p><i>Water Act 2000</i> (Qld) (<b>Water Act</b>)</p> <p><i>Water Regulation 2002</i> (Qld) (<b>Water Regulation</b>)</p> <p><i>Water Supply (Safety and Reliability) Act 2008</i> (Qld) (<b>Water Supply Act</b>)</p> <p><i>Metropolitan Water Supply and Sewerage Act 1909</i> (Qld) (<b>Metropolitan Water Act</b>)</p>	<p><i>Public Health Act 2005</i> (Qld) (<b>Public Health Act</b>)</p> <p><i>Guidelines for Land and Water Management Plans: State Guidelines</i> (June 2005, updated July 2007) (<b>State Guidelines</b>), available at <a href="http://www.nrw.qld.gov.au/land/management/lwmp/pdf/state_guidelines.pdf">http://www.nrw.qld.gov.au/land/management/lwmp/pdf/state_guidelines.pdf</a>, viewed 31 July 2009.</p>	<p><b>chief executive</b> = Chief Executive of the Qld Department of Environment and Resource Management</p> <p><b>Framework</b> = the collection of legislation, regulation and policy set out in this report for each jurisdiction, in relation to: (1) Groundwater Management; (2) Environment Protection; and (3) Land-Use Planning</p> <p><b>Guidelines</b> = <i>Guidelines for Groundwater Protection in Australia</i> (1995)</p> <p><b>Water EPP</b> = <i>Environmental Protection (Water) Policy 1997</i> (Qld) – the policy under which environmental values are set</p> <p><b>WRP</b> = water resource plan under the Water Act</p> <p><b>WUP</b> = water use plan under the Water Act</p> <p>● = Framework explicitly provides for this element of the Guidelines</p> <p>◐ = Framework goes some way towards providing for this element of the Guidelines</p> <p>○ = Framework does not provide for this element of the Guidelines</p>

**Note:** This table is correct to July 2009. After the writing of this report, the *Integrated Planning Act 1997* (Qld) was replaced by the *Sustainable Planning Act 2009* (Qld), and the *Environment Protection (Water) Policy 1997* (Qld) was replaced by the *Environment Protection (Water) Policy 2009* (Qld).

1	Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in Queensland	
	Principles (primarily pp.9-13)	Precautionary principle (pp.11, 40)		
			●	The Water Act sets out the precautionary principle as a principle of <b>ecologically sustainable development</b> : s11(b). The purpose of Chapter 2 of the Water Act (which deals with rights in water and restrictions on taking water) is to



Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in Queensland	
2  3  4  5			<p>advance the sustainable management and efficient use of water and other resources by establishing a system for the planning, allocation and use of water: s10(1), Water Act.</p> <p>“Sustainable management” is management that (among other things) contributes to (s10(2)(c), Water Act)</p> <p>(ii) the economic development of Queensland in accordance with the principles of ecologically sustainable development;</p> <p>(iii) maintaining or improving the quality of naturally occurring water and other resources that benefit the natural resources of the State;</p> <p>(iv) protecting water, watercourses, lakes, springs, aquifers, natural ecosystems and other resources from degradation and, if practicable, reversing degradation that has occurred...</p> <p>An entity which performs a function or exercises a power under Chapter 2 (for example, publishing a moratorium notice, granting a water licence, declaring a <b>catchment area</b>, granting a bore driller’s licence, etc) must do so in a way that advances this purpose: s12, Water Act.</p>
	Polluter pays principle (p.11)	○	Not explicitly provided for in the key items of legislation, regulation and policy.
	Equity considerations (p.12)	●	An entity which performs a function or exercises a power under Chapter 2 of the Water Act (for example, publishing a moratorium notice, granting a water licence, declaring a <b>catchment area</b> , granting a bore driller’s licence, etc) must do so in a way that advances the purpose of <b>sustainable management</b> of water, which is management that contributes to “the economic development of Queensland in accordance with the principles of <b>ecologically sustainable development</b> ”, where one such principle is “decision-making processes should effectively integrate both long-term and short-term economic, environmental, social and equitable considerations”: ss10(1), 10(2)(c)(ii), 11(a), and 12, Water Act.
	Beneficial uses and values (pp.10-12, 39-41)	●	The Water Minister must consider <b>environmental values</b> established under the Water EPP in the development of a WRP: s47(m), Water Act.
	Forms of intervention (pp.14-15)	●	<p>The Water Act provides for licensing of bores and water extraction from bores (see below, rows 19, 20 and 25), methods of limiting extraction due to groundwater quality impacts or concerns (see below, row 22) and imposes requirements on drinking water suppliers (see below, rows 30-35).</p> <p>Under the Water Supply Act, it is an offence to do anything that is likely to pollute water in a service provider’s water service:</p>

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in Queensland				
6			s194.			
	Market (pp.14-15)	○	Not explicitly provided for in the key items of legislation, regulation and policy.			
7	Community participation and education (p.15)	●	<p>An entity which performs a function or exercises a power under Chapter 2 of the Water Act (for example, publishing a moratorium notice, granting a water licence, declaring a <b>catchment area</b>, granting a bore driller's licence, etc) must do so in a way that advances the purpose of <b>sustainable management</b> of water, which is management that contributes to "the economic development of Queensland in accordance with the principles of <b>ecologically sustainable development</b>", where one such principle is "decisions and actions should provide for broad community involvement on issues affecting them": ss10(1), 10(2)(c)(ii), 11(f), and 12, Water Act.</p> <p>Extensive community consultation requirements apply under the Water Act in relation to WUPs, WRPs and ROPs (see below, row 14). In addition, the Minister may establish "as many advisory councils as the Minister considers appropriate for the administration of this Act, including, for example, for policy recommendations": s1005, Water Act.</p>			
8	Reservation of special areas (p.16)	●	Stressed areas are dealt with through WUPs, which are prepared if the Water Minister is satisfied there are risks that water use in an area may cause "negative effects on land and water resources": see below, row 11. WRPs and WUPs also provide ways to manage stressed areas (see below, rows 11, 19 and 20). Certain areas may also be declared water management areas (including subartesian areas): regs 56, 102 Water Regulations.			
9	Public water supply areas (p.16)	●	<p>Regulations to the Water Act may declare a <b>catchment area</b> for preserving water quality and may regulate the use of land in the catchment area, and the construction and use of buildings and structures on the land: ss258 and 259, Water Act. Schedule 5 of the Water Regulations sets out <b>catchment areas</b>.</p> <p>The Governor in Council may constitute a <b>water reserve</b> or <b>catchment area</b> for the purposes of the Metropolitan Water Act: s39.</p>			
10	Other	N/A	N/A			
11	Management plans (pp.18-20) (that is, a plan for	Types of management plans for which the legislation or regulation provide	N/A	<u>Water Use Plan (WUP) under the Water Act</u>  Note: a reference in this column to a section is a reference to a section of the Water Act.	<u>Water Resource Plan (WRP) under the Water Act</u>  Note: a reference in this column to a section is a reference to a section of the Water Act.  The Water Minister is responsible for	<u>Resource Operations Plan (ROP) under the Water Act</u>  Note: a reference in this column to a section is a reference to a section of the Water Act.

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in Queensland			
12	regulating individual behaviour once a groundwater body is being used by many competing users)		<p>The Water Minister is responsible for preparing a WUP for an area if he or she is satisfied there are risks that water use in that area may cause “negative effects on land and water resources”, including (s60(1)(a)-(c)):</p> <ul style="list-style-type: none"> <li>• rising underground water levels;</li> <li>• increasing salinisation; and</li> <li>• deteriorating water quality.</li> </ul> <p>A WUP must state the types of water use that are subject to the plan, state standards for water use practices, objectives for water reuse and water quality, and monitoring requirements and responsibilities: s62(1).</p> <p>In preparing the WUP, the Minister must consider “changes to water use practices that will reduce the risk to land and water resources arising from the use of water on land” and “existing industry codes of practice for water use”: s63.</p> <p>A WUP is approved by the Governor in Council: s65(2).</p>	<p>preparing WRPs “to advance the sustainable management of water”: s38(1). The purposes of a WRP include “to provide a framework for sustainably managing water and the taking of water” and “to provide a framework for reversing, where practicable, degradation that has occurred in natural ecosystems”: s38(3).</p> <p>A WRP must regulate the taking of subartesian water if the Water Minister is satisfied that (among other things):</p> <p>There is a risk that taking, or interfering with, subartesian water in the area may significantly affect...(ii) the water requirements of natural ecosystems; or (iii) the quality of water: s38(5).</p> <p>When preparing a draft WRP, the Minister must consider (among other things):</p> <ul style="list-style-type: none"> <li>• the quality of water: s47(a); and</li> <li>• the underground water levels and underground water recharge processes necessary to support natural ecosystems: s47(d).</li> </ul> <p>A WRP is approved by the Governor in Council: s50(2).</p>	<p>The chief executive is responsible for preparing a ROP to implement a WRP: s95.</p> <p>The draft ROP must (s98(1)):</p> <ul style="list-style-type: none"> <li>• identify any water infrastructure to which the draft ROP is intended to apply, and how it will be operated;</li> <li>• state how the chief executive will sustainably manage the water to which the ROP will apply;</li> <li>• state the water and natural ecosystems monitoring practices that will apply in the proposed ROP area; and</li> <li>• state how the draft plan addresses WRP outcomes.</li> </ul> <p>It may include environmental management rules and water sharing rules: s98(2). The chief executive must consider a WRP when preparing a draft ROP: s99(a)</p>
	Component studies (p.18)	●	<p>Before preparing a draft WUP, the Water Minister must publish a notice of intention to prepare a draft WUP. This notice must state details of how it</p>	<p>Before publishing a notice of a proposal to prepare a draft WRP, the Minister must prepare an information report about (among other things):</p>	<p>Before preparing a draft ROP, the chief executive must publish a notice of intention to prepare a draft ROP. This notice must state details</p>

	Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in Queensland		
13			is intended that technical consultation for the preparation of the proposed WUP will take place: s61(2)(c).	proposed arrangements for technical assessment using best scientific information available and relevant to the preparation of a draft water resource plan for the proposed plan area: s39(c).	of how it is intended that technical consultation for the preparation of the proposed ROP will take place: s96(2)(c).
	Surface water – groundwater interaction (p.18)	●	Not applicable - a WUP applies to the use of groundwater once extracted.	When preparing a draft WRP, the Minister is required to consider the effects that the draft WRP will have on other water, and the effects that the taking of other water will have on water covered by the WRP: s47(k) and (l).  This provides a way to consider surface-groundwater interaction where a draft WRP covers only surface water, or only groundwater.	Not explicitly provided for, but generally dealt with in the WRP, which ROPs implement (as set out in row 11, above).
14	Public consultation (p.19)	●	The Water Minister must invite public submissions in relation to a draft WUP: s64(2).	The Water Minister must invite public submissions in relation to a draft WRP, and establish a <b>community reference panel</b> to provide information about matters relevant to the preparation of a draft WRP for the proposed plan area: ss41 and 49(2).  The Water Minister must prepare a report on the public consultation process: s51.	The chief executive must, by published notice, invite public submissions in relation to a draft ROP: s100(2). The chief executive must also explain, by letter or public meetings, the implications of the notice to as many affected water entitlement holders as possible:  The chief executive may establish a <b>referral panel</b> to advise on matters about a ROP: s1004(1)(a).
15	Coordination with other agencies	●	The Water Minister must send a copy of the notice about the draft WUP to each local government whose local government area includes all or part of	The Minister must send a copy of the notice about the draft WRP, and the draft WRP to each local government whose local government area includes all or part of the	The chief executive must send a copy of the notice about the draft ROP, and the draft WOP to each local government whose local

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in Queensland			
16			<p>the proposed plan area: s64(4).</p> <p>The Water Minister may also send a copy of the notice about the draft WUP to “any other entity the Minister considers appropriate”: s64(6).</p>	<p>proposed plan area: s49(4).</p> <p>The Water Minister may also send a copy of the notice about the draft WRP to “any other entity the Minister considers appropriate”: s49(6).</p>	<p>government area includes all or part of the proposed plan area: s100(5).</p> <p>The chief executive may also send a copy of the notice about the draft ROP to “any other entity the chief executive considers appropriate”: s100(7).</p>
	Market incentives (p.19)	○	Not explicitly provided for.	Not explicitly provided for.	Not explicitly provided for.
17	Monitoring program (p.20)	●	<p>A water use plan must state monitoring requirements and responsibilities: s62(1)(f).</p> <p>However, there is no requirement for the Water Minister to provide periodic reports, as are required for WRPs (see column to the right).</p>	<p>A WRP must (s46(1)(g):</p> <ul style="list-style-type: none"> <li>state the water and natural ecosystem monitoring requirements to assist in assessing the effectiveness of the proposed management strategies in achieving ecological outcomes;</li> <li>state the periodic reporting requirements for the draft WRP.</li> </ul> <p>In relation to the periodic reporting requirements, a report must include the following (among other things) (s54(a) (b), and (e)):</p> <ul style="list-style-type: none"> <li>a summary of the findings of research and monitoring for the plan; and</li> <li>an assessment of the effectiveness of the implementation of the plan in achieving the plan’s outcomes; and</li> </ul>	<p>A ROP must state the water and natural ecosystem monitoring practices that will apply in the proposed plan area: s98(f).</p> <p>There is no requirement for the chief executive to provide periodic reports in relation to ROPs, separately from the WRP reports, (see column to the left), which deal with implementation through ROPs.</p>

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in Queensland			
18				<ul style="list-style-type: none"> <li>information about any non-compliance with the plan and its ROP.</li> </ul>	
	Enforcement (p.20)	●	<p>Penalties apply to a person who uses water in a water use plan area contrary to the plan: s809.</p>	<p>A WRP is implemented through a ROP (see column to the right).</p> <p>The Governor in Council may not approve a ROP if it is inconsistent with a WRP: s103(5)(a).</p> <p>In considering whether to grant or refuse an application for a water <b>licence</b> or <b>permit</b> or the conditions for a water <b>licence</b> or <b>permit</b>, the chief executive must make a decision in accordance with an applicable WRP: s205(1).</p>	<p>On and from the day a ROP has effect, the chief executive must grant ROP licences and distribution operations licences in accordance with the ROP: s107(b).</p> <p>It is a condition of a ROP licence or a distributions operations licence that the licence holder comply with the relevant ROP: s110(1).</p> <p>In considering whether to grant or refuse an application for a water <b>licence</b> or <b>permit</b> or the conditions for a water <b>licence</b> or <b>permit</b>, the chief executive must make a decision in accordance with an applicable ROP: s205(1).</p>
19	Controls on extraction (p.16)	●	<p><u>Licences under the Water Act</u></p> <p>In Queensland, no licence or permit is necessary to take or interfere with subartesian water, unless there is a moratorium notice in place (see below, row 22), or a relevant WRP (see above, row 11), or a relevant regulation: s20(6), Water Act. However, if subartesian water is taken in specified areas, a person must notify the chief executive of the works and their purpose: reg3CA, Water Regulations.</p>		
20	- Licences and permits				
	Groundwater quality considered in allocating groundwater (pp.9, 19)	●	<p>In other groundwater cases, the chief executive may grant a <b>licence</b> to an owner of land, a water authority, local government authority and others, to take water and interfering with the flow of water under or adjoining any of the land: s204, Water Act. The chief executive may grant a <b>permit</b> to enable a person to take water for an activity which is temporary, and has a reasonably foreseeable conclusion date: s237(1).</p> <p>In considering whether to grant or refuse an application or the <b>conditions</b> for a water licence or water permit, the chief</p>		
	Quality considered in setting conditions on taking water				

Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in Queensland
	<p>executive must consider (among other things) (ss210(1) and 239(1), Water Act):</p> <ul style="list-style-type: none"> <li>any information about the effects of taking, or interfering with, water on natural ecosystems, or on the physical integrity of aquifers;</li> <li>strategies and policies for the sustainable management of water in the area to which the application relates; and</li> <li>in the case of a licence—the sustainable resource management strategies and policies for the catchment, including any relevant regional aquifer systems; and</li> <li>in the case of a permit—policies developed in consultation with local communities for the sustainable management of local water.</li> </ul> <p>In appropriate circumstances, these factors should enable the chief executive to consider water quality impacts. A licence also indirectly takes account of water quality, since water quality is also a consideration in preparing a WRP (see above, row 11), and the granting of a licence must be consistent with a WRP (see row 18, above).</p> <p>Further, in making a determination in relation to a licence or permit the chief executive must do so in away that advances the <b>efficient use</b> of water (s12, Water Act), which “promotes appropriate water quality objectives for intended use of water” and “takes into consideration the volume and quality of water leaving a particular application or destination to ensure it is appropriate for the next application or destination, including, for example, release into the environment”: s10(3), Water Act.</p> <p>The conditions of a water licence consist of those prescribed by regulation, and those imposed on the licence by the chief executive: s214(1), Water Act. Licence conditions may, for example, require the licensee to carry out and report on a stated monitoring program: s214(2)(e), Water Act.</p> <p>Conditions may also be imposed on a water permit, though the Water Act does not provide examples of the kinds of conditions which may be imposed: s242.</p> <p><u>Land and water management plans under the Water Act</u></p> <p>A person may not use water from a water licence, etc, for irrigation, unless the person has an approved <b>land and water management plan</b> for the use of the water on the land, if the applicable ROP requires one: s73(5)(a), Water Act. In considering whether to approve or refuse to approve a plan, the chief executive must consider (among other things), consistency with <b>guidelines</b> for the preparation of land and water management plans, the risk to land and water arising from the use of water on the land, and existing industry codes of practice for water use: s76(1), Water Act.</p>

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in Queensland					
21			The State Guidelines relate to water quality by requiring the applicant to: <ul style="list-style-type: none"><li>• identify and assess landscape issues that impact on the irrigation enterprise (including salinity and water quality), and whether or not irrigation farming activities have an adverse impact on land and water resources (including salinity, rising water table, etc): p.8;</li><li>• identify the quality of water sources, to ensure that water is suitable for irrigation purposes and will not degrade soils: p.10;</li><li>• demonstrate that storm run-off or tail water from irrigated areas does not cause water quality degradation: pp.12 and 16; and</li><li>• propose a monitoring and reporting regime, including the quality of groundwater used and the salinity of shallow watertables: p.17.</li></ul>				
	Enforcement (p.20)	●	Penalties apply to a person who contravenes the requirement to have an approved <b>land and water management plan</b> s74(5, Water Act. It is an offence to take water unless authorised to do so under the Water Act or another relevant Act: s808, Water Act. Penalties apply to contravening a condition of an allocation, <b>licence</b> or <b>permit</b> : s812, Water Act.  If the chief executive or an authorised officer reasonably believes that a person has contravened or is contravening a provision of the Water Act, they may give the person a <b>compliance notice</b> which requires the person to rectify the matter: s780.				
22	Other methods of limiting extraction	Method of limiting extraction	N/A	<u>WRP under the Water Act</u>	<u>Declared subartesian area under the Water Act</u>	<u>Moratorium notice under the Water Act</u>	<u>Notice under the Water Act restricting the taking of water</u>
23		Water quality considerations (pp.9, 19)	●	The Water Minister may prepare a WRP for the purpose of defining the availability of water for any purpose and to provide a framework for establishing water allocations: s38(3)(a)	A regulation may declare a subartesian area and regulate the taking of or interference with the flow of subartesian water: s1046, Water Act.  The regulation may also state the types of works that take or interfere with subartesian water	The Water Minister may publish a <b>moratorium notice</b> stating that certain applications under the Water Act (for example, an application in relation	If the Water Minister is satisfied that urgent action should be taken because “there is a thing in harmful quantities in water”, the Minister must publish a notice which (s22, Water Act): <ul style="list-style-type: none"><li>• reduces the volume of water a person may take, or the rate at</li></ul>



	Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in Queensland				
			<p>and (b), Water Act.</p> <p>Since, in relation to WRPs, the Water Minister must advance the purpose of sustainable management of water, which is management that contributes to “maintaining or improving the quality of naturally occurring water” (ss10(2)(c)(iii) and 12, Water Act), the Water Minister could conceivably determine groundwater availability having regard to the need to protect groundwater quality for adverse impacts of overuse.</p>	<p>that are assessable or self assessable development under the Integrated Planning Act: s1046(2), Water Act.</p>	<p>to works, or an application to increase the amount of water taken under an entitlement) will not be granted, if the Minister is satisfied action should be taken to protect natural ecosystems: s26, Water Act.</p> <p>However, a moratorium notice does not apply to the issuing of water permits, or the taking of water in emergency situations, for stock or domestic purposes, and other exempted purposes: s30, Water Act.</p>	<p>which, and the times when, a person may take water; or</p> <ul style="list-style-type: none"> <li>• reduces a person’s entitlement to interfere with water; or</li> <li>• prohibits the taking of, or interfering with, water.</li> </ul> <p>Alternatively, a regulation may be used to do this: s23, Water Act.</p> <p>Similar arrangements apply to a water supply emergency, which may be declared if there is a “demonstrably serious risk the State’s, or a part of the State’s, essential water supply needs will not be met”, for example, because of “contamination of a water storage used for essential water supply needs...”: subdiv1, div2A, Pt2, Ch2, Water Act (see row 33, below).</p>
24	Enforcement (p.20)	●	<p>See above, row 18.</p>	<p>Penalties apply to a person who takes or supplies water for which they are not authorised under the Water Act: s808, Water Act.</p> <p>Where a development permit under the Integrated Planning Act is required, the person must not take or interfere with water until the development permit has been obtained: s967, Water Act.</p>	<p>Penalties apply to a person who contravenes a moratorium notice: s26(6), Water Act.</p>	<p>Penalties apply to taking water in contravention of a notice or a regulation: ss22(7) and 23(5), Water Act.</p>

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in Queensland	
25	Well construction measures (p.16)	●	Under the Integrated Planning Act, a WRP or regulation may specify if works constructed or installed to take subartesian water (other than works for stock and domestic purposes) are assessable development (which require a <b>development permit</b> ) or self-assessable (that is, they must comply with a self-assessable code); details are stated in the applicable WRP or for declared subartesian areas, in Sch11, Water Regulation. Artesian bores are <b>assessable development</b> anywhere in the State: Table 4 “operational works”, Sch8, Integrated Planning Act. (See Qld Land-Use Planning Framework Table).
26	Driller licensing (pp.16, 25)	●	The chief executive grants water bore drillers’ licences under the Water Act: s301. Bore drillers’ licences are subject to conditions prescribed by regulation, and those imposed on the particular licence: s302(1), Water Act. Conditions may limit the types of equipment and drilling methods the licence holder may use: s302(1), Water Act.  The Water Regulations set out the endorsed drilling methods, licence types and required qualifications: regs18-22.
27	Rules for bore construction (p.25)	●	As a condition of a water bore driller’s licence, water bore drilling must be carried out in accordance with: <ul style="list-style-type: none"> <li>one of two publications: either the <i>Minimum Standards for the Construction and Reconditioning of Water bores that intersect the sediments of Artesian Basins in Queensland</i> (available at <a href="http://www.nrw.qld.gov.au/about/policy/documents/1569/index.html">http://www.nrw.qld.gov.au/about/policy/documents/1569/index.html</a>, viewed 31 July 2009) or the <i>Minimum Construction Requirements for Water Bores in Australia</i>: reg 23(1), Water Regulations; and</li> <li>the development permit, if the works are assessable development, or the self-assessment code if the works are self assessable development. (See row 8, Qld Land-Use Planning Framework Table).</li> </ul>
28	Rules for operation and maintenance of bore (p.25)	◐	Not explicitly provided for. However, rules for maintenance could, perhaps, be provided for in a condition imposed on a <b>development permit</b> .
29	Enforcement (p.20)	●	Failing to comply with a bore driller’s licence may result in the licence being suspended (s309, Water Act) or cancelled (s310, Water Act). Penalties apply to persons who conduct water bore drilling activities without a water bore driller’s licence: s816, Water Act.  Penalties apply to persons who carry out assessable development without a development permit (s4.3.1, Integrated Planning Act), or who contravene a development permit and its conditions: s4.3.3, Integrated Planning Act. Penalties also apply to persons who do not comply with the applicable self assessment code for self assessable development: s4.3.2, Integrated Planning Act. (See row 8, Qld Land-Use Planning Framework Table).

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in Queensland	
30	Water supply and protection of public water supply wells (pp.25-27)	<p>●</p> <p>Under the Water Supply Act, it is an offence to do anything that is likely to pollute water in a service provider's water service: s194. The chief executive of Queensland Health may appoint authorised officers, who monitor and enforce compliance with this requirement: s400, Water Supply Act.</p> <p>Under the Metropolitan Water Act, the Metropolitan Water Supply and Sewerage Board may make by-laws for the preservation of the <b>catchment areas</b> for water supply against pollution; and prohibiting the doing or continuance of anything likely to cause pollution: s20 and cl15, Sch4, Metropolitan Water Act.</p>	
31	Protection zone around supply bores (p.25)	<p>●</p> <p>In relation to the Metropolitan Water Act – see row 30, above.</p> <p>Regulations to the Water Act may regulate the use of land in a declared <b>catchment area</b>, and the construction and use of buildings and structures on the land: ss258 and 259, Water Act.</p> <p>The Water EPP requires the chief executive (water resources) to develop and implement plans about protecting groundwaters: cl45(1). The chief executive must consider including in the plans, provisions about wellhead protection: cl45(2)(d), Water EPP.</p>	
32	Requirements to monitor up-gradient and within zone (pp.25, 26)	<p>●</p> <p>A drinking water service provider's <b>drinking water quality management plan</b> must (s95(3)(b)(vi), Water Supply Act):</p> <p>include details of the operational and verification monitoring programs under the plan, including the parameters to be used for indicating compliance with the plan to the extent the plan requires the provider to maintain water quality in accordance with the water quality criteria for drinking water.</p> <p>In addition, the regulator may require a provider to give additional information about the supply of water to or from the provider's drinking water service: s96(1), Water Supply Act.</p> <p>If a drinking water service provider obtains water from infrastructure which is not covered by the <b>drinking water quality management plan</b>, a drinking water service provider may ask the owner to give the provider information about the quality of water in the infrastructure: s104(2), Water Supply Act.</p>	
33	Response plan in event of contamination (p.25)	<p>●</p> <p>A <b>drinking water quality management plan</b> must demonstrate how the drinking water service provider will manage the risks posed by identified hazards and hazardous events, where drinking water quality is affected: s95(3), Water Supply Act.</p> <p>A regulation or declaration may be used in a <b>water supply emergency</b> which is caused by contamination, to direct a service provider to carry out particular measures and achieve particular outcomes to respond to the emergency; the service provider must then state the actions which it intends to take: subdiv1, div2A, Pt2, Ch2, Water Act.</p>	

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in Queensland	
34	Reporting in the event of contamination (p.25)	●	If a drinking water service provider becomes aware that the quality of water supplied does not comply with a requirement of the provider's <b>drinking water quality management plan</b> that water quality must be consistent with any water quality criteria for drinking water, the provider must, unless the provider has a reasonable excuse, immediately give the regulator details of the noncompliance and the circumstances that gave rise to the non-compliance: s102.
35	Enforcement (p.20)	●	<p>Penalties apply to a service provider which does not comply with a direction under a water supply emergency declaration or a water supply emergency regulation: ss25E and 25H, Water Act.</p> <p>Penalties apply to a drinking water service provider which fails to report contamination (requirement set out above, row 34): s102, Water Supply Act.</p> <p>Penalties apply to a drinking water service provider which carries out a drinking water service without an approved <b>drinking water quality management plan</b> for the service: s92, Water Supply Act.</p> <p>It is an offence for a drinking water service provider to supply drinking water that the provider knows, or reasonably ought to know, is unsafe: s57E, Public Health Act.</p>
36	Other well-related measures	●	The decommissioning of a water bore must be carried out by a licensed water bore driller in accordance with the publication <i>Minimum Construction Requirements for Water Bores in Australia</i> : reg52, Water Regulation.
37	Controls on disposal of waste via wells (p.16)	●	<p>Disposing of waste via wells is regulated under the Environmental Protection Act. Under the Environmental Protection Regulation, the EPA must refuse to grant an application to dispose of waste through a well, deep-well injection or bore, if the EPA considers (reg63(2)):</p> <ul style="list-style-type: none"> <li>(a) the waste is not being, or may not be, released entirely within a confined aquifer; or</li> <li>(b) the release of the waste is affecting adversely, or may affect adversely, a surface ecological system; or</li> <li>(c) the waste is likely to result in a deterioration in the environmental values of the receiving groundwater.</li> </ul>
38	Gathering information	●	<p>Under the Water Act, the Water Minister must provide information for water planning purposes by (among other things) (s35(b)):</p> <ul style="list-style-type: none"> <li>• regularly measuring and keeping publicly available records of the quality of water in Queensland;</li> </ul>

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in Queensland	
39			<ul style="list-style-type: none"> <li>collecting information on the water requirements of, and impacts of water management on, natural ecosystems; and</li> <li>collecting information about future water requirements.</li> </ul> <p>For the purposes of collecting this information, the chief executive may require a service provider or other person who takes or interferes with water to provide information: ss36 and 36A, Water Act.</p>
	Monitoring of critical overdraw (p.16)	●	Not explicitly provided for, but would be expected to be dealt with in the information collected by the Water Minister (see above, row 38).
40	Vulnerability mapping (pp.20-22)	●	The Water EPP requires the chief executive (water resource) to develop and implement plans about protecting groundwaters: cl45(1). The chief executive must consider including vulnerability maps in the plans: cl45(2)(b), Water EPP.
41	Aquifer classification systems (pp.22-23)	●	The Water EPP requires the chief executive (water resource) to develop and implement plans about protecting groundwaters: cl45(1). The chief executive must consider including aquifer classification systems in the plans: cl45(2)(c), Water EPP.

## QUEENSLAND (2) Environment Protection Framework Table

Key items of legislation, regulation and policy	Supplementary items of legislation, regulation and policy	Symbols, acronyms, and useful terminology
<p><i>Environmental Protection Act 1994</i> (Qld) (<b>Environmental Protection Act</b>)</p> <p><i>Environmental Protection Regulation 2008</i> (Qld) (<b>Environmental Protection Regulation</b>)</p> <p><i>Environment Protection (Water) Policy 1997</i> (Qld) (<b>Water EPP</b>)</p> <p><i>Queensland Water Quality Guidelines</i> (Qld EPA, 2006) (<b>Queensland Water Quality Guidelines</b>), available at <a href="http://www.epa.qld.gov.au/environmental_management/water/queensland_water_quality_guidelines/">http://www.epa.qld.gov.au/environmental_management/water/queensland_water_quality_guidelines/</a>, viewed 1 August 2009.</p>	<p><i>Draft Terms of Reference for an Environmental Impact Statement</i> (Qld EPA, June 2008) (<b>Generic Terms of Reference</b>), available <a href="http://www.epa.qld.gov.au/publications/p00705.html">http://www.epa.qld.gov.au/publications/p00705.html</a>, viewed 1 August 2009.</p> <p><i>Integrated Planning Act 1997</i> (Qld) (<b>Integrated Planning Act</b>)</p> <p><i>State Development and Public Works Organisation Act 1971</i> (Qld) (<b>State Development Act</b>)</p> <p><i>Land Act 1994</i> (Qld) (<b>Land Act</b>)</p> <p><i>Code of Environmental Compliance for Exploration and Mineral Development Projects</i> (January 2001) (<b>Exploration and Mineral Development Code</b>), available at <a href="http://www.epa.qld.gov.au/publications/p00448.html">http://www.epa.qld.gov.au/publications/p00448.html</a>, viewed 1 August 2009.</p> <p><i>Code of Environmental Compliance for Mining Claims and Prospecting Permits</i> (January 2001) (<b>Mining Claims and Prospecting Permits Code</b>), available at <a href="http://www.epa.qld.gov.au/publications/p00449.html">http://www.epa.qld.gov.au/publications/p00449.html</a>, viewed 1 August 2009.</p> <p><i>Code of Environmental Compliance for Mining Lease Projects</i> (January 2001) (<b>Mining Lease Code</b>), available at <a href="http://www.epa.qld.gov.au/publications/p00450.html">http://www.epa.qld.gov.au/publications/p00450.html</a>, viewed 1 August 2009.</p> <p><i>Code of Environmental Compliance for Environmental Authorities for High Hazard Dams Containing Hazardous Waste</i> ( ) (<b>Hazardous Dams Code</b>), available at <a href="http://www.epa.qld.gov.au/publications/p00451.html">http://www.epa.qld.gov.au/publications/p00451.html</a>, viewed 1 August 2009.</p> <p><i>Code of Environmental Compliance for Certain Aspects of Mobile and Temporary Motor Vehicle Workshops</i> (July 2006), (<b>Motor Workshops Code</b>), available at <a href="http://www.epa.qld.gov.au/publications/p01938.html">http://www.epa.qld.gov.au/publications/p01938.html</a>, viewed 1 August 2009.</p> <p><i>Establishing Draft Environmental Values and Water Quality Objectives</i> (Qld EPA and Qld Parks and Wildlife Services, February 2005), (<b>Guideline on Establishing Environmental Values</b>),</p>	<p><b>best practice environmental management for an activity</b> = under the Environment Protection Act, “the management of the activity to achieve an ongoing minimisation of the activity’s environmental harm through cost-effective measures assessed against the measures currently used nationally and internationally for the activity.”: s21(1), Environmental Protection Act</p> <p><b>EIA</b> = environmental impact assessment</p> <p><b>EPP</b> = environmental protection policy under the Environment Protection Act</p> <p><b>Framework</b> = the collection of legislation, regulation and policy set out in this report for each jurisdiction, in relation to: (1) Groundwater Management; (2) Environment Protection; and (3) Land-Use Planning</p> <p><b>Guidelines</b> = <i>Guidelines for Groundwater Protection in Australia</i> (1995)</p> <p>● = Framework explicitly provides for this element of the Guidelines</p> <p>◐ = Framework goes some way towards providing for this element of the Guidelines</p>

	<p>available at <a href="http://www.epa.qld.gov.au/register/p01551aa.pdf">http://www.epa.qld.gov.au/register/p01551aa.pdf</a>, viewed 1 August 2009.</p> <p><i>Mineral Resources Act 1989</i> (Qld) (<b>Mineral Resources Act</b>)</p> <p><i>Agricultural Chemicals Distribution Control Act 1966</i> (Qld) (<b>Agricultural Chemicals Act</b>)</p> <p><i>Chemical Usage (Agricultural and Veterinary) Control Act 1988</i> (Qld) (<b>Chemical Usage Act</b>)</p> <p><i>Dangerous Goods Safety Management Act 2001</i> (Qld) (<b>Dangerous Goods Act</b>)</p>	<p>○ = Framework does not provide for this element of the Guidelines</p>
--	---	--

**Note:** This table is correct to July 2009. After the writing of this report, the *Integrated Planning Act 1997* (Qld) was replaced by the *Sustainable Planning Act 2009* (Qld), and the *Environment Protection (Water) Policy 1997* (Qld) was replaced by the *Environment Protection (Water) Policy 2009* (Qld).

Form of protection suggested by the Guidelines				Whether implemented / Summary of implementation in Queensland	
1	Principles (pp.9-13)	Precautionary principle (pp.11, 40)	●	<p><b>Ecologically sustainable development</b> is the object of the Environmental Protection Act : s3. However, unusually, the way in which this is defined does not include the precautionary principle.</p> <p>However, the principles of ecologically sustainable development which are set out in the National Strategy for Ecologically Sustainable Development (and which do include the precautionary principle) must be considered, as part of “standard criteria”, in numerous following decisions and functions under the Environmental Protection Act, including:</p> <ul style="list-style-type: none"> <li>• preparing an EIS assessment report: s58(d);</li> <li>• assessing a development application, under the Environment Protection Act: s73A(1)(b)(ii);</li> <li>• deciding whether an EIS is required for an application in relation to mining activities: s162(2)(a);</li> <li>• deciding whether an <b>environmental management plan</b> is required for a non-code compliant application in relation to mining activities, and deciding on certain mining application and conditions generally: s163B(2)(a), 170(4)(b)(ii), and 171((2)(b)(ii) (as to environmental management plans see below, row 17); and</li> <li>• issuing an <b>environment protection order</b>: s359 (as to environment protection orders, see below, row 22).</li> </ul>	
		Polluter pays principle (p.11)	●	<p>The Environmental Protection Act provides for a series of phases to achieve its object of ecologically sustainable development: ss3 and 4. These phases include “requiring persons who cause environmental harm to pay costs and penalties for the harm”: s4(6), Environmental Protection Act. A person with a function or power under the Environmental Protection Act must exercise its function or power in the way that best achieves the object of the Act”: s5.</p>	
2					

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in Queensland	
3			<p>Under the Environmental Protection Act, the holder of an <b>environmental authority (mining activities)</b>, or an environmental authority for certain kinds of environmentally relevant activities, must give the EPA a <b>financial assurance</b>, in relation to the costs that the EPA might reasonably incur in taking action to prevent or minimise environmental harm, or to rehabilitate or restore the environment, etc: ss364 and 367.</p> <p>The annual fees in relation to an <b>environmentally relevant activity</b>, which are payable under the Environmental Protection Regulation, are based on the environmental risk associated with the activity, which is represented by the <b>aggregate environmental score</b>. The aggregate environmental score takes into account emissions to water, air and land.</p> <p>If a person does not comply with a <b>clean-up notice</b> under the Environmental Protection Act, an authorised person or a contractor may take the action required in the clean-up notice (s363K) and the EPA may recover the costs of that action: s363N, Environmental Protection Act.</p>
	Equity considerations (p.12)	●	<p>Neither the Environmental Protection Act nor the Environmental Protection Regulations explicitly refers to equity considerations. However, the principles of ecologically sustainable development which are set out in the National Strategy for Ecologically Sustainable Development include “decision making processes should effectively integrate both long and short-term economic, environmental, social and equity considerations”. This must be considered as part of “<b>standard criteria</b>”, in numerous following decisions and functions under the Environmental Protection Act (see above, row 1).</p> <p>The Water EPP states that its purpose is to be achieved by providing a framework for “making consistent and equitable decisions about Queensland waters that promote efficient use of resources and best practice environmental management”: cl6(c).</p>
4	Beneficial uses and values (pp.10-12, 39-41)	●	<p><u>Environmental Protection Regulation</u></p> <p>Under the Environmental Protection Regulation, the EPA must, in making an environmental management decision relating to an activity, consider (among other things):</p> <ul style="list-style-type: none"> <li>• <b>environmental values, quality objectives</b>, and the <b>management intent</b> (see below, this row) in EPPs (reg51(1)(a)(ii) and (iii)); and</li> <li>• the remaining capacity of the receiving environment to accept contaminants or wastes released from future activities while protecting the <b>environmental values</b>: reg51(1)(g).</li> </ul> <p>Further, when considering whether to impose conditions, the EPA must consider (among other things) imposing conditions about protecting <b>environmental values</b> and meeting <b>quality objectives</b> under EPPs, and measures for the ongoing</p>



Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in Queensland	
			<p>protection of <b>environmental values</b> that are, or may be, adverse affected by the activity: reg52(1)(i) and (l).</p> <p><u>Water EPP</u></p> <p>The Water EPP sets <b>water quality objectives</b>, which in the case of groundwater, are the set of <b>water quality guidelines</b> for all <b>indicators</b> that will protect all <b>environmental values</b> for the water: cl11(2) (see below, rows 9-15).</p> <p>Under the Water EPP (cl16(2)), the <b>management intent</b> for a particular body of water is that a decision (for example, a decision in relation to an application for an authority) should ensure:</p> <ul style="list-style-type: none"> <li>(a) for high ecological value waters—the measures for indicators for all environmental values are maintained;</li> <li>(b) for slightly to moderately disturbed waters— <ul style="list-style-type: none"> <li>(i) if the measures for indicators of the environmental values achieve the water quality objectives for the water—the measures for the indicators are maintained at levels that achieve the water quality objectives for the water; or</li> <li>(ii) if the measures for indicators of the environmental values do not achieve the water quality objectives for the water—the measures for indicators of the environmental values are improved to achieve the water quality objectives for the water;</li> </ul> </li> <li>(c) for highly disturbed waters—the measures for indicators of the environmental values are progressively improved to achieve the water quality objectives for the water.</li> </ul>
5	Forms of intervention	Command (p.14)	<p>● <u>Environmental Protection Act</u></p> <p>The Environmental Protection Act provides for a range of duties and offences, including the following which are relevant to groundwater quality protection:</p> <ul style="list-style-type: none"> <li>• a <b>general environmental duty</b> to take all reasonable and practicable measures to prevent or minimise environmental harm, where a person is carrying out an activity that causes, or is likely to cause environmental harm: s319;</li> <li>• a duty to notify certain bodies if a person who, while carrying out an activity, becomes aware that <b>serious</b> or <b>material environmental harm</b> is caused or threatened by the person's or someone else's act or omission associated with the activity or related activity: s320;</li> <li>• an offence of unlawfully causing <b>serious environmental harm</b> (s437) or <b>material environmental harm</b> (s438);</li> <li>• an offence of unlawfully causing an <b>environmental nuisance</b>: s440;</li> <li>• an offence of unlawfully depositing a <b>prescribed water contaminant</b> in waters, or at another place, and in a way, so that</li> </ul>

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in Queensland	
6			<p>the contaminant could reasonably be expected to move into waters, including groundwater: s440ZG;</p> <ul style="list-style-type: none"> <li>an offence of releasing, or causing to be released, a <b>prescribed contaminant</b> (including a contaminant prescribed by an EPP) into the environment: s442; and</li> <li>an offence of causing or allowing a contaminant to be placed in a position where it could reasonably be expected to cause serious or material environmental harm or environmental nuisance: s443.</li> </ul> <p><u>Chemicals and Dangerous Goods</u></p> <p>The Dangerous Goods Act imposes broad safety obligations on all people involved with the storage, handling and manufacture of hazardous materials (including “safety” in relation to environmental harm), to “take all reasonable precautions and care to achieve an acceptable level of risk”: s16, Dangerous Goods Act. It also imposes specific obligations for occupiers and employees at locations where hazardous materials are stored or handled: Pt2, Dangerous Goods Act.</p> <p>The Chemical Usage Act confines the use of agricultural chemicals in Queensland to products registered or approved with APVMA (s13A), and generally requires them to be used in accordance with label instructions (s13). It also provides for banning particular agricultural chemicals to protect the environment, among other reasons: s11C, Chemical Usage Act.</p> <p>The Agricultural Chemicals Act provides for licensing agricultural pilots, commercial herbicide operators etc (Pt5).</p>
	Market (generally pp.14-15) eg tradeable discharge permits (pp.45, 46) or taxes on contaminants (p.46)	●	<p>The Environmental Protection Act does not provide explicitly for specific economic instruments or market-based measures or schemes.</p> <p>However, the principles of ecologically sustainable development which are set out in the National Strategy for Ecologically Sustainable Development include “cost effective and flexible policy instruments should be adopted, such as improved valuation, pricing and incentive mechanisms”. This must be considered as part of “standard criteria”, in numerous following decisions and functions under the Environmental Protection Act (see above, row 1).</p> <p>The Environment Protection Regulation provides for <b>reduced annual fees for environmentally relevant activities</b>, where a business has demonstrated good environmental performance by having a low “emissions score”, being a partner in the EPA ecoBiz program, and having an accredited Environmental Management System: reg126, Environmental Protection Regulation.</p>
7	Community participation and education (p.15)	●	<p><u>Environmental Protection Act</u></p> <p>The Environmental Protection Act states that it:</p>

Form of protection suggested by the Guidelines Whether implemented / Summary of implementation in Queensland			
			<p>is to be administered, as far as practicable, in consultation with, and having regard to the views and interests of, industry, Aborigines and Torres Strait Islanders under Aboriginal tradition and Island custom, interested groups and persons and the community generally: s6, Environmental Protection Act.</p> <p><u>Water EPP</u></p> <p>The Water EPP states that its purpose is to be achieved by providing a framework for “involving the community through consultation and education, and promoting community responsibility”: cl6(d). The views of the community are relevant to:</p> <ul style="list-style-type: none"> <li>• deciding the priority in which waters will be assessed to identify environmental values and water quality objectives: cl12(2)(b); and</li> <li>• deciding those environmental values and water quality objectives, and ways to improve the quality of the water: cl12(4)(a).</li> </ul> <p>Under the Water EPP, the chief executive, in cooperation with the chief executive (water resources) and other relevant entities, must promote a coordinated strategy to educate and inform the community about water quality management issues: cl45(1), Water EPP. The strategy must include education programs about water quality management issues: cl45(3)(c), Water EPP.</p>
8	Water quality protection objectives and beneficial uses	Strategic assessment of groundwater resource (p.38)	<p>○ The Water EPP does not explicitly require water quality monitoring or assessment, but sets out how the information should be assessed and reported if monitoring occurs (cl47):</p> <p>(1) If the chief executive carries out ambient monitoring of waters to assess the state of Queensland waters the chief executive must—</p> <p>(a) prepare a report about the results of the monitoring; or</p> <p>(b) include the results in an appropriate state of the environment report.</p> <p>(2) If practicable, the report must include a comparison of ambient monitoring results with the water quality objectives for, and freshwater flows to, the waters during the time of the monitoring.</p>
	Define beneficial uses and values (pp.39-40)		<p>● The Environmental Protection Act defines <b>environmental value</b> to mean (s9):</p> <p>(a) a quality or physical characteristic of the environment that is conducive to ecological health or public amenity or safety; or</p> <p>(b) another quality of the environment identified and declared to be an environmental value under an environmental protection</p>

	Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in Queensland
10	Identify beneficial uses (pp.40-41)	<p>policy or regulation.</p> <p>● The Water EPP applies to all Queensland waters, and sets out environmental values for surface water and groundwater. The Water EPP treats almost all groundwater in Queensland in the same way, although environmental values for surface water, and for all waters in some small areas (eg Fraser Island) differ, depending on the region (cl7(1)(a) and Sch1, Water EPP).</p> <p>The environmental values of groundwater, which are to be protected or enhanced by the Water EPP, are (cl7(2)):</p> <ul style="list-style-type: none"> <li>(a) for high ecological value waters—the biological integrity of an aquatic ecosystem that is effectively unmodified or highly valued; and</li> <li>(b) for slightly to moderately disturbed waters—the biological integrity of an aquatic ecosystem that is affected adversely to a relatively small but measurable degree by human activity; and</li> <li>(c) for highly disturbed waters—the biological integrity of an aquatic ecosystem that is measurably degraded and of lower ecological value than waters mentioned in paragraph (a) or (b); and</li> <li>(d) suitability for— <ul style="list-style-type: none"> <li>(i) primary recreational use; or</li> <li>(ii) secondary recreational use; or</li> <li>(iii) visual recreational use; and</li> </ul> </li> <li>(e) suitability for minimal treatment before supply as drinking water; and</li> <li>(f) suitability for agricultural use; and</li> <li>(g) suitability for aquacultural use; and</li> <li>(h) suitability for producing aquatic food for human consumption; and</li> <li>(i) suitability for industrial use; and</li> <li>(j) the cultural and spiritual values of the water.</li> </ul> <p>However, if a natural property of the water precludes enhancement or protection of a particular environmental value, that values does not apply: cl7(3), Water EPP.</p> <p>The <b>cultural and spiritual values</b> of a water, means “places, objects, or uses, in or near the water, that have anthropological, archaeological, historic, sacred or scientific significance or value”: cl7(5), Water EPP.</p> <p>The Water EPP provides for a process of developing more specific <b>environmental values</b> for particular waters, as follows:</p> <ul style="list-style-type: none"> <li>• the chief executive of the EPA decides on the priority in which waters will be assessed, considering the views of the chief executive (water resources) and the chief executive (fisheries), community views, and the “demonstrated, or potential, adverse environmental impact on waters from industrial or urban development or agriculture”: cl12(2); and</li> </ul>

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in Queensland	
11			<ul style="list-style-type: none"> <li>the chief executive of the EPA, in cooperation with the chief executive (water resources) and the chief executive (fisheries) decide on the <b>environmental values</b> to be protected in the water, the <b>water quality objectives</b> for the water, and ways to improve the quality of the water, with appropriate community consultation: cl12(3) and (4).</li> </ul>
	Apply criteria (narrative or prescriptive) (pp.41-42)	●	<p>The Water EPP provides for <b>indicators</b> for <b>environmental values</b>, which are properties that are able to be measured or decided in a quantitative way: cl8(1). The indicators, and the quantitative measures or statements for indicators (called <b>water quality guidelines</b>) are to be decided using (cll8(2) and 9(2)):</p> <ul style="list-style-type: none"> <li>(a) site specific documents;</li> <li>(b) the Queensland Water Quality Guidelines;</li> <li>(c) the Australian and New Zealand Guidelines for Fresh and Marine Water Quality (2000);</li> <li>(d) documents published by a recognised entity.</li> </ul> <p>The Water EPP sets <b>water quality objectives</b>, which in the case of groundwater, are the set of <b>water quality guidelines</b> for all <b>indicators</b> that will protect all <b>environmental values</b> for the water: cl11(2).</p> <p>This process for setting objectives appears to be very flexible, given that it involves a process of decision between potentially numerous different documents. This process is outlined further in the Guidelines on Establishing Environmental Values.</p> <p>Note that the Queensland Water Quality Guidelines focus on surface water, and make very little mention of groundwater.</p>
12	Points of application of criteria (pp.42-43)	●	<p>The <b>environmental values</b> for a water are protected if the measure for all <b>indicators</b> do not exceed the <b>water quality guidelines</b> stated for the indicators: cl13, Water EPP. The <b>water quality objectives</b> (that is, meeting the guidelines) apply to all parts of the relevant waters, excluding an initial mixing zone or attenuation zone, and some particular types of water (eg water in swimming pools): cl11(3)(e), Water EPP.</p>
13	Monitoring and review program focusing on extent of implementation and extent to which goals are met (pp.46-47)	○	<p>An EPP may provide for a program performance assessment procedure, to review the program under which the stated objectives of the EPP are to be achieved and maintained: s28(2)(d), Environmental Protection Act. However, the Water EPP does not provide such an assessment procedure.</p> <p>The Water Quality EPP provides for, but does not require, the chief executive to compare the results of ambient monitoring to the water quality objectives: cl47. (See also above, row 8).</p>

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in Queensland	
14	Inter-agency coordination (p.48)	●	See above, row 10, in relation to the process for developing specific <b>environmental values</b> for waters.
15	Enforcement of criteria for beneficial uses	●	Not directly enforceable, but must be considered in several contexts under the Environmental Protection Act (see above, row 4).  In general terms, when an EPP such as the Water EPP is made, the EPA must “give effect” to it: s34, Environmental Protection Act.
16	Controlling sources of contamination	●	<p><u>Water EPP</u></p> <p>The Water EPP explicitly applies the waste hierarchy (which it calls the <b>management hierarchy</b>) to releasing wastewater to waters, to the extent that it is reasonable to do so.</p> <p>The <b>management hierarchy</b> must be considered by the EPA whenever it is making an <b>environmental management decision</b> (which includes, for example, an application for an authority under the Environmental Protection Act) relating to an activity: reg51(1)(a)(i), Environmental Protection Regulation. The hierarchy is as follows (cl15, Water EPP):</p> <ul style="list-style-type: none"> <li>(a) step 1—evaluate waste prevention options and implement appropriate waste prevention;</li> <li>(b) step 2—if waste prevention does not, or is not likely to, eliminate all waste water, evaluate waste water treatment and waste water recycling options and implement appropriate treatment and recycling;</li> <li>(c) step 3—if waste water treatment and waste water recycling does not, or is not likely to, eliminate all waste water, evaluate waste water treatment and waste water disposal options of release on land, release to sewer and release to a surface water and implement appropriate treatment and disposal;</li> <li>(d) step 4—if waste water treatment and waste water disposal does not, or is not likely to, eliminate all waste water, evaluate waste water treatment and waste water disposal to ground water and implement appropriate treatment and disposal.</li> </ul> <p><u>Environmental Protection Act</u></p> <p>A code of environmental compliance under the Environment Protection Act may require the holder of an environmental authority to manage waste materials according to the waste hierarchy (for example, condition 20, Exploration and Mineral Development Code).</p>
17	Licensing of contaminants	●	<u>General activities under the Environmental Protection Act</u>

Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in Queensland
<p>and point sources (p.30, App.1)</p>	<p>A <b>registration certificate</b> is required under the Environmental Protection Act to carry out <b>environmentally relevant activities</b> other than mining or petroleum activities, which are dealt with separately (see below): ss73D and 427. The following are categories of environmentally relevant activities (reg17 and Sch2, Environmental Protection Regulation):</p> <p style="padding-left: 40px;">Aquaculture and intensive animal industry; Chemical, coal and petroleum products activities; Energy related services; Extractive activities; Fabricated metal product activities; Food processing; Metal production and mineral processing activities; Miscellaneous activities; Non-metallic mineral product manufacture; Sawmilling, woodchipping and wooden product manufacturing; Transport and maritime services; Waste management; Water treatment services</p> <p>A person carrying out an environmentally relevant activity must also obtain a <b>development approval</b> under the Integrated Planning Act (if it is an <b>assessable development</b>), or operate under a <b>code of environmental compliance</b> (in which case it is a <b>self-assessable development</b> under the Integrated Planning Act): see Qld Land-Use Planning Framework.</p> <p>A number of <b>codes</b> for environmentally relevant activities have been adopted, covering extractive and screening activities, abrasive blasting, regulated waste transport, and motor vehicle workshops (available at <a href="http://www.epa.qld.gov.au/ecoaccess/codes_of_environmental_compliance/chapter_4_activities.html">http://www.epa.qld.gov.au/ecoaccess/codes_of_environmental_compliance/chapter_4_activities.html</a>, viewed 1 August 2009). These codes only apply to relatively benign forms of activities. They apply conditions which are relevant to protecting groundwater, for example, condition 12 of the Motor Workshops Code prohibits a contaminant from being placed in a position where it could reasonably be expected to move into groundwater.</p> <p>The Qld EPA also issues “operational policies” for licensing purposes. For example, there are operational policies dealing with the use of reclaimed water and biosolids from sewage treatment plants, including in the context of preventing groundwater contamination: <i>Operational Policy (Licensing) – Approval of Sewage Treatment Plants Including Options for Use of Reclaimed Water</i> (2005), available at <a href="http://www.epa.qld.gov.au/register/p01629aa.pdf">http://www.epa.qld.gov.au/register/p01629aa.pdf</a>, viewed 14 August 2009; and <i>Operational Policy (Environmental Operations) Management For Beneficial Reuse of Biosolids from Sewage Treatment Plants (STPs)</i> (2008), available at: <a href="http://www.epa.qld.gov.au/register/p00673aa.pdf">http://www.epa.qld.gov.au/register/p00673aa.pdf</a>, viewed 14 August 2009.</p> <p><u>Mining activities under the Environmental Protection Act</u> (note that the Mineral Resources Act is also relevant to mining activities)</p> <p>Mining activities require an <b>environmental authority (mining activities)</b> under the Environmental Protection Act. An authority is either:</p> <ul style="list-style-type: none"> <li>• <b>code compliant</b>, meaning that all mining activities comply with the criteria set out in the regulations for that type of activity, and the applicant can, in carrying out the activities, comply with the relevant standard environmental conditions</li> </ul>

Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in Queensland
	<p>for the code compliance authority (s154(1)(c), Environmental Protection Act). In this case, the conditions of the authority are the relevant standard environmental conditions set out in the code (s165, Environmental Protection Act); or</p> <ul style="list-style-type: none"> <li>• <b>non code compliant</b>, in which case an EIS may be required (s162, Environmental Protection Act).</li> </ul> <p>The EPA and Department of Mines and Energy have developed the following codes in relation to mining: the Exploration and Mineral Development Code, the Mining Claims and Prospecting Permits Code, the Mining Lease Code, and the Hazardous Dams Code (which deals with tailings dams and process water dams). As an example of their requirements, the Exploration and Mineral Development Code contains the following standard conditions explicitly relevant to groundwater:</p> <ul style="list-style-type: none"> <li>• the holder of the environmental authority must ensure that spills of hazardous contaminants are cleaned up as quickly as practicable, and must not be cleaned up by releasing such contaminants into groundwater (condition 9);</li> <li>• the holder of the environmental authority must not directly or indirectly release waste from the project area, or fuels, oils, lubricants or other contaminants, or wastewater to groundwater (conditions 20, 22 and 28);</li> <li>• waste pits should be located to ensure that the waste will not contaminate groundwater (condition 21);</li> <li>• non-artesian aquifers generally must be isolated where a drill hole intersects more than one water bearing strata (condition 30);</li> <li>• exploration drill holes that strike large artesian flows of water must be decommissioned or altered according to specified standards (condition 32); and</li> <li>• the holder of the environmental authority must complete rehabilitation of disturbed areas to the satisfaction of the EPA (condition 44).</li> </ul> <p>An <b>environmental management plan</b> may be required for certain kinds of non code compliant authorities, and an <b>EIS</b> requirement may apply to authorities that relate to certain kinds of exploration or mineral development authorities: ss163B, 186, 199, Environmental Protection Act.</p> <p>The purpose of an <b>environmental management plan</b> is to propose environmental protection commitments to help the EPA decide the conditions of the authority, or to help prepare the draft environmental authority: ss188 and 202, Environmental Protection Act. It must:</p> <ul style="list-style-type: none"> <li>• describe the <b>environmental values</b> likely to be affected by the mining activities, the potential adverse and beneficial impacts of the mining activities on the environmental values, and the commitments proposed to protect or enhance</li> </ul>



Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in Queensland
	<p><b>environmental values</b> under <b>best practice environmental management</b>: ss189(1)(b)(iv) and (v), and 189(1)(d), and 203(1)(b)(iv) and (v) and 203(1)(d), Environmental Protection Act.</p> <ul style="list-style-type: none"> <li>state the environmental protection objectives and the standards and measurable indicators, including, for example, objectives for progressive and final rehabilitation and management of contaminated land: ss189(2)(b) and 203(2)(b), Environmental Protection Act.</li> </ul> <p>An environmental authority holder for a mining lease requires a <b>plan of operations</b> before operations commence: s233, Environmental Protection Act. The plan of operations must set out an action program for the environmental management plan, and rehabilitation program: s234(1)(d), Environmental Protection Act.</p> <p><u>Petroleum activities and greenhouse gas storage activities under the Environmental Protection Act</u></p> <p>Petroleum activities and greenhouse gas storage activities require an <b>environmental authority</b> under the Environmental Protection Act. Similar provisions apply to those which apply to mining activities (see Ch5A, Environmental Protection Act).</p> <p><u>Activities involving the direct release of contaminants to groundwater under the Environmental Protection Regulation</u></p> <p>See row 37, Qld Groundwater Management Framework.</p> <p><u>Activities involving the indirect release of contaminants to groundwater under the Environmental Protection Regulation</u></p> <p>If the EPA is making an environmental management decision relating to an activity that involves, or may involve, the release of contaminants indirectly to groundwater (for example, storing contaminated water in a pond, allowing infiltration to groundwater), the EPA must consider (reg64, Environmental Protection Regulations):</p> <ul style="list-style-type: none"> <li>(a) the geological stability of the relevant site for the activity;</li> <li>(b) the location, quality and use, or potential use, of the receiving groundwater;</li> <li>(c) the permeability of the earth under the place where the activity is carried out;</li> <li>(d) the presence of containment devices at the relevant site for the activity and their effectiveness in preventing or minimising the release of the waste;</li> <li>(e) the distance separating the receiving groundwater from any containment device;</li> <li>(f) the potential for fluctuations in the level of the receiving groundwater;</li> <li>(g) the way in which materials, including contaminants, will be removed from the containment system;</li> <li>(h) whether or not materials, including contaminants, will be removed from the containment devices and if so, the effectiveness of the methods that will be used for the removal.</li> </ul>

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in Queensland	
18			The EPA must also consider imposing conditions in relation to containment devices: reg64(3).
	Inter-agency coordination (p.48)	●	<p>The Integrated Planning Act and the Environmental Protection Act work together, so that in some cases, the EPA is the assessment manager or referral agency for a <b>development application</b> under the Integrated Planning Act for an <b>environmentally significant activity</b>: s73, Environmental Protection Act. If this is the case, the Environmental Protection Act sets out how the EPA must assess the development application. The EPA must comply with regulatory requirements, and must consider the “standard criteria”, which include (s73A and Sch4, Environmental Protection Act):</p> <ul style="list-style-type: none"> <li>• the <b>principles of ecologically sustainable development</b>;</li> <li>• any applicable EPP;</li> <li>• “the character, resilience and values of the receiving environment”;</li> <li>• the <b>best practice environmental management</b> for activities under a relevant instrument; and</li> <li>• an applicable environmental impact study, assessment or report.</li> </ul>
19	Requirements for impact assessment (p.32)	●	<p>EIA takes place under the Integrated Planning Act, the State Development Act, and the Environmental Protection Act.</p> <p><u>Environmental Protection Act</u></p> <p>The procedures for environmental assessment under the Environmental Protection Act apply to mining activities, but not other activities that are covered by the Integrated Planning Act: s37, Environmental Protection Act. The purpose of EIS under the Environmental Protection Act is to assist regulators to make informed decisions on applications for development, and to assist in the development of an environmental management plan for the project: s40, Environmental Protection Act.</p> <p>The process under the Environmental Protection Act involves:</p> <ul style="list-style-type: none"> <li>• the proponent submitting a draft terms of reference for the EIS. This is publicly notified, public submissions are received, and the proponent provides responses to the public submissions to the chief executive, after which the terms of reference are finalised: ss41-46;</li> <li>• the proponent then submits the EIS to the chief executive, usually within 2 years: ss47-49;</li> <li>• the EIS undergoes public notice and proponent response requirements: ss51-56;</li> </ul>

Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in Queensland
	<ul style="list-style-type: none"> <li>the chief executive prepares a EIS assessment report, considering specified factors: s58 Among these specified factors are the “standard criteria”, which include any applicable EPP (including the Water EPP); the character, resilience and <b>values of the receiving environment</b>; and best practice environmental management: Sch4. The EIS assessment report addresses, among other things, the adequacy of any <b>environmental management plan</b> for the project, the suitability of the project, and any recommended conditions: s59.</li> </ul> <p>The Generic Terms of Reference include a section on groundwater, stating (in relevant part) (sections 4.4.1.2 and 4.4.2.2):</p> <p><b>4.4.1 Description of environmental values...</b></p> <p>The EIS should review the quality, quantity and significance of groundwater in the proposal area, together with groundwater use in neighbouring areas.... A network of observation points which would satisfactorily monitor groundwater resources both before and after commencement of operations should be developed and described in the EIS.</p> <p>This section of the EIS should address the nature and hydrology of the aquifers and provide a description of the...</p> <ul style="list-style-type: none"> <li>interaction with surface water;</li> <li>interaction with sea/salt water;</li> <li>possible sources of recharge; and</li> <li>vulnerability to pollution...</li> </ul> <p>Describe the environmental values of the underground waters of the affected area in terms of:</p> <ul style="list-style-type: none"> <li>values identified in the Environmental Protection (Water) Policy;</li> <li>sustainability, including both quality and quantity; and</li> <li>physical integrity, fluvial processes and morphology of groundwater resources....</li> </ul> <p><b>4.4.2 Potential impacts and mitigation measures</b></p> <p>This section is to assess potential impacts on water resource environmental values identified in the previous section. It will also define and describe the objectives and practical measures for protecting or enhancing water resource environmental values, to describe how nominated quantitative standards and indicators may be achieved, and how the achievement of the objectives will be monitored, audited and managed.</p> <p>The EIS should describe the possible environmental harm caused by the proposed proposal to environmental values for water as expressed in the Environmental Protection (Water) Policy...</p>

Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in Queensland
	<p>Water management controls should be described, addressing surface and groundwater quality, quantity, drainage patterns and sediment movements. The beneficial (environmental, production and recreational) use of nearby marine, surface and groundwater should be discussed...Monitoring programs should be described which will assess the effectiveness of management strategies for protecting water quality during the construction, operation and decommissioning of the proposal.</p> <p>Key water management strategy objectives include... protection of important local aquifers and protection of their waters [and] maintenance of sufficient quantity and quality of surface waters to protect existing beneficial downstream uses of those waters (including maintenance of in-stream biota and the littoral zone)...</p> <p>In relation to rehabilitation and decommissioning, the Generic Terms of Reference state “ground waters that leave the lease should not be degraded to a significant extent. Current and future water quality should be maintained at levels that are acceptable for users downstream of the site” (section 3.7).</p> <p><u>Integrated Planning Act</u></p> <p>Under the Integrated Planning Act, EIA is required for some types of <b>assessable development</b>. The assessment is either by <b>code assessment</b> (against applicable codes) or impact assessment or both, as set out in a regulation, a planning scheme or a temporary local planning instrument.</p> <p>The purpose of the environmental impact assessment process under the Integrated Planning Act is, among other things, to assess the potential adverse and beneficial environmental, economic and social impacts of the development, and assess management, monitoring, planning and other measures proposed to minimise and adverse environmental impacts of the development: s5.8.3, Integrated Planning Act.</p> <p>The process under the Integrated Planning Act involves similar steps to the process under the Environmental Protection Act: Pt8, Integrated Planning Act.</p> <p>If an EIS is undertaken for a development application, the EIS and the EIS assessment report are part of the supporting material for the application: s5.8.14, Integrated Planning Act.</p> <p><u>State Development Act</u></p> <p>The State Development Act provides for environmental assessments and EISs in relation to projects of Government and local bodies that are declared to be <b>significant projects</b>: s26(1), State Development Act. The Coordinator-General must consider a series of prescribed factors in considering whether the project should be declared a significant project, including the potential environmental effects of the project: s27(c), State Development Act.</p>

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in Queensland	
20	Prescription of activities/ discharges in protected areas (p.45)	●	Contaminated land is managed in accordance with a site management plan, which may apply conditions to the use or development of activities carried out on the land: s405(1)(d), Environmental Protection Act.
21	Monitoring requirements (p.45)	●	<p>In general, one of the “phases” through which the objects of the Environmental Protection Act are to be achieved includes “monitoring the impact of the release of contaminants into the environment”: s4(6)(c), Environmental Protection Act.</p> <p>More specifically, monitoring requirements may be imposed under the Environmental Protection Act using many different mechanisms, including through:</p> <ul style="list-style-type: none"> <li>• recommendations that result from the EIA process: s40(a)(ii);</li> <li>• a condition of a development approval: s73B(3)(a)(iii);</li> <li>• an environmental management plan: s189(2)(c)(i) and 203(2)(c);</li> <li>• a condition of an environmental authority (mining activities): s305(2)(iii);</li> <li>• a condition of an environmental authority for other activities: ss309Z(3)(a)(iii), 310O(3)(a)(iii); and</li> <li>• a site management plan for contaminated land: s402(c).</li> </ul>
22	Contingency measures, including clean-up requirements (pp.47-48)	●	<p><u>Environmental Protection Act – general contingency measures</u></p> <p>The Environmental Protection Act makes available the following tools in response to pollution:</p> <ul style="list-style-type: none"> <li>• <b>environmental protection orders</b>, which are issued to secure compliance with the <b>general environmental duty</b> (see above, row 5), an EPP, a condition of an environmental authority, a development condition of a development approval, a standard environmental condition of a code of environmental compliance, etc: s359. An environmental protection order may require a person to not start, or stop, a specified activity, limit the activity, or take stated action: s360(2);</li> <li>• <b>direction notices</b>, which are issued in response to contraventions of specified provisions, including the duty not to cause an environmental nuisance (s440), and the prohibition on depositing a prescribed water contaminant in waters, or in a place where it could reasonably be expected to move into waters (s440ZG). A direction notice requires a person to</li> </ul>

	Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in Queensland
23		<p>remedy a particular contravention: s363D; and</p> <ul style="list-style-type: none"> <li>• <b>clean-up notices</b>, which require a person to take stated action to prevent or minimise contamination, or rehabilitate or restore the environment because of an incident, or assess the nature of environment harm from an incident, etc: s363H.</li> </ul> <p><u>Environmental Protection Act – contaminated sites</u></p> <p>Activities that have been identified as likely to cause land contamination are known as <b>notifiable activities</b>, and listed in Sch3, Environmental Protection Act. Notifiable activities include, for example, battery manufacture, chemical storage, dry cleaning, fertiliser manufacture, landfill, pesticide manufacture, mine wastes, mineral processing, service stations, etc.</p> <p>Contaminated land is managed through a number of mechanisms under the Environmental Protection Act, including:</p> <ul style="list-style-type: none"> <li>• requiring an owner or occupier of land, and a local government, to notify the EPA of the notifiable activity: ss371 and 372;</li> <li>• requiring a site investigation, where a hazardous contaminant is at a concentration that has the potential to cause serious or material environmental harm: s376;</li> <li>• requiring a person to prepare a <b>site management plan</b> for contaminated land: ss384 and 401-419. A site contamination plan must state the objectives to be achieved, how the objectives are to be achieved and maintained, and make provision for monitoring and reporting: s402; and</li> <li>• requiring <b>remediation</b> of contaminated land by a notice that states the work to be conducted: s391.</li> </ul>
	Controls on diffuse source contamination (pp.17, 30)	<p>● Note also that Queensland's Land-Use Planning Framework includes a policy on acid sulphate soils (see row 9, Qld Land-Use Planning Framework).</p> <p>Agricultural chemicals and dangerous goods are controlled as described above, row 5.</p>

## QUEENSLAND (3) Land-Use Planning Framework Table

Key items of legislation, regulation and policy	Supplementary items of legislation, regulation and policy	Symbols, acronyms, and useful terminology
<p><i>Integrated Planning Act 1997</i> (Qld) (<b>Integrated Planning Act</b>)</p> <p><i>Integrated Planning Regulation 1998</i> (Qld) (<b>Integrated Planning Regulation</b>)</p>	<p><i>State Planning Policy 2/02: Planning and Managing Development Involving Acid Sulfate Soils</i> (2002), (<b>Acid Sulfate Soils SPP</b>), available at <a href="http://www.dip.qld.gov.au/docs/pa/ass_spp_oct_02.pdf">http://www.dip.qld.gov.au/docs/pa/ass_spp_oct_02.pdf</a>, viewed 1 August 2009.</p> <p><i>Environment Protection (Water) Policy 1997</i> (Qld) (<b>Water EPP</b>)</p>	<p><b>Framework</b> = the collection of legislation, regulation and policy set out in this report for each jurisdiction, in relation to: (1) Groundwater Management; (2) Environment Protection; and (3) Land-Use Planning</p> <p><b>Guidelines</b> = <i>Guidelines for Groundwater Protection in Australia</i> (1995)</p> <p>● = Framework explicitly provides for this element of the Guidelines</p> <p>◐ = Framework goes some way towards providing for this element of the Guidelines</p> <p>○ = Framework does not provide for this element of the Guidelines</p>

**Note:** This table is correct to July 2009. After the writing of this report, the *Integrated Planning Act 1997* (Qld) was replaced by the *Sustainable Planning Act 2009* (Qld), and the *Environment Protection (Water) Policy 1997* (Qld) was replaced by the *Environment Protection (Water) Policy 2009* (Qld).

