



NSW AND MDBA INTERAGENCY AGREEMENT

# Groundwater Final Report

---

Attachment B

June 2019



Published by NSW Department of Planning, Industry and Environment

[dpie.nsw.gov.au](http://dpie.nsw.gov.au)

Title: Groundwater Final Report

Subtitle: Attachment B

First published: June 2019

Department reference number: INT19/92578

---

© State of New South Wales through Department of Planning, Industry and Environment 2019. You may copy, distribute, display, download and otherwise freely deal with this publication for any purpose, provided that you attribute the Department of Planning, Industry and Environment as the owner. However, you must obtain permission if you wish to charge others for access to the publication (other than at cost); include the publication in advertising or a product for sale; modify the publication; or republish the publication on a website. You may freely link to the publication on a departmental website.

Disclaimer: The information contained in this publication is based on knowledge and understanding at the time of writing (June 2019) and may not be accurate, current or complete. The State of New South Wales (including the NSW Department of Planning, Industry and Environment), the author and the publisher take no responsibility, and will accept no liability, for the accuracy, currency, reliability or correctness of any information included in the document (including material provided by third parties). Readers should make their own inquiries and rely on their own advice when making decisions related to material contained in this publication.

## Groundwater final report (16 June 2019)

The MDBA and former NSW Department of Industry (now Department of Planning, Industry & Environment) signed an agreement on the 28 February 2019 relating to specified measures in anticipation of water resource plans coming into effect (the Agreement).

The Agreement requires reporting against these measures on 16 April 2019 (progress report) and 16 June 2019 (final report). Reporting requirements are set out in the Agreement.

In regard to reporting requirements:

1. This report provides the evidence to meet the implementation commitments specified in Schedule 2 by 16 June.
2. The report describes how the actions 1-3 and 5 of Schedule 2<sup>1</sup> will be met.

---

<sup>1</sup> Actions 1 to 3 and 5 relate to groundwater

# Contents

<b>1. The implementation commitment</b> .....	<b>4</b>
<b>2. Reporting and assurance</b> .....	<b>6</b>
2.1. Meeting the requirements Action items 1, 2 and 3 .....	6
2.1.1. Determining annual permitted take .....	6
2.1.2. Demonstrating annual permitted take meets the SDL .....	14
2.1.3. Comparing actual annual take with annual permitted take .....	20
2.1.4. General overview .....	20
2.1.5. Ensuring SDL compliance .....	21
2.2. Meeting the requirements Action item 5 .....	23
2.2.1. Measuring take from groundwater .....	25
2.2.2. Estimating take under domestic and stock basic rights .....	29
2.2.3. Estimating take under basic rights for domestic use .....	29
2.2.4. Estimating take under basic rights for stock use .....	30
2.2.5. Estimating take under Native Title basic rights .....	30

## Tables

Table 1. Schedule 2 groundwater actions .....	4
Table 2. WRP public exhibition details .....	5
Table 3. Groundwater stakeholder advisory panel discussion of Schedule 2 issues .....	5
Table 4. SDL resource units where a variable annual permitted take will apply .....	7
Table 5. Variable permitted take from groundwater from the Lower Lachlan Alluvium SDL resource unit .....	8
Table 6. Variable permitted take from groundwater from the Upper Murray Alluvium SDL resource unit .....	8
Table 7. Variable permitted take from groundwater from the Lower Murray Deep Alluvium SDL resource unit .....	9
Table 8. Variable permitted take from groundwater from the Mid Murrumbidgee Alluvium SDL resource unit .....	9
Table 9. Variable permitted take from groundwater from the Lower Murrumbidgee Deep Alluvium SDL resource unit .....	10
Table 10. Variable permitted take from groundwater from the Lower Gwydir Alluvium SDL resource unit) .....	10
Table 11. Variable permitted take from groundwater from the Lower Namoi Alluvium SDL resource unit .....	11
Table 12. Variable permitted take from groundwater from the Upper Namoi Alluvium SDL resource unit .....	11

---

Table 13. Variable permitted take from groundwater from the Peel Valley Alluvium SDL resource unit.....	12
Table 14. Variable permitted take from groundwater from the Upper Macquarie Alluvium SDL resource unit.....	12
Table 15. Variable permitted take from groundwater from the Cudgegong Alluvium SDL resource unit.....	13
Table 16. Matters to be accounted for under s10.12 (1) of the Basin Plan in relation to APT methods.....	13
Table 17. Application of the variable permitted take method for take from southern groundwater SDL resource units over historic climate conditions .....	15
Table 18. Application of the variable permitted take method for take from northern groundwater SDL resource units over historic climate conditions .....	18
Table 19. Determination of annual actual take .....	24
Table 20. Metering requirements for water supply works in each WRPA .....	25

# 1. The implementation commitment

Certain matters in the Agreement relate the management of the NSW groundwater resources of the Murray-Darling Basin. Broadly, NSW must, by 16 June 2019, 'provide a mechanism to resolve key elements contemplated by Part 3 of Chapter 10 of the Basin Plan, and to report on compliance with the SDL for the 2019/20 water year consistent with the arrangements contemplated by s 71 of the Act'. NSW must carry out the actions in Schedule 2 to the Agreement within the specified timeframes. Table 1 shows the Schedule 2 actions relevant to groundwater.

