

Queensland



Subordinate Legislation 2000 No. 358

*Water Act 2000*

**WATER RESOURCE (BOYNE RIVER BASIN)  
PLAN 2000**

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## **PART 1—PRELIMINARY**

### **Short title**

1. This water resource plan may be cited as the *Water Resource (Boyne River Basin) Plan 2000*.

### **Purposes of plan**

2. The following are the purposes of this plan—
- (a) to define the availability of water in the plan area;
  - (b) to provide a framework for sustainably managing water and the taking of water;
  - (c) to identify priorities and mechanisms for dealing with future water requirements;
  - (d) to provide a framework for establishing water allocations;
  - (e) to provide a framework for reversing, where practicable, degradation that has occurred in natural ecosystems, including, for example, stressed rivers.

### **Definitions**

3. The dictionary in schedule 4 defines particular words used in this plan.

## **PART 2—PLAN AREA AND WATER TO WHICH PLAN APPLIES**

### **Plan area**

4. This plan applies to the area within the plan area boundary shown on the plan area map in schedule 1.<sup>1</sup>

### **Water to which plan applies**

5. This plan applies to water in a watercourse, lake or spring in the plan area.

## **PART 3—OUTCOMES FOR SUSTAINABLE MANAGEMENT OF WATER**

### **General outcomes**

6. Water is to be managed and allocated—
- (a) to ensure a reliable and secure supply of water from Awoonga Dam during the time this plan is in force; and
  - (b) to ensure the supply of regulated water in the area downstream of Awoonga Dam for agriculture and other small scale uses; and
  - (c) to allow water to be taken upstream of Awoonga Dam full supply level or from Awoonga Dam for—
    - (i) agriculture and other small scale uses; and
    - (ii) urban needs; and

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<sup>1</sup> A copy of the plan area map may be inspected at the department's offices at the following places—

- 41 George Street, Brisbane
- 212 Quay Street, Rockhampton.

- (d) to protect the probability of being able to obtain water under a water allocation.

### **Ecological outcomes**

#### **7. River flows are to be managed—**

- (a) to maintain existing habitats that sustain native plants and animals—
  - (i) associated with watercourses, waterholes and riparian zones upstream of Awoonga Dam full supply level; or
  - (ii) dependant on pool and associated riparian habitat in the freshwater reach downstream of Awoonga Dam; and
- (b) to provide water for fine sediment removal and long term water quality suitable for—
  - (i) riverine ecosystems upstream of Awoonga Dam full supply level; and
  - (ii) ecosystems downstream of Awoonga Dam; and
- (c) to allow movement by marine and estuarine fish over or around the weir at Boyne River AMTD 17.2 km; and
- (d) to provide water to stimulate reproductive processes for estuarine animals downstream of Awoonga Dam; and
- (e) to provide water for delivery of catchment based nutrients from upstream of Awoonga Dam to the riverine and estuarine reaches downstream of the dam; and
- (f) to allow river forming flows upstream of Awoonga Dam full supply level and in the riverine and estuarine reaches downstream of the dam; and
- (g) to allow for an increase in the frequency and duration of marine conditions in the estuarine reach downstream of Awoonga Dam leading to a shift towards plant and animal species that favour or tolerate the increase.

## **PART 4—ENVIRONMENTAL FLOW OBJECTIVES, WATER ALLOCATION SECURITY OBJECTIVES AND PERFORMANCE INDICATORS**

### *Division 1—Preliminary*

#### **Calculation of objectives**

8. The environmental flow objectives and water allocation security objectives stated in this plan have been calculated using the IQQM computer program.

#### **Calculation of performance indicators**

9.(1) For the environmental flow and water allocation security objectives, the performance indicators are calculated using the IQQM computer program's simulation for the period from 1 January 1891 to 31 December 1997 (the "simulation period").

(2) If it is not practicable to use the IQQM computer program to calculate the performance indicators, the indicators may be calculated under an assessment method approved by the chief executive.

(3) The chief executive may approve an assessment method for subsection (2) only if the chief executive is satisfied the method will accurately assess the impact of an allocation and management decision or proposal on water entitlements and natural ecosystems.

