

# Water Sharing Plan for the Lower Murray Groundwater Source (2006 SI 637)

[2006-637]



New South Wales

## Status Information

### Currency of version

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### Provisions in force

The provisions displayed in this version of the legislation have all commenced.

### Notes—

- **Note**

This Plan ceased to have effect on 30.6.2019 — see GG No 72 of 30.7.2017, p 3476.

### Authorisation

This version of the legislation is compiled and maintained in a database of legislation by the Parliamentary Counsel's Office and published on the NSW legislation website, and is certified as the form of that legislation that is correct under section 45C of the [Interpretation Act 1987](#).

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# Water Sharing Plan for the Lower Murray Groundwater Source (2006 SI 637)



New South Wales

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# Water Sharing Plan for the Lower Murray Groundwater Source (2006 SI 637)



New South Wales

## Part 1 Introduction

### 1 Name of Plan

This Plan is the *Water Sharing Plan for the Lower Murray Groundwater Source* (hereafter **this Plan**).

### 2 Nature and status of this Plan

- (1) This Plan is made under section 50 of the *Water Management Act 2000* as amended (hereafter **the Act**).
- (2) This Plan covers the core provisions of section 20 of the Act for water sharing, and additional provisions of section 21 of the Act, and other relevant matters.

### 3 Date of commencement

This Plan takes effect on 1 November 2006, and ceases on the 30 June 2017.

### 4 Area to which this Plan applies

The area in respect of which this Plan is made is that area of land within the Murray Water Management Area known as the Lower Murray Groundwater Source (hereafter **this Groundwater Source**) as shown in Schedule 2.

#### Note—

Maps referred to in this plan may be inspected at offices of the Department listed in Appendix 1.

### 5 Waters to which this plan applies

- (1) This Groundwater Source includes all water contained in the Calivil, Renmark, and the Lower Shepparton unconsolidated alluvial aquifers deeper than 12 metres below the ground surface within the area defined in Clause 4.
- (2) This Groundwater Source is characterised by the Calivil and Renmark Formations, composed of pale grey to white quartz sand layers, with lenses of grey to white clay, peat and coal extending from the bottom of the Shepparton Formation down to the

bedrock, with a maximum depth of 350 metres, and the Lower Shepparton Formation which is generally yellow to brown poorly sorted sand and clay sediments that extend to a depth of between 20 and 50 metres below the ground surface within the area defined in Clause 4.

## 6 Interpretation

- (1) Terms that are defined in the Act have the same meaning in this Plan and the effect of these terms may be explained in Notes.
- (2) Additional terms to those identified in subclause (1) are defined in Schedule 1.
- (3) Notes in the text of this Plan do not form part of this Plan.
- (4) Schedules to this Plan form part of this Plan.
- (5) Appendices to this Plan do not form part of this Plan.

## 7 Effect on licences, authorities and permits under the [Water Act 1912](#)

- (1) This Plan applies from the date of commencement to those matters that are administered under the Act at that time.
- (2) This Plan applies to other matters from the date the relevant provisions of the Act are commenced.

### Note—

To the extent possible, the rules embodied in this Plan will apply to matters administered under the [Water Act 1912](#) in the interim.

## 8 Management plans to be consistent with other instruments

- (1) In accordance with section 16 (1) (a) of the Act this Plan is consistent with the State Water Management Outcomes Plan published in the NSW Government Gazette on 20 December 2002 (hereafter **the SWMOP**).
- (2) Schedule 3 of this Plan identifies the SWMOP targets applicable to this Plan and how this Plan contributes to those targets.
- (3) In accordance with section 16 (1) (b) of the Act this Plan is consistent with the [Environmental Planning and Assessment Act 1979](#) in relation to [State Environmental Planning Policy No 52—Farm Dams and Other Works in Land and Water Management Plan Areas](#).

## Part 2 Vision, objectives, strategies and performance indicators

### 9 Vision, objectives, strategies and performance indicators

This Part is made in accordance with section 35 (1) of the Act.

## **10 Vision**

The vision for this Plan is to achieve healthy aquifer systems, sustaining communities and ecosystems.

## **11 Objectives**

The objectives of this Plan are to:

- (a) manage aquifers to support dependent terrestrial and subterranean ecosystems,
- (b) manage the extraction of groundwater for estimated sustainable yield,
- (c) establish and manage groundwater resource security for communities and industries,
- (d) protect groundwater quality from external pollution sources and cross aquifer pollution,
- (e) protect the natural surface environment by managing the extraction of poor quality groundwater from aquifers, and
- (f) acknowledge, respect, and protect the Indigenous culture and cultural heritage of the traditional peoples of the Murray Region.

## **12 Strategies**

The strategies of this Plan are to:

- (a) establish environmental water rules and manage access to groundwater consistent with those rules,
- (b) establish rules for the protection of basic landholder rights,
- (c) establish extraction limits for the groundwater source, taking into account the requirements of the environment,
- (d) reduce the share components of all aquifer access licences in this groundwater source to 100% of the sustainable yield of the system,
- (e) establish rules for granting of access licences,
- (f) establish rules for determining the groundwater available from time to time under access licences,
- (g) establish water allocation account management rules,
- (h) establish rules for minimising local impact of groundwater extraction on the environment, the aquifer itself, and between users,
- (i) establish the access licence dealing rules, and



- (j) establish the conditions that will apply to all access licences and water supply work (bore) approvals.

### **13 Performance indicators**

For the purpose of section 35 (1) (b) of the Act, the following indicators are to be used to determine the performance of this Plan against its objectives:

- (a) change in groundwater extraction relative to the extraction limit and draw down rates prescribed by this Plan,
- (b) change in climate adjusted groundwater levels,
- (c) change in water levels adjacent to identified groundwater dependent ecosystems,
- (d) change in groundwater quality,
- (e) change in economic benefits derived from groundwater extraction and use,
- (f) change in structural integrity of the aquifer,
- (g) extent to which basic landholder rights requirements have been met,
- (h) extent to which local water utility requirements have been met,
- (i) extent to which native title rights requirements have been met, and
- (j) extent of recognition of spiritual, social and customary values of groundwater to Aboriginal people.

**Note—**

Appendix 2 details the objectives to which these performance indicators relate and the methods for assessing these indicators.

## **Part 3 Basis for water sharing**

### **14 Basis for water sharing**

This Part is made in order to give effect to section 5 (3) of the Act, and in accordance with sections 20 (2) (c) and 21 (e) of the Act.

### **15 Climatic variability**

- (1) This Plan recognises climatic variability and therefore that the level of natural recharge to this Groundwater Source will vary.
- (2) To give effect to subclause (1), this Plan has provisions that manage:
  - (a) the sharing of water in this Groundwater Source within the limits of water availability on a long-term average basis, and

- (b) water extractions to enable the protection of groundwater dependent ecosystems, aquifer integrity and water quality of this groundwater source.

**Note—**

During the term of this plan, the Groundwater Management Model for GWM A016 will be recalibrated and refined. The Natural Resources Commission will consider any resulting changes to the estimated recharge figure when undertaking their review of the plan (outlined under clause 58).

**Note—**

This Groundwater Source is recharged primarily from the overlying Shepparton Groundwater Source. The Shepparton Groundwater source is recharged, in part, from irrigation losses. The irrigation losses may diminish throughout the life of the plan through infrastructure refurbishment, water efficiency measures, or changed irrigation practices resulting in reduced recharge to this groundwater source. The Natural Resources Commission will consider any actual or potential resulting variations in recharge when undertaking their review of the plan (outlined under clause 58).