Form of protection suggested by the Guidelines			Whether implemented / Summary of implementation in Queensland	
1	Principles (pp.9-13)	Precautionary principle (pp.11, 40)	●	A local government must, when performing a function or exercising a power under the Integrated Planning Act, advance the purpose of the Act, which includes “ensuring decision-making processes...apply the precautionary principle”: s1.2.2(1)(a) and s1.2.3(1)(a)(iii).
		Polluter pays principle (p.11)	○	Not explicitly provided for.
		Equity considerations (p.12)	●	A local government must, when performing a function or exercising a power under the Integrated Planning Act, advance the purpose of the Act, which includes “ensuring decision-making processes...seek to provide for equity between present and future generations”: s1.2.2(1)(a) and s1.2.3(1)(a)(iv).

	Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in Queensland	
4	Beneficial uses and values (pp.10-12, 39-41)	●	<p><u>Water EPP</u></p> <p>The Water EPP sets <b>water quality objectives</b>, which in the case of groundwater, are the set of <b>water quality guidelines</b> for all <b>indicators</b> that will protect all <b>environmental values</b> for the water: cl11(2) (see Qld Environment Protection Framework, rows 9-15).</p> <p>The Water EPP imposes particular requirements on local governments exercising planning functions, and providing services to their municipality, which promote the <b>water quality objectives</b>. Local governments that provide particular services must prepare environmental plans for those services under the Water EPP, including:</p> <ul style="list-style-type: none"> <li>• (in relation to sewerage service providers) an environmental plan about sewage management that minimise unnecessary flows entering the sewerage service, and which is developed considering the <b>water quality objectives</b> for a water to which the release of waste water may occur: cl40, Water EPP; and</li> <li>• (in relation to local governments that have urban stormwater systems) an environmental plan about urban stormwater quality management that improves the quality of stormwater in a way that is consistent with the <b>water quality objectives</b> for waters affected by the system: cl42, Water EPP.</li> </ul> <p>When a local government is preparing or amending a planning scheme or considering a rezoning or development application, and on-site sewerage facilities are proposed to be used, the local government must consider (among other things) “the existing quality of waters in the locality and the <b>water quality objectives</b> for the waters”: cl33(2)(f), Water EPP.</p> <p><u>Integrated Planning Act</u></p> <p>A planning scheme may use environmental values more generally within a planning scheme, for example, in a <b>code</b> with which self-assessable development and assessable development requiring code assessment must comply: ss3.1.10 and 4.3.2, Integrated Planning Act.</p>
5	Forms of intervention Command (p.14)	●	<p><u>Integrated Development Assessment System (IDAS) under the Integrated Planning Act</u></p> <p>Under the Integrated Planning Act, a <b>development permit</b> is necessary for assessable development (developments which require either code assessment or impact assessment), but not for non-assessable development or exempt development: s3.1.4(1) and (2). Self-assessable development must comply with applicable <b>codes</b>: s3.1.4(3)(a). “Impact assessment” means assessing the environmental effects of proposed development; and the ways of deal with the effects: Dictionary, Integrated Planning Act.</p>



Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in Queensland	
6			<p>Developments which require assessment undergo the IDAS process, which consists of 4 stages, being (s3.1.9, Integrated Planning Act):</p> <ul style="list-style-type: none"> <li>the development application is lodged with the assessment manager (usually the local government);</li> <li>the development application is reviewed, the applicant completes the required referrals, and the referral agencies carry out their assessment;</li> <li>public notification is undertaken, if required (for example, for impact assessable development); and</li> <li>the assessment manager makes a decision on whether the application is approved.</li> </ul> <p><u>Land Act</u></p> <p>The Land Act deals with non-freehold land in Queensland, which includes, for example, pastoral leases, and protected areas under the Nature Conservation Act.</p> <p>The Minister may make a <b>land management agreement</b> with a lessee of non-freehold land: s176U, Land Act. The purposes of a <b>land management agreement</b> for a lease include: identifying any land degradation issues relating to the land, establishing the agreed management outcomes for the identified land degradation issues and the associated management strategies to address them, and establishing a monitoring and reporting program: s176V, Land Act. In determining whether to:</p> <ul style="list-style-type: none"> <li>offer a new lease under the Land Act, and the conditions of the offer; or</li> <li>convert a perpetual lease to freehold land, or a term lease to perpetual lease or freehold land,</li> </ul> <p>the chief executive must consider (among other things), “the extent to which the lease land suffers from, or is at risk of, land degradation”, where the term <b>land degradation</b> includes “a process that results in declining water quality”: ss159(1)(f) and 167(1)(f), Land Act.</p>
	Market (generally pp.14-15)	○	Not explicitly provided for.
	Community participation and	●	A local government must, when performing a function or exercising a power under the Integrated Planning Act, advance the purpose of the Act, which includes “providing opportunities for community involvement in decision-making”: s1.2.2(1)(a) and

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in Queensland	
	education (p.15)		<p>s1.2.3(1)(f).</p> <p>The Minister may establish regional planning advisory committees under the Integrated Planning Act (s2.5.2) to advise the Minister and local governments in the relevant region: s2.5.6.</p>
8	Specific approaches to protection	Vehicle for protection	<p>N/A</p> <p><u>State-level documents under the Integrated Planning Act:</u></p> <ul style="list-style-type: none"> <li>• <u>State planning policies (SPPs)</u></li> <li>• <u>State planning regulatory provisions</u></li> </ul> <p>Note: a reference to a section in this column is to a section of the Integrated Planning Act.</p> <p>A SPP deals with matters of State interest, and has effect through the State unless it states otherwise: ss2.4.1 and 2.4.2.</p> <p>The Minister may make a <b>State planning regulatory provision</b> if he or she is satisfied that “there is a significant risk of <b>serious environmental harm</b> or serious adverse cultural, economic or social conditions occurring in a planning scheme area: s2.5C.2(2)(a). There are presently no State-wide State planning regulatory provisions in effect.</p> <p><u>Planning Schemes under the Integrated Planning Act</u></p> <p>Note: a reference to a section in this column is to a section of the Integrated Planning Act.</p> <p>Planning schemes are prepared by local governments, and include:</p> <ul style="list-style-type: none"> <li>• <b>desired environmental outcomes:</b> s2.1.3(1)(b);</li> <li>• measures that facilitate the desired environmental outcomes: s2.1.3(1)(c); and</li> <li>• identify <b>self-assessable development</b>, and assessable development requiring <b>code</b> or <b>impact assessment</b>: s2.1.3(2).</li> </ul> <p>A planning scheme may include a structure plan, which is “an integrated land use plan, setting out the broad environmental, land use, infrastructure and development intended to guide detailed planning for the area”: s2.5B.8(1)(b).</p>
9	Use of land-use risk matrix to judge compatibility of land uses with water quality protection (p.44)	●	<p>The Acid Sulfate Soils SPP applies to specified local government areas. It has effect on the assessment of development applications involving excavation, and when planning schemes are made or amended: cl12.1 and 2.3, Acid Sulfate Soils SPP.</p> <p>Not explicitly provided for.</p>

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in Queensland		
10			<p>In relation to development assessments, the SPP states the following outcome (p.5):</p> <p>When undertaking development...the release of acid and associated metal contaminants into the environment is avoided by:</p> <ul style="list-style-type: none"> <li>• not disturbing acid sulfate soils when excavating or otherwise removing soil or sediment, extracting groundwater or filling land; or</li> <li>• treating and, if required, undertaking ongoing management of any disturbed acid sulfate soils and drainage waters.</li> </ul> <p>In relation to making or amending a planning scheme, the Acid Sulfate Soils SPP states the following outcomes: the planning scheme identifies areas with a high probability of containing acid sulphate soils, planning strategies to prefer uses to avoid or minimise their disturbance, and detailed measures and codes to ensure development is assessable: p.6.</p>	
	Land zoning taking into account underlying groundwater (pp.43-44)	●	Not explicitly provided for, though note the provisions in relation to areas with a high probability of acid sulfate soils (see above, row 9).	There is no requirement for planning schemes under the Integrated Planning Act to have zones.
	Protection for water supply protection areas	●	Not explicitly provided for.	A catchment or recharge area is a <b>valuable feature</b> , which is a <b>core matter</b> that a planning scheme must address: ss2.1.3(1)(a) and 2.1.3A(1)(c) and (4)(a).

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in Queensland		
12	(p.27)			
	Protection of groundwater recharge zones (p.28)	●		Note: if a planning scheme under the Integrated Planning Act is inconsistent with a regulation under the Water Act which declares a <b>catchment area</b> and associated controls on land use and buildings, the planning scheme is ineffective to the extent of the inconsistency: s259(2), Water Act.
13	Controls on land clearing due to connection with groundwater quality (p.28)	●	See column to right.	<p>The Integrated Planning Regulation mandates that clearing native vegetation be assessable in accordance with the relevant regional vegetation management code: Table4, Pt3, Sch1, Integrated Planning Regulation. Four region-specific codes apply to vegetation management (see <a href="http://www.nrw.qld.gov.au/vegetation/regional_codes.html">http://www.nrw.qld.gov.au/vegetation/regional_codes.html</a>, viewed 15 August 2009).</p> <p>The Vegetation Management Act works with the Integrated Planning Act to regulate the clearing of native vegetation. Clearing may be permitted for 10 specified purposes, if it is not exempt: s22A, Native Vegetation Act.</p> <p>If an area is subject to “a process that results in declining water quality” or the expression of salinity or rising water tables, it may be declared an area vulnerable to land degradation: s19G(2)(b), Native Vegetation Act. This enables the Minister to prepare a proposed code for the clearing of vegetation in that area: s19H, Native Vegetation Act. This is a code for the purposes of IDAS: s20, Native Vegetation Act.</p>
14	<p>Controls on land development due to connection with groundwater quality (p.28)</p> <p>For example controls on mining, quarrying, waste</p>	◐	A <b>State planning regulatory provision</b> may regulate development by declaring developments to be assessable or self-assessable, or requiring impact or code assessment for assessable development, or include a code for IDAS, or other criteria for assessing development applications: s2.5C.3, Integrated Planning Act.	<p>A planning scheme may state that certain activities are <b>assessable developments</b>, which require assessment before going ahead.</p> <p>The Integrated Planning Regulation mandates that an <b>environmentally relevant activity</b> and a development on <b>contaminated land</b> be assessed in accordance with the Environmental Protection Act, that a <b>major hazard facility</b> be assessed in accordance with the Dangerous Goods Safety Management Act: Table2, Pt3, Sch1, Integrated Planning Regulation.</p> <p>A development must be refused if its approval would compromise the achievement of the <b>desired environmental outcomes</b> set out in a planning</p>

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in Queensland		
15	disposal (p.28)			scheme (which may related to water quality protection): s2.5B.69(3)(a).
	Controls on rural and urban runoff (p.28)	●	Not explicitly provided for.	<p>Not explicitly provided for. However, a planning scheme could impose controls over sewage effluent through a <b>code</b>, against which code assessable development is assessed, or through <b>performance criteria</b> for a development.</p> <p>For example, performance criterion 29 of the Goondiwindi Planning Scheme (4.1.3.4) requires that the standard of effluent and/or stormwater runoff from premises ensures that the quality of groundwater is suitable for environmental values.</p>
	Controls over use of sewage effluent (p.44)	●	Not explicitly provided for.	Provided for through licensing under the Environmental Protection Act (see row 17, Environment Protection Framework).
	Manage land uses to reduce risks of contamination (p.44)	●	Not explicitly provided for.	<p>A planning scheme may regulate a use of premises by applying to the use a code identified in the planning scheme: s2.1.23(3)(a).</p> <p>A development application may be approved subject to conditions (s3.5.15(2)(d)), provided the conditions are “relevant and reasonable”: s3.5.30.</p>
18	Veto or referral rights for water and environment agencies in relation to land development (p.45)	●	Not explicitly provided for.	<p>The Integrated Planning Act provides for two types of referral agencies (Ch3, Pt3, Integrated Planning Act), which are prescribed in the Integrated Planning Regulation:</p> <ul style="list-style-type: none"> <li>• <b>concurrence agencies</b>, which may impose requirements (s3.3.18); and</li> <li>• <b>advice agencies</b>, which may recommend conditions (s3.3.19).</li> </ul> <p>A referral agency, must assess the application, among other things, against SPPs which are not identified in the planning scheme as being reflected: s3.3.15.</p> <p>For example, under the Integrated Planning Regulation (Sch2):</p> <ul style="list-style-type: none"> <li>• the EPA is a concurrence agency in relation to an application involving an</li> </ul>

	Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in Queensland		
19  20  21  22				environmentally relevant activity;  • the chief executive under the Vegetation Management Act is the concurrence agency in relation to an application involving vegetation clearing; and  • the chief executive under the Water Act is the concurrence agency in relation to an application involving taking or interfering with water, a <b>declared catchment area</b> , or the removal of quarry material.
	Other inter-agency coordination (pp.28, 35)	○	Not explicitly provided for.	Not explicitly provided for.
	Public consultation (p.28)	●	Generally, when preparing or amending a SPP, the Minister must consult the public and invite submissions in relation to the initial proposal (s2.4.3(1) and cl1, Sch4); then in relation to the proposed SPP itself (s2.4.3(1) and cl3, Sch4).	When preparing or amending a planning scheme, a local government must consult the public and invite submissions in relation to the initial proposal (s2.1.5(1) and cl5, Sch1); then in relation to the proposed planning scheme itself (s2.1.5(1) and cl12, Sch1).
	Monitoring and review (pp.46-47)	◐	Not explicitly provided for.	A local government must complete a review of its planning scheme at least every 8 years: s2.2.1(1). The review must include an assessment of the achievement of the desired environmental outcomes stated in the planning scheme: s2.2.1(2).
	Enforcement (p.20)	●	A SPP is a statutory instrument and has the force of law: s2.4.1(1).	A planning scheme is a statutory instrument and has the force of law: s2.1.23(1).

## SOUTH AUSTRALIA (1) Groundwater Management Framework Table

Key items of legislation, regulation and policy	Supplementary items of legislation, regulation and policy	Symbols, acronyms, and useful terminology
<p><i>Natural Resources Management Act 2004</i> (SA) (<b>NRM Act</b>)</p> <p><i>Natural Resources Management (General) Regulations 2005</i> (SA) (<b>NRM Regulations</b>)</p> <p><i>River Murray Act 2003</i> (SA) (<b>River Murray Act</b>)</p> <p><i>State Natural Resources Management Plan 2006</i> (2006) (<b>State NRM Plan</b>), available at <a href="http://www.dwlbc.sa.gov.au/nrm/state_nrm_plan/index.html">http://www.dwlbc.sa.gov.au/nrm/state_nrm_plan/index.html</a>, viewed 28 July 2009.</p> <p><i>Waterworks Act 1932</i> (SA) (<b>Waterworks Act</b>)</p> <p><i>Water for Good: A Plan to Ensure Our Water Future to 2050</i> (June 2009) (<b>Water for Good</b>), available at <a href="http://www.waterforgood.sa.gov.au/wp-content/uploads/2009/06/complete-water-for-good-plan.pdf">http://www.waterforgood.sa.gov.au/wp-content/uploads/2009/06/complete-water-for-good-plan.pdf</a>, viewed 29 July 2009.</p>	<p><i>River Murray Act 2003 Implementation Strategy</i> (2006) (<b>Implementation Strategy</b>) – made under s21, River Murray Act, available at <a href="http://www.dwlbc.sa.gov.au/assets/files/RMA_Implementation_Strategy.pdf">http://www.dwlbc.sa.gov.au/assets/files/RMA_Implementation_Strategy.pdf</a>, viewed 28 July 2009</p> <p><i>River Murray Regulations 2003</i> (SA) (<b>River Murray Regulations</b>)</p> <p><i>Public and Environmental Health Act 1987</i> (SA) (<b>Public and Environmental Health Act</b>)</p> <p><i>Crown Lands Act 1929</i> (SA) (<b>Crown Lands Act</b>)</p> <p><i>Crown Land Management Act 2009</i> (SA) (<b>Crown Land Management Act</b>) – not yet commenced</p>	<p><b>Chief Officer</b> = (under s63, NRM Act) generally, the Chief Executive of the Department of Water, Land and Biodiversity Conservation</p> <p><b>Environment Minister</b> = Minister for Environment and Conservation</p> <p><b>Framework</b> = the collection of legislation, regulation and policy set out in this report for each jurisdiction, in relation to: (1) Groundwater Management; (2) Environment Protection; and (3) Land-Use Planning</p> <p><b>Guidelines</b> = <i>Guidelines for Groundwater Protection in Australia</i> (1995)</p> <p><b>WAP</b> = water allocation plan for a prescribed water resource under the NRM Act</p> <p>● = Framework explicitly provides for this element of the Guidelines</p> <p>◐ = Framework goes some way towards providing for this element of the Guidelines</p> <p>○ = Framework does not provide for this element of the Guidelines</p>

**Note 1:** South Australia's Strategic Plan (2007) (available [http://saplan.org.au/images/pdf/South\\_Australia\\_Strategic\\_Plan\\_2007.pdf](http://saplan.org.au/images/pdf/South_Australia_Strategic_Plan_2007.pdf), viewed 28 July 2009) provides, in a very general way, for water resources matters which are relevant to groundwater quality. It sets the following target: "South Australia's water resources are managed within sustainable limits by 2018) (target T3.9). This Plan is not discussed further in the Table.

**Note 2:** The *Lake Eyre Basin (Intergovernmental Agreement) Act 2001* (SA) (**Lake Eyre Act**) approves the *Lake Eyre Basin Intergovernmental Agreement* between the Commonwealth of Australia, the State of Queensland, the State of South Australia and the Northern Territory. The Agreement provides for a Ministerial Forum to develop or adopt, and implement Policies and Strategies concerning water and "related natural resources" in the Lake Eyre Basin Agreement Area to avoid or eliminate so far as

reasonably practicable adverse cross-border impacts. Although the term "related natural resources" includes groundwater, it appears that, so far, the Policies and Strategies adopted by the Ministerial Forum do not deal directly with connected groundwater: *Lake Eyre Basin Intergovernmental Agreement Five-Year Action Plan 2009-2014*, available at <http://www.lebmf.gov.au>.

**Note 3:** The *Ground Water (Qualco-Sunlands) Control Act 2000* (SA) (**Qualco-Sunlands Act**) aims to reduce the risk of waterlogging and salinisation of land and increased levels of salinity in the River Murray caused by the irrigation of land in the Qualco-Sunlands irrigation area, which has created a rising groundwater mound. However, the Qualco-Sunlands Act does not aim to affect the quality of groundwater. Rather, it aims simply to lower water tables. As a result, it is not discussed further.

**Note 4:** The *Groundwater (Border Agreement) Act 1985* (SA) (**Border Agreement Act**) approves the *Border Groundwaters Agreement* between South Australia and Victoria in the same way as the equivalent Victorian Act. The South Australian Act (unlike the Victorian Act) provides for monitoring bores, including bores which are designed to predict changes in the quality of groundwater: s12 Border Agreement Act. This Act is not discussed further here.

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in South Australia	
1	Principles (primarily pp.9-13)	Precautionary principle (pp.11, 40)	<p>● For the purposes of the NRM Act, a principle to be taken into account in connection with achieving <b>ecologically sustainable development</b> is: "if there are threats of serious or irreversible damage to natural resources, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation": s7(3)(b), NRM Act.</p> <p>All persons and bodies involved in the administration of the NRM Act, or performing, exercising or discharging a function, power or duty under that Act, must have regard to, and seek to further, the objects of this Act (s8, NRM Act), which include assisting in ecologically sustainable development, taking into account the principle above.</p> <p>The Department of Land, Water and Biodiversity Conservation's Fact Sheet 78 "Precautionary Principle" deals with the use of the precautionary principle in the context of the NRM Act (available <a href="http://www.dwlbc.sa.gov.au/assets/files/fs78_precautionary_principle.pdf">http://www.dwlbc.sa.gov.au/assets/files/fs78_precautionary_principle.pdf</a>).</p>
		Polluter pays principle (p.11)	<p>● For the purposes of the NRM Act, a principle to be taken into account in connection with achieving <b>ecologically sustainable development</b> is:</p> <p>environmental factors should be taken into account when valuing or assessing assets or services, costs associated with protecting or restoring the natural environment should be allocated or shared equitably and in a manner that encourages the responsible use of natural resources, and people who obtain benefits from the natural environment, or who adversely affect or consume natural resources, should bear an appropriate share of the costs that flow from their activities: s7(3)(f), NRM Act.</p> <p>All persons and bodies involved in the administration of the NRM Act, or performing, exercising or discharging a function, power or duty under that Act, must have regard to, and seek to further, the objects of this Act (s8, NRM Act), which include</p>



Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in South Australia	
3			<p>assisting in ecologically sustainable development taking into account the principle above.</p> <p>The NRM Act establishes the <b>Natural Resources Management Fund</b>, into which moneys from fees and penalties are paid. From that Fund, moneys are paid to regional NRM Boards, subsidies and grants for the purposes of the Act, refunds of the water levy (see below, row 19), and for other purposes: s117, NRM Act.</p>
	Equity considerations (p.12)	●	<p>For the purposes of the NRM Act, a principle to be taken into account in connection with achieving ecologically sustainable development is: “decision-making processes should effectively integrate both long term and short term economic, environmental, social and equity considerations”: s7(3)(a), NRM Act.</p> <p>All persons and bodies involved in the administration of the NRM Act, or performing, exercising or discharging a function, power or duty under that Act, must have regard to, and seek to further, the objects of this Act (s8, NRM Act), which include assisting in ecologically sustainable development taking into account the principle above.</p> <p><b>Water allocation plans</b> under the NRM Act must set out principles which seek to achieve equitable outcomes in relation to water allocation and the detrimental effects on water quality of water allocation: s76(4)(b) and (6), NRM Act.</p> <p>See also above, row 2, “Polluter pays principle”.</p> <p>The River Murray Act refers in its objectives to promoting the principles of ecologically sustainable development, which is expressed to include giving “proper weight” to, among other things, short and long term “equity considerations”: s6(2)(b) River Murray Act.</p>
	Beneficial uses and values (pp.10-12, 39-41)	◐	<p>The State NRM Plan references the use of “environmental values” in the <i>Environment Protection (Water Quality) Policy</i> (p.70) but does not apply them.</p>
5	Forms of intervention (pp.14-15)	●	<p><u>NRM Act</u></p> <p>Under the NRM Act, every person has a statutory duty to “<b>act reasonably</b> in relation to the management of natural resources within the State”: s9(1). The term “natural resources” includes water resources: s3(1), NRM Act.</p> <p>If a person breaches this duty (s9(5) NRM Act):</p> <ul style="list-style-type: none"> <li>the person may be required to prepare and implement an action plan; and</li> </ul>

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in South Australia	
6			<ul style="list-style-type: none"> <li>compliance may be enforced by the issuing of a <b>protection order</b>; and</li> <li>a <b>reparation order</b> or <b>reparation authorisation</b> may be issued.</li> </ul> <p>The NRM Act also provides for licensing relevant to groundwater quality (see below, rows 19 and 25).</p> <p><u>Public and Environmental Health Act</u></p> <p>Under the Public and Environmental Health Act, it is an offence to pollute a water supply: s21(1).</p>
	Market (pp.14-15)	●	<p>A regional NRM board may provide financial or any other form of <b>assistance</b> to councils, groups and persons if they are engaged in an activity that will improve the state of any natural resources (a term which includes groundwater), or that relates in any other way to the management of natural resources, taking into account the provisions of the board's regional NRM plan (see below, rows 14-21): s42(1)(a), NRM Act.</p> <p>See also below, row 16.</p> <p>The River Murray Act allows the Minister to sign a <b>management agreement</b> with the owner of any land in the Murray-Darling Basin, and to provide associated incentives. A management agreement may require certain works, or prohibit certain activities to preserve, conserve, manage or enhance groundwater, or test or monitor groundwater, which is a “natural resource of the River Murray system”: s18, River Murray Act.</p> <p>The non-statutory Water for Good policy proposes <b>stormwater recharge credits</b> (p.91), though it is unclear whether the credits themselves would relate to water quality:</p> <p style="padding-left: 40px;">Another potential option is to use highly treated stormwater to recharge to an aquifer, enabling natural groundwater to be extracted from another part of the aquifer for treatment for drinking supply. This would be made possible through a system of stormwater recharge ‘credits’. This option also requires further risk assessment.</p>
7	Community participation and education (p.15)	●	<p>For the purposes of the NRM Act, a principle to be taken into account in connection with achieving ecologically sustainable development is: “the involvement of the public in providing information and contributing to processes that improve decision-making should be encouraged”: s7(3)(k), NRM Act.</p> <p>Many entities under the NRM Act have functions relating to community participation:</p> <ul style="list-style-type: none"> <li>(Environment Minister) to “promote public awareness of the importance of the State's natural resources and to encourage the conservation of those resources”: s10(1)(f), NRM Act.</li> </ul>

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in South Australia	
8			<ul style="list-style-type: none"> <li>• (the NRM Council) to “convene forums on a State-wide basis to discuss natural resources management issues, and to promote public awareness of sound natural resources management practices”: 17(1)(g), NRM Act.</li> <li>• (a regional NRM Board) “to promote public awareness and understanding of the importance of integrated and sustainable natural resources management within its region, to undertake or support educational initiatives with respect to natural resources management, and to provide mechanisms to increase the capacity of people to implement programs or to take other steps to improve the management of natural resources”: s29(1)(c), NRM Act.</li> <li>• (a NRM group) “to promote public awareness of the importance of integrated and sustainable natural resources management within its area and to undertake or support educational initiatives with respect to natural resources management”: s52(1)(c), NRM Act.</li> </ul> <p>Public consultation requirements apply to the declaration of a prescribed wells area under the NRM Act (see below, row 8).</p>
	Reservation of special areas (p.16)	Stressed areas (p.16)	<p>● <u>NRM Act</u></p> <p>The Governor may, by regulation made on the recommendation of the Environment Minister, declare that a well is a <b>prescribed well</b>: s125(1), NRM Act. The Environment Minister must not make such a recommendation unless he or she is “satisfied that the proposed regulation is necessary or desirable for the proper management of the water resource to which it will apply”: s125(6), NRM Act. The Environment Minister must fulfil public consultation requirements before declaring a well to be a prescribed well: s125(5), NRM Act.</p> <p>The non-statutory Water for Good policy includes the following action: “[b]ring additional water resources into formal management through prescription and water allocation planning, as necessary”: p.68.</p> <p><u>River Murray Act</u></p> <p>The River Murray Act provides that regulations may prescribe areas to be <b>River Murray Protection Areas</b>, within which certain activities may be prohibited or restricted: s42(2)(a), River Murray Act. The present River Murray Regulations do prescribe such areas, but do not appear to prohibit or restrict any activities.</p>
9		Public water supply areas (p.16)	<p>● The Governor may, by proclamation made on the recommendation of the EPA, declare any part of the State to be a <b>water protection area</b>: s61A(1), Environment Protection Act (see row 18, SA Environment Protection Framework).</p> <p>The Minister administering the Crown Lands Act may dedicate any Crown lands “for the preservation of water supply”: s5(1)(d)(i), Crown Lands Act [shortly to be repealed by the Crown Land Management Act 2009].</p>

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in South Australia					
10			The non-statutory Water for Good policy states that water quality improvement plans will be developed for critical water catchments across the State by 2017: p.71.				
	Other	N/A	N/A				
11	Management plans (pp.18-20)  (that is, a plan for regulating individual behaviour once a groundwater body is being used by many competing users)	Types of management plans for which the legislation or regulation provide	N/A	<u>State NRM Plan under the NRM Act</u>  Note: a reference in this column to a section is a reference to a section of the NRM Act.  The State NRM plan is prepared by the SA NRM Council. It sets out principles and policies for achieving the objects of the Act. It states that:  All NRM programs and projects that address water quality should involve processes that are consistent with the framework established by the National Water Quality Management Strategy: p.44	<u>Regional NRM plan under the NRM Act</u>  Note: a reference in this column to a section is a reference to a section of the NRM Act.  A regional NRM plan is prepared by the NRM Board for the region and adopted by the Minister. It provides for information about natural resources in the region, and about their use, management, conservation, protection, improvement and rehabilitation, and related management issues and plans for action and implementation: s75.	<u>Water allocation plan (WAP) for a prescribed water resources under the NRM Act</u>  Note: a reference in this column to a section is a reference to a section of the NRM Act.  A WAP is prepared by the relevant NRM Board for a prescribed water resource, and is taken to be part of the regional NRM plan. The WAP provides information on water resources in the prescribed area and provides for the allocation of that water.	<u>Implementation Strategy under the River Murray Act</u>  Note: a reference in this column to a section is a reference to a section of the River Murray Act.  The Implementation Strategy sets out priorities and strategies to achieve the objects of the River Murray Act: s21.
12		Component studies (p.18)	●	The State NRM Plan must (s74(3)(a)): <ul style="list-style-type: none"><li>• assess the state and condition of the natural resources of the State;</li><li>• identify existing and future risks of damage</li></ul>	A regional NRM plan must, in setting out an assessment of the state and condition of the natural resources within the region, also: <ul style="list-style-type: none"><li>• describe the factors affecting the state and</li></ul>	A WAP must include (s76(4)(a)): <ul style="list-style-type: none"><li>• an assessment of the quantity and quality of water needed by the ecosystems that depend on the water resource and the times at which, or the periods during which, those ecosystems will need that</li></ul>	Not explicitly required.

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in South Australia				
13			<p>to, or degradation of, the natural resources of the State; and</p> <ul style="list-style-type: none"> <li>provide for monitoring and evaluating the state and condition of the natural resources of the State on an ongoing basis.</li> </ul> <p>The current State NRM Plan briefly describes groundwater quality in SA, and states that the biggest threat to groundwater quality is salinity: p.19, State NRM Plan.</p> <p>It also sets a resource condition target in relation to water quality: p.27, State NRM Plan.</p>	<p>condition of those natural resources, and future possible risks of damage or degradation to natural resources;</p> <ul style="list-style-type: none"> <li>describe the primary and other economic production systems occurring in the region and the impact any changes to production methodology or systems may have on the natural resources; and</li> <li>programs to monitor and evaluate the state or condition of natural resources.</li> </ul> <p>(reg 10(3) NRM Regulations)</p>	<p>water; and</p> <ul style="list-style-type: none"> <li>an assessment as to whether the taking or use of water from the resource will have a detrimental effect on the quantity <u>or quality</u> of water that is available from any other water resource.</li> </ul>	
	Surface water – groundwater interaction (p.18)	●	<p>Not explicitly required by the NRM Act. However, the State NRM Plan must “promote the integrated management of natural resources”: s74(3)(d).</p> <p>The current State NRM Plan mentions surface water and groundwater interactions only in the context of water quantity: p.82, State NRM</p>	Not explicitly provided for.	<p>If taking and using water from one water resource has, or is likely to have:</p> <ul style="list-style-type: none"> <li>a detrimental effect on the quantity or quality of water that is available from another water resource, the WAP for the first resource must take into account the needs of persons and ecosystems dependent on the second resource and may include provisions to</li> </ul>	<p>This aspect is central to the Implementation Strategy, since its focus is on the effect of poor groundwater quality on the River Murray.</p> <p>A key priority is improving water</p>

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in South Australia				
14			Plan.		<p>reduce those effects: s76(6); and</p> <ul style="list-style-type: none"> <li>an effect on the management of water in another water resource, the WAP for the second water resource may include provisions relating to the taking, or the taking and use, of water from the first water resource: s76(7).</li> </ul>	quality by actions to reduce salinity levels and control and manage pollution from other sources: item 4.3, Implementation Strategy.
	Public consultation (p.19)	●	The NRM Council must invite interested persons to make written submissions in relation to the NRM Plan: s74(8)(b)(i) and (ii).	<p>In performing its function of preparing a <b>regional NRM plan</b>, including a <b>WAP</b>, the NRM Board “should (as far as reasonably practicable) seek to work collaboratively with” certain named persons and bodies, including relevant industry, environment and community groups and organisations (s29(4)(e)); and persons who own or occupy land within the region of the board (insofar as may be relevant): s29(4)(f).</p> <p>There are also extensive public consultation provisions specific to the preparation of regional NRM plans and WAPs. These include placing newspaper notices, and inviting the public to make written submissions, and attend public meetings: s79.</p>		Not explicitly provided for.
15	Coordination with other agencies	●	The NRM Council “must take reasonable steps to consult with” any agency and each regional NRM Board “that has a direct interest in the matter”, and with “peak bodies” which include local government bodies: s74(8)(b) and (14).	<p>In performing its function of preparing the NRM plan, the NRM Board “should (as far as reasonably practicable) seek to work collaboratively with” certain named persons and bodies, including:</p> <ul style="list-style-type: none"> <li>adjoining NRM boards and NRM groups in the region: s29(4)(a) and (c);</li> </ul>	The WAP “should be consistent with the other parts of the regional NRM plan”: s76(5). It is therefore influenced by the agency coordination involved in preparing the NRM plan.	<p>Minister should take into account relevant instruments under other Acts, but coordination with an agency itself is not required: s21(5).</p> <p>However, the key strategy in relation</p>

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in South Australia				
16				<ul style="list-style-type: none"> <li>other relevant government agencies within and outside SA: s29(4)(b);</li> <li>councils within and outside the region: s29(4)(d).</li> </ul> <p>As far as practicable, a NRM plan must, be consistent with several other kinds of listed statutory plans, eg any relevant environment protection policy under the Environment Protection Act: s75(5)(c). The Board must inform the Environment Minister of inconsistencies: s75(6).</p> <p>A NRM plan may recommend that plans and policies under other Acts should be amended: s75(3)(f) and (fa).</p>		to water quality is the “referral system”, under which certain statutory instruments and applications for statutory authorisations must be referred to the Minister administering the River Murray Act: s22, and p.39 Implementation Strategy.
	Market incentives (p.19)	●	<p>Not required by the NRM Act. However, the current State NRM Plan (p.38) contains the following strategies:</p> <ul style="list-style-type: none"> <li>“Develop and trial market-based instruments that create incentives for private investment in activities that provide</li> </ul>	<p>A regional NRM plan may set out natural resources management practices designed to conserve, protect, maintain or improve the quality or state of specified natural resources. A person who has undertaken or adopted those practices may then apply for a <b>refund</b> of a <b>water levy</b> or other <b>NRM levy</b> which they have paid: s114.</p>	Not explicitly provided for.	Not explicitly provided for.

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in South Australia				
17			<p>environmental benefits”; and</p> <ul style="list-style-type: none"> <li>“Review and, if necessary, refine the legislative and policy arrangements to achieve NRM outcomes, including the use of market-based instruments”.</li> </ul>			
	Monitoring program (p.20)	●	<p>The State NRM Plan must: provide for monitoring and evaluating the state and condition of the natural resources of the State on an ongoing basis: s74(3)(a)(iii).</p> <p>The current State NRM Plan states that “the Environment Protection Authority and other bodies conduct water quality monitoring”: p.27, State NRM Plan. The State NRM Plan sets out South Australia’s monitoring and evaluation framework for NRM, which sets out broad principles which are to be implemented through an Operating Plan (pp.62-65).</p>	<p>The NRM plan must set out how the Board will (s75(3)(e)):</p> <ul style="list-style-type: none"> <li>monitor the state and condition of natural resources;</li> <li>assess the extent to which it has succeeded in implementing the plan, with particular reference to the monitoring and evaluation of the effectiveness of natural resources management programs and policies implemented at the regional and local level; and</li> <li>assess the extent to which the Board has succeeded in achieving its goals.</li> </ul>	<p>A WAP must assess the capacity of the resource to meet the demands for water on a continuing basis and provide for regular monitoring of the capacity of the resource to meet those demands: s76(4)(d).</p> <p>While “the demands for water” are not further specified, it may be possible to interpret this as dealing with both quality and quantity, since both of these aspects are required to be assessed by the WAP (see below, row 15).</p>	<p>The Implementation Strategy must be reviewed every 5 years: pp.7 and 19, Implementation Strategy.</p>
	Enforcement (p.20)	●	<p>The State NRM Plan is an expression of policy and</p>	<p>It is an offence to undertake, contrary to a regional NRM</p>	<p>A WAP has force in the groundwater context as follows:</p>	<p>The River Murray Act Implementation</p>



Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in South Australia			
		<p>does not in itself affect rights or liabilities: s74(1).</p> <p>However, the State NRM Plan affects other decisions:</p> <ul style="list-style-type: none"> <li>a decision to grant a permit to construct a well (see row 31) must not be inconsistent with the State NRM Plan: s135(3);</li> <li>a regional NRM plan “should be consistent with the State NRM Plan”: s75(4);</li> <li>the State NRM Plan states that WAPs “must...manage and allocate... groundwater in accordance with the policy guidelines” (p.43, State NRM Plan) which are set out in Appendix B of the State NRM Plan;</li> <li>the State NRM Plan’s water allocation and management guidelines state that “sustainable yield” includes “consideration of the distribution of wells,</li> </ul>	<p>plan, certain activities in relation to surface water: s127(5). However there is no equivalent offence in relation to groundwater.</p> <p>The regional NRM plan has force in the groundwater context as follows:</p> <ul style="list-style-type: none"> <li>a WAP (see column to the right) should be consistent with the regional NRM plan: s76(5);</li> <li>a regional NRM plan must set out the matters that the NRM Board will consider when exercising its power to grant and refuse permits (eg to construct a well - see row 31): s75(3)(k);</li> <li>when considering whether to grant a permit to construct a well, a relevant authority must take into account the provisions of the relevant regional NRM plan: s135(4);</li> <li>taking water from a well which is not prescribed, in a way which contravenes the applicable regional NRM plan, is an offence (see row</li> </ul>	<ul style="list-style-type: none"> <li>the Environment Minister may refuse to grant a water licence if to do so would be contrary to the WAP: s147(3)(a)(i);</li> <li>a water allocation granted by the Environment Minister must be consistent with the terms of the relevant WAP (s153(1)(b)), and the Environment Minister may refuse to grant an allocation if to do so would be contrary to the relevant WAP: s154(1)(a)(i);</li> <li>the Environment Minister may refuse to grant a <b>water resource works approval</b> if to do so would be contrary to the relevant WAP: s159(3)(a)(i);</li> <li>a <b>water resource works approval</b> is subject to the conditions specified in the WAP: s160(1)(b)(ii).</li> <li>a WAP may vary the operation of a <b>water resource works approval</b> or a site use approval: ss161(8) and 164C(8); and</li> <li>taking water from a well which is not prescribed, in a way</li> </ul>	<p>Strategy is an expression of policy only – it does not affect rights or liabilities: s21(8).</p>

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in South Australia			
			<p>extraction rates, water levels (or pressure) and water quality”: p.79, State NRM Plan.</p> <p>Further, taking water from a well which is not prescribed, in a way which contravenes the State NRM Plan, is an offence: see row 26.</p>	26).	<p>which contravenes the applicable WAP, is an offence: see row 26.</p>
19	<p>Controls on extraction (p.16)</p> <p>- Licences and permits</p>	<p>Groundwater quality considered in allocating groundwater (pp.9, 19)</p>	<p>●</p> <p>A <b>water licence</b> provides a person with an entitlement to a share of water in a consumptive pool: s146, NRM Act. A holder of a water licence with a water access entitlement may be granted a water allocation under the terms of the water licence: s152, NRM Act.</p> <p>The Environment Minister may refuse to grant a water licence or a water allocation if to do so would be contrary to a WAP, or if it would relate to water that is “so contaminated that its use would create a risk to the health of people or animals”: ss147(3) and s154(1)(a), NRM Act. In addition, the grant of a licence must also be consistent with the requirements in the regulations: 147(6)(b), NRM Act. There is potential to use this provision to ensure that effects on groundwater quality are taken into account when the Environment Minister considers granting a licence. No relevant regulations have yet been made. However, note that water quality considerations are taken into account at the “wholesale scale” through the determination of a consumptive pool in a WAP, and thus it may be less necessary to consider groundwater quality at the level of an individual licence decision (see below, row 27).</p> <p>In general, a <b>site use approval</b> is required to use water from a <b>prescribed well</b>: s127(5a)(b), NRM Act. A site use approval specifies the place where the use is allowed, and the manner and use of water which is authorised: s164B(1)(a), NRM Act.</p> <p>The Minister may refuse to grant a site use approval if to do so would be contrary to the provisions of the relevant WAP, or if the use of the water would have “an unreasonable impact on a water resource or other form of natural resource”: s164A(3)(a), NRM Act.</p> <p>Conditions apply to a site use approval. Conditions are set out in the regulations (although none are yet set out there), or in the relevant WAP, or on the approval itself: s164B(b), NRM Act.</p>		

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in South Australia				
20	Quality considered in setting conditions on taking water	●	<p>A <b>water licence</b> is subject to conditions prescribed by the regulations, and any others that appear on the licence: s148(c), NRM Act. There are currently no applicable regulations. However, there is potential to use this regulation-making ability, and also individualised licence conditions, to apply requirements on the take of water in relation to groundwater quality.</p> <p>Note that water quality considerations are taken into account at the “wholesale scale” through the determination of a consumptive pool in a WAP, and thus it may be less necessary to consider groundwater quality at the level of the conditions on an individual licence (see below, row 27).</p> <p>A water allocation is subject to the conditions prescribed by the regulations, and any others that appear on the <b>licence</b> or on the water allocation itself: s153(1)(c) NRM Act. The Environment Minister may also issue directions which relate to what conditions must apply to the grant of a water allocation: s154(2)(b) NRM Act. However, it appears that no such directions have been issued.</p>			
21	Enforcement (p.20)	●	<p>Except for in certain circumstances, it is necessary to have an authorisation under section 128, or a water allocation that relates to the relevant water resource, in order to take water from a <b>prescribed well</b>: s124, NRM Act. Further, a person may not take water from a well which is not prescribed if that would contravene the State NRM plan, a relevant regional NRM Plan or a relevant WAP: s127(2) NRM Act.</p> <p>Penalties apply to contravening these requirements: s127(6), NRM Act.</p> <p>The NRM Act also provides for the Environment Minister to gazette particular penalties for acting in contravention of a water resource works approval, among other things (s115), and to serve on the owner of land a notice to rectify a contravention of the requirements set out above: s130, NRM Act.</p>			
22	Other methods of limiting extraction	Method of limiting extraction	N/A	Cap on volume that may be extracted	Direction of the Minister	Notice from an authority under the Public and Environmental Health Act
23		Water quality considerations (pp.9, 19)	●	A WAP effectively may set a cap on the volume of water that may be extracted from a <b>prescribed wells</b> area, by determining one or more “consumptive pools” for the resource: s76(4)(ab), NRM Act.	The Environment Minister may prohibit or restrict the taking of water, or limit the quantity of water that may be taken, or require works to be removed or apply conditions to the taking of water if, in the Minister’s opinion, the rate at which water is taken (ss132(1) and (6), NRM Act):	An authority under the Public and Environmental Health Act may, if it is of the opinion that a water supply is polluted and that action is necessary to prevent human consumption of the water, it may, by notice published in the

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in South Australia			
24			Although it is not explicit, it would seem to be consistent with the objects of the NRM Act to consider limiting groundwater extraction for reasons of groundwater quality protection.	<ul style="list-style-type: none"> <li>from a well (whether prescribed or not) is such that it is affecting, or is likely to affect, the quality of the water in the watercourse, lake or underground aquifer; or</li> <li>from a well (whether prescribed or not) is such that the underground aquifer is likely to collapse or suffer any other damage.</li> </ul>	Gazette, restrict or prohibit the taking of water from that water supply, or the use of water taken from that water supply, for human consumption: s22(1), Public and Environmental Health Act.
	Enforcement (p.20)	●	See provisions that relate to a WAP (above, row 21).	Penalties apply to contravening a notice: s132(7), NRM Act.	Penalties apply to a contravention of a notice: s22(2), Public and Environmental Health Act.
25	Well construction measures (p.16)	Bore licensing	●	<p>In general, a <b>water resource works approval</b> is required to allow a person to construct, maintain or operate any works (a term which is defined to include a well) for the purposes of taking water from a <b>prescribed wells</b> area: s127(5a)(a), NRM Act. The Environment Minister may refuse to grant a <b>water resource works approval</b> if to do so would be contrary to the terms of the relevant WAP, or if the proposed works are inappropriate after taking into account any matter prescribed by the regulations, or such other matters as the Minister thinks fit: s159(3), NRM Act.</p> <p>More generally (that is, outside a prescribed wells area), a person may not drill, plug, backfill or seal a well, or repair, replace or alter the casing, lining or screen of a well, without a <b>water management authorisation</b> (eg water licence, water allocation or water resource works approval) or a <b>permit</b>: s127(3)(a) and (b), NRM Act. A relevant authority may refuse a permit to drill a well “if, in the opinion of the authority, the underground water to which the well would give access is so contaminated that its use would create a risk to the health of people or animals”: s137, NRM Act.</p> <p>A <b>permit</b> to drill, plug, backfill or seal a well, or repair, replace or alter the casing, lining or screen of a well is subject to such conditions as are prescribed by this Act or by the regulations, or are specified in the permit by the relevant authority: s135(9), NRM Act. A <b>water resource works approval</b> is subject to conditions set out in the regulations (although none have yet been specified), those specified by the relevant WAP, or those endorsed on the approval itself: s160(b), NRM Act.</p> <p>In the case of a well in the Murray-Darling Basin, the conditions may include a requirement that the holder develop or participate in an environment improvement program: s160(2)(b), NRM Act.</p>	

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in South Australia	
26	Driller licensing (pp.16, 25)	●	<p>It is a condition of a permit to drill, plug, backfill or seal a well or to repair, replace or alter the casing, lining or screen of a well that the work be undertaken by a person who is a licensed well driller or is supervised in carrying out the work by a licensed well driller: s135(11), NRM Act.</p> <p>Well drillers' licences are issued by the Chief Officer: s139, NRM Act.</p>
27	Rules for bore construction (p.25)	◐	As a condition of a driller's licence, a driller must comply with gazetted directions of the Chief Officer in relation to the drilling, plugging, backfilling or sealing of a well or to the repair, replacement or alteration of the casing, lining or screen of a well: reg20(e), NRM Regulations. However, it appears that no such directions have been gazetted.
28	Rules for operation and maintenance of bore (p.25)	●	<p>In general, the occupier of land on which a well is situated must ensure that the well (including the casing, lining, and screen of the well and the mechanism (if any) used to cap the well) are properly maintained: s144(2), NRM Act.</p> <p>If the Chief Officer is satisfied that the water of a well is likely to be degraded or wasted because:</p> <ul style="list-style-type: none"> <li>• of a defect in the well, or in the casing, lining or screen of the well; or</li> <li>• the well or the casing, lining or screen is in need of maintenance; or</li> <li>• there is no mechanism for capping the well or the mechanism for capping the well is inadequate or in need of maintenance,</li> </ul> <p>the Chief Officer may require remedial work to be undertaken, or in the event of a failure to comply, enter the land to undertake the work and recover the relevant costs: s145 NRM Act.</p>
29	Enforcement (p.20)	●	<p>Penalties apply to contravening the requirements set out in row 31 ("Constructing a bore..."): s127(6), NRM Act. The relevant authority may also serve on the offender a binding <b>notice</b> to rectify the contravention: s130, NRM Act.</p> <p>Penalties apply to contravening the requirements of a condition on a well driller's licence: s139(4), NRM Act.</p> <p>Failing to properly maintain a well (see row 35) also attracts a penalty: s144(1), NRM Act.</p>

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in South Australia	
30	Water supply and protection of public water supply wells (pp.25-27)	Water supplier may control activities/ intervene in risky activities near bores (pp.16, 26)	<p>● <u>Waterworks Act</u></p> <p>If the Minister is satisfied that any action, or the discontinuance of any action, by the owner or occupier of any land within a watershed is necessary or desirable for the purpose of reducing, limiting or preventing the fouling or pollution of any water within a watershed, he may issue a notice to that owner or occupier directing him to take or discontinue any specified action: s58, Waterworks Act.</p> <p>The term “watershed” is not defined, however, since the Act relates to “waterworks” which include wells and associated pumping stations, the term watershed may encompass water supply borefields.</p> <p><u>Public and Environmental Health Act</u></p> <p>An authority under the Public and Environmental Health Act may require a person to take specified action to prevent pollution of the water supply, or to desist from an activity which, in the opinion of the authority, may cause a water supply to become polluted: s21(2).</p>
31		Protection zone around supply bores (p.25)	○ South Australia has recognised a gap in its legislation and regulation in relation to drinking water. Water is defined as food and regulated under the Food Act. This Act ensures that food for sale is safe and suitable for human consumption, but does not specify guidelines or management strategies for drinking water.
32		Requirements to monitor up-gradient and within zone (pp.25, 26)	○ The Public and Environmental Health Act contains general provisions (s22) that enable drinking water supplies to be closed if they are deemed to be unsafe, but has no provisions requiring water suppliers to take a proactive approach to protect public health.
33		Response plan in event of contamination (p.25)	○ Recognising these gaps in its regulatory framework, the SA Government is proposing to introduce a Safe Drinking Water Bill. Thus far, it has introduced a Discussion Paper in relation to the proposed Bill. The Discussion Paper states, in relevant part, that the Safe Drinking Water Bill:
34		Reporting in the event of contamination (p.25)	○ <ul style="list-style-type: none"> <li>would have two primary functions: (1) strengthen the protection of public health by providing a robust and transparent regulatory framework for drinking water supplies; and (2) provide clear direction to drinking water suppliers on how to achieve safety (p.2);</li> <li>“should be based on implementing good practice as defined in the [Australian Drinking Water Guidelines], including the implementation of risk management plans (RMPs) to assure safety before supply to consumers and compliance with guideline values that define drinking water quality” (p.2); and</li> </ul>

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in South Australia	
35	Enforcement (p.20)	○	<ul style="list-style-type: none"> <li>should include the following features: auditing of risk management plans, regular monitoring programs within risk management plans and reporting incidents of contamination to the Department of Health (p.2).</li> </ul> <p>It is presently unclear precisely how the proposed legislation would meet the requirements of the Guidelines.</p>
36	Other well-related measures	●	See above, row 25 – sealing a well requires an authorisation, to which conditions may be attached.
37	Controls on disposal of waste via wells (p.16)	●	<p>A person may not drain or discharge water directly or indirectly into a well without a water management authorisation or permit: s127(3)(c), NRM Act.</p> <p>A regional NRM Board has special powers to alter water table levels, divert water to an underground aquifer, dispose of water to an underground aquifer, or deal with water in any other manner: s31(3)(d) and (f), NRM Act.</p> <p>If a person operates an <b>aquifer water storage and recovery scheme</b>, the code titled <i>Code of Practice for Aquifer Storage and Recovery 2004</i> prepared by the EPA applies: cl22A, Environment Protection (Water Quality) Policy (see SA Environment Protection Framework for further details on this policy).</p>

	Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in South Australia
38	Gathering information  Strategic assessment of groundwater resources (p.38)	<ul style="list-style-type: none"> <li>● The functions of the Environment Minister under the NRM Act include functions relating to assessing natural resources (a term which is defined to include water resources), including:               <ul style="list-style-type: none"> <li>• to keep the state and condition of the natural resources of the State under review: s10(1)(a), NRM Act;</li> <li>• to conduct and support research into the preservation, protection, management, enhancement, restoration or rehabilitation of the State's natural resources: s10(1)(d), NRM Act;</li> <li>• to compile, maintain and update information in relation to the State's natural resources: s10(1)(e), NRM Act.</li> </ul> </li> </ul> <p>The NRM Act establishes a NRM Council, which has functions that include:</p> <ul style="list-style-type: none"> <li>• to audit, monitor and evaluate the state and condition of natural resources across the State: s17(1)(b), NRM Act; and</li> <li>• to monitor and evaluate the effectiveness of the NRM Act, the State NRM Plan, and other natural resources management policies initiated by the Government: s17(1)(d), NRM Act.</li> </ul> <p>The Minister administering the River Murray Act has the power to construct, maintain and remove infrastructure (including wells) for the purpose of monitoring or improving groundwater, which is a “natural resource of the River Murray system”: s17(2)(b), River Murray Act.</p> <p>The non-statutory Water for Good policy states that a key action to be undertaken by 2014 is that “the statewide water monitoring system will provide more accurate and timely understanding of the state and condition of all water resources, particularly groundwater”: p.20. It commits to developing a <i>Strategic Water Information and Monitoring Plan for South Australia</i>: p.70, Water for Good. Further, the Government will “[c]ommission, where required, regional-scale studies on the impacts of climate change on water resources”: p.66, Water for Good.</p>
39	Monitoring of critical overdraw (p.16)	<ul style="list-style-type: none"> <li>● South Australia is in the process of developing a “Stressed Resource methodology” to identify any water resource (including groundwater resource) which is under stress or at risk of stress (see <i>National Water Initiative – South Australian Implementation Plan 2005</i>, available at <a href="http://www.nwc.gov.au/resources/documents/SA-NWI-Implementation-Plan.pdf">http://www.nwc.gov.au/resources/documents/SA-NWI-Implementation-Plan.pdf</a>, viewed 28 July 2009, p.16).</li> </ul> <p>A strategy adopted by the State NRM Plan (see above, row 11) is to implement this methodology in order to help achieve the milestone of managing all water resources within ecologically sustainable limits by 2010: p.47, State NRM Plan.</p> <p>The non-statutory Water for Good policy states that “[t]he State’s non-prescribed water resources require monitoring and</p>



Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in South Australia	
40			management to avoid over allocation”, and commits to expanding the monitoring network, accordingly: p.68.
	Vulnerability mapping (pp.20-22)	●	<p>In the context of drinking water quality, SA uses a Groundwater Risk Assessment Methodology based on a ranking system of Consequence of Hazard – Likelihood of Release – Exposure Pathway to Receptor (groundwater vulnerability). SA Water Corporation’s <i>SA Drinking Water Quality Report 07-08</i> states that “[t]he ranking system reflects relative contribution to the risk associated with a site. Using this approach, the importance of geological strata is considered as a barrier when protecting groundwater quality. Another important barrier considered is type and design of well construction and its integrity.” (p.20, available at <a href="http://www.sawater.com.au/SAWater/WhatsNew/Publications/Annual+Reports.htm">http://www.sawater.com.au/SAWater/WhatsNew/Publications/Annual+Reports.htm</a>).</p> <p>This methodology does not appear to be required by, or reflected in, any South Australian legislation or regulation.</p>
41	Aquifer classification systems (pp.22-23)	●	Groundwater resources are either prescribed under the NRM Act (see above, row 11) or not prescribed. Non-prescribed resources are assessed using the Stressed Resource methodology (see above, row 40).