**Table 1. Schedule 2 groundwater actions**

## Schedule 2 actions relevant to groundwater

### Action Item 1.

Specify for each form of take within each SDL resource unit in the WRP area, a method for determining the maximum quantity of water that NSW will permit to be taken for consumptive use during a water accounting period after 30 June 2019 for the WRP area.

Note: a method must be one that is consistent with requirements of s10.10 of the Basin Plan, including requirements relating to accounting in s10.12, and with the Authority's SDL Reporting and Compliance Framework.

### Action Item 2:

For each SDL Resource unit in the WRP area, set out a demonstration that the method referred to in Action 1 relates to the SDL of that unit in such a way that, if applied over a repeat of the historical climate conditions, it would result in meeting the SDL for the resource unit, including as amended under s23B of the Act.

### Action Item 3:

For each SDL Resource unit in the WRP area specify rules that will be applied by NSW after 30 June 2019 to ensure, as far as practicable, that the quantity of water actually taken for consumptive use in a water accounting period for the SDL resource unit does not (after making any adjustments for the disposal or acquisitions of held environmental water) exceed the unit's annual permitted take for the period.

For this action, 'annual permitted take' means the sum of the maximum quantity of water permitted to be taken by each form of take for consumptive use from the SDL resource unit, determined in accordance with the method specified in Action 1.

### Action Item 5:

For each SDL resource unit in the WRP area, specify how the quantity of water actually taken for consumptive use by each form of take will be determined after the end of the water accounting period using the best information available at the time.

Note: the specification must be consistent with the requirements of s10.15(2), (3) and (4) of the Basin Plan.

NSW must also conduct public consultation and engagement, where appropriate, in developing the final outputs specified in Schedule 2 to the Agreement, apart from actions 6 and 10. Table 2 and Table 3 outline the public consultation and engagement undertaken to date in relation to developing the outputs specified in Schedule 2. Public consultation meetings were held during the public exhibition periods.

**Table 2. WRP public exhibition details**

Water Resource Plan	Public exhibition details
Lachlan Alluvium WRP	25 September to 6 November 2018
Macquarie Alluvium WRP	5 November to 14 December 2018
Gwydir Alluvium WRP	5 November to 21 December 2018
Murrumbidgee Alluvium WRP	5 November 2018 to 4 January 2019
Murray Alluvium WRP	11 June 2019 to 20 July 2019
Namoi Alluvium WRP	11 June 2019 to 20 July 2019

Public exhibition of the remaining 5 groundwater WRPs is proposed for July to August 2019

**Table 3. Groundwater stakeholder advisory panel discussion of Schedule 2 issues**

Issue	Groundwater stakeholder advisory panel meeting discussions
SDL limits and compliance	<p>Meeting 2: Discussion of draft position and approach in response to requests to review of Long Term Average Annual Extraction Limits (LTAAELs) and SDLs in groundwater water sharing plans.</p> <p>Meeting 3: Options presented to review the rules in water sharing plans to ensure compliance LTAAELs within the Murray-Darling Basin (MDB). Some stakeholders requested the period on which the LTAAEL compliance rules are based be changed, while others requested the compliance rules remain unchanged. Discussion to seek comment before the position is finalised.</p> <p>Meeting 4: As per meeting 3.</p> <p>Meeting 6: Sought feedback on proposed policy options for Annual Permitted Take (APT) and compliance.</p>
Annual permitted take	<p>Meeting 3: Presentation of different scenarios and outcomes.</p> <p>Meeting 6: Sought feedback on proposed policy options for APT and compliance.</p>

## 2. Reporting and assurance

The Agreement requires reporting against these measures on 16 April 2019 (progress report) and 16 June 2019 (final report). Reporting requirements are set out in the Agreement. In relation to groundwater, the final report must include:

- a) evidence verifying that the implementation commitments in Schedule 2, specified as due by 16 June 2019, are complete,
- b) a description of the way the obligation in clause 2.3 was carried out,
- c) final outputs from actions 1 to 3 and 5 of Schedule 2, and
- d) verification that measures are in place to enable the report required by action 6 of Schedule 2 to be generated and provided to the Authority by the required date.

### 2.1. Meeting the requirements Action items 1, 2 and 3

#### 2.1.1. Determining annual permitted take

##### Action item 1

Specify for each form of take within each SDL resource unit in the WRP area, a method for determining the maximum quantity of water that NSW will permit to be taken for consumptive use during a water accounting period after 30 June 2019 for the WRP area.