## **16 Recharge**

- (1) The overall basis for water sharing in this Plan is the average annual recharge to the Groundwater Source, which is 83,700 megalitres per year (hereafter **ML/yr**) plus the requirements for basic landholder rights at the commencement of this plan.

## **Part 4 Environmental water provisions**

### **17 Environmental water provisions**

This Part is made in accordance with sections 5 (3) and 8 (1), 8 (2) and 20 (1) (a) of the Act.

### **18 Planned environmental water**

This Plan establishes the following planned environmental water rules:

- (1) subject to Part 10 Division 2 of this Plan, the physical water contained in the storage component of this groundwater source, minus the supplementary access permitted under clause 28, as varied by clause 34 will be reserved for the environment,
- (2) water in excess of the long-term extraction limit established in clause 32 of this Plan may not be taken and used for any purpose, thereby protecting a proportion of the total water available in the water source for fundamental ecosystem needs, from increases in water extraction over the long-term.

**Note—**

No portion of the long-term average recharge is reserved as planned environmental water meaning the long-term storage is the only planned environmental water. This is because:

- (a) the upward pressure resulting from artificial recharge (irrigation leakage) requires full extraction of the

recharge to enable sustainable management of the resource, and

(b) no groundwater dependent ecosystems have been identified to date.

**Note—**

The Minister should undertake further studies of the groundwater dependency of ecosystems within this Groundwater Source, as recommended in the report "*Identification of Groundwater Dependent Ecosystems within Groundwater Management Area 016*" (Department of Land and Water Conservation and PKK Environment and Infrastructure Pty Ltd., September 2000), as well as studies of the groundwater dependency of ecosystems, including any rivers, located beyond this Groundwater Source that may be affected by the management of this Groundwater Source. The Natural Resources Commission's review of this plan should consider the outcomes of these studies.

**Note—**

It is anticipated that the planned environmental water provisions in this Part and management of local impact provisions in Part 10 of this Plan will also protect the cultural and spiritual values of groundwater.

**Note—**

Access to water under supplementary water access licences in this water source will not be permitted after the 30 June 2015 and all the physical water contained in the storage component of this groundwater source will be reserved for the environment.

## **19 Adaptive environmental water**

- (1) Water may be committed in these groundwater sources for environment purposes by an adaptive environmental water condition pursuant to section 8B of the Act.
- (2) The holder of an access licence may request that the Minister impose an adaptive environmental water condition in respect of the whole or a part of the share component of the access licence.
- (3) The condition imposed under subclause (2) will continue until the holder requests its removal.
- (4) An access licence may be held by the Minister, Local Land Services or another public body to the extent that the whole or part of that access licence has been surrendered as a result of on farm water savings made by works or other improvements, subject to:
  - (a) the share component of the access licence held being equal to the value of the on-farm water savings made,
  - (b) the access licence held being the highest priority category in these groundwater sources, other than a specific purpose category, and
  - (c) an adaptive environmental water condition being imposed on the access licence and that condition not being removed.
- (5) The adaptive environmental water condition specified in subclause (1) and the plan

for implementation of that condition, as required by section 8E (7) of the Act:

- (a) are to be established by the Minister, and
  - (b) shall be such as to ensure that there will be a contribution to the objectives of this Plan.
- (6) The allocation of water for access licences with an adaptive environmental water condition will be in accordance with the available water determination for the relevant category of access licence under this plan.
- (7) If the adaptive environmental water condition on an access licence requires the water to be left in the water source for environmental purposes, then the water allocation account is to be debited when the water is available in accordance with the adaptive environmental water condition on the access licence.
- (8) If the adaptive environmental water condition requires the environmental water to be taken from the water source then the water allocation account is to be debited when it is taken.
- (9) For the purposes of auditing compliance with the long-term extraction limit under this plan, water credited to an access licence that has been committed as adaptive environmental water shall be accounted for as extraction where it occurs pursuant to a licence under subclause (7) or subclause (8).
- (10) To the extent that the water allocation of an access licence which is subject to an adaptive environmental water condition is not required to meet the requirement of the condition it may be the subject of an assignment dealing in accordance with the Dealings Rules in this plan.
- (11) Notwithstanding subclause (10) an access licence with an adaptive environmental water condition may be the subject of any other dealing permitted by the Dealing Rules in this plan, provided the benefit to the environment provided for in the adaptive environmental condition is not diminished.
- (12) At the commencement of this Plan, there were no access licences with an adaptive environmental water condition in these groundwater sources.

## **Part 5 Basic landholder rights**

### **20 Basic landholder rights**

- (1) This Part is made in accordance with sections 5 (3) and 20 (1) (b) of the Act.
- (2) If a landholder is unable to exercise their basic landholder rights due to interference of their supply by extraction authorised by access licences:
- (a) the Minister may amend a water supply works approval to allow the landholder's

affected bore to be replaced or deepened to ensure continuing access to water for basic landholder rights, or

- (b) the Minister may amend another water supply works approval so that basic rights water may be supplied by an alternative water supply work during critical times.
- (3) In accordance with the legislative requirements, the Minister may impose a charge on access licence holders in this groundwater source under section 114 of the Act, as a contribution to the costs of activities or works associated with subclause (2).
- (4) Basic landholders rights exercised under section 52 of the Act must be exercised in accordance with any guidelines established by the Minister with respect to the reasonable use of water for domestic consumption and stock watering by landholders authorised to use water for either or both of those purposes.

**Note—**

The Minister may, by order made under section 323 of the Act, impose temporary restrictions on basic landholder rights when it is necessary to do so in the public interest, such as to cope with a water shortage or threat to public health or safety.

**Note—**

The Minister may enforce any reasonable use guidelines by serving orders on individual landholders under section 325 of the Act. The Minister may also order individual landholders accessing basic landholder rights to take specified measures to protect the environment, to preserve basic landholder rights or to overcome a threat to public health under section 328 of the Act.

## **21 Domestic and stock rights**

**Note—**

It is not recommended that the water from this groundwater source be consumed without prior treatment. Land use activities may have polluted the groundwater in some areas.

- (1) At the commencement of this Plan, the water requirements of holders of domestic and stock rights are estimated to be a total of 1,525 ML/yr.
- (2) This Plan recognises that the exercise of domestic and stock rights may increase during the term of this Plan.

**Note—**

Increase in use of domestic and stock rights may occur as a result of an increase in the number of landholdings overlying this groundwater source, or as a result of the increase in the exercise of basic landholder rights by existing landholders.

## **22 Native title rights**

- (1) At the commencement of this Plan there are no holders of native title rights and therefore the water requirements for native title rights are a total of 0 ML/yr.

- (2) This Plan recognises that the exercise of native title rights may increase during the term of this Plan.

**Note—**

An increase in native title rights may occur as a result of the granting of native title rights under the Commonwealth's *Native Title Act 1993*.

## **Part 6 Bulk access regime**

### **23 Bulk access regime**

- (1) This Part is made in accordance with section 20 (1) (e) of the Act.
- (2) This Plan establishes a bulk access regime for the extraction of water under access licences in this groundwater source having regard to:
- (a) the environmental water provisions established under Part 4 of this Plan,
  - (b) the requirements for basic landholder rights identified under Part 5 of this Plan, and
  - (c) the requirements for water for extraction under access licences identified under Part 7 of this Plan.
- (3) The bulk access regime established in subclause (2):
- (a) recognises the effect of climatic variability on the availability of water as provided for under Part 3 of this Plan,
  - (b) establishes rules according to which access licences are granted as provided for in Part 8 of this Plan,
  - (c) recognises and is consistent with limits to the availability of water as provided for in Part 9, Division 1 of this Plan,
  - (d) establishes rules according to which available water determinations are to be made as provided for in Part 9 Division 2 of this Plan,
  - (e) establishes rules according to which access licences are managed as provided for in Parts 9 and 10 of this Plan, and
  - (f) establishes rules with respect to the priorities according to which access licences are to be adjusted as a consequence of any reduction in the availability of water as provided for in Part 9 of this Plan.