## SOUTH AUSTRALIA (2) Environment Protection Framework Table

Key items of legislation, regulation and policy	Supplementary items of legislation, regulation and policy	Symbols, acronyms, and useful terminology
<p><i>Environment Protection Act 1993 (SA)</i> (<b>Environment Protection Act</b>)</p> <p><i>Environment Protection (Water Quality) Policy 2003 (SA)</i> (<b>Water Quality EPP</b>)</p> <p><i>Environment Protection (Site Contamination) Regulations 2008 (SA)</i> (<b>Site Contamination Regulations</b>)</p>	<p><i>Zero Waste SA Act 2004 (SA)</i> (<b>Zero Waste SA Act</b>)</p> <p><i>South Australia's Waste Strategy 2005-2010</i></p> <p><i>Agricultural and Veterinary Products (Control of Use) Act 2002 (SA)</i> (<b>AGVET Control of Use Act</b>)</p> <p><i>Mining Act 1971 (SA)</i> (<b>Mining Act</b>)</p> <p><i>Opal Mining Act 1995 (SA)</i> (<b>Opal Mining Act</b>)</p> <p><i>Dangerous Substances Act 1979 (SA)</i> (<b>Dangerous Substances Act</b>)</p> <p><i>Dangerous Substances Regulations 2002 (SA)</i> (<b>Dangerous Substances Regulations</b>)</p> <p><i>Public and Environmental Health Act 1987 (SA)</i> (<b>Public and Environmental Health Act</b>)</p> <p><i>Water for Good: A Plan to Ensure Our Water Future to 2050</i> (June 2009) (<b>Water for Good</b>), available at <a href="http://www.waterforgood.sa.gov.au/wp-content/uploads/2009/06/complete-water-for-good-plan.pdf">http://www.waterforgood.sa.gov.au/wp-content/uploads/2009/06/complete-water-for-good-plan.pdf</a>, viewed 29 July 2009.</p> <p><i>Urban Stormwater Management Policy for South Australia</i> (Urban Stormwater Initiative Executive Group, May 2005) (<b>Stormwater Policy</b>), available at <a href="http://www.dwlbc.sa.gov.au/assets/.../PolicyStatementfinalMay132005.doc">www.dwlbc.sa.gov.au/assets/.../PolicyStatementfinalMay132005.doc</a>, viewed 28 July 2009.</p> <p><i>Crown Land Management Act 2009 (SA)</i> (<b>Crown Land Management Act</b>) – not yet commenced</p>	<p><b>Environment Minister</b> = Minister for Environment and Conservation</p> <p><b>Framework</b> = the collection of legislation, regulation and policy set out in this report for each jurisdiction, in relation to: (1) Groundwater Management; (2) Environment Protection; and (3) Land-Use Planning</p> <p><b>Guidelines</b> = <i>Guidelines for Groundwater Protection in Australia</i> (1995)</p> <p>● = Framework explicitly provides for this element of the Guidelines</p> <p>◐ = Framework goes some way towards providing for this element of the Guidelines</p> <p>○ = Framework does not provide for this element of the Guidelines</p>

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in South Australia	
1	Principles (pp.9-13)	●	The objects of the Environment Protection Act refer to applying a precautionary approach to the assessment of risk of environmental harm: s10(1)(b)(iv), Environment Protection Act.
2	Polluter pays principle (p.11)	●	<p>The objects of the Environment Protection Act refer to allocating:</p> <p>the costs of environment protection and restoration equitably and in a manner that encourages responsible use of, and reduced harm to, the environment with polluters bearing an appropriate share of the costs that arise from their activities, products, substances and services: s10(1)(b)(vi) Environment Protection Act.</p> <p>The EPA may, by conditions on an environmental authorisation, require the holder of the authorisation to lodge with the EPA a <b>financial assurance</b> in the form of a bond or sum of money, to secure compliance with the Environment Protection Act: s51 Environment Protection Act. The value of the financial assurance reflects the estimated costs of remediation, loss and damage if a breach occurs: s51(3) Environment Protection Act.</p> <p>The Environment Protection Act establishes the <b>Environment Protection Fund</b>, which receives funds from penalties paid by polluters, fees paid under the Environment Protection Act (for example, in relation to environmental authorisations), <b>financial assurances</b>, a <b>waste depot levy</b> which is levied on waste depot operators, etc: s24, Environment Protection Act.</p> <p>In the case of a major development requiring an environmental impact assessment under the Development Act, the Minister may recover from the proponent, reasonable costs incurred in relation to the preparation and publication of statements and reports, and the making of a decision on a development: s48D Development Act.</p>
3	Equity considerations (p.12)	●	<p>The objects of the Environment Protection Act include promoting the principles of ecologically sustainable development, including:</p> <p>that proper weight should be given to both long and short term economic, environmental, social and equity considerations in deciding all matters relating to environmental protection, restoration and enhancement: s10(1)(a)(ii), Environment Protection Act.</p>
4	Beneficial uses and values (pp.10-12, 39-41)	●	Beneficial uses and values are set out in the Water Quality EPP, which applies to all groundwater in SA. This policy is a statutory instrument under the Environment Protection Act, and is the principal statutory instrument for supporting implementation of the NWQMS in South Australia. The Water Quality EPP sets default water quality <b>criteria</b> or targets for groundwater bodies. It also imposes mandatory requirements on industries of particular types, regardless of size. This results in the consistent application of water quality protection measures, and goes beyond the requirements of the

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in South Australia	
			<p>Environment Protection Act by applying requirements to industry types, regardless of size.</p> <p>The object of the Water Quality EPP is “to achieve the sustainable management of waters, by protecting or enhancing water quality while allowing economic and social development”: cl7(1), Water Quality EPP.</p> <p>See below, rows 9-15.</p>
5	Forms of intervention	Command (p.14)	<p>● <u>Environment Protection Act – general obligations</u></p> <p>The Environment Protection Act imposes on a person a duty to take “all reasonable and practicable measures” to prevent or minimise environmental harm when undertaking an activity that pollutes, or might pollute, the environment: s25(1). This is known as the <b>general environmental duty</b>. One of the relevant considerations in determining what the necessary measures is “the nature of the pollution or potential pollution and the sensitivity of the receiving environment”. Although breaching this duty is not an offence in itself, various orders can be made to enforce this duty: s25(2) and 93(1)(a)(i) Environment Protection Act.</p> <p>The Environment Protection Act also provides for general environmental offences, among other offences. It is an offence to (in decreasing order of seriousness):</p> <ul style="list-style-type: none"> <li>• cause <b>serious environmental harm</b> (a defined term: see s5) by polluting the environment with any solid, liquid, gas, noise or heat.</li> <li>• cause <b>material environmental harm</b> (a defined term: see s5) by polluting the environment with any solid, liquid, gas, noise or heat.</li> <li>• cause an <b>environmental nuisance</b> (a defined term: see s3(1)) by polluting the environment with any solid, liquid, gas, noise or heat.</li> </ul> <p>Under the Environment Protection Act, an environmental authorisation is required before undertaking certain prescribed activities that potentially pose a risk to the environment, which is defined to include groundwater, as outlined in Schedule 1 of the Act. These prescribed activities are generally described as being certain industries undertaken on a relatively large scale. They include wastewater treatment plants, septic tank effluent disposal schemes and industrial activities that have the potential to pollute water resources. Licence conditions may impose certain restrictions or require improvements to operations.</p> <p><u>Environment Protection Act – duty to notify</u></p>

Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in South Australia
	<p>If <b>serious</b> or <b>material environmental harm</b> from pollution is caused or threatened in the course of an activity undertaken by a person, the person must, as soon as reasonably practicable after becoming aware of the harm or threatened harm, notify the EPA: s83, Environment Protection Act.</p> <p>Specifically in relation to groundwater – an owner or occupier of a site, or a site contamination auditor or consultant must notify the EPA as soon as reasonably practicable after becoming aware of the existence of site contamination that affects or threatens groundwater: s83A, Environment Protection Act.</p> <p><u>Water Quality EPP – general obligations</u></p> <p>The Water Quality EPP imposes further duties in relation to polluting water, some of which are mandatory provisions which constitute an offence if contravened:</p> <ul style="list-style-type: none"> <li>• a person has a duty to take “all reasonable and practicable measures” to avoid the discharge or deposit of waste from an activity or land into any waters, or onto land from which it is reasonably likely to enter water (including by seepage or infiltration), and in taking those measures, to apply the waste management hierarchy: cl11(1).</li> <li>• (mandatory provision) a person must not, by discharging or depositing a pollutant into water, cause certain types of environmental harm, including causing (cl12): <ul style="list-style-type: none"> <li>○ a reduction in numbers of any native species of aquatic animal or insect;</li> <li>○ a reduction in numbers of aquatic organisms necessary to a healthy aquatic ecosystem;</li> <li>○ the water to become toxic to vegetation on land;</li> <li>○ the water to become harmful or offensive to humans, livestock or native animals.</li> </ul> </li> <li>• (mandatory provision) a person must not, by discharging or depositing a pollutant into any waters, cause any of the applicable water quality criteria to be exceeded (or further exceeded) if a maximum limit applies, or decreased, if a minimum applies: cl13.</li> </ul> <p>Note: a person may apply for an exemption in relation to this duty, for the discharge of waste into groundwater, if the person satisfies the EPA that measures can be taken to establish an attenuation zone, provided the attenuation zone meets particular requirements: cl15 Water Quality EPP.</p> <ul style="list-style-type: none"> <li>• (mandatory provision) a person must not exceed specified pollutant discharge limits, in undertaking a listed activity: cl16.</li> </ul>

Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in South Australia
	<ul style="list-style-type: none"> <li>• (mandatory provision) a person must not discharge or deposit a listed pollutant into water, or onto land from which it is reasonably likely to enter water: cl17.</li> <li>• (mandatory provision) A person must not discharge or deposit a listed pollutant or any waste into a bore, mine shaft, quarry, well, infiltration basin or other similar structure or a naturally occurring sinkhole: cl19.</li> </ul> <p><u>Water Quality EPP – Codes of Practice</u></p> <p>Under the Water Quality, various <b>Codes of Practice</b> are applied to different industries, for example, codes of practice in relation to aquifer storage and recovery (cl22A), sewerage systems and sewerage treatment systems (cl34), waste depots (cl37), stormwater pollution (cl40 and 41), which are relevant to groundwater quality. These are important implementation tools, since they may be enforced using a <b>protection order</b> to give effect to a code: cl42, Water Quality EPP.</p> <p><u>AGVET Control of Use Act – general duty in relation to the environment</u></p> <p>The AGVET Control of Use Act requires a person, in using or disposing of an agricultural chemical product, fertiliser or prescribed veterinary product, to take all reasonable and practicable measures to prevent or minimise (among other things) (s5):</p> <ul style="list-style-type: none"> <li>• in the case of an agricultural chemical: non-trivial contamination to land outside the target area (where contamination to water which is a component of land is constitutes land contamination); and</li> <li>• other unintended actual or potential non-trivial environmental harm (in the case of an agricultural chemical, whether within or outside the target area).</li> </ul> <p><u>Public and Environmental Health Act – offence to pollute a water supply</u></p> <p>Under the Public and Environmental Health Act, it is an offence to pollute a water supply, and if an authority may require a person to take specified action to prevent such pollution, or to desist from an activity: s21. A water supply may be closed if necessary to prevent human consumption of polluted water: s22.</p> <p>Note that “water supply” is defined broadly to mean “any natural or artificial accumulation or source of water”, and pollution means “a degree of impurity that renders the water unfit for human consumption”: s3(1).</p> <p><u>Mining Act – general environmental duty</u></p>

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in South Australia	
6			<p>A person carrying out mining operations at a private mine must take all reasonable and practicable measures to “avoid undue damage to the environment”: s73H, Mining Act. A compliance order may be issued to ensure compliance with this duty (s73I, Mining Act).</p> <p><u>Dangerous Substances Act – general duty</u></p> <p>A person must, “in keeping, handling, conveying, using or disposing of a dangerous substance, or in transporting dangerous goods, take such precautions and exercise such care as is reasonable in the circumstances in order to prevent the risk of environmental harm”: s11, Dangerous Substances Act.</p>
	Market (generally pp.14-15)	●	The EPA may negotiate an <b>environmental performance agreement</b> with another party, under which that party receives financial or other incentives (eg rate or tax rebates) in exchange for improved environmental outcomes: s59 Environment Protection Act.
7	Community participation and education (p.15)	●	<p>The objects of the Environment Protection Act refer to promoting (s10(1)(b)(ix)):</p> <ul style="list-style-type: none"> <li>• industry and community education and involvement in decisions about the protection, restoration and enhancement of the environment; and</li> <li>• disclosure of, and public access to, information about significant environmental incidents and hazards.</li> </ul> <p>The Environment Protection Act states that, in performing its functions, the EPA should consult with “local government and relevant industry, environment and community organisations”: s13(2)(b), Environment Protection Act.</p> <p>Various different elements of the Environment Protection Act are subject to public consultation requirements, for example, applications for environmental authorisations: s39, Environmental Protection Act.</p> <p>An object of the Water Quality EPP is to “promote within the community environmental responsibility and involvement in environmental issues”: cl7(2)(e), Water Quality EPP.</p>
8	Water quality protection objectives and beneficial uses	●	<p>The objects of the Environment Protection Act refer to providing for “monitoring and reporting on environmental quality on a regular basis to ensure compliance with statutory requirements and the maintenance of a record of trends in environmental quality” and “reporting on the state of the environment on a periodic basis”: ss10(1)(b)(vii) and (viii), Environment Protection Act.</p> <p>One of the functions of the EPA is to “to institute or supervise environmental monitoring and evaluation programmes”: s13(1)(g), Environment Protection Act.</p>

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in South Australia																																								
9			<p>The EPA must prepare a <b>State of the Environment report</b> every 5 years. That report must include an assessment of the condition of the major environmental resources of South Australia, identify significant trends in environmental quality based on an analysis of indicators of environmental quality, and identify any significant issues and make any recommendations that, in the opinion of the Authority, should be drawn to the attention of the Minister: s112, Environment Protection Act.</p> <p>The latest State of the Environment Report, published in 2008, deals with groundwater quality in its “Inland Waters” theme: pp.38-44, 46-55 <i>The State of Our Environment: State of the Environment Report for South Australia 2008</i> (November 2008) (available <a href="http://www.epa.sa.gov.au/soe/soe2008.html">http://www.epa.sa.gov.au/soe/soe2008.html</a>).</p>																																							
	Define beneficial uses and values (pp.39-40)	●	<p>The key term to describe beneficial uses and values in the Water Quality EPP is <b>protected environmental values</b>. There are 5 categories of protected environmental values (cl3(1) Water Quality EPP):</p> <p>A Aquatic ecosystem – (i) fresh water and (ii) marine water B Recreational water use and aesthetics— (i) primary contact; (ii) secondary contact; (iii) aesthetics C Potable use D Agricultural/aquaculture use— (i) irrigation; (ii) stock watering; (iii) aquaculture E Industrial use</p> <p>The terms “aesthetics”, “primary contact” and “secondary contact” are further defined in Sch1, Water Quality EPP.</p> <p>The Water for Good non-statutory policy set out an expanded list of environmental values, which includes <b>cultural and spiritual values</b>: p.71.</p>																																							
10	Identify beneficial uses (pp.40-41)	●	<p>Default <b>protected environmental values</b> are set for all surface and groundwater: cl8(1) and Sch1, Water Quality EPP. The protected environmental values for groundwater are set out below:</p> <table><tr><th rowspan="2">Water body</th><th colspan="2">Aquatic ecosystem</th><th colspan="3">Recreation &amp; aesthetics</th><th rowspan="2">Potable</th><th colspan="3">Agriculture/aquaculture</th><th rowspan="2">Industrial</th></tr><tr><th>fresh</th><th>marine</th><th>primary contact</th><th>secondary contact</th><th>aesthetics</th><th>irrigation</th><th>livestock</th><th>aquaculture</th></tr><tr><td>Underground waters</td><td>X</td><td>—</td><td>X</td><td>—</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td></tr></table>										Water body	Aquatic ecosystem		Recreation & aesthetics			Potable	Agriculture/aquaculture			Industrial	fresh	marine	primary contact	secondary contact	aesthetics	irrigation	livestock	aquaculture	Underground waters	X	—	X	—	X	X	X	X	X	X
Water body	Aquatic ecosystem		Recreation & aesthetics			Potable	Agriculture/aquaculture			Industrial																																
	fresh	marine	primary contact	secondary contact	aesthetics		irrigation	livestock	aquaculture																																	
Underground waters	X	—	X	—	X	X	X	X	X	X																																



Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in South Australia	
11			<p>The Water Quality EPP also allows for the Minister to set specific values for individual water bodies, but the Water Quality EPP which is currently in force does not yet do so: cl8(2), Water Quality EPP. Certain requirements apply to setting specific values to be sent for individual water bodies: where relevant, the ANZECC Guidelines must be taken into account; the community, relevant organisations and industries must have been consulted; and the results of those consultations must have been considered by the Minister: cl6(3), Water Quality EPP.</p> <p>The Water for Good non-statutory policy set out an expanded list of environmental values, which includes <b>cultural and spiritual values</b>: p.71.</p>
	Apply criteria (narrative or prescriptive) (pp.41-42)	●	<p>Default water quality criteria are applied in relation to each protected <b>environmental value</b>: cl9(1) and Sch2, Water Quality EPP. The types of pollutants covered are: metal pollutants, inorganic pollutants, organic pollutants, microbiological pollutants, and characteristics (dissolved oxygen and pH). The criteria are generally expressed as maximum concentrations, except for dissolved oxygen, which is expressed as a minimum, and pH, which is expressed as a range of values.</p> <p>The Water Quality EPP also allows for specific criteria to be set for individual water bodies, but the Water Quality EPP which is currently in force does not yet do so: cl9(2), Water Quality EPP.</p> <p>The Water For Good non-statutory policy states that the EPA will “develop environmental values for priority water bodies across the State by 2014”: p.71</p>
12	Points of application of criteria (pp.42-43)	●	For the purpose of the duty not to contravene water quality criteria (cl13, Water Quality EPP – see above, row 5), the relevant point of application is the point of discharge, unless an attenuation zone applies.
13	Monitoring and review program focusing on extent of implementation and extent to which goals are met (pp.46-47)	●	One of the functions of the EPA is to conduct regular reviews of environment protection policies (including the Water Quality EPP), regulations and other measures and practices under the Environment Protection Act to ensure that they are adequate and effective to secure the objects of the Act: s13(1)(b), Environment Protection Act.
14	Inter-agency coordination (p.48)	●	<p>The Environment Protection Act states that, in performing its functions, the EPA should consult with:</p> <p>other agencies of the State, agencies of the Commonwealth and of the other States and Territories of the Commonwealth, and intergovernmental agencies, that have functions corresponding to those of the [EPA]: s13(2)(a), Environment Protection Act.</p>

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in South Australia	
15	Enforcement of criteria for beneficial uses	●	<p>The mandatory provisions of an environment protection policy, including the Water Quality WPP, are legally binding, and non-compliance is an offence which attracts a hierarchy of penalties: s34, Environment Protection Act (see below, row 17 for further details).</p> <p>The EPA may issue an <b>environment protection order</b> to require compliance with the mandatory provisions of an environment protection policy, or to give effect to an environment protection policy: s93(1)(a)(ii) and (b), Environment Protection Act.</p>
16	Controlling sources of contamination	●	<p>The objects of the Environment Protection Act include:</p> <ul style="list-style-type: none"> <li>• promoting the principles of ecologically sustainable development, one of which involves “avoiding, remedying or mitigating any adverse effects of activities on the environment”: s10(1)(a)(i)(C), Environment Protection Act;</li> <li>• ensuring that “all reasonable and practicable measures are taken to protect, restore and enhance the quality of the environment”, having regard to preventing, reducing, minimising and, where practicable, eliminating harm to the environment by programmes aimed at pollution prevention, clean production and technologies, reduction, re-use and recycling of material and natural resources, and waste minimisation: s10(1)(b)(i)(A), Environment Protection Act.</li> </ul> <p>An object of the Water Quality EPP is to ensure that waste is managed according to a 7-stage waste management hierarchy in which the production of waste should first be avoided, and so on: cl7(2)(c), Water Quality EPP.</p> <p>See also the requirement in relation to the waste hierarchy in the general obligation to avoid discharging waste into waters: above, row 5.</p> <p>A statutory corporate, Zero Waste SA, was established by the <i>Zero Waste SA Act 2004</i>, to promote waste management practices, guided by the waste management hierarchy: s5. One of its major functions is to develop a waste strategy for SA: s18. <i>South Australia’s Waste Strategy 2005-2010</i> (published in August 2005) does not directly deal with groundwater.</p>
17	Licensing of contaminants and point sources (p.30, App.1)	●	<p><u>Environment Protection Act - environmental authorisations</u></p> <p>A <b>works approval</b> is required in relation to building, plant or equipment to be used for a <b>prescribed activity of environmental significance</b>: s35, Environment Protection Act. A <b>licence</b> is required to undertake a prescribed activity of environmental significance: s36, Environment Protection Act. The term <b>environmental authorisation</b> covers a works approval, licence or exemption: s3(1), Environment Protection Act.</p> <p>Prescribed activities of environmental significance are set out in Part A of Schedule 1 to the Environment Protection Act. These activities include (subject to capacity thresholds):</p>

Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in South Australia
	<p>sewage treatment works or septic tank effluent disposal schemes; discharge of stormwater to underground aquifers in certain regions; earthworks drainage; Incineration; waste or recycling depots; Waste transport business (including solid waste, septic tank effluent, liquid waste and waste soil); bulk shipping facilities; railway operations; Cattle feedlots; saleyards; piggeries; abattoirs, slaughterhouses or poultry processing works; breweries; composting works; fish processing; milk processing works; produce processing works; rendering or fat extraction works; curing or drying works; wool scouring or wool carbonising works; wineries or distilleries; Coal handling and storage; fuel burning; Extractive industries (sand, gravel, stone, shell, shale, clay, soil); chemical storage and warehousing facilities; chemical works; oil refineries; petroleum production, storage or processing works or facilities; coke works; wood preservation works; abrasive blasting; hot mix asphalt preparation; cement works; ceramic works; concrete batching works; drum reconditioning; ferrous and non-ferrous metal melting; metallurgical works; mineral works; pulp or paper works; scrap metal recovery; surface coating; wood processing works; maritime construction works; vehicle production; tanneries or fellmongeries; crushing, grinding or milling of chemicals, agricultural crop products, rock, ores or minerals;</p> <p>Part A also states that activities other than certain listed activities (eg building work, dental practice, agriculture, etc) are prescribed activities of environmental significance if they produce a listed waste.</p> <p><b>Note:</b> Agriculture is explicitly not a prescribed activity of environmental significance, even if it produces a listed waste, which would cause a non-exempt activity from being a prescribed activity of environmental significance: cl3(4)(l) of Sch1, Environment Protection Act.</p> <p>When determining whether to grant an <b>environmental authorisation</b>, and the conditions on the authorisation, the EPA must, among other things (s47(1), Environment Protection Act):</p> <ul style="list-style-type: none"> <li>• have regard to, and seek to further, the objects of the Environment Protection Act;</li> <li>• have regard to the <b>general environmental duty</b>, any relevant environment protection policy (including the Water Quality EPP), the waste strategy for the State under the Zero Waste SA Act, relevant material under the Development Act, any relevant environment improvement programme or environment performance agreement; and</li> <li>• have regard to public submissions and any submission of an authority under the NRM Act.</li> </ul> <p>An applicant for an environmental authorisation may lodge with the EPA a proposed <b>environment improvement programme</b> to demonstrate proposed actions that will achieve compliance with the general environmental duty, or for environment protection beyond the standards required by the Act: s44, Environment Protection Act.</p> <p><i>Conditions on environmental authorisations</i></p>

Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in South Australia
	<p>The EPA may impose any condition on an environmental authorisation that it considers necessary or expedient for the purposes of the Environment Protection Act: s45(1) Environment Protection Act. The conditions that may be imposed include conditions requiring:</p> <ul style="list-style-type: none"> <li>• financial assurances – see above, row 6.</li> <li>• tests, monitoring or audits of compliance in relation to the activity under the authorisation: s52 Environment Protection Act;</li> <li>• closure and post-closure plans, to minimise environmental harm that may result from activity after it has ceased: s52A, Environment Protection Act;</li> <li>• preparation and publication of a <b>plan to deal with emergencies</b>: s53, Environment Protection Act;</li> <li>• an <b>environment improvement programme</b>, which may (among other things) include action to be taken to achieve compliance with the general environmental duty or to give effect to the non-mandatory provisions of an environment protection policy: s54 Environment Protection Act;</li> <li>• training of employees to ensure that they are able to comply with any requirements imposed by the Environment Protection Act: s54A Environment Protection Act; and</li> <li>• the holder to supply to the EPA certificate of compliance in relation to the conditions on the authorisation: s54B Environment Protection Act.</li> </ul> <p><u>Water Quality EPP - prohibitions on point source pollution from particular activities</u></p> <p>The Water Quality EPP lists a number of specific activities which are likely to have wastewater discharges, and generally requires that the operator effectively manage wastewater and not discharge waste into waters, or onto land where it is reasonably likely to enter waters, including by seepage or infiltration.</p> <p>The following activities are subject to the “effective management duty” under the Water Quality EPP (cl32 to 34):</p> <p>septic systems; septic tank effluent disposal schemes; sewerage systems and sewage treatment systems; Waste depots; Abattoirs, slaughter houses and poultry processors; cattle feedlots; composting works; fish processing works; milking sheds; milk processing works; piggeries; saleyards; wineries and distilleries; Extractive industries (sand, gravel, stone, shell, shale, clay, soil); concrete batching works; tanneries and fellmongeries; aquifer water storage and recovery schemes.</p>

Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in South Australia
	<p><u>Licensing under the Petroleum Act</u></p> <p>Petroleum exploration, production, and pipelines are also governed by the Petroleum Act and the Petroleum Regulations. The Petroleum Act sets requirements to protect the “environment” (which is defined to include groundwater) from potential impacts. These include requirements for exploration and production companies to:</p> <ul style="list-style-type: none"> <li>• provide an <b>environmental impact report</b>, which must include a description of reasonably foreseeable events that could pose a threat to the environment, an assessment of potential consequences, and the action to be taken to manage these consequences (s97 Petroleum Act , reg10 Petroleum Regulations);</li> <li>• refrain from carrying out regulated activities until a <b>statement of environmental objectives</b> is in force for those activities, which must include conditions to be complied with to achieve the stated objectives, and must also include rehabilitation as an objective: ss96, 100 Petroleum Act. The statement is based on information provided in the environmental impact report;</li> <li>• carry out regulated activities with <b>due care for the environment</b>: s87 Petroleum Act;</li> <li>• report <b>serious environmental damage</b> or an imminent risk of serious environmental damage: s85 Petroleum Act; and</li> <li>• provide an annual report which sets out the licensee’s level of performance against the criteria for each objective in the statement of environmental objectives: s33 Petroleum Act. A series of guidelines is available to assist (available at <a href="http://www.pir.sa.gov.au/petroleum/legislation/regulation/enviro_gas">http://www.pir.sa.gov.au/petroleum/legislation/regulation/enviro_gas</a>);</li> </ul> <p>In addition, the Minister has the power to direct a licensee to take action to prevent or minimise environmental damage, and to direct the rehabilitation of land: ss108 and 109, Petroleum Act.</p> <p><u>Mining Act – licensing</u></p> <p>The Mining Act and Mining Regulations set environmental protection requirements in relation to mining operations, including requirements:</p> <ul style="list-style-type: none"> <li>• (as a condition of an exploration licence) to conduct operations (including managing waste) in accordance with an approved program to “prevent pollution to or contamination of surface or underground waters” and “ensure that, in drilling or other underground investigations, no interconnection between groundwater aquifers occurs”: reg56(b)(i) and (iii) Mining Regulations;</li> </ul>

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in South Australia	
18			<ul style="list-style-type: none"> <li>• (as a condition of a mining lease or retention lease) to carry out operations in accordance with an approved program for mining and rehabilitation: reg 42(b) Mining Regulations; and</li> <li>• (for a private mine in a declared private mine area) carry out mining operations at a private mine in accordance with a <b>mine operations plan</b>, which includes objectives and criteria, and is consistent with any relevant environment improvement programme or environment protection policy (including the Water Quality EPP) under the Environment Protection Act: s73G Mining Act.</li> </ul> <p><u>Dangerous Substances Act – licensing requirements</u></p> <p>Under the Dangerous Substances Act, a licence is required to keep prescribed dangerous substances (s15), and to convey a dangerous substance (s18). The Dangerous Substances Act also provides for approved guidelines which deal with the transport of dangerous goods (s26), and for approved codes of practice (s39).</p>
	Inter-agency coordination (p.48)	●	<p>The Governor may, by proclamation made on the recommendation of the EPA, declare any part of the State to be a <b>water protection area</b>: s61A(1), Environment Protection Act. If the EPA receives an application for an environmental authorisation in relation to an activity within the water protection area:</p> <ul style="list-style-type: none"> <li>• to drain or discharge material into a prescribed well under the NRM Act; or</li> <li>• where the activity might, in the opinion of the EPA, create a significant risk of environmental harm to a water resource,</li> </ul> <p>the EPA must refer that application to the Water Resources Minister: s64(1), Environment Protection Act. The EPA must have regard to the response of the Water Resources Minister when making a decision on the application: reg10 Environment Protection Regulations.</p>
19	Requirements for impact assessment (p.32)	●	<p>The Development Act empowers the Minister to require environmental impact assessment (<b>EIA</b>) for any proposed development or project which he or she declares to be of major social, economic or environmental importance (a <b>major development</b>) (s46). Various mining operations (including operations under the Mining Act, Opal Mining Act and Petroleum Act) may require an EIA if they are of major social, economic or environmental importance: s75(4) Development Act. The EIA is carried out by the Development Assessment Commission.</p> <p>Where a development or project is declared to be subject to the EIA process, the proponent must lodge with the Minister an application or project proposal: s46(6), Development Act. An assessment may be carried out at several levels (in order of decreasing detail): an environmental impact statement; a Public Environmental Report; or a Development Report.</p>

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in South Australia	
20			The criteria to be applied in order to decide which level of assessment is required include the following, which are particularly relevant to groundwater quality: the resilience of the environment to cope with change, the reversibility of the impacts and the extent to which the need for monitoring will be ongoing: reg63, Development Regulations.
	Prescription of activities/discharges allowed over particular aquifers (p.45)	●	The Environment Protection Act allows for <b>water protection areas</b> , these areas trigger a process of referring an application to the Water Resources Minister, which may result in activities over aquifers in a water protection area being treated differently to those in other areas (see above, row 18).  The Water Quality EPP applies the same criteria to all aquifers in South Australia.
21	Monitoring requirements (p.45)	●	A <b>clean-up order</b> may include requirements for specified testing or environmental monitoring: s99(2)(e), Environment Protection Act.  An <b>environment protection order</b> (which is served on a person for the purpose of securing compliance with the Environment Protection Act or an environment protection policy), may include requirements for specified tests or environmental monitoring: s93(2)(c)(vi) to (viii), Environment Protection Act.  Monitoring may also be required by a condition on an <b>environmental authorisation</b> (s52 Environment Protection Act), and as part of a closure or post-closure plan condition (s52A, Environment Protection Act).  Monitoring is also referred to in the objects of the Environment Protection Act, and in the functions which are conferred on the EPA: ss10(1)(b)(vii) and 13(1)(g), Environment Protection Act.  The EPA runs a state-wide program, based on the Australian Guidelines for Water Quality Monitoring and Reporting, to monitor the quality of SA's major waters, including the quality of groundwater (see <a href="http://www.epa.sa.gov.au/water_program.html">http://www.epa.sa.gov.au/water_program.html</a> ).
22	Contingency measures, including clean-up requirements (pp.47-48)	●	<u>Environment Protection Act - general</u>  The EPA may issue directions requiring the polluter or occupier of premises to undertake clean-up work on the site (a <b>clean-up order</b> ), and/or undertake remediation itself (a <b>clean-up authorisation</b> ): ss99 and 100 Environment Protection Act. Non-compliance with a clean-up order entitles the EPA to take the action directed in the order: s102 Environment Protection Act. The EPA may recover its reasonable costs and expenses: s103 Environment Protection Act. A registered order binds the land, and therefore binds future owners of the land: s101 Environment Protection Act.  The EPA may also issue an <b>environment protection order</b> to secure compliance with the Environment Protection Act or

Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in South Australia
	<p>the mandatory provisions of an environment protection policy, or to give effect to an environment protection policy. It may direct a person to, for example, take specified action, cease certain activities, or prepare and comply with a plan of action to prevent, minimise or control pollution or waste: s93(2)(c) Environment Protection Act.</p> <p>The EPA may make an <b>environmental agreement</b> with a person for the undertaking of a program of work directed towards protection, restoration or enhancement of the environment: s59(2)(b)(i), Environment Protection Act.</p> <p><u>Environment Protection Act and Site Contamination Regulations – site contamination</u></p> <p>The Site Contamination Regulations set out activities which are potentially contaminating for the purposes of the EPA forming a view on whether site contamination exists at a site. These activities include many of the same activities which require licensing (see rows above), but also include the following, which are not activities requiring licensing:</p> <ul style="list-style-type: none"> <li>• in the course of agricultural activities: “irrigation using wastewater” and “intensive application or administration of a listed substance to animals, plants, land or water (excluding routine spraying, in accordance with manufacturers’ instructions, of pesticides used in broad-acre farming)”;</li> <li>• operation of animal dips or spray race facilities;</li> <li>• underground storage of fuel at fire stations;</li> <li>• operation of premises for fire training involving the use of liquid fuel, fire accelerants, aqueous film forming foam or similar substances; and</li> <li>• direct discharge of water from surface of land to underground aquifer.</li> </ul> <p>If the EPA is satisfied that site contamination exists at a site, the EPA may issue to an appropriate person a <b>site contamination assessment order</b>, which may require particular assessments or audits to be undertaken and information provided to the EPA: s103H Environment Protection Act.</p> <p>If the EPA is satisfied that site contamination exists at a site, and considers that remediation is required, taking into account current or proposed land uses, the EPA may issue to an appropriate person a <b>site remediation order</b>. Such an order may require remediation, reporting, and auditing of the site: s103J, Environment Protection Act.</p> <p>Note: “site contamination” exists at a site if “chemical substances are present at or below the surface of the site in concentrations above the background concentrations”, as a result of an activity at the site or elsewhere, and there is actual or potential and non-trivial harm to human health, or to water, or to the environment: s5B, Environment Protection Act.</p>



Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in South Australia
	<p>If the EPA has reason to believe that site contamination exists in a wide area, as a result of the same kind of, or related, activities, the EPA may declare the area to be a <b>special management area</b>. It may then endeavour to conclude one or more environment performance arrangements or voluntary arrangements in relation to assessing and remediating the area: s103N, Environment Protection Act.</p> <p>If the EPA is satisfied that site contamination affects or threatens water, and action is necessary to prevent actual or potential harm to human health or safety, the EPA may <b>prohibit or restrict the taking of water</b>: s103S, Environment Protection Act.</p> <p>If a court finds that a person contravened the Environment Protection Act, and the contravention resulted in <b>environmental harm</b>, the court may, in addition to a penalty, order the person to make good the environmental damage, among other things: s133, Environment Protection Act.</p> <p><u>Mining Act</u></p> <p>A <b>rectification order</b> or <b>rectification authorisation</b> may be issued to make good damage to the environment that was caused by contravening the general environmental duty under the Mining Act (see above, row 5): ss73J and 73K, Mining Act.</p> <p><u>Dangerous Substances Act</u></p> <p>An authorised officer under the Dangerous Substances Act may issue a binding notice requiring particular action to be taken to a person for the purpose of averting, eliminating or minimising danger to the environment that has arisen from an activity involving a dangerous substance: s33(1), Dangerous Substances Act. If the person does not comply, an authorised officer may take the action required by the notice: s34, Dangerous Substances Act.</p> <p>If a government authority incurs costs or expenses as a result of the discharge of a dangerous substance into water, the government authority may recover those costs or expenses (provided they are reasonable) from the person who owned, controlled or possessed the relevant dangerous substance, or the person who caused the incident: s46, Dangerous Substances Act.</p> <p><u>Crown Land Management Act</u></p> <p>The Crown Land Management Act requires that the responsible minister: “to the extent allowed by available financial resources, carry out work, or cause work to be carried out, for the conservation, protection and rehabilitation of unalienated Crown land”: s56. The Minister may also serve a remediation notice on a person in relation to a condition of</p>

	Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in South Australia	
23	Controls on diffuse source contamination (pp.17, 30)	●	<p>the land that presents a risk to the environment, and therefore requires remediation: s57, Crown Land Management Act.</p> <p>The Water Quality EPP applies the following codes of practice in relation to stormwater as follows (cll39-42):</p> <ul style="list-style-type: none"> <li>• an authority constructing or maintaining a public road – the <i>Stormwater Pollution Prevention Code of Practice for Local, State and Federal Government 1997</i>;</li> <li>• a person undertaking a building or construction activity – the <i>Stormwater Pollution Prevention Code of Practice for the Building and Construction Industry 1998</i>; and</li> <li>• an authority undertaking the management of a stormwater system – the <i>Stormwater Pollution Prevention General Code of Practice for Local, State and Federal Government 1997</i>.</li> </ul> <p>The Stormwater Policy includes the following “key policy goal” of reducing the environmental impacts of stormwater as a conveyor of pollution: p.2. This is to be achieved through community awareness, planning mechanisms (such as local council stormwater management plans) and action by the EPA in relation to assessing and reviewing water quality criteria associated with aquifer storage of stormwater, among other things.</p> <p>Note also that acid sulphate soils issues are addressed in the Land-Use Planning Framework: row 9, SA Land-Use Planning Framework.</p>

## SOUTH AUSTRALIA (3) Land-Use Planning Framework Table

Key items of legislation, regulation and policy	Supplementary items of legislation, regulation and policy	Symbols, acronyms, and useful terminology
<p><i>Development Act 1993</i> (SA) (<b>Development Act</b>)</p> <p><i>Development Regulations 2008</i> (SA) (<b>Development Regulations</b>)</p> <p>SA Planning Strategy (comprised of 5 volumes), available at:  <a href="http://www.planning.sa.gov.au/index.cfm?objectid=AE5F47E6-F203-0D46-AF7A8CEB4AD10B0A">http://www.planning.sa.gov.au/index.cfm?objectid=AE5F47E6-F203-0D46-AF7A8CEB4AD10B0A</a></p> <ul style="list-style-type: none"> <li>Planning Strategy for Metropolitan Adelaide (December 2007) (<b>Metro Adelaide Planning Strategy</b>)</li> <li>Planning Strategy for the Outer Metropolitan Adelaide Region (December 2007) (not discussed)</li> <li>Planning Strategy for Regional SA (January 2003, as amended at December 2007) (<b>Regional SA Planning Strategy</b>)</li> <li>The Yorke Peninsula Regional Land Use Framework (December 2007) (not discussed)</li> <li>The Greater Mount Gambier Master Plan (February 2008) (not discussed)</li> </ul>	<p><i>Pastoral Land Management and Conservation Act 1989</i> (SA) (<b>Pastoral Land Act</b>)</p> <p><i>Native Vegetation Act 1991</i> (SA) (<b>Native Vegetation Act</b>)</p>	<p><b>Framework</b> = the collection of legislation, regulation and policy set out in this report for each jurisdiction, in relation to:  (1) Groundwater Management; (2) Environment Protection; and (3) Land-Use Planning</p> <p><b>Guidelines</b> = <i>Guidelines for Groundwater Protection in Australia</i> (1995)</p> <p><b>Mining Minister</b> = Minister for Mineral Resources Development</p> <p><b>Planning Minister</b> = Minister for Urban Development and Planning</p> <p>● = Framework explicitly provides for this element of the Guidelines</p> <p>◐ = Framework goes some way towards providing for this element of the Guidelines</p> <p>○ = Framework does not provide for this element of the Guidelines</p>

**Note 1:** South Australia's Strategic Plan (2007) (available [http://saplan.org.au/images/pdf/South\\_Australia\\_Strategic\\_Plan\\_2007.pdf](http://saplan.org.au/images/pdf/South_Australia_Strategic_Plan_2007.pdf), viewed 28 July 2009) provides, in a very general way, for water resources matters which are relevant to groundwater quality. It sets the following target: "South Australia's water resources are managed within sustainable limits by 2018) (target T3.9). This Plan is not discussed further in the Table.

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in South Australia	
1	Principles (pp.9-13)	Precautionary principle (pp.11, 40)	○ Not explicitly included in the Development Regulations nor the Development Regulations
2		Polluter pays principle (p.11)	○ Not explicitly included in the Development Regulations nor the Development Regulations
3		Equity considerations (p.12)	○ Neither the Development Act nor the Development Regulations refers to “equity” or “equitable” considerations.
4		Beneficial uses and values (pp.10-12, 39-41)	● Beneficial uses and values are set out in the Water Quality EPP, which applies to all groundwater in SA. Within the Land-Use Planning Framework, the Planning Minister may amend a Development Plan (the key planning document under the Development Act) to make the Development Plan consistent with an environment protection policy: s29(1)(b), Development Act and reg14(b), Development Regulations.  Certain types of developments (and generally those which have the potential to contaminate groundwater) must be referred to the EPA. Depending on the nature of the development, the EPA may have the power to direct that certain conditions be applied to the development, representing one way of ensuring the development protects beneficial uses and values. (See below, rows 11, 12, 15, 16, 19, 20).
5	Forms of intervention	Command (p.14)	● <u>Development Act</u>  The Development Act prohibits development that is not an <b>approved development</b> : s32, Development Act. Development Plans regulate development by setting out which types of develop require assessment, and which are prohibited in particular zones s33(1), Development Act. Conditions may be applied to development consents.  Generally, the authority with the responsibility of determining a development application is either the local council, or a regional development assessment panel, if one has been established: ss34(1)(a) and (ab), Development Act.  Special arrangements apply to declared <b>major developments</b> (see row 19, SA Environment Protection Framework).  <u>Crown Land Management Act</u>

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in South Australia			
6			<p>The Crown Land Management Act provides for a system of leases and licences in relation to Crown land. The Minister may grant these holdings subject to conditions: ss34 and 48, Crown Land Management Act.</p> <p>Crown land may be managed by management committees: s11. The Minister may make a management plan for the management of Crown land: s12. The management plan should seek to promote the <b>principles of ecologically sustainable land management</b>, and must be consistent with a regional NRM plan (which includes a water allocation plan – see SA Groundwater Management Framework): s12(2), Crown Lands Management Act. The principles of <b>ecologically sustainable land management</b> include reference to “safeguarding the life-supporting capacity of...water”: s5(2)(a)(ii), Crown Land Management Act.</p> <p>The Crown Land Management Act does not apply to pastoral leases: s8, Crown Land Management Act.</p> <p><u>Pastoral Land Act</u></p> <p>It is a duty of a lessee throughout the term of a pastoral lease to prevent the degradation of the land: s7(b), Pastoral Land Act. In this context, “degradation” means “a decline in the quality of the natural resources of the land”: s3, Pastoral Land Act.</p> <p>Under the Pastoral Land Act, a person who, without lawful authority or excuse pollutes any water on the land, whether stored or a natural source of water, is guilty of an offence: s57(1)(e), Pastoral Land Act.</p>		
	Market (generally pp.14-15)	●	<p>Not significantly provided for.</p> <p>The Regional SA Planning Strategy includes the following strategy, although no further details are given: “[p]rovide incentives and information on managing pollution, both point-source and diffuse”: p.33.</p>		
	7	Community participation and education (p.15)	●	<p>One of the objects of the Development Act is “to provide for appropriate public participation in the planning process and the assessment of development proposals”: s3(e).</p> <p>The Development Act provides for different levels of public consultation in relation to development approvals, depending on the relevant category of development: s38.</p>	
8	Specific approaches to protection	Vehicle for protection	N/A	<p><u>Planning Strategy under the Development Act</u></p> <p>Note: A reference in this column to a section is a reference to a section of the Development Act</p>	<p><u>Development Plan under the Development Act</u></p> <p>Note: A reference in this column to a section is a reference to a section of the Development Act</p>

	Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in South Australia		
			<p>The Planning Strategy sets out information “designed to facilitate strategic planning and co-ordinated action on a State-wide, regional or local level”: s22(2).</p> <p>The current Planning Strategy is in 5 volumes, which correspond to different geographical areas (see introductory table). This column discusses the Metro Adelaide Strategy and the Regional SA Planning Strategy.</p> <p>Under the SA Regional Planning Strategy, priorities for the State’s water resources include: “integrating land use planning with water resource planning and management to protect and enhance natural systems, minimise salinity and pollution and remediate degraded resources”: p.29.</p>	<p>Development Plans are prepared by a local council, or by the Minister, depending on their nature, in relation to a geographical area of SA: s23(2) Development Act. They may include, among other things, planning or development objectives or principles relating to “the natural or constructed environment and ecologically sustainable development” and “management, conservation and use of natural and other resources”: s23(3)(a).</p> <p>A Development Plan sets out whether or not a development is a “complying development”:</p> <ul style="list-style-type: none"> <li>• a <b>complying development</b> must be granted a development consent, subject to appropriate conditions (s35(1)); whereas</li> <li>• a <b>non-complying development</b> requires the applicant to submit a <b>statement of effect</b> which sets out the extent to which the proposed development complies with the Development Plan, and the expected social, economic and environmental effects of the development on its locality, and it must be approved by the Minister: s35(3), and reg17 Development Regulations.</li> </ul>
9	Use of land-use risk matrix to judge compatibility of land uses with water quality protection (p.44)	●	<p>Not explicitly provided for, but risks associated with certain land types are stated as driver of land use policy within the Regional SA Planning Strategy. For example:</p> <ul style="list-style-type: none"> <li>• in relation to avoiding disturbance of acid sulphate soils, planning strategies include: to “determine the level of risk of acid formation from various land uses to enable the introduction of appropriate land use policies”: p.20.</li> <li>• in relation to irrigation, planning strategies include: to “identify areas of high salinity impact risk and align land use policies with the levels of risk from salinity in</li> </ul>	Not explicitly provided for.

	Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in South Australia	
			these areas” p.32.	
10				
	Land zoning taking into account underlying groundwater (pp.43-44)	●	The Metro Adelaide Planning Strategy includes a policy generally to “[p]rotect and enhance the quality of Adelaide’s underground and surface waters.” (p.33) The Metro Adelaide Planning Strategy does not discuss zoning in great detail.	A Development Plan may protect groundwater, and control developments of land which may contaminate groundwater, by determining types of developments which are <b>non-complying developments</b> for a particular area or zone.  For the purposes of a development plan consent, a development will be assessed against the requirements of a Development Plan (s33(1)), including any requirements of a zone.
11	Protection for water supply protection areas (p.27)	●	The Metro Adelaide Planning Strategy does not specifically deal with groundwater supply protection, as distinct from groundwater resources not used for water supply.  The Regional SA Planning Strategy includes as an action: “[p]rotect underground water supplies from overuse and pollution”: p.33.	The Planning Minister may amend a Development Plan to remove inconsistency between it an environment protection policy (including the Water Quality EPP): s29(1)(b) Development Act and reg14(b) Development Regulations. This is relevant to the protection of water supply areas, since “potable water” is a protected environmental value throughout SA, under the Water Quality EPP (see row 10, SA Environment Protection Framework).
12	Protection of groundwater recharge zones (p.28)	●	The Metro Adelaide Planning Strategy includes a policy to “[d]esign and manage development to “allow the active recharge of underground water, for example, ASR, with harvested stormwater of a suitable quality” (p.33), but otherwise does not explicitly provide for groundwater recharge zones.  The Regional SA Planning Strategy notes the need to “protect and supplement recharge and retrieval of groundwater aquifers”: see, for example, cl14(a) in relation to the Eyre Peninsula: p.55.	Further, certain types of developments (depending on their size) may be categorised as <b>activities of environmental significance</b> or <b>activities of major environmental significance</b> , which must be referred to the EPA (see below, rows 19 and 20).  If particular kinds of development are proposed within a <b>water protection area</b> declared under the Environment Protection Act, the threshold for categorising the activities as <b>activities of environmental significance</b> or <b>activities of major environmental significance</b> is substantially lower than if the development were proposed outside a water protection area. As a result, even relatively small developments of particular types (eg sewage treatment works, dairies, piggeries, cattle feedlots) fall within these categories, and must be referred to the EPA: Sch21 and 22, Development Regulations. Depending on their size, the EPA may
13				

	Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in South Australia	
14				then have the power to direct the council to refuse the application or to impose conditions (see below, rows 19-20).
	Controls on land clearing due to connection with groundwater quality (p.28)	●	<p>The Metro Adelaide Planning Strategy discusses salinity and waterlogging issues (p.61), but does not include controls.</p> <p>The Regional SA Planning Strategy includes the action: “[p]rovide farm management advice and develop skills to reduce pollution potential from dryland farming activities, minimise land clearing and dryland salinity”: p.33.</p>	Not explicitly provided for.
15			<p><b>Note:</b> Under the Native Vegetation Act, landholders and others must not clear native vegetation unless the clearance is in accordance with the Act: s26(1). Approval to clear native vegetation can be by exemption (s27(1)(b)), or by the approval, possibly with conditions, of the Native Vegetation Council (s27(1)(a)) - a statutory body established under the Act.</p> <p>One of the <b>principles of clearance of native vegetation</b>, to which the Council must have regard when determining an application for consent to clear native vegetation (s29(1)), is “Native vegetation should not be cleared if, in the opinion of the Council... the clearance of the vegetation is likely to contribute to soil erosion or salinity..; or the clearance of the vegetation is likely to cause deterioration in the quality of surface or underground water”: cl1(h) and (i) of Sch1, Native Vegetation Act.</p>	
	Controls on land development due to connection with groundwater quality (p.28)	●	<p>The Metro Adelaide Planning Strategy includes a policy to “[d]esign and manage development to... protect underground water resources from overuse and pollution” (p.33).</p> <p>The Metro Adelaide Planning Strategy includes a general strategy of introducing measures such as performance standards to address treatment and disposal of waste and sewage: p.62.</p> <p>Under the Regional SA Planning Strategy, priorities for the State’s water resources include: “integrating land use planning with water resource planning and management to protect and enhance natural systems, minimise salinity and pollution and remediate degraded resources” p.29. It</p>	<p>See above – a Development Plan should be consistent with the Water Quality EPP, otherwise it may be amended to remove an inconsistency.</p> <p>Further, certain types of developments (depending on their size) may be categorised as <b>activities of environmental significance</b> or <b>activities of major environmental significance</b>, which must be referred to the EPA (see below, rows 19 and 20).</p> <p>Many of the types of listed developments which may be categorised in this way are types which may threaten groundwater quality, eg petroleum and chemical works, manufacturing and mineral processing, waste treatment and disposal, animal husbandry, food production, etc: Sch21 and 22, Development Regulations.</p>



Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in South Australia		
16			<p>Includes the strategies (p.33):</p> <p>Regulate waste disposal and management of polluting activities through codes of practice, licences and guidelines. [and]</p> <p>Identify and reduce sources of pollution for each region, catchment and ground water basin.</p>	
	Controls on rural and urban runoff (p.28)	●	<p>A policy of the Metro Adelaide Planning Strategy is to</p> <ul style="list-style-type: none"> <li>• “Promote water sensitive urban design (WSUD) in Development Plans... and development proposals to achieve multiple catchment water management objectives such as reducing runoff...” (p.31); and</li> <li>• “Ensure coordination of multi-objective management of stormwater by considering it both as a resource and potential hazard”, including by preparing stormwater management plans to reduce pollution load (p.33).</li> </ul> <p>Water strategies within the Regional SA Planning Strategy include: to “encourage the recharge of underground water aquifers with stormwater, provided it does not have detrimental impacts, like salinisation, pollution and water logging”: p.32.</p>	<p>See above – a Development Plan should be consistent with the Water Quality EPP, otherwise it may be amended to remove an inconsistency.</p> <p>Further, discharging stormwater from a catchment above a threshold size to an underground aquifer via a well, within certain areas, is an <b>activity of major environmental significance</b> which must be referred to the EPA: Sch22 Development Regulations.</p> <p>Also, in relation to any <b>activity of environmental significance</b> or <b>activity of major environmental significance</b>, which must be referred to the EPA, the applicant must provide information in relation to:</p> <ul style="list-style-type: none"> <li>• “the method of drainage, and the direction of any stormwater, and any works or services that are proposed to be installed or used in connection with the management of water”; and</li> <li>• “arrangements for the storage and disposal of waste, stormwater and sewage”.</li> </ul> <p>(cl7 of Sch5, Development Regulations)</p>
17	Controls over use of sewage effluent (p.44)	●	<p>The Metro Adelaide Planning Strategy encourages the re-use of treated wastewater (eg pp.31, 33, 48) but does not discuss controls.</p>	<p>See above – a Development Plan should be consistent with the Water Quality EPP, otherwise it may be amended to remove an inconsistency.</p> <p>Also dealt with under the SA Environment Protection Framework.</p>

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in South Australia		
18	Manage land uses to reduce risks of contamination (p.44)	●	<p>A policy of the Metro Adelaide Planning Strategy is to (p.62):</p> <p>Protect land and groundwater from site contamination and encourage the progressive remediation of contaminated land where a risk to human health or the environment exists [and to]</p> <p>Ensure that all persons undertaking any potentially contaminating land use/activity, and all land owners and occupiers, take all reasonable and practicable measures to prevent the contamination of land and water resources.</p>	<p>See above – a Development Plan should be consistent with the Water Quality EPP, otherwise it may be amended to remove an inconsistency.</p> <p>A development authorisation may be subject to such conditions as the relevant authority thinks fit to impose, and conditions prescribed by regulation: s42(1).</p> <p>A condition may regulate or restrict the use of land subject to development, or provide for the management, preservation or conservation of any land or building subject to development: s42(3).</p>
19	Veto or referral rights for water and environment agencies in relation to land development (p.45)	●	See below, row 20.	<p>A local council or the Planning Minister must refer an amendment to a Development Plan to “any government Department or agency that has a direct interest in the matter” for comment: ss25(7) and 26(5).</p> <p>The Development Act (s37) and the Development Regulations (regs24 and 25, and Sch8) provide for the following referrals in relation to a development plan consent:</p> <ul style="list-style-type: none"> <li>• an activity that may give rise to water allocation issues under the NRM Act – have regard to the views of the Chief Executive of the Department administering the NRM Act;</li> <li>• an <b>activity of environmental significance</b> - have regard to the views of the EPA;</li> <li>• an <b>activity of major environmental significance</b> - EPA may direct a council to refuse the application or impose conditions; and</li> <li>• a mining activity outside a designated mining zone, or an extractive industry development - the Mining Minister may direct a council to refuse the application or impose conditions.</li> </ul>

	Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in South Australia	
20		Other inter-agency coordination (pp.28, 35)	<ul style="list-style-type: none"> <li>The Development Act states that the Planning Strategy is “an expression of policy formed after consultation within government and within the community” but does not set out precise requirements for inter-agency consultation: s22(8).</li> </ul>	<p>A regional NRM board under the NRM Act has functions in relation to working with councils to ensure that regional NRM plans (including water allocation plans) are consistent with, and form coherent policy with, Development Plans: s29(1)(ea) NRM Act.</p> <p>A regional NRM plan must identify any policies reflected in a Development Plan that applies within its region that should, in the opinion of the board, be reviewed under that Act in order to promote the objects of the NRM Act or to improve the relationship between the policies in the Development Plan and the policies reflected in the regional NRM plan: s75(3)(f) NRM Act. A water allocation plan may also identify such policies in a Development Plan, to the extent that a regional NRM plan does not do so: 76(4)(h)(ii) NRM Act.</p>
21		Public consultation (p.28)	<ul style="list-style-type: none"> <li>The Planning Minister must invite public submissions in relation to a draft proposal to create or alter the Planning Strategy: s22(4) Development Act.</li> </ul>	<p>Public consultation on an amendment to a Development Plan occurs through public notice, an invitation to make written submissions, at least one public meeting, and through a committee to consider written submissions and representations made at the public meeting: s25(11).</p> <p>The Development Act provides for different levels of public consultation in relation to development approvals, depending on the relevant category of development: s38.</p>
22		Monitoring and review (pp.46-47)	<ul style="list-style-type: none"> <li>The Planning Minister must report annually on the implementation of the Planning Strategy: s22(6)(a) Development Act.</li> <li>The Planning Minister must ensure that the various parts of the Planning Strategy are reviewed at least once in every 5 years: s22(3c).</li> <li>The Metro Adelaide Planning Strategy includes a series of indicators for the purpose of monitoring and review:</li> </ul>	<p>A council must periodically report on strategic planning issues, with reference to the Planning Strategy: s30.</p>

23	Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in South Australia		
			pp.112-116. However, there are no indicators in relation to groundwater or groundwater quality.		
	Enforcement (p.20)	●	<p>The Planning Strategy does not have direct legal effect, in that:</p> <p>The Planning Strategy is an expression of policy formed after consultation within government and within the community and does not affect rights or liabilities (whether of a substantive, procedural or other nature): s22(8).</p> <p>However, a Development Plan should seek to promote the provisions of the Planning Strategy: s23(3)(a)(i).</p> <p>The Planning Minister must consult with the Development Policy Advisory Committee if the Minister considers that a proposed amendment to a Development Plan would be seriously at variance with the Planning Strategy: s25(2).</p>	<p>A Development Plan imposes legally binding restrictions on land use. (See row 8, right column).</p> <p>The following contraventions in relation to a development may be dealt with by way of <b>enforcement notice</b>:</p> <ul style="list-style-type: none"> <li>undertaking a development which is not an approved development: s32; and</li> <li>failing to comply with a condition of a development authorisation: s42.</li> </ul> <p>A council, and certain other bodies, may issue an <b>enforcement notice</b> to direct a person to cease carrying out an action which breaches the Development Act, to make good a breach, or to take urgent action due to a breach: s84(2) Development Act.</p>	

## TASMANIA (1) Groundwater Management Framework Table

Key items of legislation, regulation and policy	Supplementary items of legislation, regulation and policy	Symbols, acronyms, and useful terminology
<p><i>Water Management Act 1999</i> (Tas) (<b>Water Management Act</b>)</p> <p><i>Water Management Regulations 2009</i> (Tas) (<b>Water Management Regulations</b>)</p> <p><i>Public Health Act 1997</i> (Tas) (<b>Public Health Act</b>)</p> <p><i>Drinking Water Quality Guidelines</i> (2005) (<b>Drinking Water Guidelines</b>)—issued under the Public Health Act, available at <a href="http://www.dhhs.tas.gov.au/_data/asets/pdf_file/0020/8723/drinking_water_quality_guidelines17_nov_05.pdf">http://www.dhhs.tas.gov.au/_data/asets/pdf_file/0020/8723/drinking_water_quality_guidelines17_nov_05.pdf</a>, viewed 2 August 2009.</p> <p><i>Natural Resource Management Act 2002</i> (Tas) (<b>NRM Act</b>)</p>	<p><i>Resource Planning and Development Commission Act 1997</i> (Tas) (<b>Commission Act</b>)</p> <p><i>Environmental Management and Pollution Control Act 1994</i> (Tas) (<b>EMPC Act</b>)</p> <p><i>Water Resources Policy #2005/1: Generic Principles for Water Management Planning</i> (February 2009) (<b>WMP Principles</b>), available at <a href="http://www.dpiw.tas.gov.au/inter.nsf/Attachments/JMUY-67X5ZY/\$FILE/Generic%20principles%20WMP.pdf">http://www.dpiw.tas.gov.au/inter.nsf/Attachments/JMUY-67X5ZY/\$FILE/Generic%20principles%20WMP.pdf</a>, viewed 2 August 2009.</p> <p><i>State Policies and Projects Act 1993</i> (Tas) (<b>State Policies Act</b>)</p> <p><i>State Policy on Water Quality Management 1997</i> (Tas) (<b>Water Quality Policy</b>)—made under the State Policies and Projects Act</p>	<p><b>Commission</b> = Resource Planning and Development Commission</p> <p><b>EPA</b> = Environment Protection Authority</p> <p><b>Framework</b> = the collection of legislation, regulation and policy set out in this report for each jurisdiction, in relation to: (1) Groundwater Management; (2) Environment Protection; and (3) Land-Use Planning</p> <p><b>Guidelines</b> = <i>Guidelines for Groundwater Protection in Australia</i> (1995)</p> <p><b>water entity</b> = a term used in the Water Management Act to encompass a Government Business Enterprise, a council, any statutory authority, a corporation, a trust, an electricity entity, a regional corporation under the Water and Sewerage Corporations Act 2008, etc (s3(1))</p> <p><b>Water Minister</b> = Minister for Primary Industries and Water</p> <p><b>Water Secretary</b> = Secretary of the Department of Primary Industries, Parks, Water and Environment</p> <p><b>WMP</b> = water management plan under the Water Management Act</p> <p>● = Framework explicitly provides for this element of the Guidelines</p> <p>◐ = Framework goes some way towards providing for this element of the Guidelines</p> <p>○ = Framework does not provide for this element of the Guidelines</p>

**Note:** Tasmania's Water Management Policy #2001/1 *Water for Ecosystems* (available [http://www.dpiw.tas.gov.au/inter.nsf/Attachments/JMUY-52X7BR/\\$FILE/WaterforEcosystems.PDF](http://www.dpiw.tas.gov.au/inter.nsf/Attachments/JMUY-52X7BR/$FILE/WaterforEcosystems.PDF), viewed 2 August 2009) does not deal with groundwater, nor with water quality considerations.