A method must be one that is consistent with requirements of s10.10 of the Basin Plan, including requirements relating to accounting in s10.12, and with the Authority's SDL Reporting and Compliance Framework.

Section 10.10 of the Basin Plan requires NSW water resource plans to set out the method for determining the maximum quantity of water that the plan permits to be taken for consumptive use during a water accounting period (the **annual permitted take (APT)**).

NSW proposes to use one of two methods to determine the annual permitted take volumes in groundwater SDL resource units – simple or variable. The choice of method will depend on the form of take and on the current level of take compared to the SDL.

There are **two forms of take** under the Basin Plan for groundwater systems:

1. 'take from groundwater' (extraction under access licence rights), and
2. 'take under basic rights' (extraction under basic landholder rights).

For the simple method, annual permitted take will be equal to that proportion of the SDL attributable to a particular form of take. This simple method will apply to:

- 'take under basic rights' (i.e. extraction under basic landholder rights) in all groundwater sources. The annual permitted take for this form of take will equate to the requirements for these set out in Division 1 of Part 4 of the relevant water sharing plan, and
- 'take from groundwater' (i.e. extraction under access licence rights) in groundwater sources where extraction has remained at less than 80% of SDL over the period from 2007/08 to 2016/17, where the risk of non-compliance with SDLs is considered very low.

A variable annual permitted take method will apply to 'take from groundwater' in groundwater sources where extraction has been 80% or more of the SDL attributable to 'take from groundwater' over the period from 2007/08 to 2016/17 (Table 4).



**Table 4. SDL resource units where a variable annual permitted take will apply**

Sustainable diversion limit resource unit	Maximum annual extraction during 2007/08 to 2016/17 period (% SDL)
Lower Gwydir Alluvium	141%
Lower Murray Deep Alluvium	123%
Lower Namoi Alluvium	120%
Lower Murrumbidgee Deep Alluvium	117%
Lower Lachlan Alluvium	113%
Peel Alluvium	92%
Cudgegong Alluvium	92%
Upper Namoi Alluvium	92%
Upper Macquarie Alluvium	89%
Mid Murrumbidgee Alluvium	77% (average) (Gundagai - 43%, Kyeamba - 85%, Mid Murrumbidgee Z3 - 87%, Wagga Wagga - 89% )

The annual permitted take in a particular year will be calculated at the end of the year based on the rainfall in that year at a location in the SDL resource unit. In average rainfall years, the annual permitted take will be the SDL. In drier years, the annual permitted take will be greater than the SDL and in wetter years less. Analysis has shown that applying a variable, climate adjusted **annual permitted take** of a maximum of +/- 20% of the SDL achieves SDL compliance over the long-term. Table 5 to Table 15 show the proposed maximum and minimum deviations from the SDL for the SDL resource units. Increments of 5% or 10% will be applied to the relevant SDL resource unit.

**Table 5. Variable permitted take from groundwater from the Lower Lachlan Alluvium SDL resource unit**

Rainfall at Hillston (July to June)	APT for take from groundwater	Percent SDL
Greater than 502 mm	86.4 GL/yr	80
Greater than 466 mm and less than or equal to 502 mm	91.8 GL/yr	85
Greater than 430 mm and less than or equal to 466 mm	97.2 GL/yr	90
Greater than 394 mm and less than or equal to 430 mm	102.6 GL/yr	95
Greater than 323 mm and less than or equal to 394 mm	108.0 GL/yr	100
Greater than 251 mm and less than or equal to 323 mm	113.4 GL/yr	105
Greater than 215 mm and less than or equal to 251 mm	124.2 GL/yr	115
Less than or equal to 215 mm	129.6 GL/yr	120

**Table 6. Variable permitted take from groundwater from the Upper Murray Alluvium SDL resource unit**

Rainfall at Albury (July to June)	APT for take from groundwater	Percent SDL
Greater than 931 mm	11.0 GL/yr	80
Greater than 864 mm and less than or equal to 931 mm	11.6 GL/yr	85
Greater than 798 mm and less than or equal to 864 mm	12.3GL/yr	90
Greater than 731 mm and less than or equal to 798 mm	13.0 GL/yr	95
Greater than 598 mm and less than or equal to 731 mm	13.7 GL/yr	100
Greater than 532 mm and less than or equal to 598 mm	14.4 GL/yr	105
Greater than 465 mm and less than or equal to 532 mm	15.1 GL/yr	110
Less than or equal to 465 mm	15.8 GL/yr	115

**Table 7. Variable permitted take from groundwater from the Lower Murray Deep Alluvium SDL resource unit**

Rainfall at Deniliquin (July to June)	APT for take from groundwater	Percent SDL
Greater than 931 mm	11.0 GL/yr	80
Greater than 864 mm and less than or equal to 931 mm	11.6 GL/yr	85
Greater than 798 mm and less than or equal to 864 mm	12.3GL/yr	90
Greater than 731 mm and less than or equal to 798 mm	13.0 GL/yr	95
Greater than 598 mm and less than or equal to 731 mm	13.7 GL/yr	100
Greater than 532 mm and less than or equal to 598 mm	14.4 GL/yr	105
Greater than 465 mm and less than or equal to 532 mm	15.1 GL/yr	110
Less than or equal to 465 mm	15.8 GL/yr	115