## Part 7 Requirements for water for extraction under access licences

### 24 Requirements for water under access licences

This part is made in accordance with section 20 (1) (c) of the Act.

**Note—**

The amount of water specified in this Part represents the total volumes or total shares specified in the share components on access licence in this groundwater source. The actual volume of water available at any time will depend on climate, access licence priority and the rules in this Plan.

### 25 Share components of domestic and stock access licences

It is estimated that at the time of commencement of this Plan, the share components of domestic and stock access licences authorised to extract water from this groundwater source will total 0 ML/yr.

### 26 Share components of local water utility access licences

It is estimated that at the time of commencement of this Plan, the share components of local water utility access licences authorised to extract water from this groundwater source will total 79 ML/yr.

### 27 Share components of aquifer access licences

- (1) For those *Water Act 1912* entitlements equal to or less than 20 ML that are to become aquifer access licences in this groundwater source at the commencement of this Plan, the share component is to be equal to the *Water Act 1912* entitlement.
- (2) For those *Water Act 1912* entitlements greater than 20 ML that are to become aquifer access licences in this groundwater source at the commencement of this Plan, the share component will be established in accordance with the following formula:

(a)

$$SC_{AAL} = 20$$

where

$$AE / \sum AE_{(a)} \times (R - LWU - SD - \sum SL) < 20$$

(b) For the remaining *Water Act 1912* entitlements greater than 20 ML

$$SC_{AAL} = AE / \sum AE_{(b)} \times (R - LWU - SD - \sum SL - \sum SC_{AAL(a)})$$

(3) For the purpose of subclauses 2 (a) and 2 (b):

(a) **SC<sub>AAL</sub>** is the share component of the aquifer access licence,

(b) **AE** is the adjusted entitlement calculated from the following formula:

$$AE = (HoE \times 0.78) + ((WAE - HoE) \times 0.22)$$

Where **HoE** is as defined in subclause (4), and where **WAE** is the *Water Act 1912* entitlement,

- (c) **ΣAE** is the total of all adjusted entitlements for *Water Act 1912* entitlements greater than 20 ML,
  - (d) **ΣAE<sub>(b)</sub>** is the total of all adjusted entitlements for *Water Act 1912* entitlements greater than 20 ML other than those for which a share component is allocated under subclause 2 (a),
  - (e) **R** is the amount of recharge established in clause 16 (1),
  - (f) **LWU** is the total of local water utility access licence share components in this groundwater source at the commencement of this Plan,
  - (g) **SD** is the total of domestic and stock access licence share components in this groundwater source at the commencement of this Plan,
  - (h) **ΣSL** is the total of all *Water Act 1912* entitlements that are less than or equal to 20 ML as defined in subclause (1), and
  - (i) **ΣSC<sub>AAL(a)</sub>** is the total of all share components calculated under subclause 2 (a)
- (4) For the purposes of subclause (3) and clause 28 HoE is equal to average of the three highest years of metered extraction in the water years 1999/00 to 2004/05.
- (5) It is estimated that at the time of commencement of this Plan the sum of aquifer access licences established will total 83,580 ML.

## 28 Share components of supplementary water access licences

- (1) Those *Water Act 1912* entitlements that are to be converted to an aquifer access licence in this groundwater source under clause 27 (2) may also receive a supplementary water access licence.

The share component of a supplementary water access licence converted under subclause (1) will be established in accordance with the following formula:

$$SC_{SWAL} = WAE \times 31.25,$$

$$SC_{SWAL} = HoE - SC_{AAL}$$

or

whichever is the greater  
where:

- (a) **SC<sub>SWAL</sub>** is the share component for the supplementary water access licence,



(b) **WAE** is *Water Act 1912* entitlements,

(c) **HOE** is as defined in clause 27 (4),

(d) **SC<sub>AAL</sub>** is the share component of the aquifer access licence established under clause 27 (2).

(2) It is estimated that at the time of commencement of this Plan the sum of supplementary water access licences established under subclause (1) will total 48,480 ML.

## 29 Changes to share components

(1) This Plan recognizes that the total requirements for water for extraction within this groundwater source may change during the term of this Plan as a result of:

(a) the granting, surrender or cancellation of access licences, or

(b) the variation of local water utility access licences under section 66 of the Act.

(2) Pursuant to section 68A of the Act the share component of each supplementary water access licence will be reduced to 0 ML on 1 July 2015.

(3) Pursuant to section 77A of the Act supplementary licences as established in clause 28 (2) will be cancelled after 1 July 2015.

## Part 8 Rules for granting access licences

### 30 Rules for granting access licences

(1) This Part is made in accordance with sections 20 (2) (b), 61 and 63 of the Act, having regard to the limits to water availability in this groundwater source and the need to protect groundwater dependent ecosystems, aquifer integrity and groundwater quality.

(2) Applications for access licences may be made and access licences granted in these water sources if they are for:

(a) a specific purpose access licence for which application is provided for under clause 19 of the *Water Management (General) Regulation 2004* (hereafter **the Regulation**) in accordance with section 61 (1) (a) of the Act,

#### Note—

At the commencement of this Plan, clause 19 of the Regulation provides for the following specific purpose access licences to be applied for:

(i) a local water utility access licence (subcategory “domestic and commercial”), for the purpose of domestic consumption and commercial activities,

(ii) a domestic and stock access licence (subcategory “domestic”), for the purpose of domestic

consumption,

- (iii) an aquifer access licence (subcategory “town water supply”), for the purpose of supply to communities for domestic consumption and commercial activities, and
- (iv) any category of specific purpose access licence (subcategory “Aboriginal cultural”), for Aboriginal cultural purposes.

**Note—**

Pursuant to sections 66 (3) and 66 (4) of the Act, the Minister may also vary a local water utility’s share component at 5 year intervals, or on application of the local water utility where there is rapid growth in population.

- (b) an access licence with a zero share component in accordance with sections 61 (1) (b) and 63 (5) of the Act,
  - (c) an access licence that may be granted in accordance with a dealing that is permitted by Part 11 of this Plan.
- (3) In applying for a new access licence in accordance with subclause 2 (a), the applicant must establish the purpose and circumstances relating to that access licence, and that the share and extraction component sought will be the minimum required to meet that purpose and circumstance.
- (4) Access licences granted under this Part cannot be used to extract water through a water supply work (bore) located in areas where the extraction authorised by the access licence plus the full extraction authorised by existing access licences nominating water supply works (bores) located in the area and the exercise of basic landholder rights, are likely to cause an adverse local impact, as outlined in Part 10 Division 2 of this Plan.
- (5) An access licence may be granted in this water source where:
- (a) a [Water Act 1912](#) licence was not converted at the commencement of this plan, or
  - (b) a licence is found to be taking water from a water source in this plan but has been incorrectly identified as taking water from another groundwater source and the licence is cancelled in the other water source.
- (6) Aquifer access licences granted under subclause (5) shall be subject to the rules specified in clauses 27 and 28.