### *Division 2—Environmental flow objectives and performance indicators*

#### **Environmental flow objectives**

10. The environmental flow objectives for this plan are stated in schedule 2.

**Performance indicators**

**11.** The performance indicators for the environmental flow objectives are as follows—

- (a) average summer flow;
- (b) mean annual flow;
- (c) monthly low flows;
- (d) number of days of flow to inundate riparian zone;
- (e) number of river forming flows;
- (f) number of trigger flows.

***Division 3—Water allocation security objective and performance indicator***

**Water allocation security objective**

**12.** For water allocations relating to Awoonga Dam, the monthly reliability of supply of water under the allocations during the simulation period must be at least—

- (a) if the dam's full supply level is not more than 30 m AHD—99%;  
or
- (b) if the full supply level is more than 30 m AHD—100%.

**Performance indicator**

**13.** The performance indicator for the water allocation security objective is the monthly reliability of supply of water from Awoonga Dam during the simulation period.



## **PART 5—STRATEGIES FOR ACHIEVING OUTCOMES**

### **Decisions about allocating water**

**14.** Decisions about the future allocation of water in the plan area must be consistent with—

- (a) the environmental flow objectives stated in schedule 2; and
- (b) the water allocation security objective stated in section 12.

### **Restriction on full supply level of Awoonga Dam**

**15.** Full supply level for Awoonga Dam must not be more than 45 m AHD.

### **Restriction on volume of water available from Awoonga Dam**

**16.(1)** The maximum volume of water available to the Gladstone Area Water Board from Awoonga Dam is as follows—

- (a) at full supply level 30 m AHD—63 000 megalitres a year;
- (b) at full supply level 45 m AHD—113 600 megalitres a year.

**(2)** For a full supply level that is between the levels stated in subsection (1)(a) and (b), the maximum volume is calculated using the IQQM computer program.

### **Releases from Awoonga Dam for the environment**

**17.(1)** This section applies if the full supply level of Awoonga Dam is more than 30 m AHD.

**(2)** Appropriate infrastructure must be incorporated into the dam to accommodate releases for the environment downstream of the dam.

**(3)** Water released downstream from the dam must be from the upper oxygenated layers of water in the dam.

**(4)** Subsections (5) to (7) apply if the dam's actual water level is at least 30 m AHD.

(5) For each day of a month stated in schedule 3, column 1, the following volume of water must be released from the dam for the benefit of the downstream environment—

- (a) the volume stated for the month in schedule 3, column 2; or
- (b) for any day on which the stream flow into the dam is less than the volume mentioned in paragraph (a)—the volume of the stream flow.

(6) Subsection (7) applies whenever the stream flow into the dam is at least 3 210 megalitres a day for 4 or more consecutive days (the “**consecutive inflow days**”).

(7) For the benefit of the environment downstream of the dam, an average of at least 3 210 megalitres of water a day must be released from the dam—

- (a) immediately after day 4 of the consecutive inflow days ends; and
- (b) for an equal number of consecutive days as the consecutive inflow days.

### **Releases from Awoonga Dam for downstream users**

**18.(1)** Appropriate infrastructure must be incorporated into Awoonga Dam to accommodate releases for licensees and permittees downstream of the dam.

(2) Water released downstream from the dam must be from the upper oxygenated layers of water in the dam.

(3) Sufficient water must be released for the licensees and permittees to be able to take the amount of water allowed to be taken under their licences or permits.

### **Restrictions on taking water from Boyne River downstream of Awoonga Dam**

**19.** The chief executive may grant a licence for taking water from the Boyne River downstream of Awoonga Dam (the “**relevant area**”) only if the volume of water allowed to be taken under the licence—

- (a) is not more than 40 megalitres a year; and

- (b) does not result in the total volume of water allowed to be taken from the relevant area under licences being more than—
  - (i) if the dam's full supply level is not more than 30 m AHD—400 megalitres a year; or
  - (ii) if the full supply level is more than 30 m AHD—800 megalitres a year.