**Table 8. Variable permitted take from groundwater from the Mid Murrumbidgee Alluvium SDL resource unit**

Rainfall at Wagga Wagga (July to June)	APT for take from groundwater	Percent SDL
Greater than 931 mm	11.0 GL/yr	80
Greater than 864 mm and less than or equal to 931 mm	11.6 GL/yr	85
Greater than 798 mm and less than or equal to 864 mm	12.3GL/yr	90
Greater than 731 mm and less than or equal to 798 mm	13.0 GL/yr	95
Greater than 598 mm and less than or equal to 731 mm	13.7 GL/yr	100
Greater than 532 mm and less than or equal to 598 mm	14.4 GL/yr	105
Greater than 465 mm and less than or equal to 532 mm	15.1 GL/yr	110
Less than or equal to 465 mm	15.8 GL/yr	115

**Table 9. Variable permitted take from groundwater from the Lower Murrumbidgee Deep Alluvium SDL resource unit**

Rainfall at Coleambally (July to June)	APT for take from groundwater	Percent SDL
Greater than 539 mm	216.0 GL/yr	80
Greater than 501 mm and less than or equal to 539 mm	229.5 GL/yr	85
Greater than 462 mm and less than or equal to 501 mm	243.0 GL/yr	90
Greater than 424 mm and less than or equal to 462 mm	256.5 GL/yr	95
Greater than 347 mm and less than or equal to 424 mm	270.0 GL/yr	100
Greater than 308 mm and less than or equal to 347 mm	283.5 GL/yr	105
Greater than 270 mm and less than or equal to 308 mm	297.0 GL/yr	110
Greater than 231 mm and less than or equal to 270 mm	310.5 GL/yr	115
Less than or equal to 231 mm	324.0 GL/yr	120

**Table 10. Variable permitted take from groundwater from the Lower Gwydir Alluvium SDL resource unit)**

Rainfall at Moree (July to June)	APT for take from groundwater	Percent SDL
Greater than 733 mm	25.83 GL/yr	80
Greater than 736 mm and less than or equal to 793 mm	27.45 GL/yr	85
Greater than 623 mm and less than or equal to 736 mm	29.06 GL/yr	90
Greater than 510 mm and less than or equal to 623 mm	32.29 GL/yr	100
Greater than 453 mm and less than or equal to 510 mm	33.90 GL/yr	105
Greater than 396 mm and less than or equal to 453 mm	35.52 GL/yr	110
Greater than 430 mm and less than or equal to 396 mm	37.13 GL/yr	115
Less than or equal to 340 mm	38.75 GL/yr	120

**Table 11. Variable permitted take from groundwater from the Lower Namoi Alluvium SDL resource unit**

Rainfall at Narrabri (July to June)	APT for take from groundwater	Percent SDL
Greater than 901 mm	68.8 GL/yr	80
Greater than 836 mm and less than or equal to 901 mm	73.1 GL/yr	85
Greater than 772 mm and less than or equal to 836 mm	77.4 GL/yr	90
Greater than 643 mm and less than or equal to 772 mm	81.7 GL/yr	95
Greater than 579 mm and less than or equal to 643 mm	86.1 GL/yr	100
Greater than 515 mm and less than or equal to 579 mm	90.4 GL/yr	105
Greater than 450mm to equal to 515mm	94.7 GL/yr	110
Greater than 386mm and less than or equal to 450mm	99.0 GL/yr	115
Less than or equal to 386 mm	103.3 GL/yr	120

**Table 12. Variable permitted take from groundwater from the Upper Namoi Alluvium SDL resource unit**

Rainfall at Gunnedah (July to June)	APT for take from groundwater	Percent SDL
Greater than 849 mm	97.7 GL/yr	80
Greater than 788 mm and less than or equal to 849 mm	103.8 GL/yr	85
Greater than 728 mm and less than or equal to 788 mm	109.9 GL/yr	90
Greater than 667 mm and less than or equal to 728 mm	116 GL/yr	95
Greater than 547mm and less than or equal to 667mm	122.1 GL/yr	100
Greater than 485mm and less than or equal to 546mm	128.2 GL/yr	105
Greater than 424 mm and less than or equal to 485 mm	134.3 GL/yr	110
Greater than 364 mm and less than or equal to 424 mm	140.4 GL/yr	115
Less than or equal to 364 mm	146.5 GL/yr	120