**31 Rules for granting or amending water supply works approvals**

- (1) To minimise interference between extraction under different access licences in the groundwater source, extraction authorised by an access licence for new water supply works (bores) will not be permitted from a water supply work (bore) within:
- (a) 500 metres of a water supply work (bore) from which extraction of up to 500 ML/yr

under another access licence is permitted,

(b) 1,000 metres of a water supply work (bore) from which extraction of between 501 and 1,000 ML/yr under another access licence is permitted,

(c) 2,000 metres of a water supply work (bore) from which extraction of greater than 1,001 ML/yr under another access licence is permitted.

(2) To minimise the potential to impact users of water from surface water sources that overlie this groundwater source, the extraction authorised by an access licence for a new water supply work (bore) is not permitted from that work if it is within 100 metres of irrigation water supply channels owned by 3rd parties.

(3) The extraction authorised by an access licence for new water supply work (bore) is subject to the conditions in clause 47.

(4) To minimise interference between extractions under different access licences in this groundwater source, extraction authorised by an access licence for new water supply works (bores) will not be permitted from a water supply work (bore) if it is likely to have a significant adverse impact on water quality.

(5) Notwithstanding the provisions of subclause (1) (2), or (3), the Minister may, upon application by an access licence holder, vary the distance restrictions specified in subclause (1) if:

(a) a hydrogeological study undertaken by the licence holder, assessed as adequate by the Minister, demonstrates that the impact of the proposed work will not decrease the piezometric pressure level greater than 20% of the average year 2000 pressure levels above the top of the Calivil aquifer,

(b) all potentially affected access licence holders have been notified directly by the proponent.

**Note—**

Potentially affected access licence holders are typically neighbouring access licence holders and/or those in the near vicinity.

(6) Subclause (1) and subclause (2) do not apply to extraction under existing access licences.

(7) Subclause (1) and subclause (2) do not apply to replacement of existing water supply works approvals where the share component for the nominated aquifer access licence has not increased.

**Note—**

The intention of this clause is to minimise the impact of extraction under new access licences on extraction under existing access licences. It is intended to develop models to support hydrogeological assessment of the adverse impact on new groundwater extractions on existing licensed extraction.

- (8) Subclause (1) and subclause (2) do not apply to the replacement of existing water supply works that will retain the same rate or a lesser rate of extraction as that of the work being replaced.

**Note—**

It is the intention of this subclause to allow existing works that need replacement due to malfunction, mechanical efficiency gains, alternate power supplies, and so on, to be replaced by new works of lesser or equal extraction capacity where they are adjacent to other existing works. The replacement of existing works, with works that have greater capacity, adjacent to other works is not acceptable within the objectives of this plan.

## **Part 9 Limits to the availability of water**

### **Division 1 Long-term average extraction limits**

#### **32 Extraction limit**

- (1) This Division is made in accordance with section 20 (2) (a) of the Act.
- (2) The extraction limit for this groundwater source is initially 83,700 ML/yr, plus total water made available to supplementary water access licences under clause 34, plus the total requirements for basic landholder rights at the commencement of this plan.

#### **33 Compliance with the extraction limit**

- (1) Water extraction in this groundwater source will be monitored each water year to determine if there is any growth in volume extracted above the extraction limit specified in clause 32, based a comparison of the extraction limit against the extraction within this groundwater source over that year and the preceding 2 years.
- (2) For the purposes of auditing compliance with the extraction limit, if water that:
- (a) pursuant to an access licence is committed as adaptive environmental water to be left in the aquifer for environmental purposes, then extraction will be assumed to be equal to 100% of the available water determination made under clause 34, or
  - (b) pursuant to an access licence is committed as adaptive environmental water to be extracted for environmental purposes, then extraction will be that measured through the approved water supply work (bore).
- (3) If the 3 year average of extraction in this groundwater source exceeds the extraction limit established in clause 32 by 5% or greater, then the available water determination made for aquifer access licences under clause 34 (6) for the following water year, should be reduced by an amount that is assessed necessary by the Minister to return subsequent total water extraction to the extraction limit.

## **Division 2 Available water determinations**

### **34 Available water determinations**

- (1) This Division is made in accordance with section 20 (2) (b) of the Act.
- (2) Pursuant to section 58 (4) of the Act this plan amends the relative priorities of the categories of aquifer access licence and supplementary water access licence to the extent necessary to legally make the available water determinations as set out in this clause.
- (3) All available water determinations in these groundwater sources shall be expressed as either:
  - (a) a percentage of the share component for all access licences where share components are specified as megalitres per year, or
  - (b) megalitres per unit of share component for all access licences where share components are specified as a number of shares.
- (4) An available water determination for each category of access licence in these groundwater sources should be made at the commencement of each water year.
- (5) The available water determinations made at the commencement of the water year for domestic and stock and local water utility access licences should be 100% of share components.
- (6) The available water determination made at the commencement of the water year for aquifer access licences should be such that the total of available water determinations under this clause equals the extraction limit set in clause 32 (2) minus the total available water determinations for domestic and stock and local water utility access licences and supplementary water access licences, or such lower amount as results from the operation of clause 33 (3).
- (7) The available water determination made at the commencement of this plan and at the commencement of the 2007/08, and 2008/09, and 2009/10, and 2010/11 water years for supplementary water access licences will be 1 ML per unit of share component.
- (8) The available water determination made at the commencement of each year after the 2010/11 water year for supplementary water access licences will be reduced by a further 0.20 ML per unit of share component each year, and
- (9) The available water determination for supplementary water access licences will be reduced to 0 ML per unit of share component at the commencement of the 2015/16 water year.

**Note—**

Subclause (8) means that allocations for supplementary water access licences will diminish each year by 0.20 ML per unit share after 2010/11 water year in the following way:

<b>Year</b>	<b>ML per unit share</b>
2011 / 2012	0.8
2012 / 2013	0.6
2013 / 2014	0.4
2014 / 2015	0.2
2015 / 2016	0.0

## **Part 10 Rules for managing access licences**

### **Division 1 General**

#### **35 Rules for managing access licences**

This Part is made in accordance with sections 20 (2) (b), 21 (a) and 21 (c) of the Act, having regard to:

- (a) the environmental water rules established in Part 4 of this Plan,
- (b) requirements for water to satisfy basic landholder rights identified in Part 5 of this Plan, and
- (c) requirements for water for extraction under access licences in Part 7 of this Plan.

### **Division 2 Water allocation account management**

#### **36 Water allocation account management**

This Division is made in accordance with sections 20 (2) (b) and 21 (c) of the Act.

#### **37 Water allocation accounts**

In accordance with section 85 of the Act, a water allocation account shall be established for each access licence in this groundwater source.

**Note—**

Water allocation may be assigned to, or from, these accounts by a water allocation assignment made under section 71T of the Act, where these are allowed under rules specified in Part 11 of this Plan.

#### **38 Accrual of water allocations**

Water allocations will be accrued into these water allocation accounts each water accounting year in accordance with the Minister's available water determinations as specified in clause 34.