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in Tasmania	
1 2 3 4	Principles (primarily pp.9-13)	Precautionary principle (pp.11, 40)	● Not explicitly provided for in the key items of legislation, regulation or policy. However, the Water Quality Policy adopts the precautionary principle as one of its objectives (see row 1, Tas Environment Protection Framework).
		Polluter pays principle (p.11)	● Not explicitly provided for in the key items of legislation, regulation or policy. However, the Water Quality Policy refers to polluters bearing an “appropriate share of the costs arising from their activities” (see row 1, Tas Environment Protection Framework).
		Equity considerations (p.12)	● An objective of the Water Management Act is to  provide for the use and management of the freshwater resources of Tasmania having regard to the need to...provide for the fair, orderly and efficient allocation of water resources to meet the community's needs: s6(1)(d), Water Management Act.  A person performing a function or exercising a power under the Water Management Act has an obligation to do so in such a manner as to further this objective: s6(2), Water Management Act.  Equitable considerations are given effect in the water quality context through a provision of the Water Management Act which enables a WMP that deals with taking and using water from one resource, where that causes detrimental effects on the quality of another resource, to include provisions designed to prevent or reduce any such detrimental effect, in order to “to achieve an equitable balance between competing interests”: s17(1)(b).
		Beneficial uses and values (pp.10-12, 39-41)	● The Water Quality Policy establishes processes for identifying <b>protected environmental values</b> of groundwaters, and associated <b>water quality guidelines</b> and <b>water quality objectives</b> (see rows 9-15, Tas Environment Protection Framework).  The WMP Generic Principles set out generic principles for the preparation of WMPs. This document states that the <b>protected environmental values</b> and <b>water quality objectives</b> established under the State Policy on Water Quality Management guide the establishment of objectives for WMPs: p.5.  Further, when issuing or reviewing water rights and other licences or permits which allow water abstraction, water management authorities must take account of the likely effects of the proposed action on water quality, and whether it will prejudice the achievement of <b>water quality objectives</b> : see below, row 19.
5	Forms of intervention (pp.14-15)	Command (p.14)	● The Water Management Act contains requirements for water abstraction licensing, bore licensing and well driller licensing (see below, rows 19, 24 and 26), and provides for several mechanisms to respond to pollution of groundwater (see below, row 22).

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in Tasmania	
6			The Water Management Act also contains specific obligations to properly maintain a well (see row 28, below), and requires that taking water from a well must not cause, either directly or indirectly, <b>material environmental harm or serious environmental harm</b> : s51, Water Management Act.
	Market (pp.14-15)	●	The implementation of regional strategies under the NRM Act focuses on funding natural resources management activities, for example, assisting landholders to implement good NRM practices.
7	Community participation and education (p.15)	●	<p>The objectives of the Water Management Act include to: “provide for the use and management of the freshwater resources of Tasmania having regard to the need to”:</p> <p>increase the community's understanding of aquatic ecosystems and the need to use and manage water in a sustainable and cost-efficient manner; and encourage community involvement in water resource management s6(1)(e) and (f), Water Management Act.</p> <p>A person performing a function or exercising a power under the Water Management Act has an obligation to do so in such a manner is to further this objective: s6(2), Water Management Act.</p> <p>The functions of the Water Minister under the Water Act include to “promote public awareness of the importance of Tasmania's water resources and to encourage the conservation of those resources” and to “encourage community involvement in water resource management”: s8(1)(e) and (f), Water Management Act.</p> <p>A group of landowners may apply to the Water Minister to form a “water entity” to be responsible for the administration of the whole or a part of a WMP, provided those landowners hold the majority of licences granted to take water from the water resource or water resources to which the plan relates: s37(1), Water Management Act.</p> <p>The Commission Act establishes the Commission, which must carry out its functions (which includes functions in relation to WMPs under the Water Management Act) in a manner that encourages public involvement in resource management and planning: cl1(c), Sch1, Commission Act.</p>
8	Reservation of special areas (p.16)	●	The Water Minister may declare a <b>groundwater area</b> : s124A, Water Management Act. The declaration may provide that groundwater may not be taken from that groundwater area without a licence: s124A(2), Water Management Act. According to the Department of Primary Industries, Parks, Water and environment, there are presently no declared groundwater areas (see “Groundwater Management” available at <a href="http://www.dpiw.tas.gov.au/inter.nsf/WebPages/RPIO-4YH6NZ?open">http://www.dpiw.tas.gov.au/inter.nsf/WebPages/RPIO-4YH6NZ?open</a> , viewed 2 august 2009).

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in Tasmania		
9			However, the WMP Generic Principles note that in most areas of Tasmania, the current level of groundwater use is not considered to be at or near unsustainable levels: p.9.	
	Public water supply areas (p.16)	●	The Water Minister may appoint, name and define a <b>water supply district</b> , so as to give a water entity administrative control of, and responsibility for, that water district: s167(1), Water Management Act. A water supply district may include a “specified area of land”. Also see rows 11 and 12, Tas Land-Use Planning Framework.	
10	Other	N/A	N/A	
11	Management plans (pp.18-20)  (that is, a plan for regulating individual behaviour once a groundwater body is being used by many competing users)	Types of management plans for which the legislation or regulation provide	N/A	<p><u>Regional strategy under the NRM Act</u></p> <p>Note: a reference in this column to a section is a reference to a section of the NRM Act.</p> <p>A regional committee under the NRM Act is responsible for preparing a draft regional strategy for its region: s12(1). A regional strategy is accredited by the Minister</p> <p>A regional strategy states its aims, the priorities for natural resource management in the region, and processes for encouraging participation by the community in natural resource management in the region: s13(1). It must be in accordance with national accreditation criteria: s15.</p> <p>The regional strategy must take</p> <p><u>Water management plan (WMP) under the Water Management Act</u></p> <p>Note: a reference in this column to a section is a reference to a section of the Water Management Act.</p> <p>The Water Minister may determine that a WMP is to be prepared: s13(1). The Water Secretary prepares the draft WMP, and the Minister adopts it: ss18(b) and 28.</p> <p>A WMP must include a statement of objectives, a water regime to give effect to those objectives, an assessment of the WMP’s ability to give effect to those objectives, and an assessment of the likely detrimental effects of the plan on water quality: s14(2).</p> <p>It may, among other things, deal with allocation of water and licensing for the taking of water: s14(3).</p> <p>The WMP Generic Principles set out generic principles for the preparation of WMPs. This document states that:</p> <ul style="list-style-type: none"> <li>the Protected Environmental Values (<b>PEVs</b>) and Water Quality Objectives (<b>WQOs</b>) established under the State Policy on Water Quality Management guide the establishment of objectives for WMPs, and should be referred to in assessing the likely detrimental effects on the WMP on water quality: pp.5 and 16; and</li> <li>an application of a new licence for irrigation purposes must be accompanied by a report that indicates “how it is intended to carry out the irrigation in accordance with good practice environmental management, so as to avoid contamination of any adjacent water resource or water body...”: Generic Principle 9.</li> </ul>



Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in Tasmania		
12			<p>account of the priorities for natural resource management of the State (s13(2)(a)(i)), which are set by the Minister: s18.</p> <p>Water and water quality (including groundwater quality tends to be a significant focus on regional strategies.</p>	
	Component studies (p.18)	●	<p>Not explicitly provided for.</p>	<p>Under the WMP Generic Principles, standard objectives for WMPs include (Generic Principle 4):</p> <ul style="list-style-type: none"> <li>• Continue to improve knowledge of the condition and state of the Plan's water resources and aquatic environment.</li> <li>• Continue to improve knowledge of surface water and groundwater use.</li> </ul> <p>The WMP Generic Principles require that a study into water use be undertaken during the development of a WMP: Generic Principle 19.</p>
13	Surface water – groundwater interaction (p.18)	●	<p>Not explicitly provided for.</p>	<p>A WMP may be prepared for either groundwater or a combination of groundwater and surface water: s14(1)(d). However under the WMP Generic Principles, “a plan will apply to all water in permanent and temporary watercourses and lakes and groundwater within the Plan area”: Generic Principle 2.</p> <p>Further, if the take of water from one resource affects the quality of water in another (which may include groundwater effects on surface water), the WMP for the first resource must take into account the needs of persons and ecosystems using water from the other resource, and may “to achieve an equitable balance between competing interests, include provisions designed to prevent or reduce any such detrimental effect”: s17(1).</p>
14	Public consultation (p.19)	●	<p>See below, row 15.</p>	<p>Public submissions must be invited, and a public meeting held, in relation to a draft WMP: s25. The Commission may decide to hold a further hearing on the draft WMP, to which it must invite any person who made a written submission, as well as notifying</p>

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in Tasmania		
15				<p>the public more generally of the hearing: s27.</p> <p>The WMP Generic Principles set out extensive guidance in relation to community consultation, including establishing a Consultative Group, directly contacting peak stakeholder bodies, and holding focus group and public meetings: App1.</p>
	Coordination with other agencies	●	<p>In preparing a draft regional strategy, the regional committee must consult with the Tasmanian Natural Resource Management Council, the community in the region, State and local governments, public land managers, industries, and any other relevant association or body: s12(2).</p>	<p>In preparing a draft WMP, the Water Secretary must consult with the Director, EPA, the Director of Public Health, any council within the municipal area of which a relevant water resource is situated, any Agency that has a direct interest in the draft water management plan, any relevant water entity or relevant licensee, and with other persons: s20.</p> <p>The purpose of this consultation is to ensure consistency with relevant State policy, planning schemes, the Public Health Act, and other documents: s20(1).</p>
16	Market incentives (p.19)	◐	<p>A significant aspect of implementing a regional strategy is funding natural resource management initiatives.</p>	Not explicitly provided for.
17	Monitoring program (p.20)	◐	<p>A regional committee must include in its annual report a report on the implementation of the regional strategy: s11(2)(c).</p> <p>A regional committee must review its regional strategy at least ever 5 years, and sooner if required to do so by the Minister: s16.</p> <p>A function of the Tasmanian Natural Resource Management</p>	<p>The WMP may specify requirements for reviewing the plan: s34(1). The Water Secretary must review the plan on the direction of the Water Minister, and “where it is necessary to do so to ensure the consistency of the plan with any relevant State policy”: s34(1).</p> <p>Under the WMP Generic Principles:</p> <p>Any specified review period for a Plan will be determined through consultation with the Consultative Group during the development of a Plan. Where feasible, triggers will be specified for initiation of a review of part or all of a Plan with the triggers generally guided by the level of water resource development and confidence in information underpinning the Plan, together with the need for certainty among water users: Generic Principle 3.</p>

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in Tasmania		
18			Council is to advise on the effectiveness and efficiency of activities carried out under regional strategies: s7(g).	
	Enforcement (p.20)	●	Not enforceable.	<p>The Water Minister must act consistently with the WMP in undertaking duties in relation to the licensing and allocation of water, and in relation to wells and groundwater areas: s36(2).</p> <p>An agency or water entity must act consistently with a WMP in performing, under this or any other Act, functions that affect or may affect water resources to which the plan relates: s36(3).</p> <p>A licence to take groundwater is subject to a WMP: s55(a).</p>
19	<p>Controls on extraction (p.16)</p> <p>- Licences and permits</p>	<p>Groundwater quality considered in allocating groundwater (pp.9, 19)</p>	<p>●</p> <p>In Tasmania, an owner or occupier of land generally has a right to take groundwater from the land for any purpose (s48(4A)), except that a WMP may require a licence to take groundwater: s50, Water Management Act. The Water Minister must refuse an application for a licence if (among other reasons) (s74, Water Management Act):</p> <ul style="list-style-type: none"> <li>to do so would be inconsistent with the objectives of the Water Management Act or any relevant WMP (noting that a WMP deals with water licensing in the context of an assessment of the impacts of taking water on water quality: see above, row 11);</li> <li>after consultation with the Director of Public Health, that the water to be taken under the licence is so contaminated that its use would create a risk to the health of people, or would contravene the Public Health Act; or that its use would create a risk to the health of animals; or</li> <li>after consultation with the Director, EPA, that the proposed taking or use of the water would contravene the EMPC Act.</li> </ul> <p>The Water Minister may determine that a water allocation of a licence may be used in accordance with “conditions for the avoidance, minimisation or management of associated environmental risks”, where “environmental risk” is defined to include “a deterioration of water quality”: s58(1)(d) and (3), Water Management Act.</p> <p>Under the Water Quality Policy:</p> <p>When issuing or reviewing water rights and other licences or permits which allow water abstraction...water management</p>	

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in Tasmania					
20			authorities must take account of the likely effects of the proposed action on water quality, and whether it will prejudice the achievement of water quality objectives: cl14.1.  A person who contravenes a State Policy (of which the Water Quality Policy is an example) is guilty of an offence: s14, State Policies Act.				
	Quality considered in setting conditions on taking water	●	A licence may specify conditions that apply to taking groundwater, or conditions under which the licensee may undertake well works, or any other conditions and matters the Water Minister thinks fit: s56, Water Management Act.  The Water Minister may determine that a water allocation of a licence may be used only in accordance with conditions for the avoidance, minimisation or management of associated <b>environmental risks</b> (s58(1)(d), Water Management Act), where <b>environmental risks</b> are defined to include a rise in underground water levels, increased salination, or a deterioration of water quality: s58(3), Water Management Act.  Further, the Water Minister may make a water allocation subject to conditions, and these conditions are taken to be conditions of the licence: s84(3), Water Management Act. The Water Minister must allocate water in accordance with any relevant WMP or, where there is no relevant WMP, so as to give effect to the objectives of the Water Management Act: s84(2), Water Management Act.  The Water Minister may require an applicant for a water allocation to direct that an assessment of the effect of allocating the water be made by a person approved by the Minister: s86(1), Water Management Act.  Note that under the WMP Generic Principles, a person applying for a water licence for irrigation purposes must demonstrate that they will not contaminate an adjacent water body, including groundwater: p.8 and Generic Principle 9.				
	Enforcement (p.20)	●	It is an offence to take groundwater from a well without a licence, if a licence is required, and penalties apply: s54(1), Water Management Act.				
21							
22	Other methods of limiting extraction	Method of limiting extraction	N/A	<u>Notice to a licensee reducing a water allocation under the Water Management Act</u>	<u>Notice of water restrictions under the Water Management Act</u>	<u>Well order under the Water Management Act</u>	<u>Order in response to contaminated water under the Public Health Act</u>
23	Water quality considerations (pp.9, 19)	●	The Water Minister may, by notice to a water licensee, reduce that	If the rate at which water is taken from a groundwater area or from a well is	If the Water Minister is satisfied that any act or omission by a person in	The Director of Public Health or a council may make an order closing the supply of	

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in Tasmania				
24			licensee's water allocation to give effect to a WMP (noting that a WMP deals with water licensing in the context of an assessment of the impacts of taking water on water quality: see above, row 11): s88, Water Management Act.	adversely affecting, or is likely to adversely affect, the quality of the water in the groundwater area or well, or is likely to cause damage to dependent ecosystems, or is having a serious effect on another water resource (whether surface water groundwater), the Water Minister, may, by notice, prohibit or restrict the taking water from the resource: ss91 and 92, Water Management Act. A notice may also require any action to be taken to remove or reduce the damage or risk of damage to an ecosystem: s93(c), Water Management Act.	respect of a well may result, directly or indirectly, in the pollution or deterioration, of any waters, the Minister may direct that owner or occupier to do any one or more of a list of things, including discontinue the use of the well, take action to prevent waste from gaining access to the well or to prevent any pollution of the water in it, carry out repairs or modifications to the well, or close or backfill the well: s126(1), Water Management Act.	water if satisfied that the quality of water is, or is likely to become, a threat to public health: s129(1)(a), Public Health Act.
	Enforcement (p.20)	●	It is an offence to take water in excess of an allocation endorsed on a licence, and penalties apply: s82(1)(a), Water Management Act.	It is an offence to contravene a notice, and penalties apply: s92, Water Management Act.	Penalties apply to contravening a well order: s126(4), Water Management Act.	Penalties apply to contravening an order: s129(2), Public Health Act.
25	Well construction measures (p.16)	Bore licensing	●	Well works must not be undertaken unless the relevant person holds a <b>well works permit</b> , or an exemption applies: s135, Water Management Act. The Water Minister must approve an application for a well works permit if he or she is reasonably satisfied that the proposed works, among other things (s135B(2)):		
			●	<ul style="list-style-type: none"> <li>would be consistent with the objectives of the Water Management Act, any relevant WMP and an order declaring a groundwater area;</li> </ul>		

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in Tasmania	
26			<ul style="list-style-type: none"> <li>would not result in material or serious environmental harm or environmental nuisance; and</li> <li>would not adversely impact on a groundwater monitoring bore.</li> </ul> <p>A well works permit may be issued subject to conditions that the Minister thinks fit, having regard to the objectives of the Water Management Act: s135C(2)(b), Water Management Act.</p>
	Driller licensing (pp.16, 25)	●	A person must not physically undertake well works unless the person holds a <b>well driller's licence</b> , or is supervised by such a person: s136A(1), Water Management Act. A well driller's licence may be issued subject to conditions: s136D(2)(b), Water Management Act.
27	Rules for bore construction (p.25)	●	<p>A well driller's licence is subject to conditions set having regard to the fact that "well-drilling activities should, as far as practicable, be carried out in accordance with the <i>Minimum Construction Requirements for Water Bores in Australia</i>", as in force for the time being": reg20, Water Management Regulations.</p> <p>Further, a person holding a well driller's licence may only undertake the kind of well works that are authorised by the licence: s136A(2)(b), Water Management Act. The Water Management Regulations provide for several types of construction methods which may be endorsed on well drillers' licences: reg16, Water Management Regulations.</p> <p>The Water Minister may issue a <b>code of practice</b> to be followed in relation to well works: s301(1)(a), Water Management Act. This Review did not locate any such code of practice presently in effect.</p>
28	Rules for operation and maintenance of bore (p.25)	●	<p>An occupier of land on which a well is situated must ensure that the well, including the casing, lining and screen of the well and the mechanism (if any) used to cap the well, is properly maintained: s128(1), Water Management Act.</p> <p>Where the Water Minister is satisfied that any act or omission by a person (for example, a failure to maintain a well) in respect of a well may result, directly or indirectly, in the pollution or deterioration of groundwater, the Minister may issue a <b>well order</b> directing that owner or occupier to do any one of a number of things, including carry out specified repairs or modifications, discontinue the use of the well, close or backfill the well, or take specified action to prevent pollution: s126, Water Management Act.</p>
29	Enforcement (p.20)	●	<p>Penalties apply to contravening an obligation to properly maintain a well: 128(1), Water Management Act.</p> <p>Penalties apply to contravening a well order: s126, Water Management Act. If a person contravenes a <b>well order</b>, the Water Minister may authorise a person to enter land and carry out the required works, and may recover the reasonable costs of this action: s127, Water Management Act.</p>

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in Tasmania	
30			Penalties apply to a person who undertakes well works without a licence: s136A(1), Water Management Act. Penalties apply to a person who holds a well driller's licence and contravenes a condition of the licence: s136D(4), Water Management Act.
	Water supply and protection of public water supply wells (pp.25-27)	Water supplier may control activities/ intervene in risky activities near bores (pp.16, 26)	<p>● An Agency, public authority, regulated entity or other person managing or in control of water must manage the water in a manner that does not pose a threat to public health: s128(1)(a), Public Health Act.</p> <p>Under the Drinking Water Guidelines, each water authority must have a <b>Drinking Water Quality Management Plan</b>, which covers the drinking water supply system (including catchments and source waters): cl11.1. The <b>Drinking Water Quality Management Plan</b> must include a risk assessment of the hazards that have been known to, or are likely to, affect drinking water quality in each drinking water supply system, and details of proposed improvements to each drinking water supply system whose implementation will strengthen its ability to supply water that is not a threat to public health: cl11.2.4 and 11.2.5, Drinking Water Guidelines.</p> <p>In relation to a situation in which the quality of water is, or is likely to become, a threat to public health, the Director of Public Health, an environmental health officer or a public authority may do anything necessary and practicable to render the water safe: s129(3), Public Health Act.</p> <p>The Director of Public Health may require a person, public authority or Agency to remove or destroy any articles, items, goods or substances that in the opinion of the Director may cause a threat to public health: s151(1), Public Health Act.</p> <p>Under the Local Government Act, a council (which may be a water supplier) may direct a person to abate a "nuisance", which is defined to include anything that "causes, or is likely to cause, a risk to public health", and anything that "gives rise to unreasonable or excessive levels of...pollution": ss199 and 200, Local Government Act.</p>
		Protection zone around supply bores (p.25)	● Dealt with through the Land-Use Planning Framework (see rows 11 and 12).
32		Requirements to monitor up-gradient and within zone (pp.25, 26)	<p>● A council is to monitor the quality of water within its municipal area in accordance with any relevant guidelines: s130(1), Public Health Act. The Director, by notice in writing, may require any Agency, public authority, regulated entity or person to monitor the quality of water under its management or control: s130(2), Public Health Act.</p> <p>The Drinking Water Guidelines under the Public Health Act require each water authority to have a <b>Drinking Water Quality Management Plan</b>, which must include:</p>

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in Tasmania	
33			An inspection and test schedule for each drinking water supply system that sets out system inspection and water quality testing requirements including those for likely hazard events as well as associated performance criteria, required records and responsible personnel: cl11.2.5, Water Quality Guidelines.
	Response plan in event of contamination (p.25)	●	Under the Drinking Water Guidelines, each water authority must have a <b>Drinking Water Quality Management Plan</b> , which covers the drinking water supply system (including catchments and source waters): cl11.1. A Drinking Water Management Plan must include incident and emergency response and communication protocols: cl11.2.6, Drinking Water Guidelines.
	Reporting in the event of contamination (p.25)	●	An Agency, public authority, regulated entity or other person managing or in control of water must, on becoming aware that the quality of the water is, or is likely to become, a threat to public health, notify the Director of Public Health in accordance with relevant guidelines: s128(1)(b), Public Health Act. The Drinking Water guidelines set out a process for this notification: p.8.
34			
35	Enforcement (p.20)	●	The Drinking Water Guidelines contain legally enforceable obligations, and penalties apply for non-compliance: p.3, Drinking Water Guidelines.
36	Other well-related measures	●	A person must not plug, backfill or seal a well in contravention of a WMP under the Water Management Act: s128(2), Water Management Act.
37	Controls on disposal of waste via wells (p.16)	●	<p>A person must not “by any act or omission, introduce, or suffer or permit any person to introduce, into a well any waste or other matter that, on being so introduced, causes, or is likely to cause, the pollution of groundwater”, except with the approval of the Water Minister, who must consult with the Director of the EPA before giving such approval: s129, Water Management Act.</p> <p>The Water Quality Policy provides that a regulatory authority must not authorise a point source discharge of a pollutant to groundwaters unless it is satisfied of several things, including that it is not practical to avoid the need for the discharge of wastes by recycling or re-use, that land application is not practical, and that any unavoidable discharge will not prejudice the achievement of the <b>water quality objectives</b> for the receiving waters: cl15.1.</p> <p>Direct discharges to groundwater are allowed in only exceptional circumstances, such as re-charging aquifers where the quality of the water being discharged is equal to or better than the water quality in the aquifer: cl23.2, Water Quality Policy.</p>



	Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in Tasmania
38	Gathering information	Strategic assessment of groundwater resources (p.38)	<p>● A function of the Minister under the Water Management Act is to “to compile, maintain and update information in respect of the water resources of Tasmania”: s8(1)(d), Water Management Act.</p> <p>The WMP Generic Principles provide for increasing knowledge about groundwater quality by requiring WMPs to establish a Groundwater Use Register within 2 years of the commencement of a WMP, containing details about groundwater quality, derived from information which a well owner or occupier is required to give, when the preparation of a WMP is announced: Generic Principle 12.</p>
39		Monitoring of critical overdraw (p.16)	○ Not explicitly provided for.
40		Vulnerability mapping (pp.20-22)	○ Not explicitly provided for.
41		Aquifer classification systems (pp.22-23)	○ Not explicitly provided for.

## TASMANIA (2) Environment Protection Framework Table

Key items of legislation, regulation and policy	Supplementary items of legislation, regulation and policy	Symbols, acronyms, and useful terminology
<p><i>Environmental Management and Pollution Control Act 1994 (Tas) (EMPC Act)</i></p> <p><i>State Policy on Water Quality Management 1997 (Tas) (Water Quality Policy)</i> – made under the State Policies and Projects Act (currently under review—see note below)</p>	<p><i>State Policies and Projects Act 1993 (Tas) (State Policies Act)</i></p> <p><i>State Policies and Projects Regulations 2004 (Tas) (State Policies Regulations)</i></p> <p><i>Land Use Planning and Approvals Act 1993 (Tas) (LUPA Act)</i></p> <p><i>Environmental Impact Assessment: A Guide</i> (EPA Tasmania, undated) (<b>EIA Guide</b>), available at <a href="http://www.epa.tas.gov.au/file.aspx?id=240">http://www.epa.tas.gov.au/file.aspx?id=240</a>, viewed 3 August 2009.</p> <p><i>General Guidelines for the Preparation of a Development Proposal and Environmental Management Plan for Level 2 activities and 'Called In' Activities</i> (EPA Tasmania, November 2008) (<b>DPEMP Guidelines</b>), available at <a href="http://www.epa.tas.gov.au/file.aspx?id=766">http://www.epa.tas.gov.au/file.aspx?id=766</a>, viewed 3 August 2009.</p> <p><i>Mineral Resources Development Act 1995 (Tas) (Mineral Resources Act)</i></p> <p><i>National Parks &amp; Reserves Management Act 2002 (Tas) (National Parks Act)</i></p> <p><i>National Parks &amp; Reserved Land Regulations 1999 (Tas) (National Parks Regulations)</i></p> <p><i>Dangerous Substances (Safe Handling) Act 2005 (Tas) (Dangerous Substances Act)</i></p> <p><i>Agricultural and Veterinary Chemicals (Control of Use) Act 1995 (Tas) (Chemical Use Act)</i></p>	<p><b>best practice environmental management</b> of an activity is the management of the activity to achieve an ongoing minimization of the activity's environmental harm through cost-effective measures assessed against the current international and national standards applicable to the activity: s4(1), EMPC Act</p> <p><b>Board</b> = the Board of Environmental Management and Pollution Control under the EMPC Act</p> <p><b>EPA</b> = Environment Protection Authority</p> <p><b>Framework</b> = the collection of legislation, regulation and policy set out in this report for each jurisdiction, in relation to: (1) Groundwater Management; (2) Environment Protection; and (3) Land-Use Planning</p> <p><b>Guidelines</b> = <i>Guidelines for Groundwater Protection in Australia</i> (1995)</p> <p>● = Framework explicitly provides for this element of the Guidelines</p> <p>◐ = Framework goes some way towards providing for this element of the Guidelines</p> <p>○ = Framework does not provide for this element of the Guidelines</p>

**Note:** Tasmania is currently reviewing the Water Quality Policy. A Discussion Paper was released in 2008 to aid this process: see Department of Environment, Parks, Heritage and the Arts Environment Division, *Review of the State Policy on Water Quality Management 1997: Discussion Paper* (October 2008) (**Water Quality Policy Discussion Paper**), available at <http://www.environment.tas.gov.au/file.aspx?id=3719>, viewed 13 August 2009.

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in the Tasmania	
1	Principles (pp.9-13)	Precautionary principle (pp.11, 40)	<p>● Under the EMPC Act, it is the obligation of any person on whom a function is imposed or a power is conferred under the Act to perform the function or to exercise the power so as to further the following objective:</p> <p style="padding-left: 40px;">to adopt a precautionary approach when assessing environmental risk to ensure that all aspects of environmental quality, including ecosystem sustainability and integrity and beneficial uses of the environment, are considered in assessing, and making decisions in relation to, the environment: s8 and cl3(h), Sch1, EMPC Act.</p> <p>Generally, a proponent preparing materials for an environmental impact assessment under the EMPC Act will be required to demonstrate that the proposal is consistent with the objectives of the EMPC Act: cl4.0.4, DPEMP Guidelines.</p> <p>An objective of the Water Quality Policy is to apply the precautionary principle to Part 4 of the Policy, which deals with measures to achieve the objectives of the Policy, including managing point sources and diffuse sources of pollution: cl6.1(e), Water Quality Policy.</p>
		Polluter pays principle (p.11)	<p>● Under the EMPC Act, it is the obligation of any person on whom a function is imposed or a power is conferred under the Act to perform the function or to exercise the power so as to further the following objective:</p> <p style="padding-left: 40px;">to allocate the costs of environmental protection and restoration equitably and in a manner that encourages responsible use of, and reduces harm to, the environment, with polluters bearing the appropriate share of the costs that arise from their activities: s8 and cl3(d), Sch1, EMPC Act.</p> <p>The functions of the EPA Board include to use its best endeavours to “ensure that valuation, pricing and incentive mechanisms are considered in policy making and programme implementation in environmental issues”: s14(1)(e), EMPC Act.</p> <p>Generally, a proponent preparing materials for an environmental impact assessment under the EMPC Act will be required to demonstrate that the proposal is consistent with the objectives of the EMPC Act: cl4.0.4, DPEMP Guidelines.</p> <p>If a person served with an <b>environment protection notice</b>, a <b>remediation notice</b>, or a <b>site management notice</b> under the EMPC Act fails to comply with it, the relevant decision-maker may take the action required by the notice and recover their reasonable costs: ss47, 74S and 74U, EMPC Act (as to these notices, see below, row 22).</p>

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in the Tasmania	
3			<p>An objective of the Water Quality Policy is to (cl6.1(e)):</p> <p>ensure that efficient and effective water quality monitoring programs are carried out and that the responsibility for monitoring is shared by those who use and benefit from the resource, including polluters, who should bear an appropriate share of the costs arising from their activities, water resource managers and the community...</p>
	Equity considerations (p.12)	●	<p>Under the EMPC Act, it is the obligation of any person on whom a function is imposed or a power is conferred under the Act to perform the function or to exercise the power so as to further the following objective:</p> <p>to provide for the fair, orderly and sustainable use and development of air, land and water: s8 and cl1(b), Sch1, EMPC Act.</p> <p>Generally, a proponent preparing materials for an environmental impact assessment under the EMPC Act will be required to demonstrate that the proposal is consistent with the objectives of the EMPC Act: cl4.0.4, DPEMP Guidelines.</p>
4	Beneficial uses and values (pp.10-12, 39-41)	●	<p>The State Policies Act provides for State Policies to further the objectives of the Act, where the Planning Minister is of the opinion that the matter dealt with is of State significance: s5(1)(a) and (b). A State Policy must “incorporate the minimum amount of regulation necessary to obtain its objectives”: s5(d), State Policies Act.</p> <p>The Water Quality Policy under the State Policies Act establishes processes for identifying <b>protected environmental values</b> of groundwaters, and associated <b>water quality guidelines</b> and <b>water quality objectives</b> (see below, rows 9-15).</p> <p>An EIA under the EMPC Act will generally require a proponent of a project which has the potential to impact on groundwater to demonstrate that the proposal is consistent with the objectives and requirements of the Water Quality Policy: cl4.3, DPEMP Guidelines (see below, row 19).</p>
5	Forms of intervention	Command (p.14)	<p>● <u>EMPC Act</u></p> <p>The EMPC Act imposes the following general duties, and creates the following offences (among others):</p> <ul style="list-style-type: none"> <li>● <b>general environmental duty</b> - a person must take such steps as are practicable or reasonable to prevent or minimise environmental harm or environmental nuisance caused, or likely to be caused, by an activity conducted by that person: s23A(1);</li> </ul> <p>Note: failure to comply with this duty does not itself constitute an offence, but if a person has failed to comply, an environment protection notice may be issued to that person: s23A(3). Where a person, in relation to an <b>environmentally relevant activity</b>, takes all measures specified, in an approved <b>code of practice</b>, as meeting the requirements for compliance with the general environmental duty in respect</p>

Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in the Tasmania
	<p>of the activity, the person is taken to have complied with the general environmental duty in respect of the activity: s23A(4).</p> <ul style="list-style-type: none"> <li>• a duty of an owner or occupier to notify the Director of an area of land which is or likely to be a contaminated site: s74B;</li> <li>• offences of causing <b>serious environmental harm</b> or <b>material environmental harm</b> by polluting the environment: ss50 and 51;</li> <li>• offences of depositing a pollutant, or causing or allowing a pollutant to be deposited, in a place or position where it could reasonably be expected to cause <b>serious environmental harm</b> or <b>material environmental harm</b>: s51A; and</li> <li>• offences of causing <b>environmental nuisance</b>: s53.</li> </ul> <p>Further, under the EMPC Act, in relation to activities which are not <b>prescribed activities</b>, a council must use its best endeavours to prevent or control acts or omissions which cause or are capable of causing pollution: s20A(2), EMPC Act.</p> <p><u>Chemicals and dangerous goods</u></p> <p>The Dangerous Substances Act imposes obligations on occupiers, employees, manufacturers, importers, suppliers and installers of dangerous substances.</p> <p>For example, an occupier of a major hazard facility or a dangerous substances location must (among other things) as far as practicable, to minimise the risk associated with the major hazard facility or the dangerous substances location, by eliminating or minimising <b>hazards</b>, implementing measures to minimise the likelihood of a dangerous situation or dangerous substances emergency, and implementing measures to limit the consequences if a dangerous substances emergency occurs: s20, Dangerous Substances Act. The term “hazard” is defined to include a thing having the potential to harm the environment: s3, Dangerous Substances Act.</p> <p>The Minister may approve codes of practice that state ways of achieving acceptable levels of risk: s27(1), Dangerous Substances Act.</p> <p>The Chemical Use Act regulates the use, storage and disposal of agricultural and veterinary chemicals, including through licensing of ground and aircraft spraying operators (for example, ss22, 29 and 33). It requires that chemicals be used in accordance with the label: s18, Chemical Use Act. It also provides for the Minister to issue orders controlling or prohibiting agricultural spraying in order to protect the environment: s27(1), Chemical Use Act. The Act also prohibits agricultural spraying which adversely affects any water bodies, groundwater or soil not owned or occupied by the person carrying out the spraying, unless this occurs with the permission of the owner or occupier: s30, Chemical Use Act.</p>

	Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in the Tasmania
6		Market (generally pp.14-15)  eg tradeable discharge permits (pp.45, 46) or taxes on contaminants (p.46)	<p>● The functions of the EPA Board include to use its best endeavours to “ensure that valuation, pricing and incentive mechanisms are considered in policy making and programme implementation in environmental issues”: s14(1)(e), EMPC Act.</p> <p>Under the Water Quality Policy, governments and decisions “must examine the most appropriate mix of regulatory measures, economic instruments and communications strategies to achieve the objectives of the Policy”: cl12.1. The following economic instruments are explicitly mentioned: “accredited licences, taxation relief, rate relief, grants for innovation, and grants to assist community-based groups in areas such as communications”: cl13.1, Water Quality Policy.</p> <p>The EMPC Act provides for <b>environmental agreements</b>; an environmental agreement is a binding agreement between the Board and an operator of premises, which provides for the operator to exceed the level of environmental performance required by the EMPC Act, in exchange for remission of fees, rates or taxes: ss28 and 29, EMPC Act.</p>
7		Community participation and education (p.15)	<p>● Under the EMPC Act, it is the obligation of any person on whom a function is imposed or a power is conferred under the Act to perform the function or to exercise the power so as to further the following objectives:</p> <p style="padding-left: 40px;">to encourage public involvement in resource management and planning: s8 and cl1(c), Sch1, EMPC Act to promote public education about the protection, restoration and enhancement of the environment: s8 and cl3(j), Sch1, EMPC Act</p>
8	Water quality protection objectives and beneficial uses	Strategic assessment of groundwater resource (p.38)	<p>◐ A function of the Commission under the EMPC Act is to prepare State of the Environment Reports: s30(c).</p>
9		Define beneficial uses and values (pp.39-40)	<p>● The Water Quality Policy uses the term <b>protected environmental values</b>, which is defined to mean “values or uses of the environment for which it has been determined that a given area of the environment should be protected”: cl7.1.</p> <p>The Water Quality Policy provides for the following types of <b>protected environmental values</b>, which are relevant to groundwater (cl7.1):</p> <p style="padding-left: 40px;">Protection of Aquatic Ecosystems – Groundwaters (i) Groundwater ecosystems Recreational Water Quality and Aesthetics Raw Water for Town Drinking Water Supply Raw Water for Homestead Supply Agricultural Water Uses (i) Irrigation (ii) Stock watering Industrial Water Supply</p>

10

**Form of protection suggested by the Guidelines**

Identify beneficial uses (pp.40-41)

**Whether implemented / Summary of implementation in the Tasmania**

● The Water Quality Policy provides for applying different protected environmental values to different groundwater bodies, depending on the level of total dissolved solids in the groundwater body at the time the Water Quality Policy is implemented in respect of that groundwater body, as follows (cl10.2):

**Table 1 Environmental Values and Uses of Groundwater Classified by the Level of Total Dissolved Solids (mg/L)**

Category TDS (mg/L)	A Less than 1000	B 1000-3500	C 3500-13000	D greater than 13000
<b>Protected Environmental Value</b>				
Drinking Water (1)	*			
Irrigation	*	*		
Industry	*	*	*	
Stock	*	*	*	
Ecosystem Protection	*	*	*	*
“ * ” Denotes an environmental value which can be achieved given the level of dissolved solids				
(1) Where groundwaters have TDS levels below 500 mg/L, TDS levels should be maintained below these levels wherever practicable.				

These **protected environmental values** do not automatically apply to groundwater bodies – rather, they are determined

by agreement between the Board, the planning authorities with jurisdiction over those waters, and, where relevant, the water management authorities with jurisdiction over those waters, provided that the Board has taken all reasonable measures to consult other agencies and organisations having an interest in the body of water or groundwater body about the existing protected environmental values, and has taken account of those views: cl10.3, Water Quality Policy.

The Water Quality Policy sets out processes and some required timelines for identifying **protected environmental values** and interim **protected environmental values** for groundwaters that are tapped by bores and groundwaters that do not have existing bores: cl10.7.

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in the Tasmania	
11			<p>The Water Quality Policy Discussion Paper notes that “the complexity of the process and a lack of data have contributed to delays in PEVs being designated for most of the State’s groundwaters”: p.34.</p> <p>Further to use of Table 1 of the Water Quality Policy, in assessing the possible impacts of Level 2 activities on groundwater quality, Tasmania advises that it applies the default assumption that the <b>protected environmental values</b> for a particular groundwater include use as drinking water unless data from a suitable monitoring program, and review of existing nearby groundwater uses, indicates otherwise. <b>Protected environmental values</b> can then be developed for a specific groundwater on a specific case-by-case basis.</p>
	Apply criteria (narrative or prescriptive) (pp.41-42)	●	<p>Tasmania uses:</p> <ul style="list-style-type: none"> <li>• <b>water quality guidelines</b>, which are “estimates, based on the best scientific information available, of the levels of indicators which should be met in order to protect an environmental value”: cl8.1, Water Quality Policy; and</li> <li>• <b>water quality objectives</b>, which are the most stringent set of <b>water quality guidelines</b> which should be met to achieve all of the protected environmental values nominated for [a particular] body of water”: cl9.1, Water Quality Policy.</li> </ul> <p><b>Water quality objectives</b> do not set regulatory limits, but are used as a measure of the success of strategies and actions which are imposed for the management of pollution from point and diffuse sources under the Water Quality Policy: cl19.2 and 9.3, Water Quality Policy.</p> <p>The Board determines <b>water quality guidelines</b> for key indicators to achieve <b>protected environmental values</b>, and uses these guideline values to derive <b>water quality objectives</b>: cl11.1, Water Quality Policy.</p>
12	Points of application of criteria (pp.42-43)	●	<p>Direct discharges of contaminants are permitted only in exceptional circumstances: cl123.2 and 23.3, Water Quality Policy. In relation to direct discharges of contaminants that are permitted, and indirect or incidental contamination of groundwater by an activity, criteria generally apply at the point of discharge. However, an attenuation zone may be designated for an activity if,</p> <p style="padding-left: 40px;">after waste reduction...and the use of best practice environmental management, it is not reasonable or practical to prevent restricted pollution of groundwater in the immediate vicinity of the activity: cl25.1, Water Quality Policy.</p> <p>Attenuation zones must be designated in accordance with a series of principles: cl25.3, Water Quality Policy. These principles include: attenuation zones shall be as small as possible, shall not be defined in areas near wells used for supplying drinking water, stock water, or irrigation water, or within a catchment of any “significant karst feature”; shall not occupy a significant portion of an aquifer, and “shall not prevent the achievement or maintenance of water quality objectives in any surface waters fed by the aquifer in which the attenuation zone has been designated”: cl25.3, Water Quality Policy.</p>



Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in the Tasmania	
13			<p>If an attenuation zone has been designated, criteria apply at and beyond the edge of the attenuation zone: cl25.2, Water Quality Policy.</p> <p>Note that Tasmania advises that, to date, no attenuation zones set under the Water Quality Policy have been approved by the Board for the direct disposal of wastewaters to aquifers. There are a numbers of activities that dispose wastewaters by irrigation; in such cases it is expected that nutrients in such wastewaters would be taken up by pastures or crops. No significant level of pollution of groundwaters by nutrients is considered acceptable.</p>
	Monitoring and review program focusing on extent of implementation and extent to which goals are met (pp.46-47)	●	<p>Under the State Policies Act, a Minister must review a State Policy at least every 5 years: s15(1). However, no requirements apply to the nature of the review.</p> <p>The Water Quality Policy states that it will be reviewed three years after it comes into operation and every five years after that: cl49.1. Implementation of the Policy will be reviewed annually by the Minister: cl49.2, Water Quality Policy.</p>
14	Inter-agency coordination (p.48)	●	<p>Draft State Policies are subject to public consultation, and in some cases, public hearings, but there is no explicit requirement for inter-agency coordination: ss6-9, State Policies Act. However, the Minister must advise the Commission and “all appropriate agencies” of the making of a State Policy within 14 days of its coming into operation: s13(2), State Policies Act.</p> <p>The Water Quality Policy itself provides for consultation in relation to the setting of <b>protected environmental values</b> for a groundwater body (see above, row 10).</p>
15	Enforcement of criteria for beneficial uses	●	<p>A person who uses land, or undertakes development that is contrary to a State Policy (such as the Water Quality Policy) is guilty of an offence and penalties apply: s63, LUPA Act.</p> <p>If a State Policy is inconsistent with a provision of a planning scheme, the State Policy prevails, and the Commission must amend the planning scheme to incorporate all relevant parts of the State Policy and remove any inconsistency: s13(1) and (3), State Policies Act.</p> <p>A person who contravenes or fails to comply with a provision of a State Policy or a requirement or obligation imposed under a State Policy is guilty of an offence: s14(1), State Policies Act. An <b>environment protection notice</b> may be served on a person</p>

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in the Tasmania	
16	Controlling sources of contamination	●	<p>who is undertaking certain types of activities, to give effect to a State Policy: s44, EMPC Act.</p> <p>The EMPC Act includes several objectives relevant to the waste hierarchy, including “to prevent environmental degradation and adverse risks to human and ecosystem health by promoting pollution prevention, clean production technology, reuse and recycling of materials and waste minimization programmes”: s8 and Sch1.</p> <p>Generally, a proponent preparing materials for an EIA under the EMPC Act will be required to demonstrate that for each waste that will be produced by the proposed project, all reasonable and practicable measures have been taken to avoid producing that waste, and to reduce the amount of waste requiring disposal, having regard to <b>best practice environmental management</b>. The measures must be in accordance with the waste hierarchy: cl4.0.5, DPEMP Guidelines.</p> <p>The Water Quality Policy requires that “[p]ollutant discharges to the environment should be reduced to the maximum extent that is reasonable and practical having regard to best practice environmental management, and in accordance with the [waste hierarchy]”: cl16.2(b).</p>
	Licensing of contaminants and point sources (p.30, App.1)	●	<p><u>EMPC Act</u></p> <p>Under the EMPC Act, licensing is tied to the LUPA Act. Note that licensing in this context is in relation to activities with the potential to pollute, rather than directly relating to specific discharges.</p> <p>For the purposes of the EMPC Act, there are 3 categories of activities:</p> <ul style="list-style-type: none"> <li>• <b>permissible level 1 activities</b>, which are activities which may cause environmental harm, and in respect of which a permit under the LUPA Act is required, but which is not a level 2 or 3 activity, and in respect of which a planning authority has a discretion to refuse a permit, or is bound to grant a permit either unconditionally, or subject to conditions: ss3(1) and 24(5);</li> <li>• <b>permissible level 2 activities</b>, which are activities specified in Sch2, EMPC Act, and in respect of which a planning authority has a discretion to refuse a permit, or is bound to grant a permit either unconditionally, or subject to conditions: ss3(1) and 25(9), EMPC Act. Categories of level 2 activities are (Sch2, EMPC Act): <ul style="list-style-type: none"> <li>Petroleum and Chemical; Manufacturing and Mineral Processing; Waste Treatment and Disposal; Food Production and Animal and Plant Product Processing; Extractive Industries; Materials Handling; Disposing of Wastes in Waters Within the Limits of the State; Pre-mix Bitumen Plants</li> </ul> </li> <li>• <b>level 3 activities</b>, which are activities that are projects of State significance under the State Policies and Projects Act;</li> <li>• <b>level 2 activities which do not require a permit</b>: s27, EMPC Act; and</li> </ul>

Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in the Tasmania
	<ul style="list-style-type: none"> <li>• <b>other activities</b>, which are “called in” by the Director of the EPA, if he or she is of the opinion that it is expedient in the public interest to do so, having regard to the environmental impact of the activity: s27(2), EMPC Act.</li> </ul> <p>Where a planning authority receives an application for a permit for the use and development of land under the LUPA Act;</p> <ul style="list-style-type: none"> <li>• in relation to a permissible level 1 activity, the Director of the EPA may require a planning authority to refer the application to the Board of the EPA: s24(1), EMPC Act. The Board then assesses the application under the provisions of the LUPA Act: s24(1B) and (2), EMPC Act;</li> <li>• in relation to a permissible level 2 activity, the planning authority generally must refer the application to the Board of the EPA: s25(1)(b), EMPC Act. The EMPC Act guides the Board of the EPA as to the assessment of conditions to be imposed on permits under the LUPA Act. First, the Board determines whether it needs to assess the activity (s25(1D), EMPC Act), then the Board assesses the activity in accordance with the Environmental Impact Assessment Principles, in consultation with the planning authority: s25(2), EMPC Act (see row 19, below).</li> </ul> <p>The Board notifies the planning authority of any conditions or restrictions which the Board requires to be contained in a permit under the LUPA Act, or may direct the planning authority to refuse to grant the permit: s25(5) EMPC Act (in relation to permissible level 2 activities).</p> <p>The following types of conditions may be imposed, among others:</p> <ul style="list-style-type: none"> <li>○ a requirement for an <b>environmental management plan</b>, to be approved by the Board of the EPA: s25(6)(b) (in relation to permissible level 2 activities);</li> <li>○ a condition requiring the person to whom the permit is granted to undertake regular monitoring of the environmental effects of the activity and to report the results of that monitoring to the Board on a regular basis: s25(6)(c) (in relation to permissible level 2 activities); and</li> <li>○ a condition requiring that, if the activity ceases, the site must be rehabilitated in accordance with the Board's requirements: s25(6)(e) (in relation to permissible level 2 activities).</li> </ul> <ul style="list-style-type: none"> <li>• In relation to a <b>level 3 activity</b>, the Resource Planning and Development Commission may assess the activity in accordance with the Environmental Impact Assessment Principles: s26, EMPC Act (see row 19, below); and</li> <li>• In relation to a <b>level 2 activity which does not require a permit</b> under the LUPA Act, the person proposing to undertake the activity must refer the activity to the Board of the EPA for assessment under the EMPC Act: s27(1), EMPC Act. After</li> </ul>

Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in the Tasmania
	<p>completing the assessment, the Board either notifies the person that the activity must not proceed, or issues an environment protection notice containing any conditions or restrictions which apply to the activity: s27(6) and (7), EMPC Act.</p> <p>Note that Tasmania advises that in assessing the possible impacts of Level 2 activities on groundwater quality, it applies the default assumption that the <b>protected environmental values</b> for a particular groundwater will include use as drinking water unless data from a suitable monitoring program, and review of existing nearby groundwater uses, indicates otherwise. (For further details on protected environmental values, see row 10, above.)</p> <p><u>Water Quality Policy</u></p> <p>The Water Quality Policy provides that a regulatory authority must not authorise a point source discharge of a pollutant to groundwaters unless it is satisfied of several things, including that it is not practical to avoid the need for the discharge of wastes by recycling or re-use, that land application is not practical, and that any unavoidable discharge will not prejudice the achievement of the water quality objectives for the receiving waters: cl15.1.</p> <p>Further, regulatory authorities should not approve applications in relation to indirect discharges to aquifers “unless the proposal includes, or has attached as a condition of approval, safeguards which are consistent with <b>best practice environmental management</b> to minimise risk and the extent of pollution”: cl24.2, Water Quality Policy.</p> <p>The Water Quality Policy provides for guidelines to set emissions limits for discharges to groundwater: cl24.3. Guidelines have been published for sewage treatment plants, intensive animal husbandry and food processing. They are available at: <a href="http://www.environment.tas.gov.au/?base=235">http://www.environment.tas.gov.au/?base=235</a>, viewed 13 August 2009.</p> <p><u>Mineral Resources Act</u></p> <p>The Mineral Resources Act provides for the grant of titles in relation to mining, geothermal substances and petroleum products. Applications for titles must be accompanied by a statement specifying the likely impact on the environment (eg 75(3)(f)).</p> <p>The Minister may grant an application for a mining title subject to any conditions the Minister considers appropriate: s80(1), Mineral Resources Act. The holder of a mining lease is to “carry out any mining operations efficiently, effectively and consistent with standards specified in any relevant Code of practice”: s88(a), Mineral Resources Act. There is a Mineral Exploration Code of Practice and a Quarry Code of Practice, available at: <a href="http://www.mrt.tas.gov.au/portal/page?_pageid=35,832233&amp;_dad=portal&amp;_schema=PORTAL">http://www.mrt.tas.gov.au/portal/page?_pageid=35,832233&amp;_dad=portal&amp;_schema=PORTAL</a> and <a href="http://www.mrt.tas.gov.au/portal/page?_pageid=35,832358&amp;_dad=portal&amp;_schema=PORTAL">http://www.mrt.tas.gov.au/portal/page?_pageid=35,832358&amp;_dad=portal&amp;_schema=PORTAL</a>, both viewed 15 August 2009. Environmental controls are predominantly applied through the EMPC Act, with reference to these Codes.</p>

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in the Tasmania	
18			A security deposit is required in relation to a mining title (eg s75(3)(h), Mineral Resources Act. The Minister may use the amount of a security deposit to mitigate any damage to the environment caused by mining operations or exploration, if the holder of the mining title fails to carry out a relevant work program: s196(1)(b), Mineral Resources Act.
	Inter-agency coordination (p.48)	●	See row 17, above, in relation to referrals and consultation between a planning authority and the Board of the EPA in relation to conditions to be imposed on permits under the LUPA Act.
19	Requirements for impact assessment (p.32)	●	<p>When the Board of the EPA assesses an activity under the EMPC Act (see above, row 17, for the triggers for this), it applies the Environmental Impact Assessment Principles.</p> <p>The Environmental Impact Assessment Principles are very general; they require, for example:</p> <ul style="list-style-type: none"> <li>• a level of assessment which is “appropriate to the degree of significance of the proposed environmentally relevant activity to the environment and the likely public interest in the proposed activity”: s74(2), EMPC Act;</li> <li>• the proponent to prepare the case required for assessment in accordance with the requirements of the relevant authority: s74(3), EMPC Act; and</li> <li>• an opportunity to be provided for public consultation before the assessment process is complete: s74(6), EMPC Act.</li> </ul> <p>The EIA Guide provides further detail:</p> <ul style="list-style-type: none"> <li>• for smaller projects, the Board of the EPA will require a proponent to prepare an <b>Environment Effects Report</b>: p.3; and</li> <li>• for the majority of projects, the Board of the EPA will require a <b>Development Proposal and Environmental Management Plan</b>: p.3. The DPEMP Guidelines guide the proponent on what should be included.</li> </ul> <p>For a proposal which has the potential to impact upon groundwater, the DPEMP Guidelines require a proponent to (cl4.3, DPEMP):</p> <p>identify existing conditions, identify performance requirements to be achieved, identify any potential effects of the proposal on groundwater quality or quantity, identify measures to avoid and mitigate any possible adverse effects, and assess the overall effects on groundwater following implementation of the proposed avoidance and mitigation measures.</p> <p>It must be demonstrated that the proposal is consistent with the objectives and requirements of all relevant water management</p>

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in the Tasmania	
20			<p>policies and legislation, including the <i>Water Management Act 1999</i> and the <i>State Policy on Water Quality Management 1997</i>.</p> <p>More generally, the DPEMP Guidelines require a proponent to:</p> <ul style="list-style-type: none"> <li>describe groundwater as part of the general physical characteristics of the proposal site and surrounding area: cl3.2(a);</li> <li>identify and evaluate effects, including the vulnerability of the affected environment to the potential effects, and the reversibility of the effects: cl4.0.1;</li> <li>identify performance requirements for each environmental effect, and evidence they can be complied with: cl4.0.3;</li> <li>demonstrate the proposal is consistent with the objectives set out in the EMPC Act and the objectives of the National Strategy for Ecologically Sustainable Development (which bring in the precautionary principle, polluter pays principle and equity considerations): cl4.0.4; and</li> <li>propose measures to mitigate adverse environmental effects which are unavoidable, and propose measures to offset any residual effects, where the offset actions must have a measurable and relevant benefit which would otherwise not have occurred: cl4.0.6 and 4.0.7.</li> </ul> <p>Note that in addition to the general requirements of the DPEMP Guidelines, Tasmania advises that specific requirements also apply to address the environmental risks posed by specific activities, where these risks are beyond the scope of the DPEMP Guidelines.</p>
	Prescription of activities/ discharges in protected areas (p.45)	●	<p>Developments in parks and reserves are regulated under the National Parks Act and Regulations. The National Parks Act provides for management plans for the use, development and management of reserved land (s19), and the National Parks Regulations prohibit certain activities on reserved land, including the depositing of any polluting matter or thing (reg 4(7)(c)).</p>
	Monitoring requirements (p.45)	●	<p>Monitoring requirements may be imposed in various ways, including through:</p> <ul style="list-style-type: none"> <li>conditions on permits, as recommended by the Board of the EPA at the end of the assessment process under the EMPC Act (see above, row 17);</li> <li>through an approved Development Proposal and Environmental Management Plan process (see above, row 19);</li> <li>an <b>environmental agreement</b> (see above, row 6): s28(3), EMPC Act.</li> </ul>

	Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in the Tasmania
22		<p>The Water Quality Policy also provides for monitoring, in some detail, in relation to monitoring conditions on permits for the direct or indirect discharge of pollutants to groundwater: Pt5, Water Quality Policy.</p>
	Contingency measures, including clean-up requirements (pp.47-48)	<p>● The following tools are available under the EMPC Act, in response to a contravention of certain elements of the EMPC Act (for example, the <b>general environmental duty</b>, in response to serious or material environmental harm, or in relation to a contaminated site):</p> <ul style="list-style-type: none"> <li>• an <b>environment protection notice</b>, which may require a person to take the measures specified in the notice to prevent, control, reduce or remediate environmental harm: s44;</li> <li>• a <b>remediation notice</b>, which requires a person to take action to protect persons and the environment from harm caused by a pollutant in, on or under land, when the land is used in accordance with its existing or a proposed land use: s74F; and</li> <li>• a <b>site management notice</b>, which is issued in respect of a contaminated site for the purpose of ensuring the safe management of the contaminated site and the pollutant that is polluting it: s74G.</li> </ul> <p>As to action that can be taken if a person fails to comply with one of these notices, see above, row 2.</p> <p>The Mineral Resources Act provides for a Mining Land Rehabilitation Trust, which receives money from <b>security deposits</b> which are forfeited: s181. The Minister may cause any abandoned mining land or land affected by former exploration activities to be rehabilitated, and enter into any contract relating to the environmental rehabilitation of any abandoned mining land or land affected by former exploration activities: s180, Mineral Resources Act.</p>
23	Controls on diffuse source contamination (pp.17, 30)	<p>● An objective of the Water Quality Policy is to:</p> <p style="padding-left: 40px;">ensure that diffuse source and point source pollution does not prejudice the achievement of water quality objectives and that pollutants discharged to waterways are reduced as far as is reasonable and practical by the use of best practice environmental management: cl6.1(b).</p> <p>The Water Quality Policy explicitly addresses diffuse source contamination through:</p> <ul style="list-style-type: none"> <li>• key principles, which relate to reducing diffuse source emissions, implementing <b>best practice environmental management</b> and joint development by the State Government and stakeholders of guidelines for best practice environmental management: cl30;</li> <li>• stormwater management strategies, to be implemented through planning schemes: cl31 (see also, row 15, Tas Land-Use</li> </ul>

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in the Tasmania	
			<p>Planning Framework); and</p> <ul style="list-style-type: none"> <li>stating that the State government should ensure that soils with the potential to give rise to highly acid drainage should be identified and subject to appropriate development controls to prevent a threat to <b>water quality objectives</b>: cl36.</li> </ul>



## TASMANIA (3) Land-Use Planning Framework Table

Key items of legislation, regulation and policy	Supplementary items of legislation, regulation and policy	Symbols, acronyms, and useful terminology
<p><i>Land Use Planning and Approvals Act 1993</i> (Tas) (<b>LUPA Act</b>)</p> <p><i>Land Use Planning and Approvals Regulations 2004</i> (Tas) (<b>LUPA Regulations</b>)</p> <p><i>Local Government Act 1993</i> (Tas) (<b>Local Government Act</b>)</p>	<p><i>Planning Directive No.1 - Format and Structure of Planning Schemes</i> (effective on 17 December 2003) – made under s9, LUPA Act (<b>Planning Scheme Directive</b>), available at <a href="http://www.rpdc.tas.gov.au/planning/planning_directives/pd1">http://www.rpdc.tas.gov.au/planning/planning_directives/pd1</a>, viewed 2 August 2009</p> <p><i>Common Key Elements Template</i> (October 2003) (<b>Common Template</b>) – required to be used by the Planning Scheme Directive, available at <a href="http://www.rpdc.tas.gov.au/data/assets/pdf_file/0014/63320/Template_PD1_Final17_10_03.pdf">http://www.rpdc.tas.gov.au/data/assets/pdf_file/0014/63320/Template_PD1_Final17_10_03.pdf</a>, viewed 2 August 2009</p> <p><i>State Policies and Projects Act 1993</i> (Tas) (<b>State Policies Act</b>)</p> <p><i>Environmental Guidelines for the Use of Recycled Water in Tasmania</i> (December 2002) (<b>Recycled Water Guidelines</b>)</p> <p><i>Forest Practices Act 1985</i> (Tas) (<b>Forest Practices Act</b>)</p> <p><i>Forest Practices Code 2000</i> (Tas), available at <a href="http://www.fpa.tas.gov.au/fileadmin/user_upload/PDFs/Admin/FP_C2000_Complete.pdf">http://www.fpa.tas.gov.au/fileadmin/user_upload/PDFs/Admin/FP_C2000_Complete.pdf</a>, viewed 15 August 2009.</p> <p><i>Crown Lands Act 1976</i> (Tas) (<b>Crown Lands Act</b>)</p>	<p><b>Commission</b> = Resource Planning and Development Commission</p> <p><b>Framework</b> = the collection of legislation, regulation and policy set out in this report for each jurisdiction, in relation to: (1) Groundwater Management; (2) Environment Protection; and (3) Land-Use Planning</p> <p><b>Guidelines</b> = <i>Guidelines for Groundwater Protection in Australia</i> (1995)</p> <p><b>State Policy</b> = a State Policy made under s11, State Policies Act</p> <p>● = Framework explicitly provides for this element of the Guidelines</p> <p>◐ = Framework goes some way towards providing for this element of the Guidelines</p> <p>○ = Framework does not provide for this element of the Guidelines</p>

**Note:** *Tasmania Together 2020* (Tasmania Together Progress Board, 2006), available at [http://www.tasmaniattogether.com.au/data/assets/pdf\\_file/0008/25955/2007\\_05\\_07\\_61112\\_-\\_Complete\\_TTBook\\_Sml.pdf](http://www.tasmaniattogether.com.au/data/assets/pdf_file/0008/25955/2007_05_07_61112_-_Complete_TTBook_Sml.pdf), viewed 2 August 2009, is Tasmania's long-term plan to 2020, consisting of 12 goals and 143 benchmarks. Goal 12 "Sustainable management of our natural resources" deals with water quality, but all of the listed targets appear to relate only to surface water, apart from, perhaps, that relating to drinking water quality, and that relating to reducing reliance on chemical use: pp.35-36. It is not discussed further in the table below.