### **Restriction on taking water upstream of Awoonga Dam full supply level or from Awoonga Dam**

**20.(1)** The chief executive may grant a licence or permit for taking water upstream of Awoonga Dam full supply level or from Awoonga Dam (the “**relevant area**”) only if—

- (a) the volume of water allowed to be taken under the licence or permit is not more than—
  - (i) for stock and domestic purposes—20 megalitres a year; or
  - (ii) for town water supply—200 megalitres a year; or
  - (iii) for other purposes—160 megalitres a year; and
- (b) the volume of water allowed to be taken under the licence or permit does not result in the total volume of water allowed to be taken from the relevant area under licences or permits being more than—
  - (i) for town water supply—200 megalitres a year; or
  - (ii) for purposes other than town water supply, stock, domestic or temporary purposes—
    - (A) if the dam's full supply level is not more than 30 m AHD—1 500 megalitres a year; and
    - (B) if the dam's full supply level is more than 30 m AHD—3 000 megalitres a year; and
- (c) the chief executive imposes on the licence or permit a condition that water may be taken from a watercourse, lake or spring in the relevant area only if—
  - (i) the water in the watercourse, lake or spring is flowing; and

- (ii) taking the water does not stop the water in the watercourse, lake or spring flowing immediately downstream of the point where the water is taken.

(2) Subsection (1)(c) does not apply to—

- (a) a permit for stock or domestic purposes or for town water supply; or
- (b) a licence to take from Awoonga Dam.

(3) In subsection (1)(b)(ii)—

**“temporary purpose”** means a purpose for which a permit may be granted under the Water Resources Act 1989, section 56(1)(b).<sup>2</sup>

### **Entitlement expressed as an area**

**21.(1)** This section applies if a licence has an entitlement expressed as an area.

(2) To calculate, for section 20(1)(b), the total volume of water assumed to be taken from the relevant area, the volume of water, in megalitres, assumed to be taken under the licence is calculated by multiplying the area in hectares by 4.4.

(3) The chief executive must amend the licence to state the entitlement in megalitres.

### **Requirement to consider criteria**

**22.(1)** The chief executive must consider the following criteria in deciding an application for or about a licence or permit relating to the plan area or in imposing conditions on a licence or permit—

- (a) the purpose for which the water is intended to be taken;
- (b) the volume of water intended to be taken;
- (c) the availability of water for the intended purpose;
- (d) the potential impact of the proposed taking on—

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<sup>2</sup> *Water Resources Act 1989*, section 56 (Power to issue permit to government department, other person or body to take water)

- (i) the entitlements of all users of water in the plan area; and
- (ii) the ecological value and function of instream environments and related areas including, for example, riparian zones;
- (e) the efficiency and sustainability of the proposed taking;
- (f) the availability of an alternative water supply for the intended purpose including the more efficient use of water already available to the licensee or permittee;
- (g) whether the volume of water intended to be taken under the licence or permit should be restricted or a meter approved by the chief executive used to measure the volume of water taken;
- (h) whether the taking should be restricted during particular periods, including, for example, when—
  - (i) there is no water flow in the watercourse; or
  - (ii) the flow is insufficient for downstream water users or to sustain the health of ecosystems; or
  - (iii) water is released for the benefit of the environment downstream of the dam;
- (i) whether the proposed taking may restrict the movement of fish or other aquatic species;
- (j) the extent to which rapid artificial variations in instream water levels may adversely affect the environment;
- (k) the impact of water infrastructure on water quality;
- (l) the impact on the natural variability and duration of seasonal streamflow patterns.

**(2)** This section does not limit the matters the chief executive may consider in deciding an application or imposing conditions.

**(3)** However, any other matters considered must be consistent with the outcomes under part 3.

## **PART 6—IMPLEMENTING PLAN**

### **Schedule of proposed arrangements for implementing plan**

**23.(1)** A resource operations plan is to be prepared for, but is not limited to, the following purposes—

- (a) to convert an existing authorisation for the Awoonga Dam full supply level (the “**priority area**”) held by the Gladstone Area Water Board to a water allocation; or
- (b) to grant unallocated water to the Gladstone Area Water Board from the priority area; or
- (c) to state the details of the procedure for releases from Awoonga Dam under sections 17 and 18; or
- (d) to implement the monitoring requirements in part 7.

**(2)** It is proposed to prepare the resource operations plan within 9 months after the commencement of this plan.

**(3)** The chief executive, in preparing a resource operations plan for the purpose stated in subsection (1)(b), must consider arrangements between current water users downstream of Awoonga Dam to AMTD 17.2 km and the Gladstone Area Water Board about managing the taking of the water.