### **39 Annual accounting for water extraction**

- (1) Water taken from this groundwater source will be accounted for at least annually.
- (2) Water taken by an approved water supply work (bore) nominated by an access licence will be periodically debited against the access licence water allocation account.
- (3) A water allocation account shall remain at or above zero at all times.
- (4) Unused water allocations in the water allocation accounts of domestic and stock access licences or of local water utility access licences, or of supplementary water access licences cannot be carried over from one water year to the next.
- (5) In any water year, subject to local impact management restrictions arising from Part 10, Division 3 of this Plan, water taken from this groundwater source under a local water utility access licence or a domestic and stock access licence may not exceed a volume equal to:
  - (a) 100% of the share component of the access licence,
  - (b) plus any water allocations assigned from another access licence under section 71T of the Act in that year,
  - (c) plus any water allocations re-credited in accordance with section 76 of the Act in that year, and
  - (d) minus any water allocations assigned to another licence under section 71T of the Act in that year.
- (6) Unused water allocations in the water allocation accounts of aquifer access licence may be carried over from one water year to the next subject to subclause (7).
- (7) The maximum amount of unused water allocations that can be carried over under subclause (6) is equal to 2 ML per unit of share component.
- (8) In any water year, subject to local impact management restrictions arising from Part 10, Division 3 of this Plan, water taken from this groundwater source under an aquifer access licence may not exceed a volume that is equal to:
  - (a) 1.5 ML per unit of aquifer access licence share component,
  - (b) plus any water allocations assigned from another access licence under section 71T of the Act in that year, and
  - (c) minus any water allocations assigned to another access licence under section 71T of the Act in that year.
- (9) (Repealed)

- (10) Unused water allocations in the water allocation accounts of supplementary water access licences, cannot be carried over from one water year to the next.
- (11) In any water year, subject to local impact management restrictions arising from Part 10, Division 3 of this Plan, water taken from any of these groundwater sources under a supplementary water access licence, may not exceed the allocation resulting from the available water determination.
- (12) Where both an aquifer access licence and a supplementary water access licence nominate the same water supply works and use approval, water allocations will be debited from a supplementary water access licence water allocation account before water is debited from an aquifer access licence water allocation account.

## **Division 3 Management of local impacts**

### **40 Management of local impacts**

- (1) This Division is made in accordance with section 21 (a) of the Act.
- (2) The Minister may establish a local impact area and apply local access rules to access licences and/or water supply works approvals within that area in accordance with the circumstances described in clauses 41 to 44.
- (3) Access licence holders or water supply works approval holders within a local impact area will be advised of any local access rules determined under subclause (1) before they are imposed.

### **41 Water level management**

- (1) Local access rules may be applied once contoured recovery depths exceed the following piezometric decline (trigger level) in any key Department observation bore:

<b>Year (of this plan)</b>	<b>Trigger Level (Metres decline)</b>
1	5.4
2	6.1
3	6.7
4	7.3
5	7.8
6	8.3
7	8.7
8	9.1



9

9.5

**Note—**

A local impact area is to be identified from a map of the piezometric surface change, showing seasonal, annual or longer patterns of drawdown or recovery in an aquifer.

- (2) Notwithstanding subclause (1) local access rules may be applied once unacceptable impact from drawdown or recovery are observed in a single year or if the average piezometric decline across the water source of greater than 1.65 metres is likely to occur over the period of the Plan.
- (3) Local access rules may be applied to reduce the rate of pressure decline, or in response to unacceptable seasonal drawdown or recovery, to ensure pressure recovery occurs to acceptable levels.
- (4) Local access rules may be applied for such a time as required to stabilise and, if necessary, restore water levels or water pressures to an appropriate level, as determined by the Minister.
- (5) This clause does not apply to local water utility access licences.

**42 Water quality management**

- (1) An aquifer salinity baseline and Sodium Adsorption Ratio, hereafter (**SAR**) baseline for each production bore, against which groundwater quality changes and use parameters are to be measured, should be established as at the commencement of this Plan.
- (2) Local access rules may be applied if the aquifer baseline salinity exceeds 650 EC and there is an increase in salinity over a three year period of either 20% or more, or 500 EC or more.
- (3) After 1 July 2010 local access rules may be applied if the SAR exceeds the baseline established in subclause (1).
- (4) Local access rules may be applied to for such a time as required to stabilise and if necessary restore water quality to an appropriate level, as determined by the Minister.

**43 Protection of aquifer integrity**

- (1) Local access rules may be applied, on the presentation of evidence of land subsidence or aquifer compaction, to protect the integrity of the aquifers within this groundwater source.
- (2) Local access rules may be applied to for such a time as required to stabilise subsidence or compaction as determined by the Minister.

**Note—**

This clause recognises that damage of aquifers through excessive water storage loss is irreversible, and destroys

the resource for future water users, including the environment.

#### **44 Extraction restrictions**

The Minister may, in the event of local access rules arising from this Division, impose a reduction in annual, quarterly, monthly, weekly or daily extraction rates from water supply works (bores) in the affected area.

#### **45 Group registration**

This Plan allows for the formation of a group of access licences with respect to the sharing of extraction restrictions imposed by local access rules arising from this Division, subject to the following:

- (a) the group register will be maintained by the Minister,
- (b) holders of access licences must make a request to the Minister to form a group,
- (c) total extraction by all access licences within a group will be assessed as a whole against their combined restricted extraction and must not exceed that amount,
- (d) no access licence holder within the group may extract more than is permitted by Division 2 of this Part in any one water accounting year as a result of participation in a group,
- (e) an access licence holder may apply to be removed by the Minister from the group and the extraction by the group will be reduced by the extraction restriction of that access licence,
- (f) an access licence holder may apply to be added by the Minister to the group and the combined restricted extraction of the group will be increased by the extraction restriction of that access licence, and
- (g) the Minister reserves the right to remove a licence holder from a group where that individual causes the group extraction restriction to be exceeded, or to dissolve a group where its members exceed their combined extraction restriction.

#### **46 Infrastructure failure**

- (1) The local access rules relating to a local impact area may rely on water levels at specified monitoring bores.
- (2) In the event of a monitoring bore failure the Minister may:
  - (a) continue with the current access rules until the monitoring bore is reinstated,
  - (b) adjust the current access rules based on climatic conditions and any other monitoring bore information, until the monitoring bore is reinstated, or
  - (c) rely on another monitoring bore in the area to provide information.

#### **47 Protection of groundwater dependent ecosystems**

- (1) While there are no ecosystems dependent on this groundwater source there may be ecosystems dependent on the overlying aquifer and the provisions of subclauses (2), (3), (4) and (5) apply to protect any such groundwater dependant ecosystems.
- (2) Extraction of groundwater from a new or replacement water supply work (bore) is not permitted pursuant to the following:
  - (a) within 200 metres of high priority groundwater dependent ecosystems except where the bore is used to manage that ecosystem for ecological benefit or
  - (b) within 40 metres of any river or creek or
  - (c) within 200 metres of a significant wetland except where the bore is used to manage that wetland for ecological benefit.
- (3) Subclause (1) does not apply to the replacement of existing water supply works that will retain the same rate or a lesser rate of extraction as that of the work being replaced.

**Note—**

It is the intention of this subclause to allow existing works that need replacement due to malfunction, mechanical efficiency gains, alternate power supplies, and so on, to be replaced by new works of lesser or equal extraction capacity where they are adjacent to groundwater dependent ecosystems or water courses that overlie the groundwater source. The replacement of existing works adjacent to groundwater dependent ecosystems or water courses that overlie the groundwater source with works that have greater capacity is not acceptable within the objectives of this plan.

- (4) Subclause (1) does not apply to replacement of existing works approvals where the share component for the nominated aquifer access licence has not increased.
- (5) Subclause (1) may not apply if the water supply work (bore):
  - (a) only draws water from an aquifer at depths as approved by the Minister, and
  - (b) has an impermeable seal, as specified by the Minister, constructed within the bore to isolate aquifers preventing water ingress from the restricted aquifer.

### **Part 11 Access licence dealing rules**

#### **48 Access licence dealing rules**

- (1) This Part is made in accordance with section 20 (1) (d) of the Act and with the Minister's access licence dealing principles gazetted under section 71Z of the Act.
- (2) Applications for access licence dealings may be granted subject to the Minister's access licence dealing principles gazetted from time to time under section 71Z of the Act and the rules in this Part.