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in Tasmania	
1	Principles (pp.9-13)	Precautionary principle (pp.11, 40)	○ Not explicitly provided for.
2		Polluter pays principle (p.11)	○ Not explicitly provided for.
3		Equity considerations (p.12)	● An objective of the resource management and planning system of Tasmania is “to provide for the fair, orderly and sustainable use and development of air, land and water”: cl1(b), Sch1, LUPA Act. A person performing a function or exercising a power under the LUPA Act has an obligation to do so in such a manner is to further this objective: s5, LUPA Act.
4		Beneficial uses and values (pp.10-12, 39-41)	● A planning scheme must be prepared in accordance with State Policies, including the Water Quality Policy: s20(1)(b), LUPA Act.  If a State Policy is inconsistent with a provision of a planning scheme, the State Policy prevails, and the Commission must amend the planning scheme to incorporate all relevant parts of the State Policy and remove any inconsistency: s13(1) and (3), State Policies Act.
5	Forms of intervention	Command (p.14)	● A use or development of land must not be commenced or carried out without a permit granted and in effect in accordance with the LUPA Act and the provisions of the applicable planning scheme, or in a manner contrary to the conditions and restrictions of a permit: s51, LUPA Act.  A use or development is either: <ul style="list-style-type: none"> <li>• <b>permitted</b> (in which case, a permit must be granted, but may be subject to conditions: s58, LUPA Act and cl4.10, Common Template);</li> <li>• <b>discretionary</b> (in which case a council may refuse or grant a permit, and may impose conditions or restrictions: s57, LUPA Act and cl4.11.2, Common Template); or</li> <li>• <b>prohibited</b> (in which case a council must refuse to grant a permit: cl4.12.2, Common Template).</li> </ul> In determining an application for a permit, a planning authority must: <ul style="list-style-type: none"> <li>• seek to further the objectives of the LUPA Act, which include “to promote the sustainable development of natural and</li> </ul>

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in Tasmania	
6			<p>physical resources and the maintenance of ecological processes and genetic diversity” where sustainable development includes managing the use, development and protection of natural and physical resources while “avoiding, remedying or mitigating any adverse effects of activities on the environment”: cl1(a) and 2, Sch1, LUPA Act; and</p> <ul style="list-style-type: none"> <li>make the decision by reference to the relevant planning scheme: s51(3), LUPA Act.</li> </ul> <p>A permit may be subject to such conditions or restrictions: s51(3A) and (4), LUPA Act.</p>
	Market (generally pp.14-15)	○	Not explicitly provided for in the LUPA Act.
	Community participation and education (p.15)	●	An objective of the resource management and planning system of Tasmania is “to encourage public involvement in resource management and planning”: cl1(c), Sch1, LUPA Act. A person performing a function or exercising a power under the LUPA Act has an obligation to do so in such a manner is to further this objective: s5, LUPA Act.
8	Specific approaches to protection	N/A	<p><u>Planning schemes under the LUPA Act</u></p> <p>Note: a reference in rows 8-22 to a section is a reference to a section of the LUPA Act.</p> <p>A planning scheme is prepared by a planning authority (usually a local council), and approved by the Commission.</p> <p>Under the Planning Scheme Directive, planning schemes must use a common format and structure, and common provisions, found in the Common Template. Key elements are (cl4.1-4.3) zones, and Schedules, which set out standards for particular uses and developments which cannot be described by zone boundaries.</p> <p>A planning scheme must be prepared in accordance with State Policies: s20(1)(b). It must seek to further the following objectives, among others:</p> <ul style="list-style-type: none"> <li>to promote the sustainable development of natural and physical resources and the maintenance of ecological processes and genetic diversity: s20(1)(a) and cl1(a), Sch1; where</li> <li>sustainable development includes managing the use, development and protection of natural and physical resources while “avoiding, remedying or mitigating any adverse effects of activities on the environment”: s20(1)(a) and cl2, Sch1.</li> </ul> <p>A planning scheme may make any provision which relates to the use, development, protection or conservation of any land in the area: s20(1)(c).</p>

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in Tasmania	
9	Use of land-use risk matrix to judge compatibility of land uses with water quality protection (p.44)	●	Not explicitly provided for. However, an objective of the planning process under the LUPA Act is “to provide a planning framework which fully considers land capability”: cl(i), Pt2, Sch1. A planning scheme must give effect to this objective: s20(1)(a).  Note that the Recycled Water Guidelines include a tool for assessing soil capability for recycled water application in terms of salinity and sodicity risks.
10	Land zoning taking into account underlying groundwater (pp.43-44)	●	The Common Template requires the planning scheme area to be divided into zones, and states that zones are based on “the existing and allowable future use of land within a zone; and broadly similar natural, economic or community values”: cl4.1.1, Common Template.  Underlying groundwater may be considered within the context of “natural values”.
11	Protection for water supply protection areas (p.27)	●	The Common Template provides for an Environmental Management Zone, which may be used:  To provide for the protection and management of areas of environmental value such as...water catchments...allowing for complementary use or development where consistent with any strategies for protection and management: cl17.1.1, Common Template.
12	Protection of groundwater recharge zones (p.28)	●	Crown land may be reserved for the purposes of preserving the quality of water and protecting catchments: s8 and Sch4, item 1(c), Crown Lands Act. A management plan may apply to the reserved land for the protection, use, development and management of the land: s12C(1), Crown Lands Act.
13	Controls on land clearing due to connection with groundwater quality (p.28)	●	Land clearing may require a development permit under the LUPA Act, depending on the planning scheme.  The Forest Practices Act covers the clearing of more than 1 hectare of trees, clearing on “vulnerable land” (which is not defined with reference to underlying groundwater), and clearing of threatened vegetation communities. A certified forest practices plan is generally required to authorise land clearing: s17, Forest Practices Act. Forest Practices Plan must be prepared in accordance with the Forest Practices Code, which provides guidelines and standards for the protection of water quality during forest operations, but there is no explicit reference to groundwater quality.

	Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in Tasmania
14	<p>Controls on land development due to connection with groundwater quality (p.28)</p> <p>For example controls on mining, quarrying, waste disposal (p.28)</p>	<p>●</p> <p>May be dealt with by a planning scheme specifying developments as prohibited, or by specifying standards of conditions to be applied to discretionary or permitted developments.</p>
15	<p>Controls on rural and urban runoff (p.28)</p>	<p>●</p> <p>Under the Water Quality Policy:</p> <p>Planning schemes should require that development proposals with the potential to give rise to off-site polluted stormwater runoff which could cause environmental nuisance or material or serious environmental harm should include, or be required to develop as a condition of approval, stormwater management strategies including appropriate safeguards to reduce the transport of pollutants off-site: cl31.1.</p> <p>Stormwater management strategies are to be guided by codes of practice or guidelines describing <b>best practice environmental management</b> for the control of erosion and stormwater runoff from construction activities, including roadworks, and should have the maintenance of applicable <b>water quality objectives</b> as a performance objective: cl31.2 and 31.3, Water Quality Policy.</p> <p>The Water Quality Policy also states that the State Government will facilitate and encourage the development of a code of practice or guidelines to describe <b>best practice environmental management</b> to minimise the impact of stormwater runoff from agricultural land on water quality, and should promote their implementation: cl32.1 and 32.2, Water Quality Policy. Managers of agricultural enterprises:</p> <p>shall implement the code of practice or guidelines...as a means of complying with the [EMPC Act]. Regulatory authorities should take account of the application of the code when considering enforcement action under that legislation: cl32.3, Water Quality Policy</p> <p>In relation to urban runoff:</p> <p>Regulatory authorities must require that erosion and stormwater controls are specifically addressed at the design phase of proposals</p>

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in Tasmania	
16			<p>for new developments, and ensure that best practice environmental management is implemented at development sites: cl33.1., Water Quality Policy.</p> <p>If urban stormwater runoff has significant potential to prejudice the achievement of <b>water quality objectives</b>, councils should prepare and implement a stormwater management plan consistent with the Guidelines for Urban Stormwater Management (NWQMS #10): cl33.3, Water Quality Policy.</p>
	Controls over use of sewage effluent (p.44)	●	<p>The Water Quality Policy encourages the “beneficial re-use of wastewater by land application in an environmentally acceptable and sustainable manner”: cl38.1. It applies a list of matters, of which regulatory authorities must be satisfied before they approve proposals to apply wastes to land, including the use of <b>best practice environmental management</b>, and that the activity will not compromise the <b>water quality objectives</b> for groundwaters: cl38.2, Water Quality Policy.</p> <p>The application of wastewater from sewage treatment plants should be carried out in accordance with the <i>Guidelines for the Re-Use of Wastewater in Tasmania</i>: cl38.4, Water Quality Policy. These Guidelines are now known as the <i>Environmental Guidelines for the Use of Recycled Water in Tasmania</i>, and are available at <a href="http://www.environment.tas.gov.au/index.aspx?base=106">http://www.environment.tas.gov.au/index.aspx?base=106</a>, viewed 13 August 2009.</p>
17	Manage land uses to reduce risks of contamination (p.44)	●	See rows 14, 15 and 16 of this Table.
18	Veto or referral rights for water and environment agencies in relation to land development (p.45)	◐	A planning scheme may require specified things to be done to the satisfaction of the Commission, relevant agency or planning authority (s20(2)(f)), where “relevant agency” includes a State government department or authority, or a department of the Commonwealth: reg10, LUPA Regulations.
19	Other inter-agency coordination (pp.28, 35)	◐	<p>A planning scheme must have regard to a relevant council’s strategic plan (see column to right): s20(1)(d).</p> <p>A planning scheme for an area must, as far as practicable, be consistent with and co-ordinated with the planning schemes applying to adjacent areas: s21(1).</p>

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in Tasmania	
20	Public consultation (p.28)	●	A draft planning scheme is publicly exhibited (s25) and the public is invited to make written submissions: s26. The Commission must hold one or more hearings in relation to the submissions: s27.
21	Monitoring and review (pp.46-47)	◐	The Commission must direct a planning authority to undertake a review of a planning scheme every 5 years: s44(1). The review must address specified issues, include public consultation, and state whether the planning scheme requires amendment, needs to be replaced, or can continue without amendment: s44(2).
22	Enforcement (p.20)	●	When a planning scheme is in force, the planning authority must observe, and enforce the observance of, that planning scheme in respect of all use or development undertaken within the relevant area, whether by the authority or by any other person: s48.  A person who uses land, or undertakes development that is contrary to a planning scheme is guilty of an offence and penalties apply: s63.

## VICTORIA (1) Groundwater Management Framework Table

Key items of legislation, regulation and policy	Supplementary items of legislation, regulation and policy	Symbols, acronyms, and useful terminology
<p><i>Water Act 1989</i> (Vic) (<b>Water Act</b>)</p> <p><i>Catchment and Land Protection Act 1994</i> (Vic) (<b>CaLP Act</b>)</p> <p><i>Victorian Government White Paper – Securing Our Water Future Together: Our Water Our Future</i> (2004) (<b>Our Water Our Future</b>), available <a href="http://www.ourwater.vic.gov.au/programs/owof">http://www.ourwater.vic.gov.au/programs/owof</a>, viewed 24 July 2009.</p> <p><i>Progress Towards Securing Our Water Future</i> (2005). (<b>Our Water Our Future Progress Report</b>), available at <a href="http://www.ourwater.vic.gov.au/programs/owof">http://www.ourwater.vic.gov.au/programs/owof</a>, viewed 24 July 2009.</p> <p><i>Water Industry Act 1994</i> (Vic) (<b>Water Industry Act</b>)</p> <p><i>Safe Drinking Water Act 2003</i> (Vic) (<b>Safe Drinking Water Act</b>)</p> <p><i>Safe Drinking Water Regulations 2005</i> (Vic) (<b>Safe Drinking Water Regulations</b>)</p>	<p><i>Commissioner for Environmental Sustainability Act 2003</i> (Vic) (<b>Commissioner for Environmental Sustainability Act</b>)</p> <p>Framework for State of the Environment Reporting (August 2005) – made under s17(2) <i>Commissioner for Environmental Sustainability Act</i>, available at <a href="http://www.ces.vic.gov.au/">http://www.ces.vic.gov.au/</a>, viewed 18 July 2009.</p> <p><i>State Environment Protection Policy – Groundwaters of Victoria</i> (1997, as varied 2002) – see Victoria Government Gazette S160 (1997) and G12 (2002) (<b>Groundwaters SEPP</b>)</p> <p><i>Determination of Water-Use Objectives</i>, issued under s64T(1) and (2a) of the Water Act (<b>Water-Use Objectives</b>), available at <a href="http://www.waterregister.vic.gov.au/Public/Documents/water_use_objectives.pdf">http://www.waterregister.vic.gov.au/Public/Documents/water_use_objectives.pdf</a>, viewed 29 July 2009.</p> <p><i>Determination of Standard Water-Use Conditions</i>, issued under ss64P, 64Y(1) and 64AI of the Water Act (<b>Standard Water-Use Conditions</b>), available at <a href="http://www.waterregister.vic.gov.au/Public/Documents/consolidated_standard_water_use_conditions.pdf">http://www.waterregister.vic.gov.au/Public/Documents/consolidated_standard_water_use_conditions.pdf</a>, viewed 29 July 2009.</p> <p><i>Groundwater (Border Agreement) Act 1985</i> (Vic) (<b>Border Agreement Act</b>)</p> <p><i>Crown Lands (Reserves) Act 1978</i> (Vic) (<b>Crown Lands Act</b>)</p>	<p><b>Framework</b> = the collection of legislation, regulation and policy set out in this report for each jurisdiction, in relation to: (1) Groundwater Management; (2) Environment Protection; and (3) Land-Use Planning</p> <p><b>GDE</b> = groundwater dependent ecosystem</p> <p><b>Guidelines</b> = <i>Guidelines for Groundwater Protection in Australia</i> (1995)</p> <p><b>PCV</b> = permissible consumptive volume</p> <p><b>RCS</b> = regional catchment strategy under the CaLP Act</p> <p><b>Water Minister</b> = Minister for Water</p> <p><b>WSPA</b> = water supply protection area, declared under the Water Act</p> <p>● = Framework explicitly provides for this element of the Guidelines</p> <p>◐ = Framework goes some way towards providing for this element of the Guidelines</p> <p>○ = Framework does not provide for this element of the Guidelines</p>



Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in Victoria	
1	Principles (primarily pp.9-13)	Precautionary principle (pp.11, 40)	<p>● Each water corporation in Victoria must have regard to certain “sustainable management principles”, including the precautionary principle, in performing its functions, exercising its powers and carrying out its duties: s93, Water Act.</p> <p>A <b>Sustainable Water Strategy</b> under the Water Act (see below, row 13) must take into account the precautionary principle: s22C(2)(c), Water Act, which refers to s1C, Environment Protection Act.</p>
2		Polluter pays principle (p.11)	<p>● A <b>Sustainable Water Strategy</b> under the Water Act (see below, row 13) must take into account the principle that “[p]ersons who generate pollution and waste should bear the cost of containment, avoidance and abatement”: s22C(2)(c), Water Act, which refers to s1F, Environment Protection Act.</p> <p>The Water-Use Objectives that apply to water-use licences under the Water Act seek to ensure that licence holders are responsible for the costs of land and water salinisation caused by irrigation infiltration, and ensure that the cumulative effects of water use are shared equitably (see below, row 20).</p>
3		Equity considerations (p.12)	<p>● A purpose of the Water Act is to “promote the orderly, equitable and efficient use of water resources”: s1(c), Water Act.</p> <p>The object of a <b>management plan for a water supply protection area</b> is to make sure that the relevant water resources are “managed in an equitable manner and so as to ensure the long-term sustainability of those resources”: 32A(1), Water Act.</p> <p>A <b>Sustainable Water Strategy</b> under the Water Act (see below, row 13) must take into account the principle of intergenerational equity: s22C(2)(c), Water Act, which refers to s1D, Environment Protection Act.</p> <p>One of the principles to which a water corporation in Victoria must have regard in exercising its powers and carrying out its duties is “the need to integrate both long term and short term economic, environmental, social and equitable considerations”: s93(c), Water Act.</p> <p>One of the purposes of the Border Groundwaters Agreement, which is approved by the Border Agreement Act, is to provide for the equitable sharing of the groundwater resources adjacent to the border between South Australia and Victoria and to guard against the degradation of those resources: preamble, Sch1, Border Agreement Act.</p>
4		Beneficial uses and values (pp.10-12, 39-41)	<p>● The Water Act definition of “pollute” includes “to alter (directly or indirectly) the physical, thermal, chemical, biological or radioactive properties of the water so as to make the water— (a) less fit for any beneficial purpose for which it is, or may reasonably be expected to be, used...”: s3(1), Water Act. The term “beneficial purpose” is not defined.</p>

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in Victoria	
5	Forms of intervention (pp.14-15)	Command (p.14)	<p>● The Water Act imposes licensing requirements in relation to taking groundwater and constructing bores, and provides for water pollution as follows:</p> <p>A person who pollutes water, whether or not authorised to do so... and by that act causes to injury to any other person or damage to the property of another person or causes any other person to suffer economic loss is liable to pay damages to that other person...: s15(1)(c), Water Act.</p> <p>The Water Minister may also direct the owner or occupier of a bore to take measures to prevent the pollution of water (see below, row 22).</p>
		Market (pp.14-15)	<p>● A <b>Sustainable Water Strategy</b> under the Water Act (see below, row 13) must take into account the following principle:</p> <p>Established environmental goals should be pursued in the most cost effective way by establishing incentive structures, including market mechanisms, which enable persons best placed to maximise benefits or minimise costs to develop solutions and responses to environmental problems: s22C(2)(c), Water Act, which refers to s1F, Environment Protection Act.</p>
		Community participation and education (p.15)	<p>● An object of the Water Act is “to maximise community involvement in the making and implementation of arrangements relating to the use, conservation or management of water resources”: s1(e), Water Act.</p> <p>A principle to which a water corporation in Victoria must have regard in exercising its powers and carrying out its duties is “the need to encourage and facilitate community involvement in the making and implementation of arrangements relating to the use, conservation and management of water resources”: s93(b), Water Act.</p> <p>Under the Water Act, public consultation provisions apply to the declaration of a <b>water supply protection area</b> (s27(4)); the making of a <b>management plan</b> (s32A(7)); applications for <b>bulk entitlements</b> (38(3)), and allocation of <b>environmental entitlements</b> (s48D) and an application to construct a bore (65(1)), although some of these provisions allow, rather than require, public consultation processes.</p> <p>Further, a management plan under the Water Act is prepared by a <b>consultative committee</b> (s31), and the Water Minister may appoint a <b>panel</b> of persons to consider an application for a bulk entitlement (s39) and an environmental entitlement (s48E).</p>
8	Reservation of special areas (p.16)	Stressed areas (p.16)	<p>● The Minister may declare a <b>water supply protection area (WSPA)</b> in relation to groundwater resources, after following a process of public consultation and notifying certain public bodies: s27 Water Act. The Water Act provides for a <b>management plan</b> to be approved by the Minister for such an area (see below “Management plans”).</p>

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in Victoria						
9		Public water supply areas (p.16)	●	The Minister may declare an area of land to be a <b>special area</b> (which may cover land classified as a water supply protection area) under the CaLP Act. The special area may cover an area an area classified as a <b>WSPA</b> : s27(2) and (7), CaLP Act. One of the considerations in declaring a special area is “how the existing or potential use of the area may adversely affect...aquifer recharge areas or aquifer discharge areas”: 27(3)(c), CaLP Act.  Under the Crown Lands Act, the Governor in Council may reserve land for “watersheds and gathering grounds for water supply purposes” (s4(1)(d)) and may also place such land under the control and management of a person holding a licence under the Water Industry Act: s18, Crown Lands Act.				
10		Other	●	<u>Reservation of inter-jurisdictional groundwater areas</u>  The Border Agreement Act approves an agreement between Victoria and South Australia which provides for the protection of groundwater resources adjacent to the border between those jurisdictions, by allowing for: <ul style="list-style-type: none"><li>a permissible level of salinity to be set for a zone within the designated border area: cl28 of Sch1;</li><li>a period of restriction to be declared, during which controls apply to constructing, altering, enlarging or deepening bores: cl29 of Sch1.</li></ul> A bore which passes through two or more aquifers is required to have an impervious seal between the aquifers: cl26(a) of Sch1. The requirements of the Border Groundwaters Agreement prevail over the Victorian Water Act, and the Minister or an Authority may not act inconsistently with it: s6 Water Act.				
11	Management plans (pp.18-20)  (that is, a plan for regulating individual behaviour once a groundwater body is being	Types of management plans for which the legislation or regulation provide	N/A	<u>Our Water Our Future</u>  Note: a reference to a page number in this column is to a page of Our Water Our Future.  Our Water Our Future is Victoria’s non-statutory 50-year plan for water. It deals with water resources and their allocation,	<u>Sustainable Water Strategies under the Water Act</u>  Note: a reference to a section number in this column is to a section of the Water Act.  The Water Minister causes <b>Sustainable Water Strategies</b> to be prepared for particular	<u>Management plan for a WSPA under the Water Act</u>  Note: a reference to a section number in this column is to a section of the Water Act.  <b>A management plan</b> may make provision for various matters, including metering,	<u>Special area plan for a special area under the CaLP Act</u>  Note: a reference to a section number in this column is to a section of the CaLP Act.  <b>A special area plan</b> must identify the land management issues to be dealt	<u>Regional catchment strategy (RCS) under the CaLP Act</u>  Note: a reference to a section number in this column is to a section of the CaLP Act.  A RCS relates

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in Victoria					
used by many competing users)			restoring rivers and aquifers, efficient use of irrigation water, efficient use of urban water, water pricing, and the water industry.	<p>regions of Victoria: s22B.</p> <p>A Sustainable Water Strategy provides for strategic water planning. It:</p> <ul style="list-style-type: none"> <li>identifies, among other things, threats to “the quality of water for both environmental and consumptive uses in the region”: s22C(1)(a);</li> <li>identifies ways to improve and sets priorities for improving the quality of water: s22C(1)(b); and</li> <li>includes an implementation plan: s22C(1)(e).</li> </ul>	monitoring and accounting; restrictions on the issue of “take and use” and works licences; and restrictions on the taking of groundwater to maintain a particular level or to prevent a permissible consumptive volume being exceeded, conditions that must apply to “take and use” licences, and various environmental matters: s32A(3).	with in the plan and must state the program of action to be taken to deal with those issues, and the costs and benefits of that action: s30(1). It may also specify what land may be used for what purpose in the area.	broadly to the assessment of land and water resources, and sets objectives for the quality of the land and water resources and measures to promote improved use of land and water resources: s24(2). The term “water resources” is defined to include the quality of water: s3(1). A RCS must include an assessment of groundwater quality in the region and how groundwater is used, objectives for groundwater quality, a program of measures to improve the use of groundwater, necessary actions, and procedures for monitoring implementation, including

12

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in Victoria					
							implementation of the groundwater objectives: s24.
	Component studies (p.18)	●	<p>Our Water Our Future states that the Government will invest “additional funds” in monitoring water resources, including monitoring the quality and quantity of both surface water and groundwater: action 2.17, p.32.</p> <p>The Our Water Our Future Progress Report describes a preliminary assessment, completed in 2005, of the interaction between GDEs and groundwater in 35 groundwater management areas in Victoria, and which will be extended throughout the State: p.10.</p>	<p>A Sustainable Water Strategy must take into account the results of any long-term water resources assessment undertaken under the Water Act: s22C(2)(a) (see below, row 39).</p>	<p>Component studies are not explicitly required to be undertaken for the purposes of a management plan. However, the Minister may publish guidelines for the preparation of a draft management plan: s30(1). The guidelines may conceivably require the collection of information in the form of component studies.</p>	<p>Component studies are not explicitly required to be undertaken for the purposes of a special area plan. However, the Victorian Catchment Management Council may publish guidelines for the preparation of a special area plan: cl2(2) of Sch 2. The guidelines may conceivably require the collection of information in the form of component studies.</p>	<p>The same provisions as relate to a special area plan apply, since Sch 2 applies to both types of plans.</p>

	Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in Victoria					
13	Surface water – groundwater interaction (p.18)	●	Our Water Our Future states that the Victorian Government will “complete a statewide project to better understand the interaction between groundwater and surface water systems”: p.24, although groundwater quality is not explicitly mentioned.	Not explicitly provided for. However, the purposes of the Water Act, under which a Sustainable Water Strategy is prepared, include (s1(b) and (f)):  to provide for the integrated management of all elements of the terrestrial phase of the water cycle [and]  to eliminate inconsistencies in the treatment of surface and groundwater resources and waterways	A management plan may (but need not) cover both surface water and groundwater in a water supply protection area: s32A(2). The guidelines published by the Minister for the preparation of a draft management plan (s30(1)) may also require that surface-water groundwater interaction be considered.  Our Water Our Future states that management plans will be made for aquifers with strong interconnections with stressed surface water systems, in addition to stressed aquifers: p. 25.	Not explicitly required. However, the guidelines published by the Victorian Catchment Management Council for the preparation of a special area plan (cl2(2) of Sch 2) may conceivably require the collection of this information.	The same provisions as relate to a special area plan apply, since Sch 2 applies to both types of plans.
14	Public consultation (p.19)	●	Our Water Our Future was developed through public submissions on a discussion paper ( <i>Securing Our Water Future</i> ) and public meetings across Victoria: p.5.	The Water Minister must appoint a consultative committee to advise him or her in relation to the Sustainable Water Strategy: s22D.  In preparing a draft Sustainable Water	The Water Minister must not declare a water supply protection area without public consultation: s27(4)(a)(i).  A draft management plan for a water supply	There is no requirement for the Minister to consult the public before declaring a special area.  An Authority may prepare a special	The same provisions as relate to a special area plan apply, since Sch 2 applies to both types of plans.

	Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in Victoria					
				<p>Strategy, the Minister must notify the public, invite public comments, and consider those comments: s22E(c) to (f).</p> <p>The Water Minister must also appoint a panel of person to consider public comments and advise the Water Minister: s22F.</p>	<p>protection area is prepared by a consultative committee appointed by the Water Minister (s29), then approved by that Minister: s32A(6).</p>	<p>area plan for a special area, which the Minister may approve: cl2(1) and 3(2) of Sch2.</p> <p>It is mandatory for the Authority preparing a special area plan to undertake certain forms of public consultation, and it may also undertake other forms of consultation: cl2(4) and (5) of Sch 2.</p>	
15	Coordination with other agencies	●	<p>The Victorian Government will:</p> <p>consult with the New South Wales Government on the sustainable management of shared groundwater resources [and]</p> <p>consult with the Commonwealth Government on the impact of offshore oil and gas extractions on Victoria's groundwater resources.</p>	<p>In preparing a Draft Sustainable Water Strategy, the Minister must notify any Authority whose interests the Minister considers are likely to be affected by the Strategy: s22E(b).</p> <p>A Sustainable Water Strategy must take into account various plans and strategies prepared under other Acts, including:</p> <ul style="list-style-type: none"> <li>a special area plan and regional</li> </ul>	<p>The Minister must not declare a water supply protection area unless he or she has consulted specified other agencies: s27(4)(a)(ii).</p>	<p>The Authority preparing a special area plan must consult with any Minister or public authority likely to be affected by the plan: cl2(3)(a) of Sch 2.</p> <p>Before approving the special area plan, the Minister must consult with any other Minister whose interests are likely to be affected by the plan: cl3(3) of</p>	<p>The same provisions as relate to a special area plan apply, since Sch 2 applies to both types of plans.</p> <p>Further, the Groundwaters SEPP states that the EPA "will work with Catchment Management authorities...to ensure that regional catchment</p>

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in Victoria					
16			(action 2.7, p.25)  Groundwater quality was not specifically mentioned.	catchment strategy under the CaLP Act; <ul style="list-style-type: none"> <li>the Groundwaters SEPP; and</li> <li>a planning scheme under the Planning and Environment Act: s22C(2)(b).</li> </ul> (See columns to right, and see the Victorian Environment Protection Framework and the Victorian Land-Use Planning Framework).		Sch 2.	strategies and other management strategies and programs make adequate provision for the protection of beneficial uses of groundwater": cl23.
	Market incentives (p.19)	●	In the context of the hydrologic impact of new forest plantations, the Government will develop appropriate tools, for example planning provisions, incentives and pricing systems... in consultation with stakeholders to account for the impact of new plantations on water resources, water salinity...: action 2.20, p.35.	A Sustainable Water Strategy must take into account the following principle:  Established environmental goals should be pursued in the most cost effective way by establishing incentive structures, including market mechanisms, which enable persons best placed to maximise benefits or minimise costs to develop solutions and responses to environmental problems: s22C(2)(c), which refers to s1F, Environment	Not explicitly provided for.	Not explicitly provided for.	A RCS is explicitly permitted to provide for incentives for better land management: s24(3)(e).



	Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in Victoria					
17			<p>In the context of tools to reduce irrigation-induced pollution, including salinity and nutrients, the Government will:</p> <p>continue to investigate a scheme of tradeable permits for saline drainage– based on average impacts – with a view to possible trial and adoption: action 4.10, p.87.</p>	Protection Act.			
	Monitoring program (p.20)	●	<p>The Government will provide funding support to upgrade and maintain the State's network of groundwater observation bores, and install new bores across the State: action 2.17, p.32.</p> <p>The Our Water Our Future Progress Report reports on the implementation of Our Water Our Future.</p>	<p>The Water Minister must review a Sustainable Water Strategy (a) if the findings of a long-term water resources assessment (see row 39, below) have any impact on the Strategy; or (b) at the end of 10 years following the endorsement of the Strategy: s22l(1).</p> <p>Such a review must determine whether or not the timelines and targets in the implementation plan of the Strategy have been</p>	The Authority which is responsible for administering and enforcing a management plan for a water supply protection area must report on these activities in relation to the plan: s32C.	The Authority which prepares a special area plan also has the function of co-ordinating and monitoring the implementation of the plan: s12(1)(b).	The Authority which prepares a RCS also has the function of co-ordinating and monitoring the implementation of the RCS: s12(1)(a).

	Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in Victoria				
18				met: s22I(3).  Each annual report of the Department of Sustainability and Environment must specify the measures being undertaken to implement a Sustainable Water Strategy: s22J(2).			
	Enforcement (p.20)	●	Not enforceable – policy only.	The Water Act does not provide for the enforcement of any aspect of a Sustainable Water Strategy.	The Authority responsible for the management plan may direct specified works to be carried out, or specified equipment to be installed, or may direct that works be removed or action be discontinued, to ensure compliance with the plan: s32B(1). Penalty for not complying with such a direction: 20 penalty units: s32B(4).  Penalties apply to contravening a management plan for a water supply protection area: s32A(13).	A special area plan may permit the Secretary to impose land use conditions on landowners in the relevant area: s30(2). These conditions are binding on landowners, and a penalty of 60 penalty units applies for non-compliance: s35.  A special area plan may be given effect by a planning scheme, and must be taken into account by a Minister or public authority carrying out certain land management	A RCS may be incorporated into a State Environment Protection Policy (see Victorian Environment Protection Framework) and given effect by a planning scheme (see Victorian Land-Use Planning Framework): s25.  In carrying out certain functions involving land management, a Minister or public authority must have regard to a RCS: s26.

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in Victoria					
						functions: ss31 and 32.	
19	Controls on extraction (p.16)  - Licences and permits	Groundwater quality considered in allocating groundwater (pp.9, 19)	●	<p>Water for consumptive purposes is allocated under a bulk entitlement, “take and use” licence or water share. Water for environmental purposes is allocated to an environmental entitlement. In considering an application for these authorisations, the Water Minister must do the following:</p> <ul style="list-style-type: none"> <li>• in relation to bulk entitlements and “take and use” licences—must have regard to the “existing and projected quality of water in the area”, likely adverse effects on the aquifer, and if appropriate, the proper management of the aquifer: ss40(1) and 53(1) Water Act;</li> <li>• in relation to bulk entitlements, environmental entitlements, and “take and use” licences—must give effect to an approved management plan for a WSPA: ss40(2), 48F(2), 53(2)(e)), Water Act; and</li> <li>• in relation to a water share—must not conflict with an approved management plan for a WSPA: s33I(2), Water Act, and if for an area not subject to a bulk entitlement, the Water Minister must have regard to the “existing and projected quality of water in the area” and likely adverse effects on the aquifer: s33J(2), Water Act.</li> </ul> <p>The Water Act also provides for an <b>environmental water reserve</b>, which comprises water set aside for the environment, using various mechanisms: s4A, Water Act. The objective of the environmental water reserve is:</p> <p style="padding-left: 40px;">that the environmental water reserve be maintained so as to preserve the environmental values and health of water ecosystems, including their biodiversity, ecological functioning and quality of water and the other uses that depend on environmental condition: s4B, Water Act.</p> <p>Accordingly, groundwater allocated to the environmental water reserve may be allocated for the purposes of preserving the quality of groundwater on which ecosystems depend.</p> <p>In addition to authorisations that relate to the allocation of water, a <b>water-use licence</b> is required to use water from a declared water system for irrigation purposes: s64J, Water Act. In considering whether to grant a water-use licence, the Water Minister must consider the impact of the proposed use of water on the environment, including waterlogging, salinity and nutrient impacts, and the Minister must not grant the licence if to do so would be inconsistent with the <b>water use objectives</b>: ss64M and 64N, Water Act (as to water use objectives, see below, row 20).</p>			
	20	Quality considered in setting conditions	●	<p>The conditions which may be placed on water authorisations may also reflect quality concerns:</p> <ul style="list-style-type: none"> <li>• in relation to bulk entitlements and environmental entitlements: conditions may relate to protection of an aquifer,</li> </ul>			

Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in Victoria
on taking water	<p>protection of the environment, implementation of conservation policy: s43(i) and s48J, Water Act;</p> <ul style="list-style-type: none"> <li>• in relation to take and use licences: conditions may relate to the protection of an aquifer, the protection of the environment or the proper management of the aquifer: s56(1), Water Act; and</li> <li>• in relation to water shares: conditions on the use of water allocation under a water share are applied through a water use licence or water use registration (one of which is required to use groundwater under a water share for irrigation purposes). In considering whether to grant a water use licence, the Minister must consider “the impact the proposed use of water may have on other persons or the environment (in particular waterlogging, salinity and nutrient impacts)”: 64M(a), Water Act.</li> </ul> <p>Overarching <b>water use objectives</b> apply to the administration of water use licences: s64T, Water Act. These objectives may provide for minimising impacts of water use on other persons and the environment including minimising salinity, managing groundwater infiltration, managing disposal of drainage, protecting biodiversity, and minimising cumulative effects of water use: 64U, Water Act. The current Water-Use Objectives are:</p> <ul style="list-style-type: none"> <li>• managing groundwater infiltration so as to minimise or avoid waterlogging, land and water salinisation and groundwater pollution: cl4(a);</li> <li>• managing disposal of drainage so as to (among other things), avoid salinising groundwater: cl4(b);</li> <li>• ensuring that “licence-holders are responsible for the full costs of measures to reduce those risks, or, alternatively, the full cost of any necessary offsetting works” in relation to water salinisation caused by groundwater infiltration: cl4(c);</li> <li>• setting corrective action thresholds and corrective action procedures where limits on groundwater infiltration and controls on drainage disposal are insufficient to manage identified risks associated with water use to vegetation and habitats: cl4(d); and</li> <li>• ensuring that the cumulative effects of water use are shared equitably: cl4(e).</li> </ul> <p>The Minister may also issue <b>standard water use conditions</b>, that are consistent with the water use objectives, and that apply to water use licences: s64Y, Water Act. The Standard Water-Use Conditions apply requirements to all water-use licences in declared water systems: cl3. They apply requirements in relation to managing groundwater infiltration (including a requirement for an <b>irrigation and drainage plan</b>), managing disposal of drainage, minimising salinity, and biodiversity protection.</p>

	Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in Victoria		
21		Enforcement (p.20)	●	<p>Penalties apply to unauthorised taking of groundwater from an aquifer in a declared water system or from a bore in a non-declared water system: ss33E(1) and 63(1), Water Act.</p> <p>It is an offence to fail to comply with a condition on a water-use licence: s64AF, Water Act.</p>	
22	Other methods of limiting extraction	Method of limiting extraction	N/A	Declaration of a <b>permissible consumptive volume</b> under the Water Act	Direction of the Minister in relation to a bore, under the Water Act
23		Water quality considerations (pp.9, 19)	●	The Water Minister <b>may</b> declare a <b>permissible consumptive volume (PCV)</b> to a water system or area to limit extraction, including from a groundwater source: s22A(1), Water Act. It appears that this may be done for any reason (including, for example, to prevent adverse effects on water quality), since no relevant considerations are listed.	The Water Minister may issue a direction to the occupier of a bore, including a direction to take a measure to prevent the pollution of water, or to protect the environment: s78(2), Water Act.
24		Enforcement (p.20)	●	<p>The Water Minister must not issue a <b>water share</b> or a <b>take and use licence</b> if this would lead to the PCV being exceeded: ss33I(2)(b) and s55(2B)(a), Water Act. However, there is no requirement to scale back allocations or entitlements in response to a PCV having been exceeded.</p> <p>The Minister must have regard to a PCV for the relevant area in considering an application for a <b>bulk entitlement</b>: 40(1)(ba), Water Act.</p> <p>A <b>management plan</b> for a WSPA may include restrictions on taking groundwater to prevent a PCV being exceeded: s32A(3)(f)(ii), Water Act.</p>	<p>Penalties apply to a person who contravenes a direction: s78(5).</p> <p>If urgent works are required to prevent water pollution, and a person fails to respond to a direction, the Minister may carry out the work and recover the cost from the occupier: s81(1)(b), Water Act.</p>
25	Well construction measures (p.16)	Bore licensing	●	<p>A licence (<b>section 67 licence</b>) is required to construct, alter, operate, remove or decommission a bore and other kinds of works: s67, Water Act. Minister must consider adverse effects on an aquifer, the existing and projected quality of water in the area and proper management of the aquifer: s68(b)(iii) and (ba), Water Act.</p> <p>A licence to construct a bore may be subject to conditions relating to the standard of construction, future maintenance and operation, the qualifications of the constructor, the protection of the environment, works or measures to protect the aquifer, the giving of samples to an Authority, and the use of a licensed driller: s71(b), Water Act.</p>	
26		Driller licensing (pp.16, 25)	●	A Driller Licensing Board may grant a renewable 10-year driller's licence to an applicant, entitling the applicant to use the method of drilling or bore construction endorsed on the licence: s312(1), Water Act.	

	Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in Victoria	
27		Rules for bore construction (p.25)	●	Under the Groundwaters SEPP, any drilling, bore construction and development must be consistent with “current best practice or with any relevant best practice environmental management guidelines adopted by the [EPA]”: cl22.  Also, see above, row 25.
28		Rules for operation and maintenance of bore (p.25)	●	See above, row 25.
29		Enforcement (p.20)	●	The Driller Licensing Board may suspend or revoke a licence if the driller contravenes the terms of the licence or relevant regulations: s313, Water Act. A works licence under s67 Water Act may require work to be carried out or supervised by a licensed driller, and it is an offence for an unlicensed person to carry out that work: s316, Water Act.
30	Water supply and protection of public water supply wells (pp.25-27)	Water supplier may control activities/ intervene in risky activities near bores (pp.16, 26)	●	An Authority with a <b>water district</b> has powers to require any person to cease doing an activity on land that they own, if that thing is likely to affect the purity of the water supply system – this is a <b>notice of contravention for water supply protection under the Water Act</b> : s169(1), Water Act. An Authority may also make by-laws to regulate or prohibit activities within 40 metres of water supply works (including bores), where those activities may affect the water supply system: s171(1)(f), Water Act.  The holder of a water licence under the Water Industry Act has the power to enter any land for the purposes of water supply protection and: <ul style="list-style-type: none"> <li>in an emergency, remove from land or works that are part of the water supply system, a substance that is likely to affect the purity of water supply system: s83, Water Industry Act; and</li> <li>require a person to remove a substance or cease doing an activity that is likely to affect the purity of the water supply system – this is a <b>notice of contravention for water supply protection under the Water Industry Act</b>: s84, Water Industry Act.</li> </ul>
31		Protection zone around supply bores (p.25)	●	See above, row 30.
32		Requirements to monitor up-gradient and within zone	●	The Safe Drinking Water Regulations empower the Secretary of the Department of Human Services to publish, by notice in the Government Gazette, requirements in relation to water sampling localities and water sampling points: regs4 and 5. Water suppliers must collect samples at these localities and points: reg11(1).

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in Victoria	
33	(pp.25, 26)		<p>The notices regarding water sampling points and localities are available on the website of the Department of Human Services, at <a href="http://www.health.vic.gov.au/environment/water/d-guidelines.htm">http://www.health.vic.gov.au/environment/water/d-guidelines.htm</a>, viewed 29 July 2009.</p> <p>The Safe Drinking Water Act imposes requirements to notify the public of water quality monitoring programs: s23.</p>
	Response plan in event of contamination (p.25)	●	<p>A water storage manager (eg the holder of a water licence under the Water Industry Act) is required to prepare, implement and review a risk management plan in relation to the supply of water to a water supplier: s8 Safe Drinking Water Act. In turn, a water supplier must prepare and implement a risk management plan in relation to the supply of drinking water to the public: s7 Safe Drinking Water Act.</p> <p>A risk management plan must identify the risks to the quality of the water and the risks that may be posed by the quality of the water, assess those risks, and set out the steps to be taken to manage those risks: s9. The Act provides for approved auditors to audit risk management plans: Div2 of Pt2 Safe Drinking Water Act.</p>
34	Reporting in the event of contamination (p.25)	●	<p>An officer of a water supplier, water storage manager or council must report known or suspected contamination: s22 Safe Drinking Water Act. Penalties apply for failing to do so.</p>
35	Enforcement (p.20)	●	<p><u>Water Act</u></p> <p>Penalties apply to not complying with a notice of contravention for water supply protection under the Water Act: s151(2), Water Act. An Authority may also carry out required works and recover reasonable costs, or disconnect a relevant service, or seek an injunction to prevent a contravention: s169(3), Water Act. The consequences of not complying with a by-law may be similar: s151(1)(b), Water Act.</p> <p><u>Water Industry Act</u></p> <p>Penalties apply to not complying with a notice of contravention for water supply protection under the Water Industry Act: s84(4), Water Industry Act. An Authority may also carry out required works and recover reasonable costs, or disconnect a relevant service, or seek an injunction to prevent a contravention: s84(4), Water Industry Act.</p> <p><u>Safe Drinking Water Act and Regulations</u></p> <p>The Secretary of the Department of Human Services has powers to enforce the requirements of the Safe Drinking Water Act, by accepting <b>undertakings</b> from a water supplier or water storage manager that they will take action to prevent a</p>

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in Victoria	
36	Other well-related measures		<p>contravention, and by issuing <b>enforcement notices</b>: ss30 and 31. The Secretary may also direct a water supplier or water storage manager to take particular action if there is a risk to public health: s34. Authorised officers also have powers to take action on particular premises to assess and address an immediate risk: s36.</p> <p>Penalties apply under the Safe Drinking Water Regulations to a water supplier who fails to conduct the required sampling (see above, row 32): reg11(1).</p>
		●	<p>A section 67 licence is required to decommission a bore: s76(1), Water Act. See above, row 25.</p> <p>Further, under the Groundwaters SEPP, any decommissioning of drillholes and bores must be consistent with “current best practice or with any relevant best practice environmental management guidelines adopted by the [EPA]”: cl22.</p>
37	Controls on disposal of waste via wells (p.16)	●	<p>A licence is required to dispose of any matter underground using a bore: s76(1), Water Act. The licence may be subject to public consultation: s65(2), Water Act. The Minister may approve a licence subject to any desirable conditions, provided that the disposal would not cause the pollution of any groundwater or be detrimental to any aquifer or bore: s76(4)(a) and (5), Water Act.</p> <p>A person who disposes of any matter underground by means of a bore without approval is guilty of an offence: s76(6), Water Act.</p> <p>The Groundwaters SEPP prohibits the “direct discharge of waste to any aquifer by means of a bore, underground mine workings, infiltration basin, evaporation basin or other similar activities”, except for particular purposes. The permitted purposes are: aquifer recharge, irrigation drainage, backfilling of underground mine workings with tailings, stormwater disposal, or groundwater remediation projects, if the EPA is satisfied that the relevant groundwater quality objectives will be met, and there will be no detriment to a relevant beneficial use: cl20, Groundwaters SEPP.</p>



	Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in Victoria
38	Gathering information  Strategic assessment of groundwater resources (p.38)	<p>● <u>Assessment under the Water Act</u></p> <p>The Water Act requires the Minister to undertake three types of formal water assessments:</p> <ul style="list-style-type: none"> <li>• a continuous program of assessment of water resources: (s22(1)(a) Water Act), which must include several matters, including the availability of groundwater, the use of one water source as a substitute for another, the disposal of wastewater and re-use of water, water quality, historic allocation and use of water, and the current and historic condition of aquifers, and “anything else that the Minister decides is appropriate”: s22(2) Water Act;</li> <li>• a program of long-term (15-yearly) water resources assessments (s22(1)(ab) Water Act), which must identify whether there has been any decline in the availability of surface water or groundwater, whether this has disproportionately affected allocation for consumptive use or the environmental reserve, and whether there has been a flow-related decline in waterway health: s22L Water Act. If either has occurred, the Minister must carry out a review into the action to be taken, involving a consultative committee process (s22Q Water Act), which may lead to the Minister permanently qualifying rights to take water: s33AAB Water Act; and</li> <li>• a program of regional <b>sustainable water strategies</b> (SWSs): s22(1)(ac), Water Act. In relation to water quality, a SWS must identify threats to water quality and identify ways to improve and set priorities for improving water quality: s22C(1)(a) and (b) Water Act. It must also identify ways to improve the maintenance of, and increase the volume of water in the environmental water reserve: s22C(1) Water Act. A SWS must take into account plans, strategies and policies under legislation dealing with catchment planning, biodiversity, heritage rivers, planning, and environment protection: s22C(2) Water Act. A SWS must also include an implementation plan: 22C(1)(e) Water Act.</li> </ul> <p>In addition, the functions of a water corporation under the Water Act include “investigating, promoting and conducting research into any matter relating to its other functions, its powers and its duties”: s92(2)(a), Water Act.</p> <p><u>Assessment under the Commissioner for Environmental Sustainability Act</u></p> <p>In addition, the Commissioner for Environmental Sustainability Act establishes the Commissioner for Environmental Sustainability, who has the function of preparing period Reports on the State of the Environment in Victoria: s8(a), Commissioner for Environmental Sustainability Act. The <b>Report on the State of the Environment</b> must be prepared in accordance with a framework for environmental reporting developed by the Commissioner and approved by the Minister: s17(2), Commissioner for Environmental Sustainability Act.</p> <p>The Framework for State of the Environment Reporting (August 2005) sets out the structure of State of the Environment Reports. It includes the theme of “Inland Waters”, which covers all groundwaters that are not associated with the coastal</p>

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in Victoria	
39  40  41			<p>zone, and states that the “condition and use of ground-water resources” and “water discharges and pollution” are issues that “may be investigated”, although it does not require them to be investigated: pp.17-18. Each issue will be assessed through discussion of the following elements (pp.14-15):</p> <ul style="list-style-type: none"> <li>• indicators to measure condition, pressure, response and/or response outcomes, including underlying assumptions and limitations of indicators, and the level of monitoring and quality of available data;</li> <li>• the status of the issue, including trends, and the implications conditions and trends;</li> <li>• responses to the issue and the effectiveness of those responses, using indicators where available;</li> <li>• recommendations on specific actions and future directions required to move towards environmental sustainability; and</li> <li>• linkages to other relevant issues.</li> </ul>
	Monitoring of critical overdraw (p.16)	●	This issue would certainly be encompassed in the monitoring programs outlined above, row 38.
	Vulnerability mapping (pp.20-22)	●	<p>The Groundwaters SEPP states that the Department of Natural Resources and Environment (now the Department of Sustainability and Environment) will (cl26):</p> <p>Ensure the establishment and operation of a hydrogeological information system that—</p> <ul style="list-style-type: none"> <li>(a) provides a readily accessible and integrated system for describing aquifers and groundwater quality;</li> <li>(b) clearly defines aquifers and their vulnerability to pollution;</li> <li>(c) details current and historical sources of groundwater pollution; and</li> <li>(d) includes detailed information for locations at which there is a concentration of potential pollution sources and vulnerable aquifers.</li> </ul>
	Aquifer classification systems (pp.22-23)	●	See above, row 40.

## VICTORIA (2) Environment Protection Framework Table

Key items of legislation, regulation and policy	Supplementary items of legislation, regulation and policy	Symbols, acronyms, and useful terminology
<p><i>Environment Protection Act 1970 (Vic)</i> (<b>Environment Protection Act</b>)</p> <p><i>Environment Protection (Scheduled Premises And Exemptions) Regulations 2007 (Vic)</i> (<b>Scheduled Premises Regulations</b>)</p> <p><i>State Environment Protection Policy – Groundwaters of Victoria</i> (1997, as varied 2002) – see Victoria Government Gazette S160 (1997) and G12 (2002) (<b>Groundwaters SEPP</b>)</p> <p><i>State Environment Protection Policy (Prevention and Management of Contamination of Land)</i> (2002) – see Victoria Government Gazette S95 (2002) (<b>Contaminated Land SEPP</b>)</p> <p><i>Environment Effects Act 1978 (Vic)</i> (<b>Environment Effects Act</b>)</p>	<p><i>Ministerial Guidelines for Assessment of Environmental Effects under the Environment Effects Act 1978</i> (Department of sustainability and Environment, 7<sup>th</sup> ed., 2006) (<b>Guidelines on EES</b>) – made under s.10 of the Environment Effects Act.</p> <p><i>Environment Protection (Environment and Resource Efficiency Plans) Regulations 2007 (Vic)</i> (<b>EREP Regulations</b>)</p> <p><i>Environment Protection (Fees) Regulations 2001 (Vic)</i> (<b>Environment Protection (Fees) Regulations</b>)</p> <p><i>State Environment Protection Policy - Waters of Victoria</i> (1988, as updated 2003) - see Victoria Government Gazette S107 (2003) and S210 (2004) (<b>Waters SEPP</b>)</p> <p><i>Mineral Resources (Sustainable Development ) Act 1990 (Vic)</i> (<b>MRSD Act</b>)</p> <p><i>Mineral Resources Development Regulations 2002 (Vic)</i> (<b>MRSD Regulations</b>)</p> <p><i>Petroleum Act 1998 (Vic)</i> (<b>Petroleum Act</b>)</p> <p><i>Petroleum Regulations 2000 (Vic)</i> (<b>Petroleum Regulations</b>)</p> <p><i>Extractive Industries Development Act 1995 (Vic)</i> (<b>EID Act</b>)</p> <p><i>Extractive Industries Development Regulations 2007 (Vic)</i> (<b>EID Regulations</b>)</p> <p><i>Geothermal Energy Resources Act 2005 (Vic)</i> (<b>GER Act</b>)</p> <p><i>Geothermal Energy Regulations 2006 (Vic)</i> (<b>GER Regulations</b>)</p> <p><i>Greenhouse Gas Geological Sequestration Act 2008 (Vic)</i> (<b>GGGS Act</b>) (Note: this Act is not yet in effect, and no regulations are yet available)</p> <p><i>Agriculture and Veterinary Chemicals (Control of Use) Act 1992 (Vic)</i> (<b>Chemical Use Act</b>)</p>	<p><b>Framework</b> = the collection of legislation, regulation and policy set out in this report for each jurisdiction, in relation to: (1) Groundwater Management; (2) Environment Protection; and (3) Land-Use Planning</p> <p><b>GDE</b> = groundwater dependent ecosystem</p> <p><b>Guidelines</b> = <i>Guidelines for Groundwater Protection in Australia</i> (1995)</p> <p><b>SEPP</b> = State environment protection policy under the Environment Protection Act</p> <p><b>Water Minister</b> = Minister for Water</p> <p>● = Framework explicitly provides for this element of the Guidelines</p> <p>◐ = Framework goes some way towards providing for this element of the Guidelines</p> <p>○ = Framework does not provide for this element of the Guidelines</p>

	<i>Dangerous Goods Act 1995 (Vic)</i> ( <b>Dangerous Goods Act</b> )	
--	--	--

	Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in Victoria
1	Principles (pp.9-13)	Precautionary principle (pp.11, 40)	<p>● The purpose of the Environment Protection Act is to create a legislative framework for the protection of the environment in Victoria, “having regard to the <b>principles of environment protection</b>”: s1A Environment Protection Act. In the administration of the Environment Protection Act, regard should be had to these principles: s1A(3), Environment Protection Act.</p> <p>The principles of environment protection include the precautionary principle, as follows (s1C, Environment Protection Act):</p> <ul style="list-style-type: none"> <li>(1) If there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.</li> <li>(2) Decision making should be guided by— <ul style="list-style-type: none"> <li>(a) a careful evaluation to avoid serious or irreversible damage to the environment wherever practicable; and</li> <li>(b) an assessment of the risk-weighted consequences of various options.</li> </ul> </li> </ul> <p>The Groundwaters SEPP is explicitly based on the precautionary principle: cl5(2)(d)(iii).</p> <p>The Contaminated Land SEPP includes the precautionary principle as a “policy principle”: cl7(2).</p>
2		Polluter pays principle (p.11)	<p>● A <b>principle of environment protection</b> under the Environment Protection Act (see above, row 1) is the principle of “improved valuation, pricing and incentive mechanisms”, which includes “[p]ersons who generate pollution and waste should bear the cost of containment, avoidance and abatement”: s1F(2), Environment Protection Act.</p> <p>Another principle of environment protection is that:</p> <p style="padding-left: 40px;">Enforcement of environmental requirements should be undertaken for the purpose of... ensuring that no commercial advantage is obtained by any person who fails to comply with environmental requirements: s1K, Environment Protection Act.</p> <p>The fee for a licence under the Environment Protection Act (see below, row 17) comprises an annual base fee, which is varies by the type of operation, and an annual discharge fee which varies by the component (eg total nitrogen, hazardous substances, etc), and by the element of the environment (air, waters, or land) that receives the discharge: reg9 and Sch 2 and 3, Environment Protection (Fees) Regulations.</p> <p>Under the Scheduled Premises Regulations:</p>

	Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in Victoria
3		<ul style="list-style-type: none"> <li>• a <b>landfill levy</b> must be paid by a person who holds a licence in relation to certain categories of premises which accept prescribed industrial waste, for each tonne of waste that is deposited onto the land: reg13, and s50S, Environment Protection Act; and</li> <li>• an <b>environment protection levy</b> must be paid at the same time as the licence fee, if the premises handles in excess of certain quantities or concentrations of notifiable chemicals, or prescribed industrial waste: reg15, and s24A, Environment Protection Act.</li> </ul> <p>These levies, and certain other money, are paid into an Environment Protection Fund and applied by the EPA for the purposes of environment protection, in various forms: s70, Environment Protection Act.</p> <p><b>Financial assurances</b> may be required in relation to activities under the Environment Protection Act: s67B.</p> <p><b>Rehabilitation bonds</b> may be required in relation to mining and coal seam methane extraction, petroleum operations, quarrying, geothermal energy operations, and greenhouse gas geological sequestration (see below, row 17).</p> <p>Under the Environment Protection Act, the EPA may take clean-up action in response to pollutants being discharged, a condition of pollution, or the dumping of industrial waste or hazardous waste, and recover its reasonable costs of doing so: s62, Environment Protection Act.</p> <p>The Groundwaters SEPP is explicitly based on the polluter pays principle “those who generate pollution and waste should bear the costs of containment, avoidance and abatement”: cl5(2)(d)(i).</p> <p>If the Minister for Planning appoints an inquiry into works under Environment Effects Act, the Minister may ask the proponent of those works to contribute a specified amount to the costs of the inquiry: s9(3), Environment Effects Act.</p> <p>The Contaminated Land SEPP includes the polluter pays principle as a “policy principle”: cl7(5)(b).</p>
	Equity considerations (p.12)	<ul style="list-style-type: none"> <li>● A principle of environment protection under the Environment Protection Act (see above, row 1) is the principle of intergenerational equity, namely “[t]he present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations”: s1D, Environment Protection Act.</li> </ul> <p>The Groundwaters SEPP is explicitly based on the principle of intergenerational equity: cl5(2)(d)(ii).</p> <p>The Contaminated Land SEPP includes the principle of intergenerational equity as a “policy principle”: cl7(3).</p>

	Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in Victoria	
4	Beneficial uses and values (pp.10-12, 39-41)	●	<p>The powers, functions and duties of the EPA include specifying:</p> <p style="padding-left: 40px;">standards and criteria for the protection of beneficial uses and the maintenance of the quality of the environment having regard to the ability of the environment to absorb waste without detriment to its quality and other characteristics and having regard to the social and economic development of Victoria: s13(1)(g) Environment Protection Act.</p> <p>The key document in relation to beneficial uses of groundwater is the Groundwaters SEPP, which applies to all groundwaters and aquifers in Victoria, except groundwater in a landfill cell: cl6(2), Groundwaters SEPP.</p> <p>SEPPs establish “the basis for maintaining environmental quality sufficient to protect existing and anticipated beneficial uses in the area” and a basis for planning and licensing functions: s18(1), Environment Protection Act.</p>
5	Forms of intervention Command (p.14)	●	<p><u>Environment Protection Act</u></p> <p>The Environment Protection Act establishes numerous offences relating to pollution, including the following offences, which apply to occupiers of <b>scheduled premises</b>:</p> <ul style="list-style-type: none"> <li>• in relation to occupiers of scheduled premise: <ul style="list-style-type: none"> <li>○ discharging waste without a licence, where one is required: s27(1);</li> <li>○ handling waste, or substances which are a danger or potential danger to the quality of the environment or any segment of the environment without a licence, where one is required: s27(1A); and</li> <li>○ undertaking an activity which creates a state of potential danger to the quality of the environment or any segment of the environment without a licence, where one is required: s27((1B);</li> </ul> </li> <li>• in relation to any person—contravening rules or requirements relating to industrial waste in a waste management policy or in any regulations: s27A(1)(a) and (b);</li> <li>• in relation to any person –causing or permitting an environmental hazard: s27A(1)(c);</li> <li>• in relation to any person—dumping industrial waste at a place not licensed to accept it: s27A(2)(a);</li> <li>• in relation to an occupier of premises—using the premises to process, store, or conduct an operation involving the use of more than the prescribed quantity or concentration of a <b>notifiable chemical</b> without complying with specified notification</li> </ul>

	Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in Victoria
		<p>requirements: s30C;</p> <ul style="list-style-type: none"> <li>in relation to any person (s39(1))— <ul style="list-style-type: none"> <li>pollut[ing] waters so that the condition of the of the waters is so changed as to make or be reasonably expected to make those waters— <ul style="list-style-type: none"> <li>(a) noxious or poisonous;</li> <li>(b) harmful or potentially harmful to the health, welfare, safety or property of human beings;</li> <li>(c) poisonous, harmful or potentially harmful to animals, birds, wildlife, fish or other aquatic life;</li> <li>(d) poisonous, harmful or potentially harmful to plants or other vegetation; or</li> <li>(e) detrimental to any beneficial use made of those waters.</li> </ul> </li> </ul> </li> </ul> <p>Equivalent offences apply to the pollution of land (s45); and</p> <ul style="list-style-type: none"> <li><b>(aggravated pollution)</b> In relation to any person—intentionally, recklessly or negligently polluting the environment or intentionally, recklessly or negligently causes or permits an environmental hazard which results in serious damage to the environment, a serious threat to public health, a substantial risk of serious damage to the environment, or a substantial risk of a serious threat to public health: s59E.</li> </ul> <p>Under the Contaminated Land SEPP, the occupier of any site must ensure that the land is managed to prevent contamination: s17(1).</p> <p><u>Chemicals and dangerous goods</u></p> <p>The Chemical Use Act provides for authorisations in relation to commercial operators, agricultural chemical users, agricultural aircraft operators, etc (see, for example, ss30 and 42). The Chemical Use Act also requires that chemicals be used in accordance with the label: s19. The Governor in Council may prohibit agricultural spraying for the purpose of protecting the environment: s38(1), Chemical Use Act.</p> <p>The Dangerous Goods Act regulates the manufacture, storage, sale, transport, use and import of dangerous goods, including licensing (PtIII). It makes it an offence to fail to comply with a provision of the Act, in circumstances in which the person knew, or ought reasonably to have known, that the failure would endanger the environment: s31C, Dangerous Goods Act.</p>
6	Market (generally pp.14-15)	<ul style="list-style-type: none"> <li>● A principle of environment protection under the Environment Protection Act (see above, row 1) is the principle of <b>improved valuation, pricing and incentive mechanisms</b>, which includes: <ul style="list-style-type: none"> <li>[e]stablished environmental goals should be pursued in the most cost effective way by establishing incentive structures, including</li> </ul> </li> </ul>

	Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in Victoria
7	<p>eg tradeable discharge permits (pp.45, 46) or taxes on contaminants (p.46)</p>	<p>market mechanisms, which enable persons best placed to maximise benefits or minimise costs to develop solutions and responses to environmental problems: s1F(4), Environment Protection Act.</p> <p>The functions of the EPA include:</p> <p>to develop <b>economic measures</b> for the purpose of providing an economic incentive to avoid or minimise harm to the environment or any portion or segment of the environment by a particular activity”: s13(1)(cc), Environment Protection Act. [and]</p> <p>to enter into agreements, including agreements to provide financial assistance, to implement measures to reduce waste and pollution: s13(1)(na), Environment Protection Act.</p> <p>The EPA may agree to provide a benefit to a company or industry which agrees to a <b>sustainability covenant</b>, which aims to increase resource efficiency: s49AC(2), Environment Protection Act (see below, row 16). The EPA may also, in general:</p> <p>develop economic measures for the purpose of providing an economic incentive to avoid or minimise harm to the environment or any portion or segment of the environment by a particular activity...: s19AA(1), Environment Protection Act.</p> <p>The Environment Protection Act specifically provides for <b>tradeable permit schemes</b> and <b>environmental offsets</b>: ss19AA(2) and 19AB. Regulations may provide further for economic measures: s71(1)(ca), Environment Protection Act. However, it appears to no such scheme has yet been established.</p> <p>Sustainability Victoria’s functions include providing financial assistance to promote environmental sustainability: see below, row 16.</p>
	<p>Community participation and education (p.15)</p>	<p>● A principle of environment protection under the Environment Protection Act (see above, row 1) is the principle of “accountability”, which includes giving members of the public “access to reliable and relevant information in appropriate forms to facilitate a good understanding of environmental issues” and “opportunities to participate in policy and program development”: s1L(2), Environment Protection Act.</p> <p>A function of the EPA is to “to provide information and education to the public regarding the protection and improvement of the environment”: s13(1)(l), Environment Protection Act.</p> <p>The Environment Protection Act provides for public consultation in relation to (among other things), <b>works approvals</b> (s19B(3)(b)) and <b>licences</b> (s20(8)(b)).</p> <p>The Groundwaters SEPP states that the EPA will:</p>



Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in Victoria	
8			<ul style="list-style-type: none"> <li>“assist the community to understand and contribute to improved groundwater quality in the policy area”: cl11(2)(a); and</li> <li>(along with other entities) promote public awareness in relation to the management of activities to prevent groundwater pollution; the location, quality, availability and uses of groundwater resources in Victoria; and risk assessment to ensure better understanding of toxicologically based risk to human health and ecology: cl28.</li> </ul>
	Water quality protection objectives and beneficial uses	Strategic assessment of groundwater resource (p.38)	<ul style="list-style-type: none"> <li>● A function of the EPA is to “undertake surveys and investigations as to the causes, nature, extent, and prevention of pollution and to assist and co-operate with other persons or bodies carrying out similar surveys or investigations”: s13(1)(e), Environment Protection Act.</li> </ul> <p>Under the Groundwaters SEPP, the EPA will work with, and encourage, a range of bodies to “ensure that studies, research and surveys are conducted to assist in the attainment and maintenance of the groundwater quality objectives...”: cl25.</p> <p>More specifically, the EPA will (cl29, Groundwaters SEPP):</p> <ul style="list-style-type: none"> <li>ensure that monitoring of groundwater quality is adequate to assess compliance with the Groundwaters SEPP, and that agencies which are responsible for, or which affect groundwater quality, undertake programs to assess ambient groundwater quality; and</li> <li>periodically report to the public on the quality of Victorian groundwater, including a review of the effectiveness of the implementation of the Groundwaters SEPP and an assessment of the adequacy of the existing groundwater pollution monitoring program.</li> </ul>
9		Define beneficial uses and values (pp.39-40)	<ul style="list-style-type: none"> <li>● The Environment Protection Act defines a “beneficial use” to be: <ul style="list-style-type: none"> <li>a use of the environment or any element or segment of the environment which— (a) is conducive to public benefit, welfare, safety, health or aesthetic enjoyment and which requires protection from the effects of waste discharges, emissions or deposits or of the emission of noise; or (b) is declared in State environment protection policy to be a beneficial use: s4(1), Environment Protection Act.</li> </ul> </li> </ul>
10		Identify beneficial uses (pp.40-41)	<ul style="list-style-type: none"> <li>● The Groundwaters SEPP identifies 5 segments of the groundwater environment, by range of TDS and states that the EPA will determine to which segment a particular aquifer belongs: cl8. Protected beneficial uses are set out for each segment: cl9. Generally, they are the values set out in this table, unless the EPA determines otherwise (for example, because the EPA has identified a <b>groundwater quality restricted use zone</b>, or because the background level of a water quality indicator may be detrimental to the beneficial use):</li> </ul>

11

Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in Victoria																																																																							
	<table><tr><th rowspan="2">Beneficial Uses</th><th colspan="5">Segments (mg/L TDS)</th></tr><tr><th>A1 (0-500)</th><th>A2 (501-1,000)</th><th>B (1,001-3,500)</th><th>C (3,501-13,000)</th><th>D (greater than 13,000)</th></tr><tr><td>1. Maintenance of ecosystems</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td></tr><tr><td>2. Potable water supply:</td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>desirable</td><td>✓</td><td></td><td></td><td></td><td></td></tr><tr><td>acceptable</td><td></td><td>✓</td><td></td><td></td><td></td></tr><tr><td>3. Potable mineral water supply</td><td>✓</td><td>✓</td><td>✓</td><td></td><td></td></tr><tr><td>4. Agriculture, parks and gardens</td><td>✓</td><td>✓</td><td>✓</td><td></td><td></td></tr><tr><td>5. Stock watering</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td><td></td></tr><tr><td>6. Industrial water use</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td></tr><tr><td>7. Primary contact recreation (eg. bathing, swimming)</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td><td></td></tr><tr><td>8. Buildings and structures</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td></tr></table>	Beneficial Uses	Segments (mg/L TDS)					A1 (0-500)	A2 (501-1,000)	B (1,001-3,500)	C (3,501-13,000)	D (greater than 13,000)	1. Maintenance of ecosystems	✓	✓	✓	✓	✓	2. Potable water supply:						desirable	✓					acceptable		✓				3. Potable mineral water supply	✓	✓	✓			4. Agriculture, parks and gardens	✓	✓	✓			5. Stock watering	✓	✓	✓	✓		6. Industrial water use	✓	✓	✓	✓	✓	7. Primary contact recreation (eg. bathing, swimming)	✓	✓	✓	✓		8. Buildings and structures	✓	✓	✓	✓	✓
Beneficial Uses	Segments (mg/L TDS)																																																																							
	A1 (0-500)	A2 (501-1,000)	B (1,001-3,500)	C (3,501-13,000)	D (greater than 13,000)																																																																			
1. Maintenance of ecosystems	✓	✓	✓	✓	✓																																																																			
2. Potable water supply:																																																																								
desirable	✓																																																																							
acceptable		✓																																																																						
3. Potable mineral water supply	✓	✓	✓																																																																					
4. Agriculture, parks and gardens	✓	✓	✓																																																																					
5. Stock watering	✓	✓	✓	✓																																																																				
6. Industrial water use	✓	✓	✓	✓	✓																																																																			
7. Primary contact recreation (eg. bathing, swimming)	✓	✓	✓	✓																																																																				
8. Buildings and structures	✓	✓	✓	✓	✓																																																																			
Apply criteria (narrative or prescriptive) (pp.41-42)	<div>●</div> <div>The Groundwaters SEPP sets groundwater quality indicators and objectives: cl10.</div>																																																																							

**Form of protection suggested  
by the Guidelines****Whether implemented / Summary of implementation in Victoria**

Beneficial Use	Indicators	Objectives
Maintenance of ecosystems	<ul style="list-style-type: none"> <li>Those specified in the relevant State environment protection policy for surface waters</li> </ul>	<ul style="list-style-type: none"> <li>Groundwater shall not cause receiving waters to be affected to the extent that the level of any water quality indicator is greater than the level of that indicator specified in the relevant State environment protection policy for surface waters</li> </ul>
Potable water supply: desirable	<ul style="list-style-type: none"> <li>Those specified for raw water for drinking water supply in the Australian Water Quality Guidelines for Fresh and Marine Waters</li> </ul>	<ul style="list-style-type: none"> <li>TDS shall be less than 501 mg/L</li> <li>Groundwater shall not be affected to the extent that the level of any water quality indicator is greater than the level of that indicator specified for raw water for drinking water supply in the Australian Water Quality Guidelines for Fresh and Marine Waters</li> <li>The constituents of groundwater shall not be affected in a manner or to an extent that leads to tainting</li> </ul>
Potable water supply: acceptable	<ul style="list-style-type: none"> <li>Those specified for raw water for drinking water supply in the Australian Water Quality Guidelines for Fresh and Marine Waters</li> </ul>	<ul style="list-style-type: none"> <li>Groundwater shall not be affected to the extent that the level of any water quality indicator is greater than the level of that indicator specified for raw water for drinking water supply in the Australian Water Quality Guidelines for Fresh and Marine Waters</li> <li>The constituents of groundwater shall not be affected in a manner or to an extent that leads to tainting</li> </ul>
Potable mineral water supply	<ul style="list-style-type: none"> <li>Those specified for potable mineral water in the Australian Food Standards Code (1987) - Standard 08 Mineral Water</li> </ul>	<ul style="list-style-type: none"> <li>Groundwater shall not be affected to the extent that the level of any water quality indicator is greater than the level of that indicator specified in the Australian Food Standards Code (1987) - Standard 08 Mineral Water</li> <li>The constituents of groundwater shall not be affected in a manner or to an extent that leads to tainting</li> </ul>
Agricultural water supply: irrigation	<ul style="list-style-type: none"> <li>Those specified for irrigation in the Australian Water Quality Guidelines for Fresh and Marine Waters</li> </ul>	<ul style="list-style-type: none"> <li>Groundwater shall not be affected to the extent that the level of any water quality indicator is greater than the level of that indicator specified for irrigation in the Australian Water Quality Guidelines for Fresh and Marine Waters</li> </ul>
Agricultural water supply: stock watering	<ul style="list-style-type: none"> <li>Those specified for livestock in the Australian Water Quality Guidelines for Fresh and Marine Waters</li> </ul>	<ul style="list-style-type: none"> <li>Groundwater shall not be affected to the extent that the level of any water quality indicator is greater than the level of that indicator specified for livestock in the Australian Water Quality Guidelines for Fresh and Marine Waters</li> </ul>
Industrial water use	<ul style="list-style-type: none"> <li>Those specified for industrial use in the Australian Water Quality Guidelines for Fresh and Marine Waters</li> </ul>	<ul style="list-style-type: none"> <li>Groundwater shall not be affected to the extent that the level of any water quality indicator is greater than the level of that indicator specified for industrial water quality in the Australian Water Quality Guidelines for Fresh and Marine Waters</li> </ul>
Primary contact recreation	<ul style="list-style-type: none"> <li>Those specified for primary contact recreation in the Australian Water Quality Guidelines for Fresh and Marine Waters</li> </ul>	<ul style="list-style-type: none"> <li>Groundwater shall not be affected to the extent that the level of any water quality indicator is greater than the level of that indicator specified for primary contact recreation in the Australian Water Quality Guidelines for Fresh and Marine Waters</li> </ul>
Buildings and Structures	<ul style="list-style-type: none"> <li>pH</li> <li>sulphate</li> <li>redox potential</li> </ul>	<ul style="list-style-type: none"> <li>Introduced contaminants shall not cause groundwater to become corrosive to structures or building materials</li> </ul>

	Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in Victoria	
12			<p>These indicators apply to all groundwater, except in the following circumstances (cl10(2), Groundwaters SEPP):</p> <ul style="list-style-type: none"> <li>• when the EPA designates an attenuation zone in a works approval, licence or notice;</li> <li>• when the groundwater is within a <b>groundwater quality restricted use zone</b>;</li> <li>• when the groundwater is within a <b>groundwater protection zone</b> to which more stringent objectives apply. No groundwater protection zones have yet been prescribed (Schedule A to the Groundwaters SEPP); or</li> <li>• when the background level of the indicator is higher than the objective, in which case the objective becomes that background level.</li> </ul> <p>Notwithstanding anything set out above, groundwater quality is to be maintained as close as practicable to background levels: cl10(3), Groundwaters SEPP.</p>
	Points of application of criteria (pp.42-43)	●	<p>The indicators and objectives are applied at the point of discharge, except if the EPA designates an attenuation zone in relation to a works approval, licence or permit, within which some or all of the water quality objectives are not required to be achieved: cl17(1), Groundwaters SEPP.</p> <p>Attenuation zones will only be designated if certain requirements are met (cl17(2) and (3), Groundwaters SEPP), for example:</p> <ul style="list-style-type: none"> <li>• attenuation zones may only be designated for certain activities – municipal landfills, wastewater irrigation, ash ponds, or certain evaporation basins;</li> <li>• the EPA must be satisfied that all practicable measures have been taken to prevent pollution of groundwater;</li> <li>• the groundwater quality objectives are met at the boundaries of the relevant premises;</li> <li>• an attenuation zone may not be designated within a <b>groundwater protection zone</b>, in aquifers of high permeability or low attenuation properties, or where the EPA is satisfied that there is an unacceptable risk of detriment to an existing beneficial use.</li> </ul>
13	Monitoring and review program focusing on extent of implementation	●	<p>The Environment Protection Act requires the EPA to ensure that a SEPP is reviewed 10 years after it came into effect, or 10 years after it was last reviewed: s19(1), Environment Protection Act. However, the precise nature of the review is not specified.</p> <p>The Groundwaters SEPP states that the EPA will “co-ordinate, review and report on the attachment of the provisions of the policy”: cl11(2).</p>

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in Victoria	
14	and extent to which goals are met (pp.46-47)		More specifically, the EPA will periodically report to the public on the quality of Victorian groundwater, including a review of the effectiveness of the implementation of the Groundwaters SEPP and an assessment of the adequacy of the existing groundwater pollution monitoring program: cl29(3) and (4), Groundwaters SEPP.
	Inter-agency coordination (p.48)	●	Before making or varying a SEPP, the EPA must “consult with any government department or statutory authority whose responsibilities or functions may be affected by the intended declaration or variation”: s18A(2)(c), Environment Protection Act.
15	Enforcement of criteria for beneficial uses	●	<p>A SEPP has effect through the Environment Protection Act (s38) requiring that:</p> <p style="padding-left: 40px;">The discharge or deposit of wastes into waters of the State of Victoria shall at all times be in accordance with declared State environment protection policy... specifying acceptable conditions for the discharge or deposit of wastes into waters in the environment and shall comply with any standards prescribed therefor under this Act.</p> <p>A person is deemed to have polluted waters, in contravention of the prohibition on polluting waters (see above, row 5), if the person:</p> <p style="padding-left: 40px;">causes or permits to be placed in or on any waters or in a place where it may gain access to any waters any matter whether solid, liquid or gaseous... which does not comply with any standard prescribed for that matter: s39(2), Environment Protection Act.</p> <p>The Groundwaters SEPP states that:</p> <ul style="list-style-type: none"> <li>the EPA will ensure that any <b>works approval, licence or notice</b> contains requirements that are consistent with the Groundwaters SEPP: cl11(2)(c);</li> <li>the EPA may by notice direct the <b>clean up</b> of polluted groundwater as specified in the notice: cl13; and</li> <li>planning authorities must ensure that planning schemes and permits issued under planning schemes are consistent with the Groundwaters SEPP: cl14.</li> </ul> <p>A SEPP also has effect under the Environment Protection Act through:</p> <ul style="list-style-type: none"> <li>requirements that other instruments be consistent with it, or not conflict with it: eg a neighbourhood environment improvement plan (s19A(3)(b)), a solid industrial waste management plan (s49L(4)(b)), a regional waste management plan (s50R(4));</li> </ul>

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in Victoria	
			<ul style="list-style-type: none"> <li>environment improvement plans, which “should include... a requirement that any relevant State environment protection policy, waste management policy, regulations and licence conditions must be complied with”: s31C(6)(a);</li> <li>a requirement that a municipal council refuse to issue a permit for a septic tank system if to do so would be contrary to a SEPP: s53M(7)(b); and</li> <li>a requirement that an environmental auditor have regard to a SEPP when determining whether or not to issue a certificate of environmental audit, and not issue such a certificate if he or she is of the opinion that the condition of the relevant segment of the environment is or is potentially detrimental to the beneficial use of that segment: s53Y(1)(b) and (2).</li> </ul> <p>Note: A certificate of environmental audit certifies that the condition of the segment of the environment is not or is not potentially detrimental to any beneficial use of that segment. Environmental auditing is used by planning authorities, government agencies and the private sector to determine whether potentially contaminated land is suitable for its intended use: PtIXD, Environment Protection Act.</p>
16	Controlling sources of contamination	Waste hierarchy (p.29)	<ul style="list-style-type: none"> <li> <p><u>Environment Protection Act</u></p> <p>A principle of environment protection under the Environment Protection Act (see above, row 1) is the principle of “wastes hierarchy”, namely “[w]astes should be managed in accordance with the following order of preference— (a) avoidance; (b) re-use; (c) re-cycling; (d) recovery of energy; (e) treatment; (f) containment; (g) disposal”: s1I, Environment Protection Act.</p> <p>This principle finds expression in the Environment Protection Act through:</p> <ul style="list-style-type: none"> <li><b>Sustainability covenants</b>, which are voluntary agreements between the EPA and a company, a group of companies or an industry sector, under which the industry party undertakes to increase the efficiency with which they use resources to produce products or services: s49AA, Environment Protection Act. The EPA may also require mandatory action relating to resource efficiency (ss49AF-49AH), if the EPA declares that an industry has the potential to have a significant impact on the environment: s49AD, Environment Protection Act.</li> <li><b>Environment and Resource Efficiency Plans (EREPs)</b>, which are mandatory for commercial and industrial sites which use large amounts of energy or water, and are voluntary for others. An EREP must set out a plan of actions to achieve environmental resource efficiency gains and waste disposal reductions, and timeframes for implementation. It is mandatory to implement an approved EREP. See generally Div4A of PtIII, Environment Protection Act and EREP regulations.</li> </ul> </li> </ul>

	Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in Victoria
17		<ul style="list-style-type: none"> <li>• <b>Regional waste management plans</b>, which are developed and implemented by regional waste management groups, and set out their objectives and priorities for the management of municipal waste generated or disposed of in the region, including waste minimisation and resource recovery. Municipal councils must comply with these plans. See generally Div2B of Part IX, Environment Protection Act.</li> <li>• <b>Solid industrial waste management plan</b>, prepared by Sustainability Victoria in relation to the management of all solid industrial waste generated or disposed of within Victoria. The plan must include a waste minimisation and resource recovery program. See generally Div2AA of Part IX, Environment Protection Act.</li> <li>• <b>Industry waste reduction agreements</b>, which are agreements between the EPA and any person or association representing an industry. They set out steps to reduce, recover, recycle, reuse and dispose of wastes that are likely to arise as a result of the activities of the person or industry. They may be voluntary, or the EPA may require an industry to prepare a draft agreement. See generally Div4 of Part IX, Environment Protection Act.</li> </ul> <p><u>Sustainability Victoria Act</u></p> <p>The Sustainability Victoria Act establishes Sustainability Victoria, a body corporate with the objective of facilitating and promoting environmental sustainability in the use of resources: s6 Sustainability Victoria Act. Its functions include to “promote throughout Victoria waste avoidance, waste reduction and recovery, re-use, recycling of resources and best practices in waste management”: s7(g), Sustainability Victoria Act.</p> <p>Sustainability Victoria has other functions relating to facilitating the uptake of fledgling technologies, industries, markets and practices in environmental sustainability, facilitating the development of voluntary environmental sustainability initiatives, and entering into agreements to further environmental sustainability, including agreements to provide financial assistance for that purpose: s7(h), (i) and (s), Sustainability Victoria Act. Each of these may provide ways to implement the waste hierarchy.</p> <p>The Contaminated Land SEPP includes the wastes hierarchy principle as a “policy principle”: cl7(8).</p>
	Licensing of contaminants and point sources (p.30, App.1)	<ul style="list-style-type: none"> <li>• <u>Works approvals under the Environment Protection Act</u></li> </ul> <p>A works approval under the Environment Protection Act generally is required before establishing on a site an industry or process which would cause the site to become <b>scheduled premises</b>, and where changes are planned to an existing industry that will have an effect on the wastes discharged to the environment: s19A, Environment Protection Act.</p> <p>Schedule 1 of the Scheduled Premises Regulations sets out the activities that are subject to this process. They include the following activities, if they are undertaken in excess of a specified size or scale:</p>

Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in Victoria
	<p>Waste treatment, disposal and recycling facilities, including land disposal facilities for the disposal of nightsoil, septic tank sludge or sewage treatment plant sludge; Intensive primary industries and allied industries (eg piggeries, feedlots, saleyards etc); Mining; Animal derived by-products and food (eg abattoirs, poultry processing works); Textiles manufacturing and processing works; Wood and wood derivatives (eg timber preserving works, paper pulp mills); Chemicals including petroleum (eg chemical works, coal processing, oil and gas refining); Non-metallic minerals (eg cement works, ceramics, glass works); Metals and engineering (eg metal and ore smelting, metal finishing works); Printing works; Utilities (power stations, carbon sequestration, potable water treatment plants, water desalination plants); Miscellaneous other activities (including long term management of premises on which there is groundwater contamination, in respect of which a notice has been issued under the Environment Protection Act requiring long term management)</p> <p>The EPA may issue a works approval subject to “such conditions as the Authority considers appropriate”: s19B(7), Environment Protection Act. As set out above (row 15) a works approval should be consistent with the Groundwaters SEPP. In the development of <b>works approval</b> conditions, or in the assessment of compliance with these conditions, the EPA may require “a hydrogeological assessment to be undertaken to determine any (a) existing groundwater contamination and resulting risk to beneficial uses of groundwater; and (b) potential risk to groundwater quality and beneficial uses of groundwater”: cl16, Groundwaters SEPP.</p> <p>It is an offence to contravene any conditions of a works approval, and penalties apply: s19B(8), Environment Protection Act.</p> <p><u>Licences under the Environment Protection Act</u></p> <p>After the works are completed, the occupier is then normally required to apply for a <b>licence</b>, which specifies EPA requirements for the operation of the business, such as limits on the amount and types of waste that may be discharged to the environment and other conditions designed to minimise environmental impacts.</p> <p>In particular, an occupier of a scheduled premises must have a licence in order to undertake “an activity which creates a state of potential danger to the quality of the environment or any segment of the environment”: s20(1)(d), Environment Protection Act. The term “environment” is defined to include waters, which is in turn defined to include groundwater: s4(1), Environment Protection Act.</p> <p>The EPA may issue a licence subject to “such conditions as the Authority considers appropriate”: s20(6)(b), Environment Protection Act. The EPA generally include as conditions limits on the discharge of various substances, monitoring requirements, and reporting of incidents and monitoring data: EPA, “Licence”, available at <a href="http://www.epa.vic.gov.au/bus/licences/licences.asp">http://www.epa.vic.gov.au/bus/licences/licences.asp</a>, viewed 19 July 2009. As set out above (row 15) a works approval should be consistent with the Groundwaters SEPP. It is an offence to contravene any conditions of a works approval, and penalties apply: s27(2), Environment Protection Act.</p>



Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in Victoria
	<p><u>Groundwaters SEPP</u></p> <p>A proposal to discharge waste to land, where there is the potential to cause detriment to groundwater quality, must include an assessment of any background rate of rise of the water-table, the effect on water-table rise of the proposal, and the impact of any such rise on the sustainability of the proposal, the surrounding land use, and any nearby ecosystem: cl21, Groundwaters SEPP.</p> <p><u>Waters SEPP</u></p> <p>The Waters SEPP provides the following guidance in relation to potential point sources of pollution (cll31, 32, 36, 58):</p> <p>31. Management of wastewater re-use and recycling</p> <p>It is important that the re-use and recycling of wastewater is sustainable and does not pose an environmental risk to the beneficial uses of surface waters and groundwaters.</p> <p>32. On-site domestic wastewater management</p> <p>On-site domestic wastewater needs to be managed to prevent the transport of nutrients, pathogens and other pollutants to surface waters and to prevent any impacts on groundwater beneficial uses.</p> <p>36. Saline discharges</p> <p>The discharge of saline wastewater, including discharges from groundwater pumping and irrigation drains, should not pose an environmental risk to beneficial uses.</p> <p>58. Extractive industries</p> <p>Operators of extractive industries such as mines and quarries need to manage their operations so that sediment and other pollutants in runoff to surface waters and groundwater are minimised.</p> <p><u>Licensing under the MRSD Act</u></p> <p>Note: At the time of writing, the MRSD Act is being reviewed, and is at the initial issues paper stage.</p> <p>The MRSD Act provides for exploration licences and mining licences in relation to the minerals industry and coal seam methane. The grant of an exploration or mining licence may be subject to conditions about, among other things, the</p>

Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in Victoria
	<p>protection of the environment and the protection of groundwater: s 26(2)(b) and (c), MRSD Act.</p> <p>A licensee who proposes to do work under the licence must lodge a work plan with the Head of the Department of Primary Industries. Under the MRSD Regulations, a work plan for a mining licence must include, among other things (Sch13):</p> <ul style="list-style-type: none"> <li>• a rehabilitation plan;</li> <li>• an environmental management plan, which identifies key environmental issues, proposals for managing environmental impacts, waste management including using the principles of waste minimisation, and a monitoring and reporting program (though this is not required for a mining lease which is 5 hectares or less); and</li> <li>• a community engagement plan.</li> </ul> <p>A licensee must rehabilitate the land in accordance with an approved rehabilitation plan and the conditions of the licence: s78(1) and (2), MRSD Act. A licensee must also enter into a <b>rehabilitation bond</b> for an amount determined by the Minister, which is returned when the Minister is satisfied that the rehabilitation is likely to be successful: ss78 and 82, MRSD Act. The MRSD Act does not require rehabilitation to be carried out to any specified standard.</p> <p><u>Licensing under the Petroleum Act</u></p> <p>The Petroleum Act regulates the development of oil and gas in Victoria, and provides for exploration permits and production licences: ss18, 46 Petroleum Act.</p> <p>An <b>exploration permit</b> and <b>production licence</b> may be subject to any conditions the Minister considers appropriate, including conditions relating to the protection of the environment: s100, Petroleum Act. The Petroleum Regulations impose standard conditions to exploration permits and production licences, including obligations to ensure that each environmental and health hazard associated with the lifecycle of a petroleum operation is eliminated or, if it is not practicable to eliminate the hazard, to ensure that the risk associated with the hazard is minimised so far as is practicable: reg4(2).</p> <p>Petroleum operations in general cannot commence until the Minister has accepted an operation plan, which sets out risks to the environment, steps to minimise risks, and rehabilitation of affected land: s161, Petroleum Act. A <b>rehabilitation bond</b> is also required before petroleum operations may commence: s173, Petroleum Act. The holder of an exploration permit or production licence must rehabilitate any land that is used in carrying out any operation and, as far as is practicable, complete the rehabilitation of the land before the permit or licence ceases to have effect: s170(1), Petroleum Act.</p> <p>The Petroleum Regulations also require different forms of operations plans to take a risk-based approach to managing environmental risks, (regs5, 6, 24) and impose the following specific obligations which relate to the protection of groundwater:</p>

Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in Victoria
	<ul style="list-style-type: none"> <li>to ensure that all reasonable steps are undertaken during an operation on a well to prevent communication between, leakage from, or the pollution of, aquifers: reg 16; and</li> <li>to meet specific requirements in relation to well casing (reg8), protection of the well site (reg19), and disposal of oil or gas in a way that minimises environmental damage (reg20).</li> </ul> <p><u>Licensing under the EID Act</u></p> <p>Note: Under the <i>Resource Industries Legislation Amendment Act 2009</i> (Vic), this Act will be repealed on 1 January 2010, and these industries will be regulated under the MRSD Act. New regulations will also come into force.</p> <p>The EID Act regulates the extraction of stone, including sand, clay, and gravel. It provides for work authorities to carry out extractive industry on any land: s19, EID Act.</p> <p>An application for a work authority must be accompanied by a work plan, which must include a rehabilitation plan: s17, EID Act. Under the EID Regulations, a work plan must include an environmental management program which sets out (among other things) proposals for the disposal of any effluents, protection of groundwater, and drainage and erosion control, and monitoring proposals (cl6 of Sch1, EID Regulations).</p> <p>The Minister may impose conditions on work authorities, including conditions in relation to rehabilitation, the protection of the environment and the protection of groundwater: s20, EID Act.</p> <p>The holder of a work authority must pay a <b>rehabilitation bond</b> (s33, EID Act) and must rehabilitate land in accordance with the rehabilitation plan and other relevant approvals: s31, EID Act.</p> <p><u>Licensing under the GER Act</u></p> <p>The GER Act provides for <b>exploration permits</b> and <b>extraction licences</b> in relation to geothermal energy: ss17, 42 GER Act. The Minister may impose conditions on an exploration permit or extraction licence as he or she considers appropriate, including conditions concerning the protection of the environment and the rehabilitation of land: s63, GER Act. The GER Regulations apply the following general obligations on all exploration permits and extraction licences:</p> <p>to ensure that all reasonable steps are undertaken during the drilling and continuing operation and decommissioning of a well to prevent communication between, leakage from, or the pollution of, aquifers or hydrocarbon bearing formations: reg15.</p> <p>Before any geothermal energy operation commences, the permit or licence holder must have an approved <b>development</b></p>

	Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in Victoria
		<p><b>plan</b> (s52, GER Act) and an approved <b>operation plan</b>: s96, GER Act. An operation must (among other things) identify the environmental risks of the operations, actions to eliminate or minimise those risks, and rehabilitation plans: s96, GER Act. The GER Regulations require an operation plan to include an environmental management plan, which must set out, among other things, environmental performance objectives, standards and measurement methods (reg23); and an implementation strategy to ensure that the environmental performance objectives and standards are met: reg24.</p> <p>The holder of a work authority must pay a <b>rehabilitation bond</b> (s100, GER Act) and must rehabilitate land in accordance with the operation plan: s111(2), GER Act. The rehabilitation bond secures the payment of a specified amount of money for any rehabilitation work, clean-up work or pollution prevention work that may be necessary as a result of a geothermal energy operation: s4(1) GER Act.</p> <p><u>Licensing under the GGGs Act</u></p> <p>The GGGs Act provides for <b>exploration permits</b> and greenhouse gas substance injection and monitoring licences (<b>GGSIM licence</b>) in relation to greenhouse gas substances: ss19, 71 GGGs Act. The Minister may impose conditions on an exploration permit or GGSIM licence as he or she considers appropriate, including conditions concerning the protection of the environment and the rehabilitation of land: s157, GGGs Act.</p> <p>Before injecting a liquid or gas into an underground geological storage for exploration purposes, or commencing greenhouse gas injection and monitoring under a GGSIM licence, an approved <b>plan</b> must be in place. These plans must cover, respectively, environmental risks and a risk management plan; an environmental assessment of the effects of potential leakage; and a risk management plan: ss38, 39, 94, 95, GGGs Act.</p> <p>Before any greenhouse gas sequestration operation commences, the permit or licence holder must have an approved <b>operation plan</b>: s209, GGGs Act. An operation plan must (among other things) identify the environmental risks of the operations, actions to eliminate or minimise those risks, and rehabilitation plans: s209, GGGs Act.</p> <p>After injection activities are complete, GGSIM licence holder must close off wells and rehabilitate the site: s92, GGGs Act. The holder of a work authority must pay a <b>rehabilitation bond</b> (s220) and must rehabilitate land in accordance with the operation plan: 217, GGGs Act. The rehabilitation bond secures the payment of a specified amount of money for any rehabilitation work, clean-up work or pollution prevention work that may be necessary as a result of a greenhouse gas sequestration operation: s219(1), GGGs Act.</p>
18	Inter-agency coordination (p.48)	<p>● After the EPA receives an application for a <b>works approval</b>, it must refer the information to “any protection agency which the Authority considers may be directly affected by the application”, the Secretary to the Department of Human Services, any authority administering a planning scheme in the relevant area, and the Minister administering the MRSD Act, if the</p>

	Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in Victoria
		<p>application relates to exploration for minerals or mining: s19B(3), Environment Protection Act.</p> <p>These entities may, within specified time limits, provide to the EPA written objections or recommendations, and other specified information, which the EPA must take into account. In some cases this information acts as a veto, for example, if the Secretary to the Department of Human Services objects to the issue of a works approval on the ground that the public health is likely to be endangered if the works approval is issued, the EPA must refuse to issue the approval: s19B(5)(b), Environment Protection Act.</p> <p>Similar provisions apply in relation to a licence, in certain circumstances: s20(8), Environment Protection Act.</p> <p>A water authority must consent (and may apply associated conditions) to a person carrying out:</p> <ul style="list-style-type: none"> <li>• mining work (ss44(2)(b), (4) and (8), MRSD Act);</li> <li>• petroleum operations (ss140 and 142, Petroleum Act);</li> <li>• extractive industry (s12, EID Act);</li> <li>• geothermal energy operations (ss82 and 83, GER Act); and</li> <li>• greenhouse gas sequestration operation (ss195 and 196, GGGS Act),</li> </ul> <p>on land that is owned, vested in or managed or controlled by the water authority, and (depending on the depth of the operation) land near waterways and other infrastructure.</p> <p>Under the GGGS Act, in relation to approving plans, the Minister must decide whether there is a risk to the environment based on consultation with the Water Minister, the Minister administering the Environment Protection Act and the Environment Protection Authority: ss41 and 97.</p>
19	Requirements for impact assessment (p.32)	<p>● <u>Environment Effects Statement under the Environment Effects Act</u></p> <p>The Environment Effects Act applies to <b>declared public works</b>. The Environment Effects Act does not provide for an approval in itself, but is used to inform decision-makers about whether a project should proceed. A proponent, or a decision-maker under an Act who is required to make a decision in respect of works that could have a significant effect on the environment, each may seek the advice of the Minister as to whether an EES should be prepared: s8, Environment Effects Act. The Minister for Planning may make a declaration in relation to a public work if he or she is “satisfied that the works could reasonably be considered to have or to be capable of having a significant effect on the environment”: s3, Environment</p>

	Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in Victoria
		<p>Effects Act.</p> <p>The EES Guidelines set out types of potential effects on the environment that might be of regional or State significance, and therefore warrant referral of a project. They include (p.7):</p> <ul style="list-style-type: none"> <li>• potential extensive or major effects on the health or biodiversity of aquatic ecosystems, over the long term;</li> <li>• potential extensive or major effects on the health, safety or well-being of a human community, due to emissions to water or chemical hazards; or</li> <li>• potential extensive or major effects on beneficial uses of waterbodies over the long term due to changes in water quality, streamflows or regional groundwater levels.</li> </ul> <p>The Minister may decide that: (1) an EES is required, and specify the relevant process; (2) an EES is not required; or (3) an EES is not required but particular conditions must be met: s8B, Environment Effects Act (for example, requirements as to design, requirements for further studies, or consultation).</p> <p>Under the EES Guidelines, the EES must contain, among other things, a description of the project and relevant alternatives, a description of relevant environmental effects and their significance, and a framework for managing environmental effects, including monitoring: pp13-20. The EES Guidelines explicitly suggest that an EES should identify and assess potential changes to the quality of groundwater: p.16.</p> <p>The Minister may appoint an inquiry into the project: s9, Environment Effects Act.</p> <p>Finally, the Minister makes an assessment of environmental effects, considering the EES, among other things. The Minister may decide that the assessment (1) will have an acceptable level of environmental effects; (2) will not have an acceptable level of environmental effects; or (3) would need major modifications and/or further investigation to establish that acceptable outcomes would be achieved: p.27, EES Guidelines.</p> <p>The Minister's assessment may be used by decision-makers under the Planning and Environment Act, Environment Protection Act, MRSD Act, Pipelines Act, Water Act, Petroleum Act, EID Act and GER Act 2005: EES Guidelines p.29.</p>
20	Prescription of activities/ discharges in protected areas (p.45)	<p>● The Groundwaters SEPP provides for the designation of <b>groundwater protection zones</b>, in which a greater level of protection is afforded than under the “normal” beneficial uses, objectives and criteria: cl15. However, no groundwater protection zone has yet been prescribed: SchA, Groundwaters SEPP.</p>

	Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in Victoria
21	Monitoring requirements (p.45)	<ul style="list-style-type: none"> <li>Monitoring requirements may be imposed under the Environment Protection Act through <b>works approvals</b> or <b>licences</b> (see above, row 17), <b>abatement notices</b> (s28B(2)(d)) and <b>pollution abatement notices</b> (s31A(2)(f)).</li> <li>If an <b>attenuation zone</b> has been designated in respect of an activity in a works approval, licence or notice, that document will, if appropriate, include a groundwater monitoring program to be carried out from sampling points at the boundaries of the attenuation zone and/or close to any waste source: cl17(4)(b), Groundwaters SEPP.</li> </ul>
22	Contingency measures, including clean-up requirements (pp.47-48)	<ul style="list-style-type: none"> <li> <p><u>Environment Protection Act</u></p> <p>If an <b>attenuation zone</b> has been designated in respect of an activity in a works approval, licence or notice, that document will require the proponent to prepare a contingency plan to the EPA's satisfaction, that will be implemented if groundwater at or beyond the boundaries of the attenuation zone is polluted: cl17(4)(b), Groundwaters SEPP.</p> <p>The EPA may declare a <b>groundwater quality restricted use zone</b> if it is "satisfied that an existing level of contamination of groundwater precludes one or more beneficial uses that would otherwise apply to that groundwater": cl19(1), Groundwaters SEPP. In particular, if an activity ceases, and the activity had an associated attenuation zone, the EPA may identify the attenuation zone as a <b>groundwater quality restricted use zone</b>: cl17(5), Groundwaters SEPP.</p> <p>Under the Groundwaters SEPP, the EPA will require groundwater within <b>groundwater quality restricted use zones</b> to be managed to contain polluted groundwater within the zone, and "<b>cleaned up to the extent practicable</b> in order to move towards the objectives prescribed in this policy to protect beneficial uses": cl19(2)(b), Groundwaters SEPP. A particular provision is made for non-aqueous phase liquids, which must be "removed unless the [EPA] is satisfied that there is no unacceptable risk posed to any beneficial use by the non-aqueous phase liquid": cl18, Groundwaters SEPP. The EPA will periodically require the reassessment of the practicability of clean up: cl19(3), Groundwaters SEPP.</p> <p>Under the Environment Protection Act, several tools are available to the EPA in response to various types of pollution, including:</p> <ul style="list-style-type: none"> <li>an <b>abatement notice</b>, which may require the occupier of a licensed sewage treatment plant which is contravening its licence to reduce, limit or modify wastes discharged, or to install apparatus to prevent or control discharges: s28B;</li> <li>an order to several persons to cease licensed discharge to the environment, if, despite the fact that those persons are complying with their licences, "nevertheless the collective effect of the aggregate of such wastes has caused or is likely to cause a condition that if caused by one person, would be an offence: s31;</li> <li>a <b>pollution abatement notice</b>, or a minor works pollution abatement notice, in relation to an activity or process that</li> </ul> </li> </ul>

Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in Victoria
	<p>(among other things) has caused or is likely to cause pollution, has contravened or is likely to contravene a requirement of a SEPP or a condition of a licence, or has created or is likely to create an environmental hazard. The notice may require a person to cease or modify the process or activity, or to take particular measures to achieve compliance; ss31A and 31B; and</p> <ul style="list-style-type: none"> <li>• a <b>notice to take clean up and ongoing management measures</b>, in response to pollution, the dumping of industrial waste or a potentially hazardous substance, or a likely environmental hazard caused by those substances. Such a notice may specify notice any condition, requirement, restriction, performance standard or level that the EPA thinks fit: s62A, Environment Protection Act.</li> </ul> <p>Further, the Governor may, on the EPA's recommendation, require a specified industry to conduct a specified environmental audit, and to publish the results. A premises may be exempted from this requirement if it has agreed to participate in an <b>environment improvement plan</b>, which provides for contingency and emergency plans, community consultation, and a requirement that relevant SEPPs and other documents will be complied with: s31C, Environment Protection Act.</p> <p><u>Groundwaters SEPP</u></p> <p>The Groundwaters SEPP provides for the EPA to determine <b>groundwater protection zones</b> (which will be set out in Schedule A of the Groundwaters SEPP, although none has yet been prescribed), which require protection that is more stringent than the beneficial uses that would otherwise apply, and <b>groundwater quality restricted use zones</b>, in which the normal criteria for beneficial uses do not apply. See row 11, Victorian Environment Protection Framework Table.</p> <p><u>Contaminated Land SEPP</u></p> <p>Under the Contaminated Land SEPP, generally where contamination at a site is of a level which precludes a protected beneficial use of the relevant land use, a state of pollution exists and the land must be cleaned up and/or managed so that:</p> <ul style="list-style-type: none"> <li>(a) there is no immediate threat to human health on-site or off-site or the environment off-site;</li> <li>(b) contamination does not preclude protected beneficial uses of the relevant land use; and</li> <li>(c) the risk of contamination from the site adversely affecting any beneficial use protected under any State environment protection policy off-site is reduced to a level acceptable to the [EPA]: cl21.</li> </ul> <p>A management strategy should be determined for the site, so that they are consistent with any policy under the Environment Protection Act, and with regard to the principle of the waste hierarchy, achieving the best practical environmental outcome, and protection of beneficial uses: cl22, Contaminated Land SEPP. The level of clean-up is determined with reference to the Contaminated Site NEPM (see Cth Environment Protection Framework): cl23(b), Contaminated Site SEPP.</p>



23	Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in Victoria
	Controls on diffuse source contamination (pp.17, 30)	<p>● The Groundwaters SEPP states that:</p> <p style="padding-left: 40px;">Where an activity has the potential to be or to cause a diffuse source of groundwater pollution, the activity must be consistent with current best practice or with any relevant best practice environmental management guidelines adopted by the Authority: cl24.</p> <p>The EPA has adopted a large number of best practice environmental management guidelines (available from <a href="http://epanote2.epa.vic.gov.au/4a2565930018336.nsf/bycat?OpenView&amp;Start=1&amp;Count=40&amp;Expand=4#4">http://epanote2.epa.vic.gov.au/4a2565930018336.nsf/bycat?OpenView&amp;Start=1&amp;Count=40&amp;Expand=4#4</a>), however they appear to be focused on point sources (eg wastewater treatment plants, landfills, dairies).</p> <p>Dangerous goods and chemicals are regulated as set out above, row 5.</p>

## VICTORIA (3) Land-Use Planning Framework Table

Key items of legislation, regulation and policy	Supplementary items of legislation, regulation and policy	Symbols, acronyms, and useful terminology
<p><i>Planning and Environment Act 1987</i> (Vic) (<b>Planning and Environment Act</b>)</p> <p><i>Planning and Environment Regulations 2005</i> (Vic) (<b>Planning and Environment Regulations</b>)</p>	<p><i>Land Act 1958</i> (Vic) (<b>Land Act</b>)</p> <p><i>State Environment Protection Policy - Waters of Victoria</i> (1988, as updated 2003) - see Victoria Government Gazette S107 (2003) and S210 (2004) (<b>Waters SEPP</b>)</p> <p><i>Catchment and Land Protection Act 1994</i> (Vic) (<b>CaLP Act</b>)</p> <p><i>Our Environment our Future: Sustainability Action Statement 2006</i> (Victorian Government, 2006) (<b>Our Environment Our Future</b>), available at:  <a href="http://www.dse.vic.gov.au/ourenvironment-ourfuture/">http://www.dse.vic.gov.au/ourenvironment-ourfuture/</a>, viewed 29 July 2009.</p> <p><i>Planning Permit Applications in Open, Potable Water Supply Catchment Areas</i> (May 2009, Department of Planning and Community Development) (<b>Catchment Guidelines</b>) – made under s60(1A)(g) of the Planning and Environment Act, available at  <a href="http://www.dse.vic.gov.au/CA256F310024B628/0/2B621C537A272364CA25700600224716/\$File/Guidelines+for+permit+applications+in+catchment+areas.pdf">http://www.dse.vic.gov.au/CA256F310024B628/0/2B621C537A272364CA25700600224716/\$File/Guidelines+for+permit+applications+in+catchment+areas.pdf</a>, viewed 29 July 2009.</p> <p><i>Crown Land (Reserves) Act 1978</i> (Vic) (<b>Crown Land Act</b>)</p>	<p><b>Framework</b> = the collection of legislation, regulation and policy set out in this report for each jurisdiction, in relation to:  (1) Groundwater Management; (2) Environment Protection; and (3) Land-Use Planning</p> <p><b>Guidelines</b> = <i>Guidelines for Groundwater Protection in Australia</i> (1995)</p> <p><b>Planning Minister</b> = Minister for Planning</p> <p><b>responsible authority</b> = the entity which is responsible for the administration or enforcement of a planning scheme (generally the municipal council)</p> <p><b>SEPP</b> = State environment protection policy under the Environment Protection Act</p> <p><b>VPPs</b> = Victoria Planning Provisions (made under the Planning and Environment Act), which are the state-standard planning provisions.</p> <p>● = Framework explicitly provides for this element of the Guidelines</p> <p>◐ = Framework goes some way towards providing for this element of the Guidelines</p> <p>○ = Framework does not provide for this element of the Guidelines</p>

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in Victoria	
1	Principles (pp.9-13)	●	<p>Not explicitly mentioned in the Planning and Environment Act, Planning and Environment Regulations or VPPs.</p> <p>However, the recently released Catchment Guidelines provide for the application of the precautionary principle in the context of a planning permit application in a potable water supply catchment which is a declared special water supply catchment under the CaLP Act, and which is partly or completely in private ownership: p.1. The guidelines focus on septic tank systems, agricultural practices and buildings and works, and aim to give “proper application of the precautionary principle” by requiring the consideration of the cumulative risk of the adverse impacts of septic tank systems, since this is a requirement of a SEPP, with which a planning permit decision must be consistent: s53M, Environment Protection Act.</p>
2	Polluter pays principle (p.11)	○	Not explicitly mentioned in the Planning and Environment Act, Planning and Environment Regulations or VPPs.
3	Equity considerations (p.12)	●	An objective of planning in Victoria is to “to provide for the fair, orderly, economic and sustainable use, and development of land”: s4(1)(a), Planning and Environment Act.
4	Beneficial uses and values (pp.10-12, 39-41)	●	<p>The key document in relation to beneficial uses of groundwater is the Groundwaters SEPP (see Victorian Environment Protection Framework). When a responsible authority is considering a planning permit application, it may consider, if the circumstances appear to require it, any relevant SEPP, including the Groundwater SEPP: s60(1A)(f), Planning and Environment Act.</p> <p>Planning and responsible authorities should utilise mapped information available from the Department of Sustainability and Environment to identify the beneficial uses of groundwater resources and have regard to potential impacts on these resources of proposed land use or development: cl15.01-2, VPPs.</p>
5	Forms of intervention	●	<p><u>Planning and Environment Act</u></p> <p>The Planning and Environment Act requires use and development to be in accordance with the relevant planning scheme or planning permit: s126. A planning scheme, which may use the State-standard provisions and zones of the VPPs, is the key way in which the Victorian Land-Use Planning Framework may provide for the protection of groundwater (see below, rows 8-22). When a decision-maker is considering an application for a planning permit, he or she must also consider “significant” environmental effects (s60(1)(e), Planning and Environment Act), which may include groundwater quality impacts, in relevant circumstances.</p>

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in Victoria	
6			<p><u>Crown Land Act</u></p> <p>Under the Crown Land Act, trustees of reserved land, with the approval of the Governor in Council, may make by-laws for the “care protection and management of the land”: s13. The Crown Land Act provides for the granting of various types of leases and licences over Crown land, which may be subject to conditions. A committee of management typically manages reserved land, and may include as a member a person holding a licence under the Water Industry Act: s14.</p> <p><u>Land Act</u></p> <p>Under the Land Act, a lease or licence over Crown land may contain conditions regarding: water supply and other improvements (ss124(g)(iii), 130AC(d)(iii)); reclamation of eroded areas and land degradation (ss124(g)(iv) and 130AC(d)(iv)); and retention or clearance of native vegetation (ss124(g)(v) and 130AC(d)(v)). A function of the Development Leases Consultative Committee under that Act is to “recommend to the Minister provisions for insertion in development leases for the purposes of promoting soil and water conservation... in settled areas adjacent to the lands to be leased”: s307(6)(a), Land Act.</p>
	Market (generally pp.14-15)	●	<p>Not explicitly mentioned in the Planning and Environment Act, Planning and Environment Regulations or VPPs.</p> <p>Under the non-statutory policy Our Environment Our Future, the Victorian Government commits to expanding Victoria’s “Good Neighbour Program” (which deals with the management of land at borders between public and private land) to deal with water quality, in collaboration with the community, and in this context, will investigate a “market-based approach”: p.31.</p>
7	Community participation and education (p.15)	●	<p>An objective of the planning framework established by the Planning and Environment Act is “to establish a clear procedure for amending planning schemes, with appropriate public participation in decision making”: s4(2)(h).</p> <p>The Planning and Environment Act provides for public consultation in relation to amending planning schemes (Div2, Pt3), and applications for planning permits (s52).</p>
8	Specific approaches to protection	Vehicle for protection	<p>N/A</p> <p><u>Victoria Planning Provisions (VPPs) under the Planning and Environment Act</u></p> <p>Not: a reference in this column to a section is a reference to a section of the Planning and Environment Act</p> <p>The VPPs are Victoria’s standard planning provisions, from which <b>planning schemes</b> are constructed. They do not directly apply to any</p>
			<p><u>Planning schemes under the Planning and Environment Act</u></p> <p>Not: a reference in this column to a section is a reference to a section of the Planning and Environment Act</p> <p>A planning scheme is a regional document</p>

	Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in Victoria		
9			<p>land, but are standard provisions that may be used by a planning scheme.</p> <p>The VPPs consist of the State Planning Policy Framework, which contains overarching clauses, including in relation to the environment (cl15), zones, overlays, particular provisions which deal with particular types of activities, including native vegetation, and general provisions.</p>	<p>which consists of State standard provisions selected from the VPPs and local provisions.</p> <p>A planning scheme must seek to further the objectives of planning in Victoria within the area covered by the scheme, which include providing for the sustainable use and development of land, and providing for the maintenance of ecological processes and genetic diversity: s4(1)(a) and (b).</p>
	Use of land-use risk matrix to judge compatibility of land uses with water quality protection (p.44)	●	<p>The VPPs' "Principles of land use and development planning" state that (cl11.03-2):</p> <p>Planning is to contribute to the protection of air, land and water quality and the conservation of natural ecosystems, resources, energy and cultural heritage</p> <p>[and planning should] Adopt a best practice environmental management and risk management approach which aims to avoid or minimise environmental degradation and hazards.</p> <p>The VPPs provide for a "land capability assessment", being an "assessment of the physical ability of the land to sustain specific uses having regard to its management, and without long term on-site detriment to the environment." (Definitions). Land capability is a "fundamental factor for consideration in rural land use planning": cl17.05-2, General Implementation of Agriculture under the State Planning Policy Framework.</p> <p>The Decision Guidelines for developments in certain zones state that, in the absence of reticulated sewage, before deciding on an application, the responsible authority must consider as, appropriate, the "capability of the lot to treat and retain all wastewater": cl32.03-3 and 32.05-9, VPPs. In some cases, if reticulated sewerage is not available, a development application must be accompanied by a land assessment report which demonstrates that each lot is capable of treating and retaining all waste</p>	Planning schemes may comprise relevant provisions from the VPPs.

	Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in Victoria		
10			<p>water in accordance with the a specified SEPP: cl45.05-1, VPPs.</p> <p>In relation to numerous zones and overlays, before deciding on an application to use or subdivide land, construct a building or construct or carry out works, the responsible authority must consider, as appropriate, the capacity of land to accommodate use or development: Rural Living Zone cl35.03-5, Green Wedge Zone cl35.04-6, Green Wedge A Zone cl35.05-6, Rural Conservation Zone cl35.06-6, Farming Zone cl35.07-6, Rural Activity Zone cl35-08-5, Urban Growth Zone cl37.07-7 or Salinity Overlay cl44.02-8.</p>	
	Land zoning taking into account underlying groundwater (pp.43-44)	●	<p>Under the VPPs, zoning, overlay controls and permit conditions should be used to “Prevent inappropriate development in areas affected by groundwater salinity” and “To promote vegetation retention and replanting in aquifer recharge areas contributing to groundwater salinity problems.”: cl15.03-2</p> <p>As appropriate, applications relating to sites within a <b>Salinity Management Overlay</b> must be accompanied by information on the:</p> <p>Size and location of discharge areas and areas of high salinity risk from the site inspection, including the identification of shallow watertable within 3 metres of the surface (depth to watertable), and soil salinity from soil tests or vegetative indicators: cl44.02-5, VPPs.</p> <p>(Also see below, row 12.)</p>	Planning schemes may comprise relevant zones selected from the VPPs.
11	Protection for water supply protection areas (p.27)	●	<p>In general:</p> <p>Planning and responsible authorities should ensure that water quality in water supply catchments is protected from possible contamination by urban, industrial and agricultural land uses: cl18.09-2, VPPs.</p> <p>A general strategy within the VPPs is to protect groundwater and land resources by:</p> <p>Preventing the establishment of incompatible land uses in aquifer recharge or</p>	<p>Planning schemes may comprise relevant provisions from the VPPs.</p> <p>Also note that under the Crown Lands Act, the Governor in Council may reserve land for “watersheds and gathering grounds for water supply purposes”: s4(1)(d).</p>

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in Victoria	
12			<p>saline discharge areas and in potable water catchments: cl12.07-2, VPPs.</p> <p>In certain zones, relatively small cattle feedlots do not require a permit if the site is located outside a <b>special water supply catchment</b> under the CaLP Act (for example, Farm Use Zone, cl35.07-1 and Rural Activity Zone, cl35.08-1). However, if the site is located within a <b>special water supply catchment</b>, a referral must be made to the relevant water authority under the Water Act and to the Secretary to the Department administering the Catchment and Land Protection Act, and for very large feedlots, a referral must be made to the EPA: cl66.02-4, VPPs.</p> <p>If an application relates to using, subdividing or consolidating land, constructing a building or constructing or carrying out works, or demolishing a building or works within a <b>special water supply catchment area</b>, a referral must be made to the relevant water board or water supply authority: cl66.02-6, VPPs.</p>
	Protection of groundwater recharge zones (p.28)	●	<p>The purposes of the <b>Salinity Management Overlay</b> include:</p> <p>To identify areas subject to saline ground water discharge or high ground water recharge...</p> <p>To encourage development to be undertaken in a manner which brings about a reduction in salinity recharge: cl44.02, VPPs</p>
13	Controls on land clearing due to connection with groundwater quality (p.28)	●	<p>The <b>Vegetation Management Overlay</b> is used to The Decision Guidelines in relation to this overlay state that: “[t]he need to retain vegetation which prevents or limits adverse effects on ground water recharge” must be considered, as appropriate, before deciding on an application”: cl42.02-4, VPPs.</p> <p>A permit generally is required to remove or destroy <b>native vegetation</b>: cl52.17-2, VPPs. Before deciding on an application, the responsible authority must consider as appropriate the role of the native vegetation in:</p> <p>Protecting water quality and waterway and riparian ecosystems, particularly... in</p>

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in Victoria		
14			<p>special water supply catchment areas...</p> <p>Preventing land degradation, including soil erosion, salinisation, acidity, instability and water logging...</p> <p>Preventing adverse effects on groundwater recharge, particularly on land where groundwater recharge to saline watertables occurs or which is in proximity to a discharge area: cl52.17-5, VPPs.</p>	
	<p>Controls on land development due to connection with groundwater quality (p.28)</p> <p>For example controls on mining, quarrying, waste disposal (p.28)</p>	●	<p>A general policy objective of the VPPs is that</p> <p>Planning and responsible authorities should ensure that land use activities potentially discharging contaminated runoff or wastes to waterways are sited and managed to minimise such discharges and to protect the quality of surface water and ground water resources, rivers, streams, wetlands, estuaries and marine environments: cl15.01-2, VPPs.</p> <p>Further controls apply to particular types of developments. For example, in the case of an application for a permit for extractive industry, a responsible authority must consider "[t]he effect of the proposed extractive industry on groundwater and quality and the impact on any affected water uses": cl52.09-3, VPPs.</p>	<p>Planning schemes may regulate or prohibit the use or development of any land: s6(2)(b), including by incorporating provisions of the VPPs.</p>
15	<p>Controls on rural and urban runoff (p.28)</p>	●	<p>Under the VPPs, generally applicable urban run-off management objectives include the objective:</p> <p>To minimise increases in stormwater run-off and protect the environmental values and physical characteristics of receiving waters from degradation by urban run-off: cl56.07-4, VPPs.</p> <p>In relation to an application for a permit subject to an <b>Urban Floodway Zones</b> or <b>Land Subject to Inundation Overlay</b>, the application requirements and decision guidelines each include:</p> <p>The effects of the development on environmental values such as natural habitat, stream stability, erosion, water quality and sites of scientific significance: cl37.03-4 and cl44.04-6, VPPs.</p>	<p>Planning schemes may regulate or prohibit the use or development of any land: s6(2)(b), including by incorporating provisions of the VPPs.</p>



	Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in Victoria		
16	Controls over use of sewage effluent (p.44)	●	<p>Under the VPPs, generally applicable waste water management objectives include:</p> <p>To provide a waste water system that is adequate for the maintenance of public health and the management of effluent in an environmentally friendly manner: cl56.07-3, VPPs.</p> <p>The following provisions of the VPPs also apply generally:</p> <p>The re-use of wastewater including urban run-off, treated sewage effluent and run-off from irrigated farmland should be encouraged where appropriate, consistent with relevant Environment Protection Authority guidelines: cl18.09-2, VPPs.</p> <p>Ensure that water resources are managed in a sustainable way by: Ensuring the development of new urban areas and green spaces takes advantage of any opportunities for effluent recycling: cl12.07-2, VPPs.</p> <p>(See also requirements for licensing under the Environment Protection Act, row 17 Victoria Environment Protection Framework.)</p>	<p>Planning schemes may regulate or prohibit the use or development of any land: s6(2)(b), including by incorporating provisions of the VPPs.</p> <p>Also dealt with under the Environment Protection Framework - see row 17, Environment Protection Framework Table.</p>
17	Manage land uses to reduce risks of contamination (p.44)	●	<p>Managed through planning permit conditions, to which the VPPs are relevant, rather than directly through the VPPs.</p> <p>Note: The Waters SEPP also provides the following guidance in relation to potential pollution from irrigation channels and drains, and in relation to catchment activities generally (cl45 and 51):</p> <p>45. Groundwater management</p> <p>In accordance with the State environment protection policy (Groundwaters of Victoria), catchment activities should not pose an environmental risk to groundwater beneficial uses.</p> <p>Conversely, groundwater managers and those who use groundwater need to ensure that their activities do not pose an environmental risk to surface water beneficial uses, particularly through the excessive extraction of water and the subsequent</p>	<p>Planning schemes may regulate or prohibit the use or development of any land: s6(2)(b), including by incorporating provisions of the VPPs.</p>

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in Victoria	
18			<p>prevention of surface water environmental flows, and through reducing the quality of adjoining surface waters.</p> <p>51. Irrigation channels and drains</p> <p>Artificial irrigation channels and artificial irrigation drains need to be managed for the purposes for which they were constructed (see clause 10). They must be designed and managed so that their waters are not harmful to humans or have unacceptable impacts on animals, and so that the impact of their flow, sediments, nutrients, salt and other pollutants on surface water and groundwater is minimised.</p>
	Veto or referral rights for water and environment agencies in relation to land development (p.45)	●	<p>The VPPs state that planning schemes should enable referral of applications for subdivision and plans of subdivision to relevant statutory authorities and relevant Government agencies responsible for, amongst other things, water, sewerage, drainage, the management of water supply and drainage catchments and the allocation of water rights: cl19.01-2, VPPs.</p> <p>Further referral requirements relate to specific industries, if applications relate to land in a special water supply catchment under the CaLP Act: cl66.02-9, VPPs (extractive industry); cl66.06-2, VPPs (application to use, subdivide or consolidate land, to construct a building or construct or carry out works, or to demolish a building or works); cl66.02-4, VPPs (cattle feedlots).</p>
19	Other inter-agency coordination (pp.28, 35)	●	<p>A planning authority may also take any steps and consult with any other persons it considers necessary to ensure the co-ordination of the planning scheme with proposals by those other persons: s12(3)(c). (See also above, row 18.)</p>

A planning authority must give notice of a proposed amendment to a planning scheme to every Minister, public authority and municipal council that it believes may be materially affected by the amendment: s19(1)(a).

Further, the Planning Regulations prescribe several Ministers which a planning authority must notify of a proposed amendment to a planning scheme, being the Ministers administering the Conservation, Forests and Lands Act, the CaLP Act, the Mineral Resources Development Act, the Extractive Industries Development Act and the Pipelines Act: reg8.

A referral authority may object to a permit, or specify conditions to be applied to a permit: s56. The responsible authority must refuse to grant the permit if a relevant referral authority objects to the grant of the permit: s61(2), and must impose any condition required by a referral authority: s62(1).

If a proposed amendment would “unreasonably prejudice” a prescribed factor (for example, the use or development of land for timber

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in Victoria		
20				production), the Minister must not approve the amendment, essentially giving these bodies a veto power: s35(4)(a) and reg11, Planning and Environment Regulations.
	Public consultation (p.28)	●	Not explicitly provided for.	A proposed amendment to a planning scheme undergoes public consultation in the form of written submissions, which are considered by the planning authority (s22), and consideration by a panel of oral submissions (s24), which are then reported to the planning authority.
21	Monitoring and review (pp.46-47)	◐	The Planning Minister may approve amendments to the VPPs at any time (s4C), but there is no express legislative requirement to review the VPPs or monitor their effectiveness.	A planning authority must regularly review and evaluate its planning scheme, and report the results to the Planning Minister: s12B. The objective of the review is to enhance the effectiveness and efficiency of the planning scheme in achieving Victoria's planning objectives: s12B(3).
22	Enforcement (p.20)	●	In preparing a planning scheme, a planning authority must have regard to the VPPs: s12(2)(aa).  A planning scheme includes both State standard provisions from the VPPs, and also local provisions – in the event of a conflict between the two, the State standard provisions prevail: s8(4)(b)(i).	In deciding whether to grant a planning permit, the responsible authority must consider the relevant planning scheme: s60(1)(a).  Any person who uses or develops land in contravention of, or fails to comply with, a planning scheme or a permit is guilty of an offence, and penalties apply: s126.

## WESTERN AUSTRALIA (1) Groundwater Management Framework Table

**Important note as to legal reforms:** WA has announced “wide ranging legislative reform to modernise and consolidate water resource management and water services statutes”: State Water Plan, p.13. At the time of this Review, no relevant Bills have been introduced into the WA Parliament.

See John Roberts, Update on Legislative Reform (presentation to State Water Forum, 19 February 2008), available <http://www.water.wa.gov.au/05%20Presentations%20John%20Roberts%2013-02-08.pdf?id=56>, viewed 24 July 2009.