**Table 13. Variable permitted take from groundwater from the Peel Valley Alluvium SDL resource unit**

Rainfall at Tamworth (July to June)	APT for take from groundwater	Percent SDL
Greater than 922 mm	7.3 GL/yr	80
Greater than 856 mm and less than or equal to 922 mm	7.7 GL/yr	85
Greater than 790 mm and less than or equal to 856 mm	8.2 GL/yr	90
Greater than 724 mm and less than or equal to 790 mm	8.6 GL/yr	95
Greater than 593 mm and less than or equal to 724mm	9.1 GL/yr	100
Greater than 527 mm and less than or equal to 593 mm	9.6 GL/yr	105
Greater than 461 mm and less than or equal to 527 mm	10 GL/yr	110
Greater than 395 mm and less than or equal to 461 mm	10.5 GL/yr	115
Less than or equal to 395 mm	10.9 GL/yr	120

**Table 14. Variable permitted take from groundwater from the Upper Macquarie Alluvium SDL resource unit**

Rainfall at Dubbo (July to June)	APT for take from groundwater	Percent SDL
Greater than 812 mm	14.07 GL/yr	80
Greater than 754 mm and less than or equal to 812 mm	14.95 GL/yr	85
Greater than 696 mm and less than or equal to 754 mm	15.83 GL/yr	90
Greater than 638 mm and less than or equal to 696 mm	16.71 GL/yr	95
Greater than 522 mm and less than or equal to 638 mm	17.59 GL/yr	100
Greater than 464 mm and less than or equal to 522 mm	18.47 GL/yr	105
Greater than 406 mm and less than or equal to 464 mm	19.53 GL/yr	110
Greater than 349 mm and less than or equal to 406 mm	20.23 GL/yr	115
Less than or equal to 349 mm	21.11 GL/yr	120

**Table 15. Variable permitted take from groundwater from the Cudgegong Alluvium SDL resource unit**

Rainfall at Mudgee (July to June)	APT for take from groundwater	Percent SDL
Greater than 937 mm	2.00 GL/yr	80
Greater than 871 mm and less than or equal to 938 mm	2.13 GL/yr	85
Greater than 804 mm and less than or equal to 871 mm	2.25 GL/yr	90
Greater than 737 mm and less than or equal to 804 mm	2.38 GL/yr	95
Greater than 603 mm and less than or equal to 737 mm	2.50 GL/yr	100
Greater than 536 mm and less than or equal to 603 mm	2.63 GL/yr	105
Greater than 469 mm and less than or equal to 536 mm	2.75 GL/yr	110
Greater than 402 mm and less than or equal to 469 mm	2.88 GL/yr	115
Less than or equal to 402	3.00 GL/yr	120

As an example, Table 16 shows how NSW meets the s10.12 Basin Plan requirements relating to accounting in the Lachlan Alluvium WRP Area (WRPA).

**Table 16. Matters to be accounted for under s10.12 (1) of the Basin Plan in relation to APT methods**

Basin Plan matter	Explanation
10.12(1)(a)	<p>The annual permitted take methods account for each form of take for each SDL resource unit as described above.</p> <p>There are two separate calculations applicable to take from groundwater and take under basic rights for each SDL resource unit.</p>
10.12(1)(b)	<p>Carryover for take under basic rights is not permitted.</p> <p>Water allocations in the water allocation accounts of access licences may (or may not) be carried over from one water accounting period to the next in accordance with Part 8 of the <i>Water Sharing Plan for the Lachlan Alluvial Groundwater Sources 2019</i>.</p> <p>Part 6, Division 1 of the <a href="#">draft Water Sharing Plan for the Lachlan Alluvial Groundwater Sources 2019</a> also restricts overall take in the long term to the SDL. In these ways, carryover is accounted for in the permitted take method for take from groundwater.</p>
10.12(1)(c)	This requirement is not applicable to groundwater SDL resource units.
10.12(1)(d)	Consistent with the definition of change of location relating to groundwater trade for the purposes of the Basin Plan, trade that results in a change in a change of location (i.e. groundwater source or management zone) is not permitted within the Lachlan WRPA as per clauses 49 and 50 of the <a href="#">draft Water Sharing Plan for the Lachlan Alluvial Groundwater Sources 2019</a> and therefore this requirement is not applicable.