**Note—**

There are a number of mechanisms within the Act, called access licence dealings, to change either the ownership of all or part of an access licence, or the location within a water source at which all or part of the share and extraction components of access licences can be exercised. These dealings are governed by the principles in section 5 of the Act, Minister's access licence dealing principles, and the rules in this Part.

**49 Rules relating to constraints within a groundwater source**

- (1) This clause applies to any relevant dealings under sections 71Q, 71S, and 71W of the Act, and section 71T of the Act with respect to allocation assignments within this groundwater source.
- (2) Dealings are prohibited under this clause if:
  - (a) any of the access licences or water allocations involved are not within this groundwater source,
  - (b) the dealing would result in the total extraction under access licences through nominated works in an area, plus basic landholder rights extraction, causing any adverse local impact in accordance with Part 10 Division 3 of this Plan, or
  - (c) the dealing involves a supplementary water access licence, or any water allocation credited to a supplementary water access licence water allocation account.

**50 Rules for change of water source**

- (1) This clause relates to dealings under section 71R of the Act.

**Note—**

Section 71R dealings are the mechanism by which access licences can move from one water source to another. Once the change in water source has been effected, if permitted, the new licence will have to nominate specified works (by a dealing under section 71W of the Act) in the receiving water source before extraction can commence.

- (2) Dealings under this section 71R of the Act that change the water source to which an access licence applies are prohibited in this groundwater source.

**51 Rules for conversion of access licence category**

- (1) This clause relates to dealings under section 71O of the Act.
- (2) Dealings that result in conversion of an access licence of one category to an access licence of another category are prohibited in this groundwater source.

**52 Rules for interstate access licence transfer**

- (1) This clause relates to dealings under section 71U of the Act.
- (2) Dealings that result in an interstate access licence transfer into or out of this

groundwater source are prohibited.

### **53 Rules for water allocation assignments between water sources**

- (1) This clause relates to dealings under section 71T of the Act for assignment of water allocations between water sources.
- (2) Dealings that assign water allocations between access licences in other water sources and access licences in this groundwater source are prohibited.

#### **Note—**

Each water allocation assignment must be applied for. Access licence holders may enter into private contracts to assign water allocations for a number of years. Such contracts are not guaranteed by the Government, and approval must be sought annually. Approval will be subject to the rules in this Plan, including local impact assessment.

### **54 Rules for interstate assignment of water allocations**

- (1) This clause relates to dealings under section 71V of the Act.
- (2) Dealings that result in an interstate assignment of water allocations to or from this groundwater source are prohibited.

## **Part 12 Mandatory conditions**

### **55 Mandatory conditions on access licences**

This Part is made in accordance with sections 17 (c) and 20 (2) (e) of the Act.

### **56 Access licence conditions**

- (1) All access licences shall have mandatory conditions to give effect to the provisions of this Plan in relation to the following:
  - (a) the specification of the share component of the access licence,
  - (b) the specification of the extraction component of the access licence,
  - (c) the requirement that all taking of water under the access licence will be subject to the available water determinations,
  - (d) the requirement that all taking of water under the access licence will be subject to all local access rules for any local impact area established under this Plan,
  - (e) the requirement that all taking of water under the access licence will be subject to the account management rules established in this Plan,
  - (f) the requirement that water may only be taken under the access licence by the water supply work (bore) nominated by the access licence,

(g) the taking of water in accordance with the access licence may only occur if the resulting debit from the access licence water allocation account will not exceed the volume of water allocation remaining in the account, and

(h) any other conditions required to implement the provisions of this Plan.

**Note—**

Appendix 4 has recommendations for application of water from this groundwater source onto the land surface.

- (2) All supplementary water access licences shall have mandatory conditions to give effect to clause 29, in relation to the amendment of access licence share components.
- (3) All local water utility access licences shall have mandatory conditions that only allow the taking of water for the exercise of a water supply function of the local water utility or for other such purpose provided for under the Act.
- (4) All access licences shall have mandatory conditions to give effect to clauses 41, 42, 43, and 47, in relation to water level management, water quality management, aquifer integrity and protection of groundwater dependent ecosystems.

**57 Mandatory conditions on water supply work (bore) approvals**

All approvals for a water supply work (bore) to which this Plan applies shall have mandatory conditions in relation to the following:

- (a) the water supply work (bore) is only to be constructed by a licensed driller,
- (b) the water supply work (bore) must comply with drilling standards as specified by the Minister,
- (c) construction of a water supply work (bore) must prevent contamination between aquifers through proper bore construction,
- (d) a water supply work (bore) approval holder must ensure decommissioning procedures comply with applicable standards as specified by the Minister,
- (e) a new or replacement water supply work (bore) to access water for basic rights will be required, as a condition of approval, to be constructed to sufficient depth to maintain access to the water source for the life of the work,
- (f) the water supply work (bore) approval holder is, within 2 months of completion of the work, or after the issue of the approval if the water supply work (bore) is existing, to provide the Minister with:
  - (i) details of the work on the prescribed form,
  - (ii) a plan showing accurately the location of the work in relation to portion and

property boundaries, and

- (iii) details of any water analysis and/or pumping tests required by the Minister,
- (g) if during the construction of the water supply work (bore), saline or contaminated water is encountered above the producing aquifer, such water is to be sealed off by:
  - (i) inserting the appropriate length(s) of casing to a depth sufficient to exclude the saline or contaminated water from the work, and
  - (ii) placing an impermeable seal between the casing(s) and the walls of the bore hole from the bottom of the casing to ground level, as specified by the Minister,
- (h) if a water supply work (bore) is abandoned, the water supply work (bore) approval holder is to:
  - (i) notify the Minister that the work has been abandoned, and
  - (ii) seal off the aquifer by backfilling the work to ground level after withdrawing the casing (lining), as specified by the Minister,
- (i) an extraction measurement device shall be installed and maintained on each water supply work (bore) used for extraction of water under an access licence, and such device shall be of a type, and shall be maintained in a manner, which is acceptable to the Minister,
- (j) a water supply work (bore) must comply with the relevant local impact management rules in Part 10 of this Plan,
- (k) notwithstanding the available water determination, it is the responsibility of the water supply work (bore) approval holder to ascertain from the Minister whether or not there are in place any local impact restrictions before commencing to take water from this groundwater source,
- (l) extraction under an access licence through the approved water supply work (bore) is only authorised with respect to the access licences specified on the water supply work (bore) approval,
- (m) a water supply work (bore) approval holder must supply to the Minister on request, and to the required standards, a report pertaining to the quality of the water obtained from the water supply work (bore), and
- (n) any other conditions required to implement the provisions of this Plan.

**Note—**

It is recommended that the Minister also apply conditions to water use approvals requiring the supply of information on an annual basis on types and areas of irrigated crops.

## Part 13 Monitoring and reporting

### 58 Monitoring

The monitoring of the performance indicators specified in clause 13 shall be undertaken by the Minister.

**Note—**

Review and Audit of this Plan

In accordance with section 43A of the Act, the Natural Resources Commission must undertake a review of this Plan prior to any decision to extend its term or to make a new plan. The review must consider the extent to which the Plan's water sharing provisions have contributed to achieving or not achieving the State priorities for local land services relevant to natural resource management (as referred to in the [Local Land Services Act 2013](#)).

In its review the Commission should consider:

- (a) the outcomes of the recalibration and refinement of the groundwater management model and the impact that any variation in irrigation losses may have on the estimated recharge of this groundwater system,
- (b) the outcomes of studies of the groundwater dependency of ecosystems both within and beyond the groundwater resource.