Key items of legislation, regulation and policy	Supplementary items of legislation, regulation and policy	Symbols, acronyms, and useful terminology
<p><i>Rights in Water and Irrigation Act 1914 (WA) (Water and Irrigation Act)</i></p> <p><i>Rights in Water and Irrigation Regulations 2000 (WA) (Water and Irrigation Regulations)</i></p> <p><i>Conservation and Land Management Act 1984 (WA) (CALM Act)</i></p> <p><i>State Water Plan 2007 (WA) (State Water Plan)</i>, available at <a href="http://portal.water.wa.gov.au/portal/page/portal/PlanningWaterFuture/StateWaterPlan/Content/State%20Water%20Plan%202007%20text%20only.pdf">http://portal.water.wa.gov.au/portal/page/portal/PlanningWaterFuture/StateWaterPlan/Content/State%20Water%20Plan%202007%20text%20only.pdf</a>, viewed 28 July 2009.</p> <p><i>Metropolitan Water Supply, Sewerage, and Drainage Act 1909 (WA) (Metropolitan Water Act)</i></p> <p><i>Metropolitan Water Supply, Sewerage and Drainage By-laws (WA) (Metropolitan Water By-laws)</i></p> <p><i>Country Areas Water Supply Act 1947 (WA) (Country Water Act)</i></p>	<p><i>Securing Our Water Future – A State Water Strategy for Western Australia</i> (Government of WA, 2003) (<b>Water Strategy</b>), available at <a href="http://dows.lincdigital.com.au/statewaterstrategy.asp">http://dows.lincdigital.com.au/statewaterstrategy.asp</a>, viewed 27 July 2009.</p> <p><i>Statement of Planning Policy No 2.7 – Public Drinking Water Source Policy</i> (2003) (<b>Drinking Water Source Policy</b>), available at <a href="http://www.planning.wa.gov.au/Plans+and+policies/Publications/149.aspx">http://www.planning.wa.gov.au/Plans+and+policies/Publications/149.aspx</a>, viewed 24 July 2009.</p> <p><i>Water Corporation Act 1995 (WA) (Water Corporation Act)</i></p> <p><i>Health Act 1911 (WA) (Health Act)</i></p> <p><i>Health Act (Underground Water Supply) Regulations 1959 (WA) (Health Underground Water Regulations)</i></p> <p><i>Land Administration Act 1997 (WA) (Land Administration Act)</i></p> <p>WA Department of Environment, <i>Groundwater Investigation Program in Western Australia (2005 to 2020)</i> (2005), (<b>Groundwater Investigation Program</b>) available at <a href="http://portal.water.wa.gov.au/portal/page/portal/WaterManagement/Publications/HydrogeologicalRecordsSeries/Content/HG10_GROUNDWATER_INVESTIGATION_PROGRAM_WA.pdf">http://portal.water.wa.gov.au/portal/page/portal/WaterManagement/Publications/HydrogeologicalRecordsSeries/Content/HG10_GROUNDWATER_INVESTIGATION_PROGRAM_WA.pdf</a>, viewed 25 July 2009.</p>	<p><b>CEO</b> = means the Chief Executive Officer of the WA Department for Environment and Conservation</p> <p><b>EPA</b> = Environment Protection Authority</p> <p><b>Framework</b> = the collection of legislation, regulation and policy set out in this report for each jurisdiction, in relation to: (1) Groundwater Management; (2) Environment Protection; and (3) Land-Use Planning</p> <p><b>Guidelines</b> = <i>Guidelines for Groundwater Protection in Australia</i> (1995)</p> <p><b>Water Corporation</b> = the Water Corporation established by section 4 of the Water Corporation Act 1995, which provides metropolitan and rural supply and services across WA.</p>

<p><i>Country Areas Water Supply By-laws 1957</i> (WA) (<b>Country Water By-laws</b>)</p> <p><i>Water Boards Act 1904</i> (WA) (<b>Water Boards Act</b>)</p> <p><i>Water Agencies (Powers) Act 1984</i> (WA) (<b>Water Agencies Act</b>)</p> <p>State Water Quality Management Strategy No1: Framework for Implementation (May, 2001) (<b>SWQMS Framework</b>), available at <a href="http://portal.water.wa.gov.au/portal/page/portal/WaterQuality/Publications/OtherPublicationsIncMaps/Content/swq1.pdf">http://portal.water.wa.gov.au/portal/page/portal/WaterQuality/Publications/OtherPublicationsIncMaps/Content/swq1.pdf</a>, viewed 28 July 2009.</p>	<p><i>Statewide Policy No. 19: Hydrogeological Reporting Associated with a Groundwater Well Licence</i> (WA Department of Water, 2007) (<b>Hydrogeological Reporting Policy</b>), available at: <a href="http://portal.water.wa.gov.au/portal/page/portal/Policies/StatewidePolicies/Content/Hydrogeological_reporting_Groundwater_Well_Licence.pdf">http://portal.water.wa.gov.au/portal/page/portal/Policies/StatewidePolicies/Content/Hydrogeological_reporting_Groundwater_Well_Licence.pdf</a>, viewed 25 July 2009.</p> <p><i>Statewide Policy No. 5 Environmental Water Provisions Policy for Western Australia</i> (Water and Rivers Commission, 2000) (<b>Environmental Water Policy</b>), available at <a href="http://portal.water.wa.gov.au/portal/page/portal/Policies/StatewidePolicies/Content/STATEWIDEPOLICY_5.pdf">http://portal.water.wa.gov.au/portal/page/portal/Policies/StatewidePolicies/Content/STATEWIDEPOLICY_5.pdf</a>, viewed 28 July 2009.</p>	<p><b>Water Minister</b> = Minister for Water</p> <p>● = Framework explicitly provides for this element of the Guidelines</p> <p>◐ = Framework goes some way towards providing for this element of the Guidelines</p> <p>○ = Framework does not provide for this element of the Guidelines</p>
--	--	--

**Note:** The Department of Water WA, also produces a large number of “water quality protection notes” (WQPNs) as guidance in relation to best practice management for water quality protection. They include notes in relation to protecting public drinking water source areas (WQPN36), various different industries with the potential to contaminate groundwater, underground chemical storage tanks (WQPN62), and groundwater monitoring bores (WQPN30). They are available at <http://www.water.wa.gov.au/Waterways+health/Water+quality/Water+quality+protection+notes/default.aspx>, viewed 28 July 2009.

Note: The Western Australian Government is planning to develop a State NRM Plan and an Implementation Strategy in response to a review in February 2009: *Government Response to the Natural Resource Management (NRM) Review* (June 2009), available at <http://www.nrm.wa.gov.au/Library/Government%20Response%20to%20NRM%20Review%20June%202009.pdf>, viewed 15 August 2009.

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in Western Australia		
1	Principles (primarily pp.9-13)	Precautionary principle (pp.11, 40)	◐	The SWQMS Framework encourages adopting “a cautious approach when evaluating proposals, developing water quality criteria/guidelines and management plans to avoid, wherever practicable, serious or irreversible change to the environment”: p.8.
2		Polluter pays principle (p.11)	◐	The SWQMS Framework states that “where relevant, the polluter pays concept should be employed”: p.7.  If a person does not comply with a condition of a <b>licence</b> to take groundwater (which may include a condition as to groundwater quality: see below, row 19), and also does not comply with a direction of the Water Minister to comply with the condition, the Water Minister may recover the reasonable costs of taking the action required under the direction: cl18, Sch1, Water and Irrigation Act.

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in Western Australia	
3	Equity considerations (p.12)	●	One of the objects which the Water Minister must seek to achieve in water planning and in granting rights to take water is “to promote the orderly, equitable and efficient use of water resources”: s4(1)(b) and (3), Water and Irrigation Act.  Not otherwise explicitly provided for in the key items of legislation, regulation or policy.
4	Beneficial uses and values (pp.10-12, 39-41)	●	<p><b>Environmental values</b> are protected through <b>environmental protection policies</b> under the Environmental Protection Act (see WA Environment Protection Framework). Environmental protection policies are not extensively referred to or used in ways which are relevant to groundwater quality protection within the WA Groundwater Management Framework. They are used in the following ways:</p> <ul style="list-style-type: none"> <li>the SWQMS Framework refers to the EPA’s statutory function in relation to environmental values (that is, environmental protection policies), as part of the framework for water quality protection: p.6;</li> <li>the Drinking Water Source Policy states that “planning schemes and decisions on land use and development should have regard for any ...relevant environmental protection policy on public drinking water supply”: cl5.6; and</li> <li>the Environmental Water Policy refers to the “pivotal” nature of the environmental protection policies in relation to environmental water: p.2. Groundwater dependent ecosystems are within the scope of this Policy: for example, pp.6 and 7. The Environmental Water Policy refers to the potential to include environmental water requirements and environmental water provisions, with “specific water quality requirements” within sub-regional and local management plans under the Water and Irrigation Act: p.8. The Environmental Water Policy also refers to the need to establish “mitigation water requirements”, being “elements of the water regime that are identified to improve diminished water quality resulting from land use practices and developments in the catchment”: pp.2 and 12. See also p.18 for a discussion of other ways that water quality should be considered in providing environmental water.</li> </ul> <p>There may be scope to provide formally for environmental protection policies to be considered in the preparation of plans under the Water and Irrigation Act. Note that although the provisions in relation to regional plans under the Water and Irrigation Act (see below, row 11) make reference to “environmental values”, the term is not defined in the Water and Irrigation Act, and it is not clear that any reference to an environmental protection policy under the Environment Protection Act is intended.</p>
5	Forms of intervention (pp.14-15)	Command (p.14)	<p>●</p> <p><u>Water and Irrigation Act</u></p> <p>The Water and Irrigation Act imposes a general duty on a person taking or using water from a water resource, to take all reasonable steps to minimise the <b>degradation</b> of the water resource (s5E(1)(b)), where degradation includes “the</p>

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in Western Australia	
6			<p>sensible diminishing of the quality or quantity of that water”: s2(1), Water and Irrigation Act. The Minister may give directions to a person if they contravene this duty: see below, row 22.</p> <p>The Water Minister may institute proceedings in a court against any person for illegally polluting the water of any underground water source: s26J(1), Water and Irrigation Act.</p> <p><u>Health Act</u></p> <p>Under the Health Act, it is an offence to defile or pollute any water supply, or the catchment area of a water supply, or to allow this to occur, where “water supply” includes a well containing water intended or available for human consumption: s129. The Health Underground Water Regulations prohibit depositing a polluting substance less than 30 metres from a water supply well, in a listed district: reg13 and SchB.</p>
	Market (pp.14-15)	●	<p>Not explicitly implemented through the key items of legislation, regulation or policy, although the SWQMS encourages a consideration of “market measures such as contaminant load trading and charges, water pricing and subsidies for slow release fertilisers”: p.7.</p>
7	Community participation and education (p.15)	●	<p><u>SWQMS Framework</u></p> <p>The SWQMS framework includes, within the process for implementing the SWQMS, “establish consultation mechanisms”, including the creation of a Community and Industry Advisory Committee”, and “establish government coordination mechanisms”, including the creation of a Senior Review Panel: pp.9 and 18-21.</p> <p><u>Water and Irrigation Act</u></p> <p>One of the objects which the Water Minister must seek to achieve in water planning and in granting rights to take water is “to foster consultation with members of local communities in the local administration of this Part, and to enable them to participate in that administration”: s4(1)(c) and (3), Water and Irrigation Act.</p> <p>The Water and Irrigation Act provides for the establishment of local <b>water resource management committees</b>, the functions of which include “to ensure that the Minister is informed of, and has access to, community views on matters relating to water resources”: s26GM(1)(d).</p> <p><u>State Water Plan</u></p> <p>The State Water Plan deals with community engagement, public capacity building and education in some detail (see, for example, pp.12, 63, 69).</p>

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in Western Australia	
8			<p><u>Water Agencies Act</u></p> <p>The Water Minister must, in performing his or her functions under the Water Agencies Act, “promote decision making processes that involve public consultation”, where appropriate: s9(3), Water Agencies Act. The functions of the Minister to which this duty applies include: assessing water resources, planning for the use of water resources, and conserving, protecting and managing water resources: s9(1)(a), Water Agencies Act.</p>
	Reservation of special areas (p.16)	Stressed areas (p.16)	<p>● <u>Water and Irrigation Act</u></p> <p>The Governor may proclaim any part of the State to be a <b>proclaimed area</b>, in which a person must hold a licence to construct a non-artesian well (whereas this would otherwise not be required): s26B, Water and Irrigation Act.</p> <p><u>Metropolitan Water Act and By-laws</u></p> <p>Under the Metropolitan Water Act, the Governor may, on the recommendation of the Water Minister, proclaim any part of the Metropolitan Water, Sewerage and Drainage Area (which is established by the Act) to be an <b>Underground Water Pollution Control Area</b>: s57A.</p> <p>The Metropolitan Water By-laws (made under s57B(1), Metropolitan Water Act) provide detailed requirements in relation to the protection of water quality in <b>Underground Water Pollution Control Areas</b>. They regulate the following activities in these areas: using, storing and transporting pesticides (cl5.4.1); activities related to keeping and disposing of animals (cll5.4.2-5.4.4); disposing of domestic wastewater (cl5.4.1); disposing of industrial wastes, chemicals, radioactive material, petroleum or petroleum products, polluted water, or refuse (cl5.4.6); and the development of premises that are liable to pollute groundwater (cll5.5 and 5.6).</p>
9		Public water supply areas (p.16)	<p>● <u>Metropolitan Water Act – proclaimed catchment areas and water reserves</u></p> <p>The Governor may proclaim a <b>catchment area</b> or <b>water reserve</b> under the Metropolitan Water Act: s13.</p> <p>It is an offence to take water “found on or under land” in such an area without authorisation, and to do anything to “injure the quality or purity of water coming from any watercourse or other source within a water reserve or catchment area”: s16(b) and (c), Metropolitan Water Act.</p> <p>The Water Minister has powers and authority to prevent the pollution of water under a <b>water reserve</b> or <b>catchment area</b>, including the power to make and enforce local laws under any Act relating to public health: s17(1), Metropolitan Water Act. All the provisions of the Health Act apply to <b>water reserves</b> and <b>catchment areas</b> as if they were the district of a local</p>



Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in Western Australia
	<p>government: s17(2), Metropolitan Water Act (as to the Health Act, see below, in this row).</p> <p>The Water Minister may make by-laws with respect to:</p> <p style="padding-left: 40px;">Protecting and preventing and remedying the...fouling, or contamination of water contained in or supplied from the water works or otherwise under the control of the [Water] Corporation: s146(1)(5), Metropolitan Water Act.</p> <p>The Metropolitan Water By-laws provide detailed requirements in relation to the protection of water quality in <b>catchment areas</b> and <b>water reserves</b>. They prohibit: leaving a substance in these areas which is likely to pollute the area (cl4.3.1); allowing polluted water to discharge to such an area (cl4.4.1); allowing various animals or stock to be on such an area (cll4.5.1 and 4.5.2); storing or using manure, fertiliser, pesticide, dangerous goods or dangerous chemicals in such an area without authorisation (cll4.6.1-4.6.4); and developing particular structures and undertaking particular activities in such an area (cll4.6.5 and 4.8).</p> <p>More generally, the Water Minister may make by-laws in relation to “[p]reventing or minimising the pollution of...sources of supply”: s146(1)(2a), Metropolitan Water Act.</p> <p><u>Country Water Act – proclaimed catchment areas and water reserves</u></p> <p>The Country Water Act provides for the Governor to constitute <b>catchment areas</b> and <b>water reserves</b>: s9. The Water Corporation may take water found on or under a catchment area or water reserve: s11, Country Water Act. Clearing vegetation in a water reserve or catchment area is an offence: s12B, Country Water Act.</p> <p>The Water Minister has all the powers and authority of a local government to prevent the pollution of water under a <b>water reserve</b> or <b>catchment area</b>, including the power to make and enforce local laws under any Act relating to public health: s12, Country Water Act. The Water Minister may make by-laws for the prevention of the pollution of water within any <b>water reserve</b> or <b>catchment area</b>: s105(1)(ii), Country Water Act.</p> <p>The Country Water By-laws impose detailed requirements in relation to the protection of water quality in <b>water reserves</b> and <b>catchment areas</b>. They regulate: the use of fertilisers and poisons; the construction and maintenance of stables; the disposal of nightsoil, industrial waste, household and other refuse; the keeping of pigs and other animals; and the establishment of abattoirs or any trade with offensive waste.</p> <p><u>Water Boards Act</u></p> <p>The Water Boards Act provides for the Governor to constitute water reserves and catchment areas: s36. The Act provides for the making of by-laws in similar terms to the Country Water Act: s36(2), Water Boards Act. It also provides</p>

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in Western Australia				
10			for water boards to make by-laws in relation to “[p]reventing and remedying the...fouling, or contamination of water contained in or supplied from the works or otherwise under the control of the water board” (s141(7), Water Boards Act), where “works” are defined to include any well, bore, pipe, etc: s3(1), Water Boards Act.  <u>Land Administration Act</u>  The Water Minister may reserve Crown land for water supply purposes, in the public interest: s41, Land Administration Act. The body appointed to manage the reserve (s46) may submit a management plan for the reserve to the Water Minister for his or her approval: s49, Land Administration Act. (See also, WA Land-Use Planning Framework).  <u>Health Act</u>  A local government may make local laws for its district for the prevention of the pollution of any water supply: s134(41), Health Act.			
	Other	N/A	N/A			
11	Management plans (pp.18-20)  (that is, a plan for regulating individual behaviour once a groundwater body is being used by many competing users)	Types of management plans for which the legislation or regulation provide	N/A	<u>State Water Plan</u>  Note: in this column, a reference to a page is a reference to a page of the State Water Plan.  The State Water Plan is a state-wide, non-statutory policy which establishes broad water management objectives and priority actions for implementation from 2007-2011.  The State Water Plan will be implemented through non-statutory regional water plans.	<u>Water Strategy</u>  Note: in this column, a reference to a page is a reference to a page of the Water Strategy.  The Water Strategy is a non-statutory policy developed during a time of water shortage. An important element of the Strategy is “maintaining the quality of all water sources”: p.11.  The Water Strategy discusses integrating groundwater quality with land use planning, and emphasises the importance of developing Water Source Protection Plans for Public Drinking Water Source Areas	<u>Plans under the Water and Irrigation Act</u>  Note: in this column, a reference to a section is a reference to a section of the Water and Irrigation Act.  The Water and Irrigation Act provides for the Water Minister to make three types of <b>plans</b> : <ul style="list-style-type: none"><li>• <b>regional management plans</b> (s26GW), which guide the management of water resources in relation to the definition of water resource values, including environmental values, and the protection of those values; the use of water resources; and the integration of water and land use planning and management;</li><li>• <b>sub-regional management plans</b> (s26GX), which deals with matters the Water Minister must consider in granting licences, how rights are to be allocated, including rights for the environment, an</li></ul>

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in Western Australia			
12			Non-statutory strategic water issue plans may also be developed to consider and address immediate issues: p.51.	(p.55), including by establishing clearing controls and “appropriate environmental and planning mechanisms to provide a high level of water quality protection for strategic ground and surface water catchments”, and by reviewing and making recommendations on the control of activities and impacts within such catchments: p.56.	assessment of the capacity of the resource to provide water at “sustainable levels of use”, the environmental impact of developing those sources, and strategies for implementing the plan; and  • <b>local area management plans</b> (s26GY), which deal with how rights are to be allocated, including to the environment; matters the Water Minister must consider in granting licences, and the powers of a relevant <b>water resources management committee</b> (see above, row 7).  (Ss26GU to 26GZG, Water and Irrigation Act)
	Component studies (p.18)	●	A priority area of the State Water Plan is to “Invest in science, innovation and education”, which includes policies in relation to research on the impacts of climate change, increasing information on the hydrogeology, hydrology, ecology, quality, quantity, variability and use of water resources: pp.69.	In relation to “new supplies and total water cycle management” issues, the Water Strategy states that the Government will:  support development of improved catchment management activities and undertake a research trial to investigate the impact of active catchment management strategies that enhance water quality and quantity outcomes: p.40.	Not explicitly provided for.
13	Surface water – groundwater interaction (p.18)	○	Surface water-groundwater interaction is a recognised knowledge gap to be addressed through research and development: p.69.	Not explicitly provided for.	Not explicitly provided for.
14	Public consultation	●	Public consultation on the State Water Plan occurred	Public consultation on the Water Strategy consisted of public	In relation to a proposed plan, the public is notified and invited to make submissions (ss26GZA and 26GZB).

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in Western Australia			
15	(p.19)		through direct engagement—visits to regional areas, community workshops and public submissions: p.9. A Water Forum was also established and met from 2005-2009.	submissions (p.15), metropolitan area and regional public water forums and a Water Symposium held in 2002 to provide input to the development of the Water Strategy: p.8.	In relation to making or amending a plan, a relevant <b>water resources management committee</b> must be consulted: s26GZ. The Minister may modify the plan to give effect to a public submission as he or she sees fit: s26GZD(a).
	Coordination with other agencies	●	The State Water Plan has a strong focus on the integration of water resource planning with land use planning, and with linking water policy to other environmental policies: (eg pp.10, 11, 49, 52, 53, 54, 55), and a “priority action” is “complete integrated land use and water management strategies”, to be undertaken by the Department for Planning and Infrastructure: p.67.	The Water Strategy emphasises coordination with planning agencies:  The Department for Planning and Infrastructure (DPI) will address water resource management issues (quality and quantity) in the formation of land development programs...: p.53.  DPI will prepare and / or use an appropriate statutory planning instrument... to require implementation of sustainable water resource management and protection of water quality in land zoning and development processes: p.53	If, in the opinion of the Water Minister, a proposed plan may affect the functions of a body that is responsible for the planning for, or management of, a natural resource, the Water Minister must give a proposed plan to that body, which may request amendments: s26GZC. The Water Minister may modify the plan to give effect to a request for an amendment as he or she sees fit: s26GZD(b). The <b>Water Resources Council</b> may also make recommendations in relation to a proposed plan, in response to which the Water Minister may modify the plan, or not: s26GZE.
16	Market incentives (p.19)	○	Economic incentives are discussed in the context of water recycling (p.57), but not otherwise in the context of water quality.	Not explicitly provided for.	Not explicitly provided for.

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in Western Australia			
17	Monitoring program (p.20)	●	The State Water Plan will be reviewed by 2012: p.13.	Not explicitly provided for.	<p>Each type of plan must specify the monitoring and reporting (which is to occur at least once in every 7 years) which the Minister must carry out, to ensure, as far as is practicable, that the following objects (among others) are achieved in the implementation of the plan:</p> <ul style="list-style-type: none"> <li>• “sustainable use and development” of water resources; and</li> <li>• “protection of their ecosystems and the environment... including by the regulation of activities that are detrimental to them”</li> </ul> <p>(Ss4(1), 26GW(3), 26GX(3), 26GY(3)).</p>
			<p>Note: The Water Agencies Act establishes the Water Resources Council (s16), the functions of which include advising the Water Minister on whether the objectives of each water-related Act that the Water Minister administers, are being achieved: s18(1)(c). These water-related Acts include the Water and Irrigation Act, the Metropolitan Water Act, the Country Water Act, the Water Agencies Act, and the Water Boards Act.</p>		
18	Enforcement (p.20)	◐	Not enforceable – policy only.	Not enforceable – policy only.	The Water Minister is to have regard to plans when making licensing decisions in relation to taking groundwater (see below, row 19) and licensing the construction of a bore (see below, row 25).
19	Controls on extraction (p.16) - Licences and permits	●	<p><u>Water allocation under the Water and Irrigation Act and Regulations</u></p> <p>Under the Water and Irrigation Act, a <b>licence</b> is required to take artesian groundwater (except for some exempt uses), but a licence is not required to take groundwater from an unconfined or watertable aquifer, unless the water is in a proclaimed area or is prescribed by the regulations: s5C.</p> <p>When considering whether to grant a licence, the Minister must have regard to (among other things) whether the proposed taking and use of water are: “ecologically sustainable”, “environmentally acceptable”, and are “in keeping with” a <b>regional management plan, sub-regional management plan, or local management plan</b>: cl7, Sch1, Water and</p>		

Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in Western Australia
	<p>Irrigation Act.</p> <p><b>Sub-regional management plans</b> and <b>local management plans</b> set out the matters of sub-regional significance, and local significance, respectively that the Minister will take into account when considering applications for licences: ss26GX(2)(c)(i) and 26GY(2)(b)(i), Water and Irrigation Act.</p> <p>Although the Water and Irrigation Act does not require, or explicitly mention groundwater quality in the context of the matters relevant to licensing in a sub-regional or local management plan, a sample plan reviewed for the purposes of this Review (South West Groundwater Areas Allocation Plan, May 2009, available at <a href="http://www.water.wa.gov.au/firstdowPublic/DocViewer?id=39232">http://www.water.wa.gov.au/firstdowPublic/DocViewer?id=39232</a>, viewed 24 July 2009) set out the following as matters relevant to licensing groundwater abstraction:</p> <ul style="list-style-type: none"> <li>• applications for take and use licences that relate to areas at a high risk of generating acidic water or soils must prepare appropriate documentation to support their application, including an acid sulphate soil management plan: p56;</li> <li>• water use “must not must not increase the background levels such that it adversely affects a water-dependent system (including other users)”: p.57;</li> <li>• a licensee must report an increase to the existing salinity of the groundwater resource, and in response the licensee may be directed to restrict pumping until salinity levels return to baseline conditions: p.57; and</li> <li>• “[w]here a proposal has the potential to affect groundwater quality the department may apply additional licence conditions to manage any associated impacts and protect the water resource and dependent systems.”: p.57.</li> </ul> <p>The <b>conditions</b> of a licence are at the discretion of the Minister (cl7(1), Sch1, Water and Irrigation Act), but explicitly may relate to the following matters (Appendix to Sch1, Water and Irrigation Act):</p> <p>2. The use, management, protection and enhancement of —  (a) any water resource and its ecosystem; or  (b) the environment in which the water resource is situated....</p> <p>7. The construction, alteration, maintenance or operation of works, structures and equipment, including the qualifications of persons who are responsible for any of those things...</p> <p>9. The monitoring of —  (a) any water resource and its ecosystem; or</p>

	Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in Western Australia	
			<p>(b) the environment in which the water resource is situated.</p> <p>The Minister may add a new condition to a licence if this is necessary or desirable to protect the relevant water resource or the associated ecosystem from “unacceptable damage”: cl24(2)(b), Appendix to Sch1, Water and Irrigation Act.</p> <p>An applicant for a licence must provide the Water Minister with any further information that the Minister may require: cl4(2), Sch1, Water and Irrigation Act.</p> <p>The Department of Water uses its Hydrogeological Reporting Policy (a non-statutory policy) to assess the potential impacts of taking groundwater (including impacts on groundwater quality) before issuing a licence to construct a bore: p.vii. The Hydrogeological Reporting Policy assists the Department in relation to requesting further information, if necessary, before making a licensing decision, and also in applying conditions to licences in relation to monitoring: p.1.</p> <p>Under the Hydrogeological Reporting Policy, a hydrogeological report for new licences should set out, among other things (and depending on the applicable level of assessment):</p> <ul style="list-style-type: none"> <li>the potential impacts of the proposed groundwater abstraction on groundwater dependent ecosystems, leakage from other aquifers, salt water intrusion, acidification and water quality changes (e.g. nutrients, salinity): p.25; and</li> <li>a description of groundwater chemistry, including the potential for water quality impacts likely through migration of different quality water: p.29.</li> </ul> <p>For monitoring purposes, a hydrogeological report should include (p.42):</p> <ul style="list-style-type: none"> <li>an explanation of any significant changes to groundwater quality, together with the remedial action to be taken; and</li> <li>other monitoring data that may be relevant (for example, monitoring of stygofauna or springs).</li> </ul> <p><u>Water allocation in relation to land under the CALM Act</u></p> <p>A permit is required to take water from land under the CALM Act (State forests, timber reserves, national parks, conservation parks and nature reserves), if the Environment Minister has made a declaration in relation to that land: ss97A(2) and 101(1a), CALM Act. The permit may be subject to conditions, and must be consistent with the <b>management plan</b> that applies to the area: ss97A(6)(c) and 101(1e)(c), CALM Act. A management plan states the policies and guidelines that apply to the land: s55(1), CALM Act.</p>
20	Quality considered in setting	●	See row 19, above.

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in Western Australia				
21		conditions on taking water				
		Enforcement (p.20)	●	<p>Penalties apply to taking water without authorisation, where this is prohibited by the Water and Irrigation Act: s5C(1).</p> <p>Penalties also apply if a person contravenes or fails to carry out a condition of a licence to take groundwater: s26F(2), Water and Irrigation Act. If a person fails to comply with a condition of a licence, the Water Minister may direct the person to comply, and it is also an offence not to comply with such a direction: cl18, Sch1, Water and Irrigation Act.</p>		
22	Other methods of limiting extraction	Method of limiting extraction	N/A	Direction of the Water Minister – restricting or prohibiting the taking or use of water	Direction of the Water Minister – degradation of water resource	Direction of local government
23		Water quality considerations (pp.9, 19)	●	If the Water Minister is of the opinion that the taking of water is having a harmful effect on a water resource or the water being taken is having a harmful effect, the Water Minister may give directions to a person, restricting the amount of water taken, the rate at which it is take, or the purpose for which it is used; or prohibiting the taking of the water or the purpose for which it may be used: ss26GC(1) and 26GD, Water and Irrigation Act.	If the Water Minister is of the opinion that water taken from any well that requires a licence “is being taken or used without all reasonable steps being taken to minimise the degradation of the water resource” (see above, row 5), the Water Minister may direct the closing or partial closing of the well or direct such other steps (including any reasonable repairs and alterations) to be taken as the Water Minister thinks necessary to prevent the continuance of the degradation: s26G(1), Water and Irrigation Act.	A local government may direct that any water supply which is “so polluted or unwholesome as to be unfit for human consumption, shall be closed, and that the contents thereof shall cease to be used for human consumption either absolutely or for such time as the local government may direct”: s131(1), Health Act.
24		Enforcement (p.20)	●	It is an offence to fail to comply with a direction described above, and penalties apply: s26GC(2), Water and Irrigation Act.	It is an offence to fail to comply with a direction described above, and penalties apply: s26G(3), Water and Irrigation Act.	It is an offence to use or permit to be used for human consumption a water supply to which a direction relates: s131(2), Health Act.
25	Well construction measures (p.16)	Bore licensing	●	<p><u>Bores in general</u></p> <p>A licence to construct a bore is required in relation to all artesian wells, and in relation to non-exempt uses from an unconfined or watertable aquifer: s26D, Water and Irrigation Act.</p>		



	Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in Western Australia	
26			<p>When considering whether to grant a licence, the Minister must have regard to (among other things): whether the proposed taking and use of water are: “ecologically sustainable”, “environmentally acceptable”, and are “in keeping with” a <b>regional management plan, sub-regional management plan, or local management plan</b>: reg35(2), Water and Irrigation Regulations.</p> <p><u>Bores for specific purposes or in specific locations</u></p> <p>Under the Health Underground Water Regulations, a person must obtain the approval of the local authority in the relation to the position on the land of the well or other underground source of water supply: reg11.</p> <p>The approval of the Minister for Planning is required to drill for water on, or take water from, Crown land: s267(2)(e), Land Administration Act.</p>
	Driller licensing (pp.16, 25)	●	<p>This Review did not locate across-the-board driller licensing standards through the key items of legislation, regulation or policy.</p> <p>However, requirements may be imposed through <b>management plans</b> under the Water and Irrigation Act (see above, row 11). For example, the Carnarvon Artesian Basin Water Management Plan states that:</p> <p>Drilling must be completed by a contractor certified with the Australian Drilling Industry Association. The driller must be certified to Class 3 standard permitting drilling operations in flowing (artesian) aquifer systems. Authorised department staff will randomly supervise the drilling of new bores. (Carnarvon Artesian Basin Water Management Plan, December 2007, p.28, available at <a href="http://portal.water.wa.gov.au/portal/page/portal/PlanningWaterFuture/AllocationPlanning/Content/pdf/071218_CarnarvonArtesianBasin_WMP.pdf">http://portal.water.wa.gov.au/portal/page/portal/PlanningWaterFuture/AllocationPlanning/Content/pdf/071218_CarnarvonArtesianBasin_WMP.pdf</a>, viewed 28 July 2009).</p>
27	Rules for bore construction (p.25)	●	<p>WA legislation and regulation does not appear to adopt across-the-board bore construction standards.</p> <p><u>Water and Irrigation Act and Regulations</u></p> <p>The Water and Irrigation Regulations require an application for a bore licence to be accompanied by the specifications of the construction of the well (reg33(2)(b)), which the Minister considers.</p> <p>Requirements may be imposed through <b>management plans</b> under the Water and Irrigation Act (see above, row 11). For example, the South West Groundwater Areas Water Allocation Plan states that:</p>

	Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in Western Australia	
			<p>The construction, modification or decommissioning of monitoring and abstraction bores must be in accordance with <i>Groundwater monitoring bores</i>, Water quality protection note no. 30 (DoW 2006e) and <i>Minimum construction requirements for water bores in Australia</i> (NMBSC 2003). (South West Groundwater Areas Allocation Plan, May 2009, p.52, available at <a href="http://www.water.wa.gov.au/firstdowPublic/DocViewer?id=39232">http://www.water.wa.gov.au/firstdowPublic/DocViewer?id=39232</a>, viewed 24 July 2009).</p> <p><u>Metropolitan Water Act</u></p> <p>In relation to the <b>Metropolitan Water, Sewerage, and Drainage Area</b>, or a <b>Public Water Supply Area</b>, the Water Minister may make by-laws with respect to “regulating and controlling the commencement, drilling, sinking, construction, form, maintenance and alteration of any existing or proposed artesian bores (in the case of the Metropolitan Water, Sewerage, and Drainage Area), or any well (in the case of a Public Water Supply Area): s146(1)(3) and (3a), Metropolitan Water Act.</p> <p><u>Health Underground Water Regulations</u></p> <p>The occupier of any premises shall not use the water of any well for human consumption, unless that well complies with requirements as to its construction and the treatment of the surface around the well: reg12, Health Underground Water Regulations.</p>
28	Rules for operation and maintenance of bore (p.25)	●	<p>WA legislation and regulation does not appear to adopt across-the-board bore operation and maintenance standards. However, it may be possible to impose requirements through <b>management plans</b> under the Water and Irrigation Act (see above, row 11).</p> <p><u>Metropolitan Water Act</u></p> <p>A bore which is licensed within a <b>Public Water Supply Area</b> proclaimed under the Metropolitan Water Act must “maintain the well...in good condition and repair, and if the holder fails to so maintain the well, the Minister may revoke, suspend or amend the licence as the Minister thinks fit”: s57I(2), Metropolitan Water Act.</p> <p>The Water Minister may make by-laws with respect to the maintenance of artesian bores within the <b>Metropolitan Water, Sewerage, and Drainage Area</b> and with respect to the maintenance of wells within a <b>Public Water Supply Area</b>: see above, row 27.</p>
29	Enforcement (p.20)	●	<p>Penalties apply to constructing a bore which is required to be licensed, without a licence: ss26A(2) and 26B(6), Water and Irrigation Act.</p>

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in Western Australia	
30			To the extent that the requirement are imposed through <b>management plans</b> under the Water and Irrigation Act, see above, row 18, as to enforcement.
	Water supply and protection of public water supply wells (pp.25-27)	Water supplier may control activities/ intervene in risky activities near bores (pp.16, 26)	<p>● The Metropolitan Water Act, Country Water Act and Water Boards Act each provides for the Water Minister to make by-laws in relation to preventing pollution in a <b>catchment area</b> or <b>water reserve</b> proclaimed under each Act. In addition, the Water Boards Act provides for water boards to make by-laws on the same subject (see above, row 9).</p> <p>The Water Agencies Act also permits the Water Minister to make by-laws which include “measures for the protection of works, water services or water resources, and for preventing or remedying the...fouling or contamination of, water” and “regulate or prohibit the deposit of anything likely to cause fouling or contamination in, or within a prescribed distance of, any works, water services,... or underground water”: s34(3)(c) and (d).</p> <p>The Water Corporation, which is not an agent of the Crown (s5, Water Corporation Act), may not make similar by-laws.</p> <p>In an emergency or necessity, the Executive Director, Public Health may make any regulations for “the protection from pollution of water used for domestic purposes”: s15(1)(b), Health Act.</p> <p>Also, see below, row 42, for a description of the priority system for public water supply areas, in terms of allowable land use.</p>
	31	Protection zone around supply bores (p.25)	<p>● Well-head protection zones have been developed to protect drinking water sources from direct contamination. Under the Drinking Water Source Policy, land use and activities within these areas should be “managed to prevent, restrict or control uses or activities such that contamination of the water resource is prevented at its abstraction point: cl2. Well-head protection zones differ in size, depending on the priority classification of the source (see below, row 42).</p> <p>Also, see above, rows 9 and 30.</p>
32		Requirements to monitor up-gradient and within zone (pp.25, 26)	<p>○ A water services <b>operating licence</b> (including a licence for the supply of water) under the Water Services Licensing Act, is subject to such terms and conditions as are determined by the Economic Regulation Authority: s24(1), Water Services Licensing Act. These terms and conditions may requiring the licensee to enter into agreements on specified terms or on terms of a specified type, and may include matters relevant to monitoring, including requirements to observe industry codes, conditions specifying methods or principles to be applied in the provision of water services, and conditions relating to the performance of functions by the licensee: (a), (b), (f) and (j), Sch1, Water Services Licensing Act.</p> <p>For example, the Memorandum of Understanding for Drinking Water between the Water Corporation and the Department of Health (dated 2007, available at <a href="http://www.watercorporation.com.au/files/PublicationsRegister/13/MoU_WC_DoH.pdf">http://www.watercorporation.com.au/files/PublicationsRegister/13/MoU_WC_DoH.pdf</a>,</p>

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in Western Australia	
33			viewed 25 July 2009 ( <b>Water Corporation MOU</b> )) provides that the parties “will carry out hazard identification and risk assessment where required to ensure reliability of public water supplies. Where risks are identified within catchments, the Corporation and Department will respond to reduce the risks.”: cl6.3.
	Response plan in event of contamination (p.25)	●	Not explicitly provided for. However, it would be possible to include such details within an operating licence, or within an agreement required by an operating licence (see above, row 32).  For example, the Water Corporation MOU (see row 32, above) provides for three levels of responses to “events that affect the safety of drinking water” (cl9.1) and both parties agree to “jointly maintain and review incident response plans for the Corporation’s drinking water supply systems”: cl9.6.
34	Reporting in the event of contamination (p.25)	●	Not explicitly provided for. However, it would be possible to include such details within an operating licence (see above, row 32).  For example, the Water Corporation MOU (see row 32, above) provides for “notifiable events” which must be reported: cl9.2 and 9.3.
35	Enforcement (p.20)	●	The Economic Regulation Authority may serve a notice on a licensee under the Water Services Licensing Act, requiring the licensee to rectify a contravention of a licence: s39(1), Water Services Licensing Act. Penalties apply for failing to comply with such a notice: s39(2), Water Services Licensing Act.
36	Other well-related measures	Well abandonment requirements (pp.16, 25)	●  Not explicitly provided for.  However, management plans under the Water and Irrigation Act may deal with well abandonment requirements, since they may broadly deal with the protection of water resource values in regional management plans (see above, row 11).  For example, the Carnarvon Artesian Basin Water Management Plan applies the following condition to a licence for the construction of a well: if a bore is to be abandoned, “it shall be cemented off to the satisfaction of the Water and Rivers Commission [now replaced by the Department of Water] within 30 days of being abandoned”: p.40 (available at <a href="http://portal.water.wa.gov.au/portal/page/portal/PlanningWaterFuture/AllocationPlanning/Content/pdf/071218_CarnarvonArtesianBasin_WMP.pdf">http://portal.water.wa.gov.au/portal/page/portal/PlanningWaterFuture/AllocationPlanning/Content/pdf/071218_CarnarvonArtesianBasin_WMP.pdf</a> , viewed 28 July 2009)

	Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in Western Australia
37	Controls on disposal of waste via wells (p.16)	<p>● Regulations under the Water and Irrigation Act may prohibit, or require a person to be authorised to engage in any work or activity that “is likely to cause or result in damage to an aquifer”: s27A(2)(b), Water and Irrigation Act. However, it appears that no regulations of this type have been made in relation to disposing of waste via wells.</p> <p>There may be potential for this activity to be dealt with through conditions on a bore licence under the Water and Irrigation Act.</p> <p>The activity may also be regulated under the WA Environment Protection Framework, for example, if it involves controlled waste or industrial waste. The EPA has produced a Guidance Statement in relation to deep or shallow well injection of liquid industrial waste to guide proponents in relation to the assessment of this activity under the Environment Protection Act (see WA Environment Protection Framework).</p> <p>The Guidance Statement is the Guidance Statement for Deep and Shallow Well Injection of Liquid Industrial Waste (March 2003), available at <a href="http://www.epa.wa.gov.au/docs/1596_GS4.pdf">http://www.epa.wa.gov.au/docs/1596_GS4.pdf</a>, viewed 28 July 2009. Note that the Guidance Statement states that it has a 5 year duration (p.8)—on this basis, it may have expired or require review.</p> <p>Regulations under the Water and Irrigation Act may prohibit, or require a person to be authorised to engage in any work or activity that “involves the discharge of water that results in a significant increase in the... level of water in a... underground water source”: s27A(2)(a), Water and Irrigation Act. However, it appears that no regulations of this type have been made in relation to controls on storing materials in aquifers.</p> <p>There may be potential for this activity to be dealt with through conditions on a bore licence under the Water and Irrigation Act. The activity may also be regulated under the WA Environment Protection Framework, for example, if it involves controlled waste or industrial waste (see above, row 38).</p>
38	Gathering information Strategic assessment of groundwater resources (p.38)	<p>● The Water Minister has the general function of assessing water resources, and has the power to do all things necessary or convenient to be done for or in connection with the performance of that function: ss9(1)(b) and (2), Water Agencies Act.</p> <p>A <b>sub-regional management plan</b> under the Water and Irrigation Act sets out “how the investigation... of water resources are to be facilitated by the Minister”: s26GX(2)(a).</p> <p>The WA Department of Environment’s Groundwater Investigation Program outlines groundwater investigation priorities until 2020. The objectives of the Groundwater Investigation Program include monitoring groundwater quality on an ongoing basis: p.1.</p>

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in Western Australia	
39	Monitoring of critical overdraw (p.16)	●	Not explicitly provided for in legislation or regulation, but provided for in the Groundwater Investigation Program (see row 41, below).  A management plan under the Water and Irrigation Act may also provide for monitoring of critical overdraw.
40	Vulnerability mapping (pp.20-22)	○	Not explicitly provided for.
41	Aquifer classification systems (pp.22-23)	●	<p>The Drinking Water Source Policy, which is a State Planning Policy under the Planning Act (see WA Land-Use Planning Framework), provides for three different “priority classifications” for <b>Underground Water Pollution Control Areas, water reserves, and catchment areas</b> (cl2):</p> <ul style="list-style-type: none"> <li>• Priority 1: manage to ensure no degradation of the water resource. Protection of the public water supply outweighs virtually all other considerations in respect to the use of the land, so that land use is low intensity and low risk.</li> <li>• Priority 2: ensure that there is no increased risk of pollution to the water source, in areas where low-risk development already exists. Conditional development is allowed.</li> <li>• Priority 3: manage the risk to pollution of the water source, in areas where water supply sources co-exist with other land uses (for example, residential, commercial, light industrial). Protect through management guidelines for land use activities.</li> </ul> <p>The Groundwater Investigation Program includes a description of the Department of Environment’s systematic categorisation of groundwater resources into “<b>level of use categories</b>” according to their level of utilisation as a percentage of sustainable yield (Table 1, p.14) and categories of management actions corresponding to each “level of use” (Table 2, p.14). Focus areas in the Program include priority investigations in areas of high use: p.16.</p>

## WESTERN AUSTRALIA (2) Environment Protection Framework Table

Key items of legislation, regulation and policy	Supplementary items of legislation, regulation and policy	Symbols, acronyms, and useful terminology
<p><i>Environmental Protection Act 1986 (WA) (<b>Environment Protection Act</b>)</i></p> <p><i>Environment Protection Regulations 1987 (WA) (<b>Environment Protection Regulations</b>)</i></p> <p><i>Environmental Impact Assessment (Part IV Division 1) Administrative Procedures 2002 (WA) (<b>EIA Procedures</b>)</i>, available at <a href="http://www.epa.wa.gov.au/docs/1139_EIA_Admin.pdf">http://www.epa.wa.gov.au/docs/1139_EIA_Admin.pdf</a>, viewed 22 July 2009.</p> <p><i>Guide to Preparing an Environmental Scoping Document (<b>ESD Guideline</b>)</i> (EPA, 2009), available at: <a href="http://www.epa.wa.gov.au/docs/1919_5%20EIA%20Scoping%20Document%20Guide1-11-04.pdf">http://www.epa.wa.gov.au/docs/1919_5%20EIA%20Scoping%20Document%20Guide1-11-04.pdf</a>, viewed 25 July 2008.</p> <p><i>Contaminated Sites Act 2003 (WA) (<b>Contaminated Sites</b>)</i></p>	<p><i>Agricultural and Veterinary Chemicals (Western Australia) Act 1995 (WA) (<b>AGVET WA Act</b>)</i></p> <p><i>Agriculture and Related Resources Protection Act 1976 (WA) (<b>Agriculture Act</b>)</i></p> <p><i>Waste Avoidance and Resource Recovery Act 2007 (WA) (<b>Waste Avoidance Act</b>)</i></p> <p><i>Waste Avoidance and Resource Recovery Act 2007 (WA) (<b>Waste Avoidance Regulations</b>)</i></p> <p><i>Waste Avoidance and Resource Recovery Levy Act 2007 (WA) (<b>Waste Avoidance Levy Act</b>)</i></p> <p><i>Waste Avoidance and Resource Recovery Levy Regulations 2008 (WA) (<b>Waste Avoidance Levy Regulations</b>)</i></p> <p><i>Contaminated Sites Regulations 2006 (WA) (<b>Contaminated Sites Regulations</b>)</i></p> <p><i>Site Classification Scheme</i> (2006, Department of Environment and Conservation, Contaminated Sites Management Series), (<b>Site Classification Scheme</b>) available <a href="http://www.dec.wa.gov.au/pollution-prevention/contaminated-sites/guidelines.html">http://www.dec.wa.gov.au/pollution-prevention/contaminated-sites/guidelines.html</a>, viewed 23 July 2009.</p> <p><i>Mining Act 1978 (WA) (<b>Mining Act</b>)</i></p> <p><i>Mining Regulations 1981 (WA) (<b>Mining Regulations</b>)</i></p> <p><i>Mining Environmental Management Guidelines: Mineral Exploration and Mining within Conservation Reserves and other Environmentally Sensitive Lands in Western Australia</i> (Department of Industry and Resources, July 1998) (<b>Mining Environmental Guidelines</b>), available at <a href="http://www.dmp.wa.gov.au/documents/ED_Min_GL_MinExpMiningInConservReservesEnvSensitiveLandsWA_Jan07.pdf">http://www.dmp.wa.gov.au/documents/ED_Min_GL_MinExpMiningInConservReservesEnvSensitiveLandsWA_Jan07.pdf</a>, viewed 28 July 2009.</p> <p><i>Petroleum and Geothermal Energy Resources Act 1967 (WA) (<b>Petroleum and GER Act</b>)</i></p> <p><i>Petroleum Guidelines: Environmental Assessment Processes for Petroleum Activities in Western Australia</i></p>	<p><b>CEO</b> = means the Chief Executive Officer of the WA Department for Environment and Conservation</p> <p><b>Environment Minister</b> = Minister for Environment, WA</p> <p><b>EPA</b> = Environment Protection Authority</p> <p><b>EPP</b> = environmental protection policy, made under the Environmental Protection Act</p> <p><b>Framework</b> = the collection of legislation, regulation and policy set out in this report for each jurisdiction, in relation to: (1) Groundwater Management; (2) Environment Protection; and (3) Land-Use Planning</p> <p><b>Guidelines</b> = <i>Guidelines for Groundwater Protection in Australia</i> (1995)</p> <p><b>Water Minister</b> = Minister for Water</p>



<p><b>Act)</b></p> <p><i>Conservation and Land Management Act 1994 (WA) (CALM Act)</i></p> <p><i>Conservation and Land Management Regulations 2002 (WA) (CALM Regulations)</i></p>	<p>(July 2006) (<b>Petroleum Guidelines</b>), available <a href="http://www.dmp.wa.gov.au/documents/ED_Pet_GL_EnvAssessmentProcForPetActivitiesInWA_Jan07.pdf">http://www.dmp.wa.gov.au/documents/ED_Pet_GL_EnvAssessmentProcForPetActivitiesInWA_Jan07.pdf</a>, viewed 24 July 2009.</p> <p>Industry-specific regulations: <i>Environment Protection (Abattoirs) Regulations 2001 (WA) (Environment Protection (Abattoirs) Regulations)</i>; <i>Environmental Protection (Metal Coating) Regulations 2001 (WA) (Environmental Protection (Metal Coating) Regulations)</i>; <i>Environmental Protection (Rural Landfill) Regulations (WA) (Environmental Protection (Rural Landfill) Regulations)</i></p> <p><i>Environmental Protection (Unauthorised Discharges) Regulations 2004 (WA) (Environmental Protection (Unauthorised Discharges) Regulations)</i></p> <p><i>Emergency Management Act 2005 (WA) (Emergency Management Act)</i></p> <p><i>Health (Pesticides) Regulations 1956 (WA) (Health (Pesticides) Regulations)</i></p> <p><i>Land Administration (Land Management) Regulations 2006 (WA) (Land Administration (Land Management) Regulations)</i></p> <p><i>Dangerous Goods Safety Act 2004 (WA) (Dangerous Goods Act)</i></p> <p><i>Dangerous Goods Safety (General) Regulations 2007 (WA), Dangerous Goods Safety (Major Hazard Facilities) Regulations 2007 (WA), Dangerous Goods Safety (Road and Rail Transport of Non-explosives) Regulations 2007 (WA), Dangerous Goods Safety (Security Risk Substances) Regulations 2007 (WA), Dangerous Goods Safety (Storage and Handling of Non-explosives) Regulations 2007 (WA) (together, the Dangerous Goods Regulations)</i></p> <p><i>Soil and Land Conservation Act 1945 (WA) (Soil and Land Conservation Act)</i></p> <p><i>Guidance Statement for Deep and Shallow Well Injection of Liquid Industrial Waste (WA EPA, March 2003), available at <a href="http://www.epa.wa.gov.au/docs/1596_GS4.pdf">http://www.epa.wa.gov.au/docs/1596_GS4.pdf</a>, viewed 28 July 2009. (Discussed at rows 37 and 38, WA Groundwater Management Framework.)</i></p>	<p>● = Framework explicitly provides for this element of the Guidelines</p> <p>◐ = Framework goes some way towards providing for this element of the Guidelines</p> <p>○ = Framework does not provide for this element of the Guidelines</p>
--	--	--



Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in the Western Australia	
1	Principles (pp.9-13)	Precautionary principle (pp.11, 40)	<p>● The Environment Protection Act explicitly adopts the precautionary principle, stating that the object of the Act is to protect the environment of the State, having regard to the precautionary principle, namely (s4A(1)):</p> <p>Where there are threats of serious or irreversible damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.</p> <p>In the application of the precautionary principle, decisions should be guided by —</p> <p>(a) careful evaluation to avoid, where practicable, serious or irreversible damage to the environment; and</p> <p>(b) an assessment of the risk-weighted consequences of various options.</p> <p>The ESD Guideline suggests that proponents consider how the precautionary principle applies to their project as part of the EIA process: App.1.</p>
	2	Polluter pays principle (p.11)	<p>● <u>Environment Protection Act</u></p> <p>The Environment Protection Act explicitly adopts the polluter pays principle, stating that the object of the Act is to protect the environment of the State, having regard to the principle, namely “[t]he present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations”: s4A(2).</p> <p>A <b>works approval, licence</b> or clearing permit (see Land-Use Planning Framework) under the Environment Protection Act may include a condition requiring a <b>financial assurance</b> to be provided: s86B(1), Environment Protection Act. A person who is subject to a closure notice, environmental protection notice, or prevention notice (see below, row 22) may also be required to provide a financial assurance: s86B(2), Environment Protection Act.</p> <p>The Environment Protection Act allows:</p> <ul style="list-style-type: none"> <li>the Minister to recover the costs of taking action in relation to a <b>stop order</b> (see below, row 22): s69(3); and</li> <li>the CEO to recover the costs of taking action to prevent or control pollution or environmental harm, or a contravention of various requirements (see below, row 22): s73(3) (see also s99Y in the situation where a person has been convicted of an offence).</li> </ul> <p>A <b>landfill levy</b> is payable under the Waste Avoidance Act (s73), the Waste Avoidance Regulations (reg18), the Waste Avoidance Levy Act (s4) and the Waste Avoidance Levy Regulations, by persons who hold licences under the Environment</p>

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in the Western Australia	
3			<p>Protection Act in relation to inert landfills, putrescible landfills, and secure landfills. <b>Financial assurances</b> may be required to secure the payment of a landfill levy: reg15, Waste Avoidance Regulations.</p> <p>The ESD Guideline suggests that proponents consider how the <b>polluter pays principle</b> applies to their project as part of the EIA process: App.1.</p> <p><u>Resources legislation</u></p> <p>A <b>financial security</b> must be provided for compliance with various obligations imposed by the Mining Act (s126(1)) and the Petroleum Pipelines Act (s13). The Petroleum and GER Act provides for persons holding authorisations to hold <b>insurance</b> in relation to the costs of complying with directions with respect to clean-up: s91A.</p> <p><u>Contaminated Sites Act</u></p> <p>The objects of the Contaminated Sites Act refer to “have regard to” the polluter pays principle, namely “[t]hose who generate pollution and waste should bear the cost of containment, avoidance or abatement.”: s8(1). The Contaminated Sites Act allows the CEO to recover the costs of remediation, and interest, from the relevant person, including where the State undertakes remediation of an orphan site: ss55(1) and (2).</p>
	Equity considerations (p.12)	●	<p>The Environment Protection Act explicitly adopts the principle of intergenerational equity, stating that the object of the Act is to protect the environment of the State, having regard to the principle: s4A.</p> <p>The ESD Guideline suggests that proponents consider how the <b>principle of intergenerational equity</b> applies to their project as part of the EIA process: App.1.</p>
4	Beneficial uses and values (pp.10-12, 39-41)	●	<p>The Environment Protection Act provides for <b>environmental protection policies (EPPs)</b> to protect any portion of the environment, or to prevent, control or abate pollution or environmental harm. The EPP identifies the <b>environmental values</b> to be protected, sets out the indicators, parameters or criteria to be used in measuring environmental quality, and specify the environmental quality objectives to be achieved and maintained (see below, rows 9-15).</p>
5	Forms of intervention	●	<p><u>Environment Protection Act and Regulations</u></p> <p>The Environment Protection Act creates the following offences, which are relevant to groundwater quality:</p> <ul style="list-style-type: none"> <li>causing or allowing <b>serious environmental harm</b> or <b>material environmental harm</b> to occur (either intentionally or with criminal negligence, or not): ss50A and 50B(1),</li> </ul>

Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in the Western Australia
	<ul style="list-style-type: none"> <li>causing <b>pollution</b> or allow pollution to be caused (either intentionally or with criminal negligence, or not): s 49(2) and (3),</li> <li>causing or allowing waste to be placed in any position from which the waste may reasonably be expected to gain access to any portion of the environment and would be likely to result in <b>pollution</b> (either intentionally or with criminal negligence, or not): s50;</li> <li>in relation to an occupier of premises, discharging wastes in contravention of any applicable standard, whether or not a licence or other authorisation is required: s51; and</li> <li>in relation to an occupier of premises, failing to notify the CEO of a discharge of waste that has caused or is likely to cause pollution and occurs as a result of an emergency, accident or malfunction (and in some other circumstances): s72.</li> </ul> <p>There are no specific water quality offences under the Environment Protection Act.</p> <p>The Environmental Protection (Unauthorised Discharges) Regulations make it an offence to discharge listed materials into the environment in connection with a business or commercial activity. This list includes a pesticide which is applied or used at a frequency or rate in excess of that recommended by its manufacturer: reg3 and Sch1.</p> <p><u>Contaminated Sites Act</u></p> <p>The Contaminated Sites Act makes it offence to fail to notify the CEO that a site is, or is suspected to be, contaminated, in relation to several categories of persons (an owner or occupier of the site; a person who knows, or suspects, that he or she has caused, or contributed to, the contamination; and an auditor engaged to provide a report under the Contaminated Sites Act): s11.</p> <p><u>CALM Regulations</u></p> <p>The CALM Regulations prohibit, on land covered by the regulations:</p> <ul style="list-style-type: none"> <li>the discharge of waste without lawful authority: reg21; and</li> <li>the discharge “any refuse or any poisonous, noxious or polluting matter” in a public water catchment area: reg23(b).</li> </ul> <p><u>AGVET Act and AGVET WA Act</u></p> <p>The AGVET WA Act applies the National AGVET Code as law in WA: s5. The National AGVET Code controls all aspects of</p>

Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in the Western Australia
	<p>agvet chemicals until the point of retail sale, being registration, labelling and standards (Pt2), manufacture (Pt8) and supply of pesticides and veterinary medicines (Pt4), up to and including the point of sale. Labels must contain instructions relating to, among other things, the circumstances in which the product should be used, how it should be used, and the disposal of the product: s14(3)(g), National AGVET Code.</p> <p>For registration of an active constituent or a chemical product, the APVMA must consider whether its use would (among other things) be:</p> <ul style="list-style-type: none"> <li>• “an undue hazard to... people using anything containing its residues” (s14(3)(e)(i), National AGVET Code), where soil and water are “protected commodities” (s3) in or on which “residues” (s3) may persist; and</li> <li>• likely to have an unintended effect that is harmful to the environment: s14(3)(e)(iii), National AGVET Code.</li> </ul> <p>Once sold, pesticides are regulated by the Health (Pesticides) Regulations (see below, row 23).</p> <p><u>Agriculture Act</u></p> <p>The Agriculture Act prohibits a person from storing, using, or transporting a prescribed agricultural chemical in a manner which does not conform to the regulations, in a prescribed part of WA: s83A(2).</p> <p><u>Land Administration (Land Management) Regulations</u></p> <p>The Land Administration (Land Management) Regulations impose penalties for polluting or interfering with any water or a water storage facility on unallocated Crown land and certain reserves: reg12(1)(b).</p> <p><u>Dangerous Goods Act</u></p> <p>The Dangerous Goods Act imposes the following general duties:</p> <ul style="list-style-type: none"> <li>• a person who is involved directly or indirectly in storing, handling or transporting dangerous goods must take all reasonably practicable measures to minimise the risk to people, property and the environment from the goods: s8(1); and</li> <li>• if in the course of storing, handling or transporting dangerous goods, a situation arises which fits the definition of a reportable situation under the Dangerous Goods Regulations, any person who has the control or management of the dangerous goods involved must as soon as reasonably practicable report the situation: s9(2).</li> </ul> <p>The Dangerous Goods Regulations imposed detailed requirements in relation to risk assessments and management systems</p>

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in the Western Australia	
6			at major hazard facilities; the transport of dangerous goods; substances which present a security risk; and storage and handling of dangerous goods.
	Market (generally pp.14-15)  eg tradeable discharge permits (pp.45, 46) or taxes on contaminants (p.46)	●	<p>The Environment Protection Act explicitly adopts principles relating to <b>improved valuation, pricing and incentive mechanisms</b>, stating that the object of the Act is to protect the environment of the State, having regard to the following (s4A(4)(4)):</p> <p>Environmental goals, having been established, should be pursued in the most cost effective way, by establishing incentive structures, including market mechanisms, which enable those best placed to maximise benefits and/or minimise costs to develop their own solutions and responses to environmental problems.</p> <p>Under the Environment Protection Regulations, the fee for a <b>works approval</b> or a <b>licence</b> may be waived if the Chief Executive Officer of the EPA is satisfied that the environmental performance and management of the premises to which the application relates conform to <b>best practice criteria</b>: regs5CA and 5EA.</p> <p>Under normal circumstances, annual licence fees depend on the amount of waste discharged: reg5D, Environment Protection Act Regulations.</p> <p>The ESD Guideline suggests that proponents consider how the principle as to <b>improved valuation, pricing and incentive mechanisms</b> (set out above) applies to their project as part of the EIA process: App.1.</p>
7	Community participation and education (p.15)	●	<p>A function of the EPA is to “promote environmental awareness within the community and to encourage understanding by the community of the environment”, “to receive representations on environmental matters from members of the public”, and “to provide advice on environmental matters to members of the public”: ss16(g), (h) and (i), Environment Protection Act.</p> <p>Under the Environment Protection Act, public submissions may be made in relation to:</p> <ul style="list-style-type: none"> <li>• works approvals and licences under the Environment Protection Act: ss54(2a) and 57(2a);</li> <li>• environment protection policies s26(f); and</li> <li>• environmental impact assessment procedures s40(4) (also see cl8, EIA Procedures).</li> </ul> <p>Public consultation is also provided for in relation to the development of plans for the management of land under the CALM Act (ss57 and 58(1)).</p>
8	Water quality protection objectives and Strategic assessment of groundwater	○	<p>The functions of the EPA include: “to encourage and carry out studies, investigations and research into the problems of environmental protection...”, “to advise the Minister on environmental matters generally and on any matter which he may refer to it for advice”, and “to publish reports on environmental matters generally”: s16(c), (e) and (j), Environment Protection Act.</p>

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in the Western Australia	
9	beneficial uses	resource (p.38)	
	Define beneficial uses and values (pp.39-40)	●	<p>The Environment Protection Act provides for the EPA to prepare an <b>EPP</b> if it is necessary to do so for the protection of any portion of the environment, or the prevention, control or abatement of pollution: s26(1). An EPP must, among other things, identify the <b>environmental values</b> to be protected: s35(2)(c), Environment Protection Act.</p> <p>An <b>environmental value</b> is defined to mean either a <b>beneficial use</b> or an <b>ecosystem health condition</b>: s3(1), Environment Protection Act. A beneficial use is, in turn, defined to mean (s3(1)):</p> <p>a use of the environment, or of any portion thereof, which is —</p> <p>(a) conducive to public benefit, public amenity, public safety, public health or aesthetic enjoyment and which requires protection from the effects of emissions or of activities referred to in paragraph (a) or (b) of the definition of “environmental harm”...; or</p> <p>(b) identified and declared...to be a beneficial use to be protected under an approved policy...</p> <p>An ecosystem health condition is defined to mean:</p> <p>a condition of the ecosystem which is —</p> <p>(a) relevant to the maintenance of ecological structure, ecological function or ecological process and which requires protection from the effects of emissions or of activities referred to in paragraph (a) or (b) of the definition of “environmental harm”...; or</p> <p>(b) identified and declared under section 35(2) to be an ecosystem health condition to be protected under an approved policy...</p>
	Identify beneficial uses (pp.40-41)	●	<p>An EPP must, among other things, identify the <b>environmental values</b> to be protected: s35(2)(c), Environment Protection Act.</p> <p>There are presently no State-wide water EPPs, and only one EPP dealing with groundwater quality, being the <i>Environmental Protection (Gnangara Mound Crown Land) Policy 1992</i> (WA), available at <a href="http://www.epa.wa.gov.au/docs/1074_EPP_GMCL92.pdf">http://www.epa.wa.gov.au/docs/1074_EPP_GMCL92.pdf</a>, viewed 22 July 2009.</p>
	Apply criteria (narrative or prescriptive) (pp.41-42)	●	<p>An EPP must select the <b>indicators, parameters or criteria</b> to be used in measuring environmental quality, and the <b>environmental quality objectives</b> to be achieved and maintained: s35(2)(d) and (e), Environment Protection Act..</p>
12	Points of application of criteria (pp.42-43)	○	Not explicitly provided for.