Basin Plan matter	Explanation
10.12(1)(e)	<p>Significant hydrological connections are identified in section 2.2 of the <a href="#">draft Water Resource Plan for the Lachlan Alluvium WRPA</a>.</p> <p>In setting the LTAAEL, and hence SDL, for the Lower Lachlan Alluvium, Upper Lachlan Alluvium and Belubula Alluvium SDL resource units, the connectivity of groundwater and surface water resources has been taken into consideration. Access is managed to these SDLs under Division 1 Part 6 of the <a href="#">draft Water Sharing Plan for the Lachlan Alluvial Groundwater Sources 2019</a>.</p> <p>By adopting the proportionate SDL volume as the annual permitted take volume for take under basic rights in the Lower Lachlan Alluvium, Upper Lachlan Alluvium and Belubula Alluvium, any connectivity will have no material impact on annual permitted take methods.</p> <p>By adopting the proportionate SDL volume as the annual permitted take volume for take from groundwater in the Upper Lachlan Alluvium and Belubula Alluvium and a variable percentage of the proportionate SDL volume for take from groundwater in the Lower Lachlan Alluvium, any connectivity will have no material impact on annual permitted take methods.</p>
10.12 (1) (f)	<p>Take in the Lower Lachlan Alluvium, Upper Lachlan Alluvium and Belubula Alluvium SDL resource units is managed under <a href="#">draft Water Sharing Plan for the Lachlan Alluvial Groundwater Sources 2019</a>. Any changes in the way groundwater is taken or held will not alter annual permitted take.</p>
10.12(1)(g)	<p>Growth in use for both take under basic rights and take from groundwater is managed in the Part 6 Division 1 of the <a href="#">draft Water Sharing Plan for the Lachlan Alluvial Groundwater Sources 2019</a>. These rules limit actual take to the LTAAEL and SDL over the long term.</p> <p>Thus, by adopting the proportionate LTAAEL volume or a percentage of the proportionate LTAAEL volume for each form take as the permitted take volume, growth in use will have no material impact on the permitted take method.</p>
10.12 (1) (h)	<p>This requirement is not applicable and does not need to be accounted for in the annual permitted take, as GAB water is not being discharged to the Basin water resource in the Lachlan Alluvium WRPA because the GAB is not geographically connected to the SDL resource units.</p>
10.12 (1) (i)	<p>At the commencement of this Plan managed aquifer recharge (MAR) does not occur in Lachlan Alluvium WRPA. However, clause 67 of the <a href="#">draft Water Sharing Plan for the Lachlan Alluvial Groundwater Sources 2019</a> allows the plan to be amended to include rules for managed aquifer recharge in the future. MAR is not included in the method of permitted take, as any future rules will account for MAR storage and take separately and restrict the net take of MAR to be less than or equal to the volume stored.</p>

## 2.1.2. Demonstrating annual permitted take meets the SDL

### Action item 2

The SDLs in NSW WRPs will not be affected by any adjustment under s.23B of the Water Act 2007 (Cth) and, as such, subsection 10.10(5) of the Basin Plan is not relevant. Any future amendment under s23B will cause a review of the relevant WRP.

For the purpose of section 10.10 of the Basin Plan, Schedule I of the WRPs provide the demonstration of APT meeting the SDL. For example, in the [draft Water Resource Plan for the Lachlan Alluvium WRPA](#):



- A simple annual permitted take method applies in SDL resource units and to forms of take where there is a relatively low level of actual take compared to the SDL. Therefore, the APT method:
  - will result in meeting the SDL if applied over a repeat of the historical climate conditions, and
  - has had an appropriate level of regard to the availability of water resources
- By applying the rainfall related variable method for APT:
  - the appropriate level of regard to the water resources available during any water year is applied, and
  - the SDL will be met if applied over a repeat of the historical climate.

The application of the variable method is demonstrated for the SDL resource units in Table 17 (southern groundwater sources) and Table 18 (northern groundwater sources). This shows the application of this method over a repeat of historical climate conditions, specifically a 114 year period from 1895–96 to 2008–09. The results show that the average permitted take over that nominated historic period equals that portion of the SDL attributable to take from groundwater. In instances where the BOM rainfall data set is not complete, rainfall data will be sourced from the Scientific Information for Land Owners (WILO) database which provides national coverage with interpolated infills for missing data.

**Table 17. Application of the variable permitted take method for take from southern groundwater SDL resource units over historic climate conditions**