When undertaking this review the Natural Resources Commission is required to call for public submissions. The Commission will take into consideration any submission received as well as any other relevant State-wide or regional government policies or agreements that apply to the Local Land Services region.

In accordance with section 44 of the Act, this Plan will be audited at intervals of no more than five years, for the purpose of ascertaining whether its provisions are being given effect to. This audit is to be carried out by an audit panel appointed by the Minister in consultation with the water management committee, where one exists.

**Note—**

The Implementation Program

In accordance with section 51 of the Act, the Minister may establish an Implementation Program that sets out the means by which the provisions of this Plan are to be achieved.

It is proposed that the Minister establish an Implementation Program for this Plan. Pursuant to section 51 (5) of the Act, the Implementation Program is to be reviewed annually by the Minister to determine whether it is effective in implementing this Plan.

The results of the review of the Implementation Program will be included in the annual report for the Department.

## Dictionary

The following definitions apply to this Plan in addition to the definitions set out in the Act:

**abandoned** (work) refers to a water supply work (bore) that is no longer being used.

**aquifer compaction** refers to the reduction in the porosity (pore spaces) of an aquifer, and may result from over pumping the aquifer.

**available head** is the difference between the depth to the top of the target aquifer, and an initial



piezometric level.

**available water** in relation to a water management area or water source, is the water that is available in that area or water source in accordance with an available water determination that is in force in respect of that area or water source.

**available water determination** is a written Order by the Minister as to the availability of water for the various categories of access licence in relation to a specified water management area or water source.

**Note—**

An available water determination gives rise to a water allocation that is credited to a water allocation account for each licensed holder.

**bedrock** is the solid rock underlying unconsolidated sediments such as the soil and weathered rock. Bedrock is a general term for solid rock that lies beneath soil, loose sediments, or other unconsolidated material.

**buffer zone** is an area surrounding a groundwater dependent ecosystem or other feature (such as an area of low quality) within which extraction, or the impact of extraction, is restricted.

**contoured drawdown or recovery depths** refers to spatial water levels data indicating drawdown or lack of recovery.

**drawdown** refers to a lowering of the level to which water will rise in cased bores. Natural drawdown may occur due to seasonal climatic changes. Groundwater pumping may also result in seasonal and long-term drawdown.

**extraction limit** is the amount of the long-term average annual recharge and storage that can be extracted, on average, each water accounting year.

**groundwater** is water that occurs beneath the ground surface in the saturated zone.

**groundwater dependent ecosystems** are ecosystems which have their species composition and natural ecological processes wholly or partially determined by groundwater.

**long term average storage component** is the volume of water in the aquifer less the average annual recharge, and exceeds the requirements supplementary water access provided for in this Plan.

**monitoring bore** refers to a bore constructed for the purpose of measuring water levels and/or taking samples for water quality analysis.

**piezometric surface (potentiometric surface)** is a surface that represents the level to which water will rise in cased bores. (The watertable is the potentiometric surface of an unconfined aquifer).

**recharge** is the addition of water, usually by infiltration, to an aquifer.

**recovery depths** see contoured drawdown.

**share component** is the share component of an access licence.

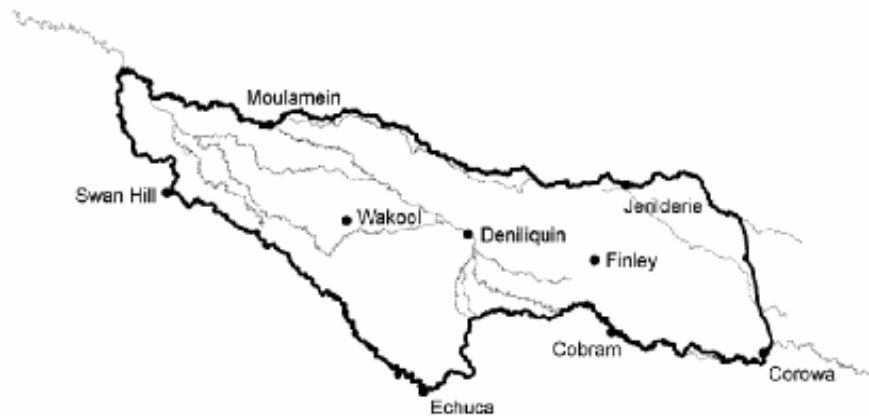
**unconsolidated alluvial aquifers** are aquifers formed by sediment deposited by the action of flowing water in particular along river beds and floodplains, but not including lakes and seas.

**watertable** is the upper surface of an unconfined aquifer.

**Water Act 1912 entitlement** where the term is used in clauses 27 and 28 means a licence under Part 5 of the [Water Act 1912](#) or group of Part 5 licences linked as set out in Schedule 10 Clause 17 to the [Water Management Act 2000](#).

**water year** is a 12 month period from 1 July to 30 June.

## Schedule 2 Lower Murray Groundwater Source



## Schedule 3 Contribution to targets in the State Water Management Outcomes Plan

Levels of assessed contribution:

FULL—contributes to target in full

HIGH—while not fully contributing to target, there is a good level of contribution

PARTIAL—goes some way to contributing to the target

LOW—only small degree of contribution to target

Relevant target	Level of contribution	Comments
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**Target 1e** The long term average annual extractions for groundwater limited (or being phased down) to an ecologically sustainable level (the Sustainable Yield) as determined by detailed assessment of each groundwater source and consultation with the relevant management committee. In the absence of such an assessment, the following to apply: 100 percent of average annual recharge for a groundwater source where there is no significant ecosystem dependency; 70 percent of average annual recharge where there is significant ecosystem dependency

FULL

- This Plan establishes an extraction limit of recharge for this Groundwater Source. Extraction will be reduced to 100% of the sustainable yield by the end of the plan.

**Target 1f** Rules for adjustments to future available water determinations in the event that the extraction limits are exceeded, clearly prescribed in consultation with the relevant management committee, and acted upon

FULL

- Rules set out in Part 9.

**Target 2** All management plans incorporating mechanisms to protect and restore aquatic habitats, and the diversity and abundance of native animals and plants, with particular reference to threatened species, populations and communities and key threatening processes

HIGH

- This Plan also prohibits new bores within 200 metres of high priority groundwater dependent ecosystems, within 40 metres of any river or creek, or within 200 metres of a significant wetland.
- Part 10 sets out local impact management rules in response to local groundwater pressure or level declines, and groundwater quality impacts.

**Target 5** Access rights for water access licensees clearly and legally specified in terms of share and extraction components

HIGH

- This Plan establishes transparent extraction limits and allocation/account rules.
- Licences are tradeable.
- The local extraction rules means that future rights will not be exclusive but affected by the future location of works. Licences with existing bores will have priority over licences requiring new bores.

**Target 6a** For groundwater sources, the total volume of water specified on access licences reduced over the term of a water sharing plan to no more than the Sustainable Yield

FULL

- The total aquifer access share components will be reduced to the sustainable yield by the end of this Plan.