## **PART 7—MONITORING AND REPORTING REQUIREMENTS**

### **Monitoring**

**24.(1)** The monitoring requirements for the plan area are—

- (a) water monitoring, in relation to—
  - (i) river flow; and
  - (ii) diversions of water; and
  - (iii) water quality; and

- (b) natural ecosystems monitoring, in relation to—
  - (i) the condition of riverine and estuarine habitats and associated plants and animals; and
  - (ii) river forming flows.
- (2) The monitoring requirements are to be achieved by—
  - (a) monitoring programs undertaken by water infrastructure operators under a resource operations plan; and
  - (b) monitoring programs administered by relevant State agencies.

### **Monitoring programs undertaken by the water infrastructure operator of Awoonga Dam**

**25.(1)** The water infrastructure operator of Awoonga Dam must develop and undertake monitoring programs, satisfactory to the chief executive, that include monitoring the following in the dam and downstream to the mouth of the Boyne River—

- (a) water, in relation to the matters stated in section 24(1)(a);
- (b) natural ecosystems, in relation to the matters stated in section 24(1)(b).

(2) For subsection (1)(a), the program must include monitoring the following—

- (a) water quantity including—
  - (i) inflows to Awoonga Dam; and
  - (ii) the volume, frequency and duration of seasonal releases from Awoonga Dam for each of the following—
    - (A) consumption;
    - (B) the environment;
    - (C) any other purpose decided by the chief executive; and
  - (iii) the water levels in Awoonga Dam and at Boyne River AMTD 17.3 km;
- (b) the operation of multi-level offtake and other outlet works relating to Awoonga Dam;

- (c) water quality including—
  - (i) temperature; and
  - (ii) chemical measurements; and
  - (iii) biological measurements.

(3) The monitoring programs must assist in enabling the chief executive—

- (a) to assess the impact of the dam and the release strategy stated in section 17(5) to (7)<sup>3</sup> on the plan's ecological outcomes; and
- (b) to compare the condition of the natural ecosystems with their condition at the commencement of this plan in relation to the matters stated in section 24(1)(b).

### **Water infrastructure operator to give report**

**26.(1)** The water infrastructure operator must give the chief executive a written report containing the following information—

- (a) details of the information obtained by monitoring the matters mentioned in section 25;
- (b) details of decisions made by the operator in managing water and water infrastructure including, for example, decisions about the following—
  - (i) restrictions on the taking or supply of water;
  - (ii) infrastructure modifications or installations;
- (c) information about any non-compliance by the operator with a resource operations plan for the plan area;
- (d) details of remedial action taken by the operator—
  - (i) in relation to a requirement under a resource operations plan; or
  - (ii) in response to a water quality problem;
- (e) details of any emergency action taken by the operator that may

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<sup>3</sup> Section 17 (Releases from Awoonga Dam for the environment)



affect this plan's outcomes.

(2) A report about a matter mentioned in subsection (1)(a) must be given—

- (a) for each financial year in which the operator manages water under this plan; and
- (b) within 3 months after the end of the financial year to which the report relates.

(3) A report about a matter mentioned in subsection (1)(b) to (d) must be given within 1 month after the matter happens.

(4) A report about a matter mentioned in subsection (1)(e) must be given the next business day after the action is taken.

## **PART 8—MINISTER'S REPORT AND AMENDING PLAN**

### **Minister's report on plan—Act, s 53**

27. The Minister's report<sup>4</sup> on this plan must be prepared—

- (a) for each financial year the plan is in force; and
- (b) within 6 months after the end of the financial year to which the report relates.

### **Minor amendment of plan—Act, s 57**

28. The following types of amendments may be made to this plan under section 57(b) of the Act—

- (a) an amendment to extend an environmental flow objective or water allocation security objective to other parts of the plan area if the amendment achieves an equivalent or improved ecological outcome without adversely affecting the water allocation security