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in the Western Australia	
13	Monitoring and review program focusing on extent of implementation and extent to which goals are met (pp.46-47)	●	An EPP generally must be reviewed every 7 years: s36(1)(b), Environment Protection Act. However, the precise nature of this review is not specified.
	Inter-agency coordination (p.48)	●	In preparing an EPP, the EPA must make reasonable endeavours to consult any public authorities, persons and, where relevant, local authorities likely to be affected by the draft, and must consider their comments: ss26(1)(e) and (f) and 28(1)(a) and (b), Environment Protection Act. In determining whether to approve the draft policy prepared by the EPA, the Minister must do the same, and may also appoint a committee of inquiry to inquire into and report on the draft policy: ss29 and 30, Environment Protection Act.
	Enforcement of criteria for beneficial uses	●	An EPP must set out the program for attaining the <b>environmental quality objectives</b> , and may include maximum quantities and qualities of waste permitted to be discharged, minimum standards for the control of waste, measures designed to minimise the possibility of pollution, and measures designed to protect the environment and environmental values: s35(2)(f), Environment Protection Act.  The provisions of an EPP setting pollution standards are legally binding: s33(1), Environment Protection Act.  An EPP may also create offences and impose penalties, for example, for discharging contaminants: s35(1a), Environment Protection Act.  Regulatory authorities must have regard to EPPs when making a decision in relation to a licence or a works approval, and must refuse to grant either if to do so would be inconsistent with an EPP: ss60(1) and (2), Environment Protection Act.
16	Controlling sources of contamination	Waste hierarchy (p.29)	● <u>Environment Protection Act</u>  The Environment Protection Act explicitly adopts the <b>principle of waste minimisation</b> , stating that the object of the Act is to protect the environment of the State, having regard to the following (s4A(5)):  All reasonable and practicable measures should be taken to minimise the generation of waste and its discharge into the environment.

Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in the Western Australia
	<p>A <b>works approval</b> or <b>licence</b> under the Environment Protection Act (see below, row 17) may be subject to a condition to “if practicable— (i) reuse waste wholly or in part; or (ii) make waste available for reuse by another person” or “prepare, implement and adhere to...waste management systems”: s62A(1)(k) and (q), Environment Protection Act.</p> <p>The Environmental Protection Act (PtVIIA) and the Landfill Levy Act provide for persons who hold landfill licences to pay <b>levies</b>. This money is deposited into the <b>Waste Management and Recycling Account</b> and is used to fund programs relating to the management, reduction, re-use, recycling, monitoring or measurement of waste: s110H(4)(a), Environment Protection Act.</p> <p><u>Waste Avoidance Act</u></p> <p>The Waste Avoidance Act establishes a Waste Authority to undertake various functions that seek to promote resource recovery and avoid waste (s19 and Sch2). The Waste Avoidance Act provides for the following tools:</p> <ul style="list-style-type: none"> <li>• a <b>waste strategy</b>, to set out a long term strategy for continuous improvement of waste services, waste avoidance and resource recovery, benchmarked against best practice; and targets for waste reduction, resource recovery and the diversion of waste from landfill disposal: Div1 of Pt4;</li> <li>• <b>waste plans</b>, in which local governments outline how they will manage waste services, consistent with the strategy: Div3 of Pt4;</li> <li>• <b>product stewardship plans</b>, which are prepared by a producer or group of producers, and which specify targets and timeframes for avoidance, reduction, reuse or recycling of waste in relation to their products: s45;</li> <li>• <b>extended producer responsibility schemes</b>: s46; and</li> <li>• <b>codes of practice</b> for the provision of waste services, which have effect as subsidiary legislation: s52.</li> </ul> <p><u>Other legislation and policy</u></p> <p>The objects of the Site Contamination Act refer to “having regard to” the principle of <b>waste minimisation</b>, namely “All reasonable and practicable measures should be taken to minimise the generation of waste and its discharge into the environment”: s8(3).</p> <p>The ESD Guideline suggests that proponents consider how the principle of <b>waste minimisation</b> applies to their project as part of the EIA process: App.1.</p>



	Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in the Western Australia
17	Licensing of contaminants and point sources (p.30, App.1)	<p>● <u>Works approvals and licences under the Environment Protection Act</u></p> <p>Under the Environment Protection Act, an occupier of <b>prescribed premises</b> requires a <b>works approval</b> prior to the commencement of works (or alteration of works if this would cause an emission or alter the nature or volume of waste emitted from the premises): s53(1). There are 89 types of prescribed premises, including, subject to size specifications:</p> <p style="padding-left: 40px;">Feedlots; Piggeries; Mine dewatering; Coal mining; Oil or gas production from wells; Abattoir; Milk processing; Food processing; Textile operations; Chemical manufacturing; Pesticides manufacturing; Coke production; Cement or lime manufacturing; Metal finishing; Livestock saleyard; Liquid waste facility; Solid waste facility; Landfill sites (reg5 and Sch1, Environment Protection Regulations)</p> <p>A <b>licence</b> is required by occupiers of <b>prescribed premises</b> who, during operating activities, cause, increase, permit or alter the nature of waste discharges: s56(1), Environment Protection Act.</p> <p>Works approvals and licences may be subject to such conditions as the CEO of the EPA considers to be necessary or convenient for the prevention, control, abatement or mitigation of pollution or environmental harm: s62(1), Environment Protection Act. The Environment Protection Act explicitly lists many examples of conditions, including conditions as to monitoring, meeting specified criteria as to the volume and effects of emissions, disposing of waste in a specified manner, investigating operations for preventing, controlling, or abating pollution or environmental harm, etc: s62A.</p> <p>Some types of premises (eg abattoirs and water treatment facilities) must be <b>registered</b> under the Environmental Protection Regulations: reg5B.</p> <p>There are also regulations which deal with specific industries, which have the potential to contaminate groundwater:</p> <ul style="list-style-type: none"> <li>• the Environment Protection (Abattoirs) Regulations regulate the disposal of dead animals, drainage and collection of waste materials, wastewater treatment, and use of treated wastewater (see also, WA Land-Use Planning Framework in relation to control of developments which may threaten groundwater quality);</li> <li>• the Environmental Protection (Metal Coating) Regulations apply to metal coating premises, and regulates the storage of acid and the disposal of liquid and solid waste; and</li> <li>• the Environmental Protection (Rural Landfill) Regulations apply to registered putrescible landfill sites, and regulate waste management in the context of an underlying water table aquifer (reg9), and post-closure rehabilitation plans (reg17).</li> </ul> <p><u>Licensing under the Petroleum and GER Act</u></p>

Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in the Western Australia
	<p>The Petroleum and GER Act provides for the following main types of authorisations in relation to petroleum and geothermal energy: petroleum exploration permits and geothermal exploration permits (<b>permits</b>), petroleum drilling reservations and geothermal drilling reservations (<b>drilling reservations</b>), petroleum leases and geothermal leases (<b>leases</b>), petroleum production licences and geothermal production licences (<b>licences</b>).</p> <p>As a matter of policy, under the Petroleum Guidelines, an application for approval to carry out petroleum activities must be accompanied by an <b>Environmental Management Plan</b>, which provides details of the activity and the measures that will be implemented to manage the environmental risks associated with that activity. The Guidelines set out a suggested structure for an Environmental Management Plan, which includes environmental aspects and assessment of environmental effects and risks, environmental performance objectives and standards, procedures for managing and mitigating risks, emergency events and contingency planning: pp.15-18.</p> <p>The Petroleum Guidelines aim to move away from a “prescriptive regulatory approach to a co-regulatory, risk-based approach”: p.5.</p> <p><b>Permits, leases and licences</b> may be subject to such conditions as the Minister thinks fit: s43 (permits), s48H (leases), and s66 (licences). The Petroleum Guidelines are also relevant to the setting of environmental conditions: p.25.</p> <p><u>Licensing under the Petroleum Pipelines Act</u></p> <p>The Petroleum Pipelines Act provides for <b>licences</b> authorising the construction and operation of a petroleum pipeline. Licences are granted subject to such conditions as the Minister thinks fit: s12(1), Petroleum Pipelines Act. The Petroleum Guidelines, which deal with Environmental Management Plans (see above), also apply to petroleum pipelines.3: p.6, Petroleum Guidelines.</p> <p><u>Licensing under the Mining Act</u></p> <p>The Mining Act provides for prospecting licences, exploration licences, retention licences, mining leases, general purpose leases (used to deposit tailings, for example) and miscellaneous licences (used for water management facilities and borefields, among other things: reg42B, Mining Regulations).</p> <p>These types of mining tenements may be subject both to general conditions and also to “reasonable conditions for the purpose of preventing or reducing, or making good, <b>injury to the natural surface of the land</b>”, the latter describing the environment-related conditions: ss46 and 46A (prospecting licences), ss63 and 63AA (exploration licences), ss70H and 70I (retention licences), s84 (mining leases), s89 (general purpose leases) and s92 (miscellaneous leases), Mining Act.</p>

	Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in the Western Australia
18		<p>Caselaw demonstrates that these types of conditions can be used to apply requirements to monitor groundwater quality around tailings storage facilities, to regularly test the monitoring bores, and to report on the results: see, for example, <i>Re His Honour Warden Calder SM &amp; Anor; Ex parte Lee &amp; Anor</i> [2007] WASCA 161, [26].</p> <p>The Mining Regulations provide for environmental inspectors (reg120F), who may enter a mine for any purpose related to the protection of the environment, and have powers to issue directions and orders (see below, row 22).</p> <p>The Mining Environmental Guidelines reflect the WA Government's policy on dealing with the conduct of exploration and mining operations within conservation reserves (which are covered by the CALM Act) and other environmentally sensitive lands. They provide information on monitoring programs and annual environmental reporting, which companies should use as part of their environmental management program: p.9.</p> <p><u>Licensing under the Dangerous Goods Act</u></p> <p>Under the Dangerous Goods Act, a person who stores, handles, transports, or possesses dangerous goods generally requires a <b>licence</b> to do so: ss11 and 12, Dangerous Goods Act. A licence is also required for a dangerous goods site, drivers who transport dangerous goods, and vehicles used to transport dangerous goods: ss13-15, Dangerous Goods Act.</p> <p><u>Licensing under the Health (Pesticides) Regulations</u></p> <p>Under the Health (Pesticides) Regulations, a person must have the <b>permission</b> of the Executive Director, Public Health, which may be issued with conditions, to possess or use a registered pesticide: reg10. A pesticide must be applied at the frequency or rate indicated on the label, unless otherwise permitted by the Executive Director, Public Health: reg20C, Health (Pesticides) Regulations.</p>
	Inter-agency coordination (p.48)	<p>● When a person applies to the EPA for a <b>works approval</b> or <b>licence</b>, the CEO must refer them to public authorities and other persons who the CEO considers to have a direct interest in the subject matter of the application: ss54(2)(b) and 57(2)(b)(i), Environment Protection Act. He or she must consult the <b>Water and Rivers Commission</b> (the functions of which have now been transferred to the Department of Water) in relation to licence applications for waste discharges into a designated area: s57(2)(b)(iii), Environment Protection Act. He or she must then consider the comments received: s60(1), Environment Protection Act.</p> <p>The Mining Environmental Guidelines outline a referral and consultation procedure between government agencies, in relation to mining on conservation reserves and other environmentally sensitive lands: p.5. The Mining Environmental Guidelines also state that environmental conditions are placed on Mining Act tenements through a consultative process between the water and environment departments, the EPA and other agencies: p.7</p>

	Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in the Western Australia
19		<p>The Department of Water, together with various other departments (for example, those responsible for the environment and mines) has produced a series of guidelines on best management practices in water resource quality management for mining, industrial, commercial, agricultural and urban activities (available at <a href="http://portal.water.wa.gov.au/portal/page/portal/WaterQuality/Publications/WQPGuidelines">http://portal.water.wa.gov.au/portal/page/portal/WaterQuality/Publications/WQPGuidelines</a>, viewed 25 July 2009). The various guidelines are developed through a consultative process involving other government agencies, industry representatives and conservation organisations, and have a strong focus on groundwater quality protection. They may provide relevant considerations for these administering agencies to consider in licensing decisions in relation to which they may exercise discretion.</p>
	Requirements for impact assessment (p.32)	<p>● <u>Environment Protection Act</u></p> <p>Environmental impact assessment applies to both public and private developments that are:</p> <ul style="list-style-type: none"> <li>• <b>significant proposals</b>—proposals which are likely to have a “significant effect” on the environment, if implemented; or</li> <li>• <b>strategic proposals</b>—proposals that will be significant proposals in future: ss37B, Environment Protection Act.</li> </ul> <p>These types of proposals must be referred to the EPA by a decision-making authority, and may be referred by the Environment Minister if there is significant public concern: ss38(4) and (5), Environment Protection Act. The EPA makes a decision on whether the proposal should be assessed: s39A, Environment Protection Act.</p> <p>There are five possible levels of assessment, which are applied depending on the significance of the proposal: Pt5, EIA Procedures. If it is evident that the proposal cannot meet the EPA’s environmental objectives, the lowest level of assessment is not applicable: cl5.2.1, EIA Procedures. A public inquiry process is also available: s40(2)(c), Environment Protection Act.</p> <p>It is the responsibility of the proponent to prepare the environmental impact statement: s40(2)(b), Environment Protection Act. The EIA Procedures (Pt6) set out the required content of an environmental impact assessment.</p> <p>The EPA then prepares an <b>assessment report</b>, and makes recommendations for implementing the proposal: s44, Environment Protection Act. This report is then used by a decision-making authority responsible for approving the proposal to come to an agreement with the Environment Minister to decide whether it should go ahead, and on what conditions: s45, Environment Protection Act.</p> <p>The ESD Guideline assists proponents to prepare an <b>environmental scoping document (ESD)</b> which may be required under the EIA Procedures: cl6.1, EIA Procedures. Appendix 1 to the ESD Guideline contains examples of “Environmental Factors” and “Principles” to be presented in a proponent’s ESD. Example “Environmental Factors” listed include “fauna</p>

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in the Western Australia	
20			<p>(stygo fauna) and “groundwater quality”. Example investigations associated with these factors include:</p> <ul style="list-style-type: none"> <li>• (in relation to biophysical environmental factors) investigating the presence of stygo fauna within the portion of the aquifer likely to be affected by dewatering; and</li> <li>• (in relation to pollution management, as an environmental factor) monitoring the “target aquifers to provide more detailed quality parameters, particularly related to stygo fauna”; and determining “effluent standards required to protect groundwater quality objectives”.</li> </ul>
	Prescription of activities/ discharges in protected areas (p.45)	●	<p>Many types of water protection areas may be proclaimed in WA - see WA Groundwater Management Framework.</p> <p>The Mining Environmental Guidelines deal with mining which occurs in conservation reserves or environmentally sensitive areas (see above, rows 17 and 18).</p> <p>Under the CALM Act, the functions of the CEO include managing land and waters, promoting the conservation of water quality and quantity, and developing policies that provide for water to be taken, in relation to State forests, timber reserves, national parks, conservation parks and nature reserves, and some other types of land: ss5(1) and 33(1)(a), (dc) and (dd), CALM Act.</p>
21	Monitoring requirements (p.45)	●	<p>The Environment Protection Act explicitly provides that <b>works approvals</b> and <b>licences</b> may be subject to conditions as to monitoring: s62A(1)(g) and (h). The Environment Protection Regulations provide for approved monitoring equipment, a monitoring programme, reports in relation to monitoring, and associated matters. These provisions apply in circumstances where there may be a breach of the Environment Protection Act or the Regulations: Pt8, Environment Protection Regulations.</p> <p>Resources legislation also provides for authorisations to be subject to conditions, which may include conditions as to monitoring (see above, row 17).</p>
22	Contingency measures, including clean-up requirements (pp.47-48)	●	<p><u>Environment Protection Act</u></p> <p>The following tools are available under the Environment Protection Act in response to pollution or environmental harm:</p> <ul style="list-style-type: none"> <li>• <b>environmental protection notices</b>, in response to a person contravening the prohibition on causing serious or material environmental harm (see above, row 5), or in response to a contravention of a relevant standard. Among other things, the notice may require a person to prepare and implement a plan for the prevention, control or abatement of pollution or environmental harm, or take measures specified by the CEO, or to monitor the effectiveness of any of these actions: s65;</li> <li>• <b>stop orders</b>, in response to a person who has not complied with an <b>environmental protection notice</b>, where this non-compliance has caused, is causing or is about to cause “conditions seriously detrimental to the environment”. Among</li> </ul>

Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in the Western Australia
	<p>other things, the notice may require the person to stop carrying out a relevant trade, process or activity, to close down the premises, and to take the steps specified in the notice: s69(1);</p> <ul style="list-style-type: none"> <li>• <b>closure notices</b>, which require monitoring or specified management in relation to premises that were the subject of a licence or works approval, where the CEO considers that, before the licence or works approval expires, ongoing investigation, monitoring or management will be required: s68A(2);</li> <li>• <b>environmental protection directions</b>, which the CEO may make with the approval of the Environment Minister, if he or she is satisfied that pollution, material environmental harm or serious environmental harm is occurring or is likely to occur. The directions may prohibit or limit the carrying on of a specified industry, trade, or activity in a specified part of the State, and for a specified period, whether definite or indefinite: s71;</li> <li>• <b>prevention notices</b>, which an inspector or authorised person under the Environment Protection Act may give to a person, with the approval of the CEO, if the inspector or authorised person reasonably suspects that waste has been or is being discharged in contravention of a works approval, licence, closure notice, or environmental protection notice; that there is or will be a condition of pollution; or that a person has contravened the prohibition on causing serious or material environmental harm (see above, row 5). The notice may require a person to take action to prevent or control pollution or environmental harm, or dispose of or deal with waste that has been or is being discharged: s73A;</li> <li>• taking action: an inspector or authorised person under the Environment Protection Act may, with the approval of the CEO, take the kind of action which a <b>prevention notice</b> may require, in the circumstances which warrant the giving of a prevention notice: s73; and</li> <li>• in certain circumstances, a court may order a person to take specified action to prevent, control, abate or mitigate environmental harm, or make good environmental damage, caused by the commission of an offence: s99X.</li> </ul> <p><u>Contaminated Sites Act</u></p> <p>The Contaminated Sites Act provides for the CEO, in consultation with the CEO of the Health Department, to classify a contaminated site, once he or she is informed of the existence, or suspected existence, of such a site: s14. "Contaminated" means "in relation to land, water or a site...having a substance present in or on that land, water or site at above background concentrations that presents, or has the potential to present, a risk of harm to human health, the environment or any environmental value": s4(1).</p> <p>There are 7 categories of contaminated sites (Sch1, Contaminated Sites Act):</p> <ul style="list-style-type: none"> <li>• <b>Report not substantiated</b>: a specified report provides no ground to indicate possible contamination of the site</li> </ul>

Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in the Western Australia
	<ul style="list-style-type: none"> <li>• <b>Possibly contaminated—investigation required:</b> there are grounds to indicate possible contamination of the site</li> <li>• <b>Not contaminated — unrestricted use:</b> after investigation, the site is found not to be contaminated</li> <li>• <b>Contaminated — restricted use:</b> the site is contaminated but suitable for restricted use</li> <li>• <b>Remediated for restricted use:</b> the site is contaminated but has been remediated so that it is suitable for restricted use</li> <li>• <b>Contaminated — remediation required:</b> the site is contaminated and remediation is required</li> <li>• <b>Decontaminated:</b> the site has been remediated and is suitable for all uses</li> </ul> <p>The only type of site that the Contaminated Sites Act requires to be remediated is a site in the category “contaminated—remediation required”: s23. Complex provisions apply to determining precisely who is responsible for carrying out the remediation: Div1 of Pt3, Contaminated Sites Act and Pt5, Contaminated Land Regulations.</p> <p>The Contaminated Sites Act provides for the following tools to address contamination at a site (where “site” is defined to include underground water under that land: s3(1)):</p> <ul style="list-style-type: none"> <li>• <b>investigation notices</b>, which may require a person to investigate the nature and extent of contamination and its consequences, and to prepare a management plan and monitor its effectiveness: s49;</li> <li>• <b>clean up notices</b>, which are available in relation to a site which is classified as “contaminated – remediation required”, and which set out the requirements to be complied with to remediate a site: s50; and</li> <li>• <b>hazard abatement notices</b>, which set out requirements to control or reduce a hazard, if the CEO believes that a site is contaminated and there is an immediate and serious risk of harm to human health, the environment or any environmental value: s51.</li> </ul> <p>Each of these notices also requires the person bound by the notice to engage an auditor to report on the actions taken to comply with the requirements of the notice: s44, Contaminated Sites Act.</p> <p><u>Mining Act</u></p> <p>Inspectors under the Mining Regulations may issue:</p> <ul style="list-style-type: none"> <li>• <b>directions</b> to modify an operation or activity, if they are of the opinion that a mine, or any activity in connection with that mine is likely to have or is having a significant adverse effect on the environment: reg120H; and</li> <li>• <b>stop work orders</b>, setting out the operation or activity to be stopped, if they are of the opinion that a mining tenement holder is not complying with the Mining Act, the Mining Regulations or the conditions of a mining tenement, or that an accident or unexpected event has taken place: reg120L.</li> </ul>

23	Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in the Western Australia	
			<p><u>AGVET Act</u></p> <p>If the Resources Minister is satisfied that there is a serious threat posed or likely to be posed by the concentration of a substance in produce that is growing on contaminated land, he or she may direct the grower of that produce to implement a remedial plan, which may include measures to rehabilitate that land: ss79-80, AGVET Act.</p> <p><u>Dangerous Goods Act</u></p> <p>A <b>remediation notice</b> may be given to a person directing them to take particular measures, in response to a contravention of the Dangerous Goods Act, or in response to a <b>dangerous situation</b>: s47, Dangerous Goods Act. A dangerous situation includes a situation in which there is an imminent and high risk to the environment from dangerous goods: s3(1), Dangerous Goods Act. In an emergency, a dangerous goods officer may take immediate action if necessary, and recover the costs of doing so: s50, Dangerous Goods Act.</p> <p><u>Emergency Management Act</u></p> <p>The Emergency Management Act deals with <b>hazardous substances</b>—chemical, biological, radiological or other substances that are capable of causing, amongst other things, damage to the health of the environment. The Act provides for two levels of emergency declarations (by the hazard management agency or by the Minister for Emergency Services, if there is a need to prevent or minimise destruction of, or damage to, any part of the environment: ss50(2)(b)(iii) and s56(2)(c)(iii), Emergency Management Act. Emergency powers include the power to direct public authorities (see generally, Pt6).</p>
	Controls on diffuse source contamination (pp.17, 30)	●	<p><u>Potentially contaminating substances</u></p> <p>The Environmental Protection (Unauthorised Discharges) Regulations prohibit discharging into the environment, in connection with a business or commercial activity, a pesticide which is applied or used at a frequency or rate in excess of that recommended by its manufacturer: reg3 and Sch1.</p> <p>The Health (Pesticides) Regulations regulate the manufacture, use and disposal of pesticides and used pesticide containers (disposal by burial must be a minimum of 3 metres above the water table) and require commercial pesticide firms, operators or employees that have the custody, control or possession of registered pesticides shall ensure that stores or yards are situated so that spillage cannot drain into any water supply: regs21C(b), 21F(1)(e), and s76(a)(iv).</p> <p><u>Land management</u></p> <p>Pastoral lessees under the Land Administration Act must use methods of best pastoral and environmental management</p>



Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in the Western Australia	
			<p>practice, appropriate to the area where the land is situated, for the management of stock and for the management, conservation and regeneration of pasture for grazing: s109(2).</p> <p>Under the Soil and Land Conservation Act, the Commissioner may serve a <b>soil conservation notice</b> on an owner and occupier to, for example, refrain from clearing land or adopt or refrain from adopting a specified agricultural or pastoral method, if the Commissioner believes that:</p> <p style="padding-left: 40px;">as a result of... any agricultural or pastoral practices or methods, which have been or are likely to be adopted; [or] clearing or intended clearing [or] failure on the part of any person to take adequate precautions to prevent or control...salinity... on any land, land degradation is occurring or is liable or likely to become liable to occur on that land or elsewhere: s32(1), Soil and Land Conservation Act.</p> <p>Land degradation in this context includes salinity that may be detrimental to the present or future use of land, and “salinity”, in turn, includes deterioration in water quality: s4, Soil and Land Conservation Act.</p>

## WESTERN AUSTRALIA (3) Land-Use Planning Framework Table

Key items of legislation, regulation and policy	Supplementary items of legislation, regulation and policy	Symbols, acronyms, and useful terminology
<p><i>Planning and Development Act 2005</i> (WA) (<b>Planning Act</b>)</p> <p><i>State Planning Policy 2 – Environment and Natural Resources</i> (2003) (<b>ENR Policy</b>), available <a href="http://www.planning.wa.gov.au/Plans+and+policies/Publications/134.aspx">http://www.planning.wa.gov.au/Plans+and+policies/Publications/134.aspx</a>, viewed 24 July 2009.</p> <p><i>Statement of Planning Policy No 2.7 – Public Drinking Water Source Policy</i> (2003) (<b>Drinking Water Source Policy</b>), available at <a href="http://www.planning.wa.gov.au/Plans+and+policies/Publications/149.aspx">http://www.planning.wa.gov.au/Plans+and+policies/Publications/149.aspx</a>, viewed 24 July 2009.</p> <p><i>State Planning Policy No 2.9 – Water Resources</i> (2006) (<b>Water Resources Policy</b>), available at <a href="http://www.planning.wa.gov.au/Plans+and+policies/Publications/1281.aspx">http://www.planning.wa.gov.au/Plans+and+policies/Publications/1281.aspx</a>, viewed 25 July 2009.</p>	<p><i>Land Administration Act 2007</i> (WA) (<b>Land Administration Act 2007</b>)</p> <p><i>State Planning Strategy</i> (WA Planning Commission, 1997), available <a href="http://www.planning.wa.gov.au/Publications/52.aspx">http://www.planning.wa.gov.au/Publications/52.aspx</a>, viewed 24 July 2009.</p> <p><i>Statement of Planning Policy No 2.4 – Basic Raw Materials</i> (2000) (<b>Raw Materials Policy</b>), available <a href="http://www.planning.wa.gov.au/Plans+and+policies/Publications/137.aspx">http://www.planning.wa.gov.au/Plans+and+policies/Publications/137.aspx</a>, viewed 24 July 2009.</p> <p><i>Conservation and Land Management Act 1984</i> (WA) (<b>CALM Act</b>)</p> <p><i>Conservation and Land Management Regulations 2002</i> (WA) (<b>CALM Regulations</b>)</p>	<p><b>CEO</b> = means the Chief Executive Officer of the WA Department for Environment and Conservation</p> <p><b>Commission</b> = Western Australian Planning Commission</p> <p><b>Environment Minister</b> = Minister for Environment</p> <p><b>Framework</b> = the collection of legislation, regulation and policy set out in this report for each jurisdiction, in relation to: (1) Groundwater Management; (2) Environment Protection; and (3) Land-Use Planning</p> <p><b>Guidelines</b> = <i>Guidelines for Groundwater Protection in Australia</i> (1995)</p> <p><b>Local PS</b> = local planning scheme under the Planning Act</p> <p><b>PDWSA</b> = Public Drinking Water Source Areas – this is the term and acronym used by the Drinking Water Source Policy to describe the following types of areas under several statutes, collectively: Underground Water Pollution Control areas, water reserves and catchment areas (see WA Groundwater Management Framework for further details on these types of proclaimed areas).</p> <p><b>Planning Minister</b> = Minister for Planning</p> <p><b>Region PS</b> = region planning scheme under the Planning Act</p> <p><b>SPP</b> = State Planning Policy under the Planning Act</p> <p><b>Water Minister</b> = Minister for Water</p> <p>● = Framework explicitly provides for this element of the Guidelines</p> <p>◐ = Framework goes some way towards providing for this element of the Guidelines</p> <p>○ = Framework does not provide for this element of the Guidelines</p>

**Note:** The State Planning Strategy is a non-statutory land use planning strategy for the development of WA: p.x. It identifies key principles, strategies and suggested actions. It is not discussed in the table, since it has no substantial discussion of water resources.

	Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in the Western Australia	
1	Principles (pp.9-13)	Precautionary principle (pp.11, 40)	○	Not explicitly provided for within the key items of legislation, regulation or policy.
2		Polluter pays principle (p.11)	○	Not explicitly provided for within the key items of legislation, regulation or policy.
3		Equity considerations (p.12)	○	Not explicitly provided for within the key items of legislation, regulation or policy.
4		Beneficial uses and values (pp.10-12, 39-41)	●	<p><b>Environmental values</b> are protected through <b>environmental protection policies</b> under the Environmental Protection Act (see WA Environment Protection Framework). Environmental protection policies and environmental values are used in the following ways:</p> <ul style="list-style-type: none"> <li>the Drinking Water Source Policy states that (see row 11, below): <ul style="list-style-type: none"> <li>“Acceptable land uses in source protection areas are those which are compatible with, or can be managed to be compatible with, the sustainable use of the water resource and the retention of environmental values associated with that resource”: cl5.2;</li> <li>“planning schemes and decisions on land use and development should have regard for any ...relevant environmental protection policy on public drinking water supply”: cl5.6; and</li> </ul> </li> <li>the ENR Policy states that “planning schemes and decision making should...[c]onsider mechanisms to protect, manage, conserve and enhance...gazetted public drinking water source areas; and other water sources which sustain catchments and identified environmental values”: cl5.2(i)(f).</li> </ul>
5	Forms of intervention	Command (p.14)	●	<p><u>Planning Act</u></p> <p>The Planning Act generally applies to the approval of <b>developments</b>. A person may not commence or carry out a development if a Region PS or Local PS provides that that development is not to be commenced or carried out without</p>

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in the Western Australia				
6				<p>approval: s162(1) and cl9, Sch7, Planning Act. If a Local PS requires an approval, a local government would generally approve the development, whereas if a Region PS requires an approval, the Commission would generally approve the development. The development must be carried out in accordance with any conditions to which the approval was granted: s162(2) and cl9, Sch7, Planning Act. In relation to Local and Region PSs, see below, rows 8-22.</p> <p>A person may also apply to a local government to carry out development in a <b>planning control area</b>, which may be used, among other things, to protect water catchment areas (see below, rows 8-22). The Commission makes a determination on the development application, including any conditions to be applied, having regard to relevant SPPs and the nature of the <b>planning control area</b>, among other things: s116, Planning Act.</p> <p><u>Land Administration Act</u></p> <p>The Land Administration Act applies to the use and development of Crown land. A management body which manages Crown land in a reserve may prepare a plan for the development, management and use of that land, either on its own initiative or at the request of the Minister for Planning: s49(1) and (2), Land Administration Act. In doing so, the management body must consider relevant conservation and environmental issues: s49(3)(a), Land Administration Act.</p>		
	Market (generally pp.14-15)		○	Not explicitly provided for within the WA Land-Use Planning Framework, except for brief mention in the CALM Act in relation to the functions of the Conservation Commission, which is only peripherally relevant here: s19(2)..		
	Community participation and education (p.15)		●	Public consultation provisions apply in relation to SPPs, Region PSs and Local PSs (see below, row 20).		
8	Specific approaches to protection	Vehicle for protection	N/A	<p><u>State Planning Policies (SPPs) under the Planning Act</u></p> <p>Note 1: this column discusses both how State Planning Policies are made, and how current State Planning Policies implement the Guidelines.</p> <p>Note 2: a reference in this column to a section is to a section of the Planning Act.</p> <p>The Commission may, with the approval or on the</p>	<p><u>Region planning schemes (Region PSs), Local planning schemes (Local PSs), and planning control areas under the Planning Act</u></p> <p>Note: a reference in this column to a section is to a section of the Planning Act.</p> <p>The Commission may, with the approval of the Minister, prepare</p>	<p><u>Management Plan under the CALM Act for land that includes a public water catchment area</u></p> <p>Note: a reference in this column to a section is to a section of the CALM Act.</p> <p>The CALM Act applies to State forests, timber reserves, national parks, conservation</p>

	Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in the Western Australia			
			<p>direction of the Minister, prepare SPPs. SPPs are directed towards broad general planning and facilitating the coordination of planning throughout the State by local governments: s26(1) and (2). The Governor approves SPPs: s29.</p> <p>The following SPPs are discussed in this column:</p> <ul style="list-style-type: none"> <li>the ENR Policy;</li> <li>the Water Resources Policy; and</li> <li>the Drinking Water Source Policy.</li> </ul> <p>These policies either state explicitly or refer in a significant way to the NWQMS: cl5.2, ENR Policy; cl2.2, Water Resources Policy; cl2, Drinking Water Source Policy.</p>	<p>Region PSs to address matters of State or regional importance: s34(1). The Minister approves Region PSs.</p> <p>Region PSs may provide for numerous matters, including zoning, special controls, and development standards: Sch7.</p> <p>The Commission, with the approval of the Planning Minister, may declare a <b>planning control areas</b> in relation to land covered by a Region PS, if the land is required for (among other things) a water catchment area: s112(2) and Sch6.</p> <p>Local governments prepare Local PSs, which provide for the improvement, development and use of land in the local planning scheme area: ss69(1) and 72.</p> <p>Local PSs may provide for the same matters as Region PSs: Sch7.</p>	<p>parks and nature reserves. If land within one of these areas is a public water catchment area, a land management plan for that area is prepared by the Conservation Commission, and approved by the Environment Minister: ss54(1) and (3) and 60.</p> <p>A management plan states the policies and guidelines that apply to the land: s55(1). It may provide for water to be taken from the land, in which case a permit is required if a declaration of the Environment Minister is in force over the land, which states that a permit is required for this purpose: ss97A and 101.</p>
9	Use of land-use risk matrix to judge compatibility of land uses with water quality protection (p.44)	●	<p>In the preparation of a SPP, the Commission is to have regard to (among other things) “conservation of...natural resources for social, economic, environmental, ecological and scientific purposes”; “characteristics of land” and “characteristics and disposition of land use”: s27(b), (c) and (d).</p> <p>The Drinking Water Source Policy refers to:</p>	Not explicitly provided for in the Planning Act in relation to Region or Local PSs.	Not explicitly provided for.

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in the Western Australia			
10			a Water Quality Protection Note on Land Use Compatibility in Public Drinking Water Source Areas which shows the compatibility of different land uses within the different priority source protection areas. The guidelines contain a table which lists land uses which are compatible, incompatible, and conditional with or in regard to the management objectives of the priority source protection areas. These land uses are recommended as permitted, not permitted, or discretionary uses respectively within each priority source protection area...: cl2.		
	Land zoning taking into account underlying groundwater (pp.43-44)	●	<p>One method of implementing the Water Resources Policy (see description of measures throughout this column) is “day-to-day consideration of zoning”: cl6.</p> <p>However, the Drinking Water Source Policy suggests that zoning is not the most effective way to protect drinking water sources:</p> <p>provisions to protect water sources are in addition to the normal reservations and zoning provisions which apply and such provisions are, therefore, more effectively applied as an overlay rather than a specific zone or reserve: cl2.</p> <p>Accordingly, it adopts a “Water Catchments reservation”, which operates like an overlay, within the Metropolitan Region Scheme.</p>	Not explicitly provided for in the Planning Act in relation to Region or Local PSs.	N/A
11	Protection for water supply protection areas (p.27)	●	Under the ENR Policy, planning strategies, schemes and decision making should consider mechanisms to “protect, manage, conserve and enhance... gazetted public drinking water source	Not explicitly provided for in the Planning Act in relation to Region or Local PSs.	If there is a declaration of the Environment Minister in force over the land, a permit is required to carry on an activity

12	Form of protection suggested by the Guidelines	Whether implemented / Summary of implementation in the Western Australia			
			<p>areas”: cl5.2(i)(e).</p> <p>In relation to PDWSAs, the Drinking Water Source Policy states:</p> <ul style="list-style-type: none"> <li>Acceptable land uses in source protection areas are those which are compatible with, or can be managed to be compatible with, the sustainable use of the water resource and the retention of environmental values associated with that resource: cl5.2.</li> <li>Planning schemes and decisions on land use and development should have regard for any adopted region scheme policy or relevant environmental protection policy on public drinking water supply: cl5.6</li> </ul> <p>See also, row 42, WA Groundwater Management Framework.</p>	<p>However, declared <b>planning control areas</b> may be used to protect water catchment areas: s112(2) and Sch6.</p>	<p>specified in the declaration: ss97A and 101. The permit may be subject to any conditions the CEO thinks fit: ss97A(8) and 101(3).</p>
	Protection of groundwater recharge zones (p.28)	●	<p>Under the ENR Policy, planning strategies, schemes and decision making should:</p> <p>Identify existing and potential areas affected by salinity, acid sulphate soils... and, where appropriate, facilitate measures such as promoting vegetation retention, replanting in groundwater recharge areas, and prevention of inappropriate development: cl5.4(iv).</p> <p>Under the Water Resources Policy, local and regional planning strategies and development applications (among other things) should adopt the following measures (cl5.2(ii)):</p> <p>Protect, manage, conserve and enhance...groundwater catchments and recharge areas supporting significant</p>	<p>Not explicitly provided for in the Planning Act in relation to Region or Local PSs.</p>	<p>Not explicitly provided for.</p>

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in the Western Australia			
13			ecological features or having identified environmental values, by ensuring, where possible, appropriate management or limiting inappropriate land use/s to maintain water quality and quantity for existing and future environmental and human uses.		
	Controls on land clearing due to connection with groundwater quality (p.28)	●	<p>Under the ENR Policy, planning strategies, schemes and decision making should “[s]upport conservation, protection and management of native remnant vegetation where possible, to enhance...water quality”: cl5.1(x).</p> <p>Under the Raw Materials Policy, before determining an application for an extractive industry operation, the Commission and/or local government should consider as appropriate: “the effect of the proposed extractive industry on...groundwater quality...”:cl6.3.1. Further, applications for extractive industry operations are to be accompanied by a management plan and report which (among other things) provide:</p> <p>details of the proposed use, development and management of the site including the environmental and water resource management standards...:cl6.4.1</p> <p>In determining planning proposals or applications for extractive industry, the Commission and local government may apply conditions which cover water pollution: cl6.7.1, Raw Materials Policy.</p>	<p>Not explicitly provided for in the Planning Act in relation to Region or Local PSs.</p> <p>Note: in an area declared to be an <b>environmentally sensitive area</b> under s51B, Environment Protection Act, clearing must generally require a <b>permit</b>: s51C. The CEO must, in granting a permit, have regard to the <b>clearing principles</b> (s51O and Sch5, Environment Protection Act), which include:</p> <p>Native vegetation should not be cleared if... the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water: cl1(i), Sch5, Environment Protection Act.</p>	Land clearing may require a permit. See above, row 11.
14	Controls on land development due to connection with groundwater	●	Under the Water Resources Policy, local and regional planning strategies and development applications (among other things) should adopt the following general measures (cl5.1):	Not explicitly provided for in the Planning Act in relation to Region or Local PSs.	Developments may require a permit. See above, row 11.



	<b>Form of protection suggested by the Guidelines</b>	<b>Whether implemented / Summary of implementation in the Western Australia</b>			
15	<p>quality (p.28)</p> <p>For example controls on mining, quarrying, waste disposal (p.28)</p>		<p>(i) Protect significant environmental, recreational and cultural values of water resources.</p> <p>(ii) Aim to prevent or, where appropriate, ameliorate the following potential impacts:</p> <ul style="list-style-type: none"> <li>- any adverse effects on water quality... and, as a minimum, proposed development should aim to maintain water quality...</li> <li>- increased acidity and leaching of acid sulfate soils...</li> <li>- pollution and contamination;</li> <li>- salinity over and above the natural levels...</li> </ul> <p>(iii) Promote improved outcomes such as:</p> <ul style="list-style-type: none"> <li>- environmental repair and rehabilitation of the water resource;</li> <li>- improved water quality...</li> </ul> <p>(vii) Recognise and take into account water resource management plans as required by the Rights in Water and Irrigation Act 1914.</p>		
	Controls on rural and urban runoff (p.28)	●	<p>Under the ENR Policy, planning strategies, schemes and decision making should encourage water sensitive urban design approaches to manage stormwater quality: cl5.2(ii).</p> <p>Under the Water Resources Policy, local and regional planning strategies and development applications (among other things) should adopt the following measures (cl5.4)</p> <p>(iii) Promote management of the urban water cycle as a single system in which all urban water flows are recognised as a potential resource and where the interconnectedness of water supply, stormwater,</p>	Not explicitly provided for in the Planning Act in relation to Region or Local PSs.	Not explicitly provided for, but may be covered in a management plan.

Form of protection suggested by the Guidelines					
Whether implemented / Summary of implementation in the Western Australia					
16			wastewater, flooding, water quality, wetlands, waterways, estuaries and coastal waters is recognised.  (iv) Maximise the opportunities for compliance with best practice stormwater management, including infiltration/detention of stormwater on site/at the source.		
	Controls over use of sewage effluent (p.44)	●	Not explicitly provided for. However, using sewage effluent would need to comply with Environment Protection Act requirements (see WA Environment Protection Framework).	Not explicitly provided for in the Planning Act in relation to Region or Local PSs.	Not explicitly provided for, but may be covered in a management plan.
	Manage land uses to reduce risks of contamination (p.44)	●	See above, row 11-15.	Not explicitly provided for in the Planning Act in relation to Region or Local PSs.	Land uses may require a permit. See above, row 11.
18	Veto or referral rights for water and environment agencies in relation to land development (p.45)	●	<p>The Commission may refer a policy to the EPA to undertake an environmental review of the proposed policy: s32.</p> <p>When preparing a SPP, the Commission is to consult local governments for the relevant districts or, in some cases, the WA Local Government Association: s28(1).</p> <p>The Commission must also make reasonable endeavours to consult such public authorities as appear to the Commission to be likely to be affected by the SPP: s28(4).</p>	<p>A proposed Region PS or Local PS (or proposed amendment) must be referred to the EPA for consideration of the need for an environmental assessment: ss38 and 81. Other relevant regulators and/or interested groups may also be invited to comment: s83.</p> <p>The EPA may issue an instruction to the responsible authority to undertake an environmental review, which must be completed before the RPS is advertised: s82.</p> <p>Environmental conditions as determined by the Environment Minister may be incorporated into</p>	A management plan for land that includes a public water supply catchment is prepared by the Conservation Commission, through the CEO, "in consultation with the Water Minister and any relevant water utility": s54(3)(a)(iii).

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in the Western Australia			
19	Other inter-agency coordination (pp.28, 35)	●	See above, row 18.	the scheme: s50.	After considering public submissions, the Conservation Commission must consult on the proposed management plan with “any organization or body it thinks appropriate”, relevant local governments, and the Water Minister: s59. Each of these entities may make submissions on the proposed plan
	Public consultation (p.28)	●	The Commission must notify the public of a proposed SPP and invite public submissions: s28(3). The Commission must also make reasonable endeavours to consult such persons as appear to the Commission to be likely to be affected by the SPP: s28(4).	<p>The Minister must consent public submissions being sought in respect of a proposed Region PS or amendment: s43. Consultation then occurs via written submissions: (s43) or oral hearing: s46.</p> <p>In relation to a Region PS, the Commission; and in relation to a Local PS, a local government, is to make reasonable endeavours to consult in respect of the scheme or amendment such public authorities as appear to the Commission or local government, respectively, to be likely to be affected by the scheme or amendment: ss43(5) and 83.</p> <p>There are no provisions for the public to make submissions on the Commission's declaration of</p>	Any person may make a submission on a proposed management plan, and the CEO must give that submission to the Water Minister and to any relevant water utility: s58(3).

Form of protection suggested by the Guidelines		Whether implemented / Summary of implementation in the Western Australia			
21				<b>planning control areas.</b>	
	Monitoring and review (pp.46-47)	●	Not explicitly provided for. However, a function of the Commission is to keep SPPs under review: s14(b)(ii).	<p>A function of the Commission is to keep Region PSs under review and to review a scheme completely whenever requested by the Planning Minister to do so: s14(i).</p> <p>Local PSs are reviewed through processes to consolidate them every 5 years: s88.</p>	Not explicitly provided for.
22	Enforcement (p.20)	●	<p>Generally, SPPs are “directed primarily towards broad general planning and facilitating the coordination of planning throughout the State by local governments.” However, they may “make provision for any matter which may be the subject of a local planning scheme”: s26(2) and (3).</p> <p>A local government preparing a Local PS must have due regard to any SPP that affects its district, and may adopt a SPP as part of the local PS: s77.</p>	<p>The requirements of a planning control area prevail over any Region PS and any Local PS: s130.</p> <p>A Local PS must be consistent with each relevant Region PS (s123(1)), and the Region PS prevails to the extent of any inconsistency: s124(1). The Planning Minister may direct a local government to amend a Local PS to remove any such inconsistency: s125.</p> <p>It is an offence to contravene a Region PS or Local PS, or to carry out development otherwise than in accordance with the provisions of a Region PS or Local PS: s218.</p>	Penalties apply to doing an activity without a permit, when a permit is required (ss97A(4) and 101(1c) and to contravening a permit condition: ss97A(10) and 101(4).

## APPENDIX B: COMPLETE LIST OF FINDINGS AND RECOMMENDATIONS

This list is extracted from Chapter 3 of the main body of the report.

### Box 4.1: Precautionary principle

**General finding:** The jurisdictions generally adopt the precautionary principle in their Groundwater Management and Environment Protection Frameworks, and to a lesser extent, in their Land-Use Planning Frameworks. They generally require either all or some decision-makers to have regard to the precautionary principle as an element of the principle of ESD, when exercising all or certain of their functions, including functions that have the potential to affect groundwater quality.

**Recommendation:** The Groundwater Guidelines mention the precautionary principle mainly in the context of deliberately allowing aquifer contamination. A future revision of the Guidelines should significantly expand the role of the precautionary principle to reflect the prominence of the principle in modern legal frameworks that have the potential to affect groundwater quality, and the greater role that most jurisdictions give to the principle in the context of groundwater management.

**Framework Table Reference (Appendix A):** row 1 of each Framework Table.

### Box 4.2: Polluter pays principle

**General finding:** The jurisdictions generally adopt the polluter pays principle in their Groundwater Management and Environment Protection Frameworks, but only rarely in their Land-Use Planning Frameworks. They commonly require either all or some decision-makers to have regard to the polluter pays principle as an element of the principle of ESD, when exercising all or certain of their functions, including functions that have the potential to affect groundwater quality. It is also common to implement the polluter pays principle through requiring a financial assurance before issuing a licence to undertake certain activities, linking licence fees to the potential for pollution, and allowing a specified agency to recover the reasonable costs associated with remedying environmental harm, including harm to a protected environmental value of groundwater.

**Recommendation:** A future revision of the Groundwater Guidelines could provide further detail on how the polluter pays principle may be implemented, using the many examples provided by current legislation, regulation and policy. The Guidelines may also benefit from re-visiting the precise intended meaning of the polluter pays principle, since the jurisdictions differ in relation to what costs, and how much of these costs, the principle requires a polluter to bear.

**Framework Table Reference (Appendix A):** row 2 of each Framework Table, and row 22 of each Environment Protection Framework Table

### Box 4.3: Equity considerations

**General Finding:** Since the Groundwater Guidelines were published, the concept of intergenerational equity has become a well-entrenched element of water management and environment protection laws throughout most Australian jurisdictions. This concept may well prove very useful in the context of protecting groundwater quality, given the long time-frames involved in cleaning up contamination.

**Recommendation:** A future revision of the Groundwater Guidelines could consider updating the comments in relation to “equitable considerations” to reflect the concept of intergenerational equity, and discuss further how this concept should take effect in the context of groundwater quality protection.

**Framework Table Reference (Appendix A):** row 3 of each Framework Table.

**Box 4.4: Beneficial uses and values (now termed environmental values)**

**General Finding:** Each State jurisdiction has adopted the concept of beneficial uses and values. NSW relies mainly on a policy mechanism, whereas each other State uses a statutory mechanism. This concept of beneficial uses is implemented, to varying degrees, through the Groundwater Management Frameworks, Environment Protection Frameworks, and Land-Use Planning Frameworks. The general method of implementing beneficial uses is to require an authorisation or plan under these Frameworks to be prepared consistently with, or having regard to, beneficial uses.

**Recommendation:** A future revision of the Groundwater Guidelines could describe the ways in which beneficial uses and values may be implemented, using examples from modern Australian legislation, regulation and policy.

**Framework Table Reference (Appendix A):** row 4 of each Framework Table, and row 15 of each Environment Protection Framework Table.

**Box 5: Forms of intervention**

**General Findings:** Most jurisdictions use a combination of command, market, and public participation approaches to groundwater protection across their Groundwater Management, Environment Protection and Land-Use Planning Frameworks. Of these three approaches, market approaches are used least, although they are often referred to at a high level. Flexible and adaptable approaches to command intervention have developed since the publication of the Groundwater Guidelines, overcoming some of the constraints of what can sometimes be a rigid approach. Public participation and education are very commonly used in relation to instruments that are relevant to groundwater quality protection, but legal or policy requirements for specific education programs in relation to groundwater quality are relatively rare.

**Recommendation:** A future revision of the Groundwater Guidelines may assist jurisdictions by further describing the ways in which the different forms of intervention may be implemented, using examples from modern Australian legislation, regulation and policy. In particular, a future revision could describe modern, flexible approaches to intervention by command, and further examples of market mechanisms.

**Framework Table Reference (Appendix A):** see in particular, rows 5-7 of each Framework Table. Note that row 5 of each Framework Table tends to focus on general duties and offences, whereas the discussion above also summarised wider approaches used through the Frameworks.

**Box 6.1: Reservation of special areas**

**General Findings:** The jurisdictions provide well for the reservation of special areas for groundwater protection, both in the cases of stressed areas, where water quality may be at risk due to groundwater use, and also in the case of public water supply areas.

**Framework Table Reference (Appendix A):** rows 8-10 of each Groundwater Management Framework Table.

**Box 6.2: Management plans**

**General Findings:** The jurisdictions generally implement the Groundwater Guidelines in relation to groundwater management plans very well. There are numerous different types of management plans in use, at different geographical levels, throughout the jurisdictions. Each of these may deal with groundwater quality in different ways, for example, affecting authorisations to take groundwater, or setting objectives and implementation plans in relation to groundwater quality. It is likely that the Basin Plan under the Commonwealth Water Act, will, over time, significantly change the form and enhance the legal effect of local water management plans for groundwater resources in the Murray-Darling Basin.

**Recommendation:** A future revision of the Groundwater Guidelines should take account of the greatly expanded Commonwealth influence on groundwater management planning, which occurs through the Basin Plan under the Commonwealth Water Act, and the requirements that the Basin Plan will set for water resource plans at the local level.

**Framework Table Reference (Appendix A):** see rows 11-18 of each Groundwater Management Framework Table.

### Box 6.3: Controls on extraction

**General Findings:** Generally, the Groundwater Management Frameworks of the jurisdictions link groundwater extraction to groundwater quality very well, by: (1) providing for decision-makers to consider groundwater quality when they consider an authorisation to take groundwater; and (2) empowering decision-makers to limit groundwater extraction temporarily or permanently, or to require bore owners to take specified actions to protect groundwater quality.

**Recommendation:** A future revision of the Groundwater Guidelines should reflect the ways of linking groundwater extraction with groundwater quality considerations, which appear in modern Australian legislation, regulation and policy. It should also investigate the related concept of setting aside water for environmental purposes related to protecting groundwater quality, which may be possible, though it is often not explicit, in the jurisdictions' legislation, regulation and policy.

**Framework Table Reference (Appendix A):** see rows 22-24 of each Groundwater Management Framework Table.

### Box 6.4: Well construction measures and other well-related measures

**General Findings:** The Groundwater Management Frameworks of the jurisdictions all impose requirements in relation to licensing bore drillers, and in relation to authorisations to construct either all, or some types of bores. However, few jurisdictions apply “default” standard rules to the full range of activities relating to bores—construction, operation, maintenance and abandonment or decommissioning. In some cases, these matters may be dealt with through other means (including conditions on authorisations and management plans), but this may risk an ad-hoc and inconsistent approach.

**Recommendation:** The Groundwater Guidelines should retain a focus on the need to protect groundwater by regulating the construction, operation, maintenance and abandonment or decommissioning of bores.

**Framework Table Reference (Appendix A):** see rows 25-29 and 36-38 of each Groundwater Management Framework Table.

### Box 6.5: Water supply and the protection of public water supply wells

**General Findings:** The jurisdictions have implemented the public water supply protection aspects of the Groundwater Guidelines to differing degrees. Water suppliers do not uniformly have powers to control activities that may contaminate water supply bores, although these powers are frequently given to public health officials and ministers. The obligations of water suppliers to monitor the quality of raw groundwater sources and up-gradient areas, and to report and respond to contamination also differ widely between jurisdictions. This is a rapidly changing area, with some jurisdictions planning to overhaul their legislation.

**Recommendation:** The Groundwater Guidelines should retain a focus on public water supply aspects of groundwater quality protection.

**Framework Table Reference (Appendix A):** see rows 30-35 of each Groundwater Management Framework Table.

**Box 6.6: Gathering groundwater information**

**General Findings:** The jurisdictions (including the Commonwealth) provide for the assessment of groundwater resources through granting an entity a function related to assessing the condition of the environment or natural resources, State of the Environment reporting, and in some cases, specific water or groundwater quality assessment programs. Relatively few jurisdictions provide formally for specific programs such as monitoring critical overdraw, aquifer classification and vulnerability mapping.

**Recommendation:** A future revision of the Groundwater Guidelines should reflect the introduction of the Commonwealth Water Act, which has seen a significant increase in the legislative focus on gathering information relating to water resources at the Commonwealth level, through the Bureau of Meteorology and the MDBA. It should also reflect emerging concerns about the impact of climate change on groundwater quality and associated GDEs.

**Framework Table Reference (Appendix A):** see rows 39-43 of each Groundwater Management Framework Table and row 8 of each Environment Protection Framework Table.

**Box 7.1: Water quality protection objectives and beneficial uses**

**General Findings:** The jurisdictions generally implement the concepts of beneficial uses or environmental values well, although they tend not to determine them on an aquifer-specific basis, as was the intention of the present Guidelines. The application of criteria, and monitoring programs for the implementation of beneficial uses and values, tend not to be specified in detail. Beneficial uses and environmental values are used, and may be enforced, in the context of conditions on authorisations to take water and to undertake potentially polluting activities, and also in relation to pollution offences. They are also used as mandatory or discretionary considerations for decision-makers. The terminology used in relation to beneficial uses and values and criteria varies widely across the jurisdictions.

**Recommendation:** A future revision of the Groundwater Guidelines should consider the expanded list of beneficial uses/environmental values used by current legislation, regulation and policy, which goes beyond the five classes set out in Appendix II of the Groundwater Guidelines. It may also assist the jurisdictions to set out examples from current legislation, regulation and policy, of the ways in which criteria may be implemented or enforced.

**Framework Table Reference (Appendix A):** see rows 9-15 of each Environment Protection Framework Table.

**Box 7.2: Waste hierarchy**

**General Findings:** The jurisdictions have generally implemented the waste hierarchy well, using specific waste legislation as well as general environment protection legislation. Although not specific to groundwater, the measures adopted seem likely to reduce groundwater pollution in the long term.

**Recommendation:** A future revision of the Groundwater Guidelines may assist the jurisdictions by providing some examples as to how the waste hierarchy has been adopted.

**Framework Table Reference (Appendix A):** see row 16 of each Environment Protection Framework Table.

**Box 7.3: Licensing of point sources and discharges in protected areas**

**General Findings:** The general environmental protection legislation in all jurisdictions requires certain activities that are potentially polluting (and in some cases, the construction of works for the activities) to be authorised, usually if the activities are carried out at a particular intensity or are of a particular size, or if they have a particular level of impact. Special legislation is used for issuing authorisations in relation to mining, quarrying, pesticides, hazardous chemicals, petroleum, dangerous goods, agricultural chemicals, geothermal energy and greenhouse gas



sequestration and storage.

**Recommendation:** A future revision of the Groundwater Guidelines could be updated to consider authorisations that apply to new industries such as geothermal energy and greenhouse gas sequestration and storage.

**Framework Table Reference (Appendix A):** see row 17 and 20 of each Environment Protection Framework Table.

#### Box 7.4: Environmental impact assessment

**General Findings:** All jurisdictions provide for EIA, though they use different triggers for assessment, and provide for different levels of assessment. Some jurisdictions which guide proponents as to the factors which they must consider in preparing EIA documents specifically mention groundwater quality and GDEs. A higher-level variant of EIA—strategic impact assessment—is in its early stages of development and may prove useful in dealing with diffuse sources of pollution.

**Recommendation:** A future revision of the Groundwater Guidelines should investigate and discuss the potential for a relatively new and developing technique, strategic impact assessment, to assist in groundwater quality protection.

**Framework Table Reference (Appendix A):** see row 19 of each Environment Protection Framework Table.

#### Box 7.5: Monitoring requirements

**General Findings:** The jurisdictions implement monitoring requirements through numerous instruments under their Environment Protection Frameworks, including conditions on authorisations, agreements with State EPAs, and directions to remedy pollution or environmental harm. The legislation provides for imposing monitoring requirements, but does not include detailed considerations as to monitoring points, frequency, etc.

**Framework Table Reference (Appendix A):** see row 21 of each Environment Protection Framework Table.

#### Box 7.6: Contingency measures

**General Findings:** The jurisdictions have a large number of tools available to them to direct a person to clean up pollution or contaminated land, rectify environmental harm, or cease or modify an activity which is polluting or causing environmental harm.

**Recommendation:** A future revision of the Groundwater Guidelines should be updated to reflect the fact that stronger contingency measures are now available in all jurisdictions.

**Framework Table Reference (Appendix A):** see row 22 of each Environment Protection Framework Table.

#### Box 7.7: Controlling diffuse sources

**General Findings:** The jurisdictions have developed the tools available to address diffuse source pollution since the Groundwater Guidelines were published, and now emphasise the use of market incentives and “best practice management”. However, the tools available do not capture a complete range of potentially problematic activities, nor are they available in all jurisdictions.

**Recommendation:** A future revision of the Groundwater Guidelines should retain a focus on diffuse sources of pollution, but should provide further detail on the types of modern tools available to address diffuse sources, both in Australia and also (given the need for further development of this area in Australia) overseas. It should also discuss the issue of acid sulphate soils, which many jurisdictions now address.

**Framework Table Reference (Appendix A):** see row 23 of each Environment Protection Framework Table.

**Box 8.1: Land zoning and land-use risk matrices**

**General Findings:** Although the jurisdictions' Land-Use Planning Frameworks rarely explicitly use the concept of a land use-risk matrix, zoning provisions and considerations relevant to granting a planning authorisation refer to land capability and suitability in ways which may protect groundwater.

**Recommendation:** In considering a future revision of the Groundwater Guidelines, it may be useful to consider the utility and practicality of the concept of a land-use risk matrix, and the likely reasons for low levels of implementation.

**Framework Table Reference (Appendix A):** see rows 8-10 of each Land-Use Planning Framework Table.

**Box 8.2: Protection for drinking water sources and recharge zones**

**General Findings:** The jurisdictions protect groundwater supplies and recharge zones through their Land-Use Planning Frameworks in various ways, including through zoning, linking planning schemes with elements of the Groundwater Management Framework, and provisions in relation to assessing proposed developments.

**Recommendation:** A future revision of the Groundwater Guidelines may assist the jurisdictions by providing some examples of the mechanisms used to protect drinking water sources and recharge zones.

**Framework Table Reference (Appendix A):** see rows 5, 11 and 12 of each Land-Use Planning Framework Table and row 27 of the Commonwealth Environment Protection Framework Table.

**Box 8.3: Controls on particular developments and risky activities**

**General Findings:** Land-Use Planning Frameworks use State plans, planning schemes, and conditions on planning authorisations to apply various controls to potentially polluting developments, land clearing and runoff production. While there are particularly valuable examples of such measures, they do not appear to be uniformly applied across the jurisdictions. However, some jurisdictions may rely on the discretion exercised by a planning decision-maker to refuse a development, or to apply suitable conditions.

**Recommendation:** The Groundwater Guidelines should retain a focus on the importance of Land-Use Planning Frameworks to control risky developments.

**Framework Table Reference (Appendix A):** see rows 13-17 of each State Land-Use Planning Framework Table and row 25 of the Commonwealth Environment Protection Framework Table.

**Box 8.4: Measures related to the development and administration of planning tools**

**General Findings:** The jurisdictions generally use strong public consultation and referral provisions in their Land-Use Planning Frameworks, enabling agencies and entities with functions relating to health, catchment management, water, and the environment to provide comments or impose requirements in relation to planning authorisations. However, requirements to monitor and review planning tools tend to be less robust, and rarely explicitly require a review of the effectiveness of the tool in the context of environmental protection.

**Recommendation:** A future revision of the Groundwater Guidelines should highlight examples of effective monitoring and review provisions, and provisions which encourage planning tools to align with elements of Groundwater Management Frameworks.

**Framework Table Reference (Appendix A):** see rows 18-21 of each Land-Use Planning Framework Table.