Water source/Year	Lower Murray Deep Alluvium		Upper Murray Alluvium		Lower Murrumbidgee Deep Alluvium		Mid Murrumbidgee Alluvium		Lower Lachlan Alluvium	
	Rainfall (mm) - Deniliquin	Permitted Take (GL)	Rainfall (mm) - Albury	Permitted Take (GL)	Rainfall (mm) - Coleambally	Permitted Take (GL)	Rainfall (mm) - Wagga Wagga	Permitted Take (GL)	Rainfall (mm) - Hillston	Permitted Take (GL)
1895–96	329	87.9	614	13.7	370	270.0	465	55.3	380.2	108.0
1896–97	240	96.2	415	15.8	243	310.5	307	60.6	304.4	113.4
1897–98	354	83.7	555	14.4	299	297.0	359	60.6	286.9	113.4
1898–99	382	83.7	654	13.7	284	297.0	450	55.3	270.0	113.4
1899–1900	364	83.7	661	13.7	403	270.0	637	47.4	378.5	108.0
1900–01	223	96.2	524	15.1	253	310.5	419	55.3	176.1	129.6
1901–02	260	96.2	501	15.1	277	297.0	403	58.0	172.0	129.6
1902–03	351	83.7	542	14.4	292	297.0	463	55.3	159.8	129.6
1903–04	398	83.7	607	13.7	376	270.0	374	58.0	265.0	113.4
1904–05	401	83.7	669	13.7	482	243.0	483	52.7	437.4	97.2
1905–06	487	75.3	727	13.7	367	270.0	587	50.1	410.8	102.6
1906–07	445	79.5	702	13.7	389	270.0	460	55.3	299.3	113.4
1907–08	314	87.9	603	13.7	289	297.0	435	55.3	380.6	108.0
1908–09	351	83.7	701	13.7	408	270.0	452	55.3	352.6	108.0
1909–10	390	83.7	465	15.8	314	283.5	434	55.3	315.0	113.4
1910–11	486	75.3	755	13.0	418	270.0	615	50.1	424.6	102.6
1911–12	240	96.2	329	15.8	269	310.5	308	60.6	292.2	113.4
1912–13	555	66.9	760	13.0	587	216.0	527	52.7	576.0	86.4
1913–14	180	96.2	440	15.8	237	310.5	312	60.6	230.5	124.2
1914–15	197	96.2	436	15.8	214	324.0	272	60.6	199.3	129.6
1915–16	314	87.9	731	13.7	286	297.0	564	52.7	307.2	113.4
1916–17	632	66.9	884	11.6	544	216.0	867	42.2	622.1	86.4
1917–18	714	66.9	968	11.0	592	216.0	783	42.2	550.8	86.4
1918–19	337	87.9	444	15.8	238	310.5	381	58.0	237.7	124.2
1919–20	220	96.2	513	15.1	216	324.0	316	60.6	149.4	129.6
1920–21	562	66.9	893	11.6	608	216.0	725	44.8	616.1	86.4

Water source/Year	Lower Murray Deep Alluvium		Upper Murray Alluvium		Lower Murrumbidgee Deep Alluvium		Mid Murrumbidgee Alluvium		Lower Lachlan Alluvium	
	Rainfall (mm) - Deniliquin	Permitted Take (GL)	Rainfall (mm) - Albury	Permitted Take (GL)	Rainfall (mm) - Coleambally	Permitted Take (GL)	Rainfall (mm) - Wagga Wagga	Permitted Take (GL)	Rainfall (mm) - Hillston	Permitted Take (GL)
1921-22	276	92.0	633	13.7	281	297.0	381	58.0	265.0	113.4
1922-23	275	92.0	507	15.1	338	283.5	462	55.3	274.6	113.4
1923-24	459	79.5	723	13.7	387	270.0	531	52.7	387.8	108.0
1924-25	576	66.9	915	11.6	530	229.5	590	50.1	464.0	97.2
1925-26	313	87.9	595	14.4	342	283.5	481	52.7	293.6	113.4
1926-27	246	96.2	467	15.1	218	324.0	407	58.0	150.3	129.6
1927-28	423	83.7	823	12.3	451	256.5	669	47.4	463.1	97.2
1928-29	252	96.2	401	15.8	258	310.5	296	60.6	168.5	129.6
1929-30	281	92.0	394	15.8	257	310.5	352	60.6	368.4	108.0
1930-31	622	66.9	1104	11.0	668	216.0	1063	42.2	594.1	86.4
1931-32	355	83.7	622	13.7	377	270.0	411	58.0	334.9	108.0
1932-33	344	87.9	447	15.8	412	270.0	366	58.0	204.9	129.6
1933-34	424	83.7	758	13.0	499	243.0	542	52.7	344.9	108.0
1934-35	455	79.5	968	11.0	446	256.5	642	47.4	324.4	108.0
1935-36	399	83.7	657	13.7	358	270.0	591	50.1	350.5	108.0
1936-37	403	83.7	645	13.7	334	283.5	513	52.7	369.1	108.0
1937-38	209	96.2	507	15.1	237	310.5	387	58.0	121.1	129.6
1938-39	445	79.5	834	12.3	548	216.0	750	42.2	600.0	86.4
1939-40	390	83.7	630	13.7	321	283.5	475	52.7	289.2	113.4
1940-41	379	83.7	554	14.4	285	297.0	426	55.3	240.0	124.2
1941-42	343	87.9	545	14.4	305	297.0	577	50.1	253.7	113.4
1942-43	249	96.2	554	14.4	253	310.5	492	52.7	257.8	113.4
1943-44	232	96.2	535	14.4	292	297.0	408	58.0	272.2	113.4
1944-45	196	96.2	394	15.8	217	324.0	290	60.6	206.6	129.6
1945-46	446	79.5	727	13.7	396	270.0	454	55.3	409.9	102.6
1946-47	338	87.9	632	13.7	212	324.0	406	58.0	327.4	108.0
1947-48	469	75.3	707	13.7	381	270.0	671	47.4	533.9	86.4
1948-49	357	83.7	532	15.1	207	324.0	414	58.0	349.1	108.0
1949-50	557	66.9	741	13.0	418	270.0	719	44.8	558.2	86.4
1950-51	435	79.5	781	13.0	370	270.0	628	47.4	372.2	108.0
1951-52	400	83.7	782	13.0	505	229.5	592	50.1	393.6	108.0
1952-53	435	79.5	667	13.7	364	270.0	545	52.7	290.2	113.4
1953-54	375	83.7	577	14.4	500	243.0	477	52.7	342.6	108.0
1954-55	522	71.1	789	13.0	546	216.0	645	47.4	379.5	108.0
1955-56	740	66.9	1143	11.0	658	216.0	929	42.2	630.5	86.4
1956-57	374	83.7	607	13.7	495	243.0	481	52.7	272.0	113.4
1957-58	248	96.2	517	15.1	280	297.0	429	55.3	261.8	113.4
1958-59	546	66.9	686	13.7	406	270.0	525	52.7	386.5	108.0
1959-60	457	79.5	615	13.7	350	270.0	405	58.0	356.6	108.0
1960-61	467	79.5	652	13.7	341	283.5	554	52.7	303.2	113.4
1961-62	400	83.7	736	13.0	354	270.0	669	47.4	358.4	108.0
1962-63	446	79.5	650	13.7	461	256.5	573	50.1	357.7	108.0
1963-64	374	83.7	727	13.7	370	270.0	549	52.7	226.7	124.2
1964-65	361	83.7	602	13.7	316	283.5	379	58.0	260.3	113.4
1965-66	467	79.5	600	13.7	379	270.0	561	52.7	289.4	113.4
1966-67	344	87.9	750	13.0	320	283.5	497	52.7	227.7	124.2
1967-68	278	92.0	504	15.1	314	283.5	393	58.0	340.8	108.0
1968-69	420	83.7	712	13.7	531	229.5	765	42.2	547.3	86.4
1969-70	426	83.7	764	13.0	430	256.5	503	52.7	335.6	108.0
1970-71	443	79.5	735	13.0	446	256.5	735	42.2	452.4	97.2
1971-72	378	83.7	616	13.7	372	270.0	622	50.1	373.9	108.0
1972-73	487	75.3	786	13.0	527	229.5	504	52.7	355.0	108.0
1973-74	926	66.9	1096	11.0	773	216.0	848	42.2	752.0	86.4