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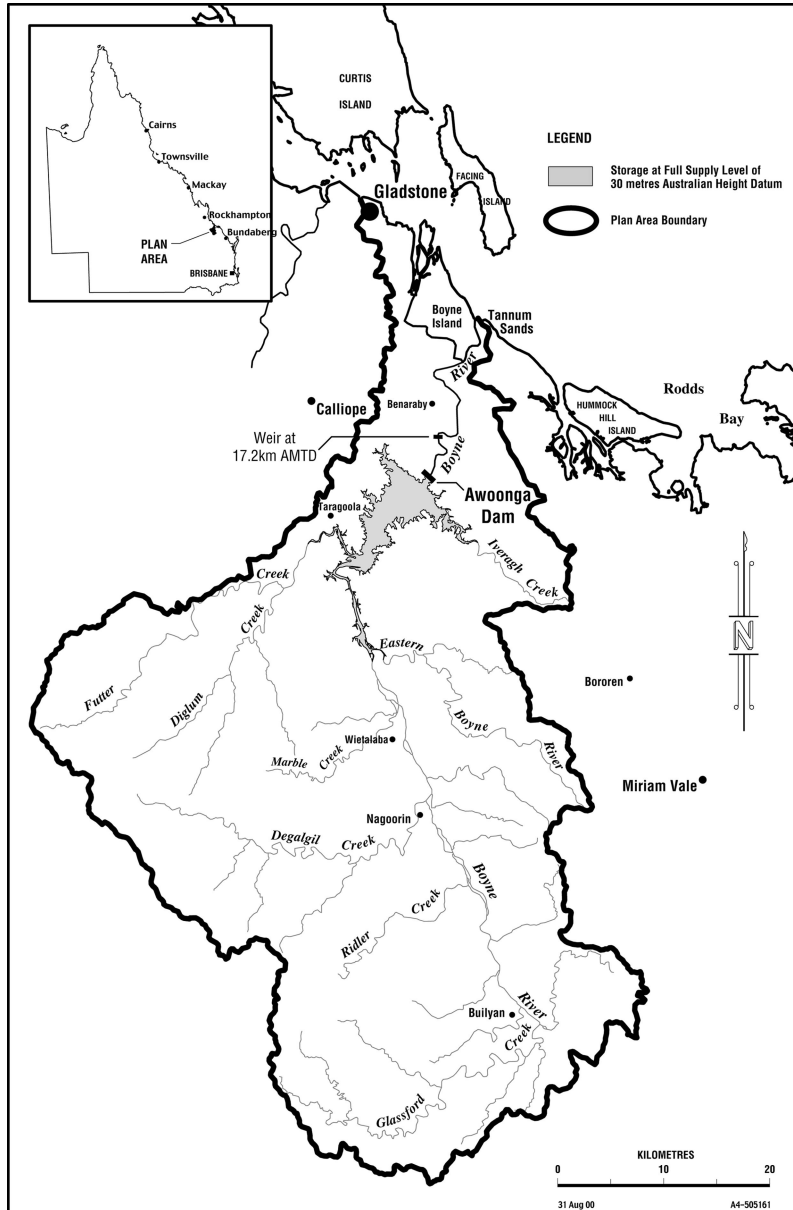
<sup>4</sup> See section 54 (Matters the reports must include) of the Act.

objectives in the plan area or the outcomes under part 3;

- (b) an amendment or addition of an environmental flow objective if the amendment or addition achieves an equivalent or improved ecological outcome without adversely affecting the water allocation security objectives in the plan area or the outcomes under part 3;
- (c) an amendment or addition of a water allocation security objective if the amendment or addition does not adversely affect existing water allocations, environmental flow objectives or the outcomes under part 3;
- (d) an amendment or addition of a monitoring or reporting requirement under part 7.

# SCHEDULE 1 PLAN AREA MAP

section 4



## SCHEDULE 2

### ENVIRONMENTAL FLOW OBJECTIVES

sections 10 and 14(a)

#### Definitions for sch 2

1. In this schedule—

“**average summer flow**” means the total volume of flow in the months from December to March in the simulation period divided by the number of years in the simulation period.

“**mean annual flow**” means the total volume of flow in the simulation period divided by the number of years in the simulation period.

“**monthly low flows**”, for a named month, means the percentage of time over the simulation period that daily flow for the month is at least the daily flow that occurred 80% of the time for the same month in the pre-development flow pattern.

“**number of days of flow to inundate riparian zone**” means the number of days in the simulation period that the flow is at least 15 000 megalitres a day.

“**number of river forming flows**” means the number of times in the simulation period that the flow reaches 50 000 megalitres a day.