<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>HIGH</p>	<ul style="list-style-type: none"> <li>• This Plan prohibits new extraction bores within 40 metres of any creek or river.</li> </ul>
<p><b>Target 11</b> Groundwater dependent ecosystems identified and mapped for all priority aquifers, and the ecological water requirements assessed to enable local groundwater extraction rates and/or Sustainable Yields to be reviewed</p>	<p>HIGH</p>	<ul style="list-style-type: none"> <li>• There are no ecosystems dependant on this groundwater source.</li> <li>• Ecosystems dependent on the overlying aquifer are protected by Clause 43.</li> </ul>
<p><b>Target 12</b> Measures in place in all water sources subject to a gazetted water sharing plan to protect domestic and stock rights from the impact of other water access and use</p>	<p>HIGH</p>	<ul style="list-style-type: none"> <li>• This Plan has identified the volumes necessary to meet basic domestic and stock requirements.</li> <li>• It also protects domestic and stock bores from interference from higher yielding bores.</li> </ul>
<p><b>Target 13</b> The knowledge sharing, training and resources necessary to ensure that Aboriginal people have the capacity to be effectively involved in water management identified and addressed</p>	<p>PARTIAL</p>	<ul style="list-style-type: none"> <li>• Full opportunity has been made available for the involvement of Aboriginal community members during the development of this Plan. There has been representation from the local Aboriginal community on the Murray Groundwater Management Committee.</li> </ul>
<p><b>Target 14</b> Water sources, ecosystems and sites of cultural or traditional importance to Aboriginal people identified, plans of management prepared, and measures put in place to protect and improve them</p>	<p>PARTIAL</p>	<ul style="list-style-type: none"> <li>• No Aboriginal cultural or traditional sites or requirements have been identified.</li> <li>• The environmental health provisions should protect dependent ecosystems of importance to Aboriginal people.</li> </ul>
<p><b>Target 16a</b> All share components of access licences tradeable</p>	<p>FULL</p>	<ul style="list-style-type: none"> <li>• Share components and water allocations of aquifer access licences are tradeable.</li> </ul>
<p><b>Target 16e</b> Any unassigned access rights identified and clear mechanisms established for their future assignment</p>	<p>FULL</p>	<ul style="list-style-type: none"> <li>• There are no unassigned access rights in this Plan.</li> </ul>
<p><b>Target 16f</b> Zones established where necessary for environmental protection and limits/constraints on water dealings in them made explicit</p>	<p>HIGH</p>	<ul style="list-style-type: none"> <li>• This Plan does not establish zones but restricts transfers within the groundwater source such that there are no unacceptable impacts on existing users or the environment.</li> </ul>

<p><b>Target 35</b> All management plans incorporating water quality objectives that have considered Government approved Interim Environmental Objectives, the current Australian and New Zealand Environment and Conservation Council Guidelines and the recommendations of relevant Healthy Rivers Commission Inquiries</p>	HIGH	<ul style="list-style-type: none"> <li>• This Plan includes a water quality objective, and establishes rules to protect water quality.</li> </ul>
<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>	PARTIAL	<ul style="list-style-type: none"> <li>• No vulnerability mapping of area is referenced in this Plan.</li> <li>• This Plan includes rules for managing the impacts of extraction on water quality.</li> </ul>

## Appendix 1 Location of maps

The maps in relation to this Plan may be inspected the Department’s offices at:

512 Dean Street  
ALBURY NSW 2640

8-20 Edward St  
DENILIQIN NSW 2710

## Appendix 2 Performance indicators

### Performance indicators for the Lower Murray Groundwater Source Water Sharing Plan

Performance indicator	Related objectives	As measured by	Commentary
(a) Change in groundwater extraction relative to the extraction limits.	11 (a), 11 (b) and 11 (c)	<ul style="list-style-type: none"> <li>• Average annual extraction volume for the groundwater source as a percentage of the extraction limit.</li> </ul>	<ul style="list-style-type: none"> <li>• Plan provisions will set the mechanism to remain within the extraction limit over the long-term.</li> </ul>
(b) Change in climate adjusted groundwater levels.	11 (a), 11 (b) and 11 (e)	<ul style="list-style-type: none"> <li>• Average annual frequency and duration (in days) of water level drawdown below pre-plan baseline.</li> <li>• Density of extraction in critical areas.</li> </ul>	<ul style="list-style-type: none"> <li>• Note that water levels will fluctuate with climate and resultant variable recharge. Some level declines will be expected during dry times, just as level rises are expected during wetter periods.</li> </ul>

(c) Change in water levels adjacent to identified groundwater dependent ecosystems.	11 (a), and 11 (c)	<ul style="list-style-type: none"> <li>• Identification of groundwater dependent ecosystems (GDEs).</li> <li>• Assessment of the relationship between selected GDEs and local groundwater levels in terms of the water requirements of these GDEs.</li> <li>• Assessment of the adequacy of buffer zones or local impact restrictions by comparison of water levels near or in GDEs compared to plan baseline.</li> <li>• Frequency and duration of water level drawdown below critical levels.</li> <li>• Trends in selected water quality parameters at selected monitoring bores that are likely to be affected by groundwater extraction.</li> </ul>	<ul style="list-style-type: none"> <li>• Groundwater dependent ecosystems should be identified in the water sharing plans.</li> </ul>
(d) Change in groundwater quality relative to beneficial use.	11 (a), 11 (c), 11 (d), and 11 (f)	<ul style="list-style-type: none"> <li>• Trends in selected water quality parameters at selected monitoring bores that are likely to be affected by groundwater extraction.</li> </ul>	<ul style="list-style-type: none"> <li>• Note that many water quality issues are a function of contamination by land based activities, rather than extraction.</li> </ul>
(e) Change in economic benefits derived from groundwater extraction and use.	11 (b), 11 (c), 11 (e), and 11 (f)	<ul style="list-style-type: none"> <li>• Change in regional gross margins</li> <li>• Change in unit price of water transferred.</li> </ul>	<ul style="list-style-type: none"> <li>• Note that there are many factors affecting economic status of a region, for example commodity prices, other sources of water (i.e. surface water) etc.</li> <li>• Assessment undertaken as part of plan performance monitoring will make assumptions to attempt to identify the impact of the plan provisions.</li> </ul>

(f) Change in structural integrity of the aquifer.	11 (a), 11 (b) and 11 (e)	<ul style="list-style-type: none"> <li>• Annual number of reports of new land subsidence and reduced bore yields.</li> <li>• Survey if necessary.</li> <li>• Monitor increase in applications for water supply work (bore) approvals.</li> </ul>
(g) Extent to which domestic and stock rights have been met.	11 (a), 11 (b) and 11 (e)	<ul style="list-style-type: none"> <li>• Number of reports of interference between high yield extraction and basic landholder rights, or number of domestic and stock bores deepened.</li> <li>• Assess frequency and duration of water level drawdown below critical thresholds.</li> <li>• Monitor increase in access by local water utilities.</li> </ul> <ul style="list-style-type: none"> <li>• Basic landholder rights usage figures in water sharing plans are estimated (not actual use).</li> <li>• Increases in licences may be due to past unlicensed works.</li> </ul>
(h) Extent to which local water utility requirements have been met.	11 (a), 11 (b), 11 (d), and 11 (e)	<ul style="list-style-type: none"> <li>• Monitor impact of interference between high yield extraction and local water utility extraction.</li> </ul>

(i) Extent to which native title rights requirements have been met.	11 (c) and 11 (e)	<ul style="list-style-type: none"><li>• Monitor increase in applications for water supply work (bore) approvals for native title basic landholder rights.</li><li>• Number of reports of interference between high yield extraction and native title rights holders, or number of bores deepened.</li><li>• Assess frequency and duration of water level drawdown below critical thresholds.</li></ul>
(j) Extent of recognition of spiritual, social and customary values of water to Aboriginal people.	11 (c) and 11 (e)	<ul style="list-style-type: none"><li>• Assessment of amount and type of information collected to identify the range of values of water to Aboriginal people.</li><li>• The collection of information on the values associated with water is considered the first step in addressing the objects of the Act.</li><li>• It would be expected that at the end of five years there should be relevant information collected for each groundwater source, as a minimum requirement.</li></ul>