“**number of trigger flows**” means the number of times in the simulation period that the flow reaches 3 210 megalitres a day.

#### Environmental flow objectives for Boyne River at AMTD 17.2 km

2. The following are the environmental flow objectives for the Boyne River at AMTD 17.2 km—

- the average summer flow, expressed as a percentage of the average summer flow for the pre-development flow pattern, must be at least 61%

## SCHEDULE 2 (continued)

- the mean annual flow, expressed as a percentage of the mean annual flow for the pre–development flow pattern, must be at least 57%
- if the full supply level of Awoonga Dam is more than 30 m AHD, the monthly low flows for each named month must be between 94% and 102%
- the number of days of flow to inundate riparian zone, expressed as a percentage of the number of days of flow to inundate riparian zone for the pre–development flow pattern, must be at least 57%
- the number of river forming flows, expressed as a percentage of the number of river forming flows for the pre–development flow pattern, must be at least 41%
- the number of trigger flows, expressed as a percentage of the number of trigger flows for the pre–development flow pattern, must be at least 56%.

**Environmental flow objectives for the combined flows entering Awoonga Dam**

3. The following are the environmental flow objectives for the combined flows entering Awoonga Dam—

- the average summer flow, expressed as a percentage of the average summer flow for the pre–development flow pattern, must be at least 99%
- the mean annual flow, expressed as a percentage of the mean annual flow for the pre–development flow pattern, must be at least 99%
- the monthly low flows for each named month must be between 85% and 100%
- the number of days of flow to inundate riparian zone, expressed as a percentage of the number of days of flow to inundate riparian zone for the pre–development flow pattern, must be at least 99%

## SCHEDULE 2 (continued)

- the number of river forming flows, expressed as a percentage of the number of river forming flows for the pre-development flow pattern, must be at least 99%
- the number of trigger flows, expressed as a percentage of the number of trigger flows for the pre-development flow pattern, must be at least 99%.

**SCHEDULE 3****DAILY WATER RELEASES FOR THE  
DOWNSTREAM ENVIRONMENT**

section 17(5)

<b>Column 1</b>	<b>Column 2</b>
<b>Month</b>	<b>Megalitres a day</b>
January	17
February	54
March	62
April	52
May	30
June	29
July	32
August	30
September	24
October	23
November	17
December	20

## SCHEDULE 4

### DICTIONARY

section 3

“**AHD**” means the Australian height datum adopted by the National Mapping Council of Australia for referencing a level or height back to a standard base level.

“**AMTD**” means the adopted middle thread distance which is the distance in kilometres, measured along the middle of a watercourse, that a specific point in the watercourse is from the watercourse’s mouth or junction with the main watercourse.

“**IQQM computer program**” means the department’s Integrated Quantity and Quality Modelling computer program that simulates daily streamflows, flow management, storages, releases, instream infrastructure, water diversions, water demands and other hydrologic events in the plan area.

“**licence**” means—

- (a) a water licence; or
- (b) a licence under the *Water Resources Act 1989*.

“**megalitre**” means 1 million litres.

“**multi-level offtake**”, for a dam or weir, means an outlet structure in the dam or weir that is used to take water out of the dam or weir at different levels below the water surface.

“**permit**” means—

- (a) a water permit; or



## SCHEDULE 4 (continued)

(b) a permit under the *Water Resources Act 1989*, section 56 or 57.<sup>5</sup>

**“pre–development flow pattern”** means the flow pattern that would have occurred during the simulation period if there were no dams or other instream infrastructure and no water being taken under licences or permits in the plan area.

**“priority area”** see section 23.

**“release”**, for water from a dam, means the water passes downstream from the dam, either through the dam outlet works or over the dam spillway.

**“river forming flow”** means a flow that structures and maintains the river channel features.

**“simulation period”** see section 9.

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## ENDNOTES

1. Approved by the Governor in Council on 14 December 2000.
2. Notified in the gazette on 15 December 2000.
3. Laid before the Legislative Assembly on . . .
4. The administering agency is the Department of Natural Resources.

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<sup>5</sup> *Water Resources Act 1989*, section 56 (Power to issue permit to government department, other person or body to take water) and section 57 (Power to issue permit to construct or use works in the exercise of a right to use water under s 36)