Water source/Year	Lower Murray Deep Alluvium		Upper Murray Alluvium		Lower Murrumbidgee Deep Alluvium		Mid Murrumbidgee Alluvium		Lower Lachlan Alluvium	
	Rainfall (mm) - Deniliquin	Permitted Take (GL)	Rainfall (mm) - Albury	Permitted Take (GL)	Rainfall (mm) - Coleambally	Permitted Take (GL)	Rainfall (mm) - Wagga Wagga	Permitted Take (GL)	Rainfall (mm) - Hillston	Permitted Take (GL)
1974-75	358	83.7	721	13.7	333	283.5	615	50.1	336.1	108.0
1975-76	554	66.9	736	13.0	347	270.0	535	52.7	440.5	97.2
1976-77	316	87.9	742	13.0	350	270.0	555	52.7	455.9	97.2
1977-78	320	87.9	533	14.4	323	283.5	506	52.7	294.1	113.4
1978-79	507	71.1	675	13.7	491	243.0	558	52.7	404.5	102.6
1979-80	297	92.0	497	15.1	392	270.0	397	58.0	329.3	108.0
1980-81	448	79.5	733	13.0	417	270.0	506	52.7	380.8	108.0
1981-82	374	83.7	670	13.7	376	270.0	493	52.7	335.2	108.0
1982-83	315	87.9	478	15.1	330	283.5	336	60.6	308.0	113.4
1983-84	418	83.7	818	12.3	509	229.5	752	42.2	563.6	86.4
1984-85	271	96.2	694	13.7	364	270.0	486	52.7	331.2	108.0
1985-86	372	83.7	649	13.7	537	229.5	592	50.1	427.0	102.6
1986-87	405	83.7	865	11.6	455	256.5	622	50.1	514.8	86.4
1987-88	394	83.7	684	13.7	473	243.0	515	52.7	393.4	108.0
1988-89	490	75.3	895	11.6	602	216.0	746	42.2	670.0	86.4
1989-90	391	83.7	736	13.0	583	216.0	555	52.7	333.5	108.0
1990-91	286	92.0	735	13.0	400	270.0	452	55.3	268.5	113.4
1991-92	278	92.0	719	13.7	283	297.0	536	52.7	239.9	124.2
1992-93	574	66.9	1112	11.0	576	216.0	657	47.4	533.6	86.4
1993-94	546	66.9	867	11.6	462	256.5	737	42.2	471.8	91.8
1994-95	317	87.9	629	13.7	314	283.5	589	50.1	315.2	113.4
1995-96	324	87.9	818	12.3	425	256.5	656	47.4	388.3	108.0
1996-97	368	83.7	633	13.7	286	297.0	561	52.7	320.9	113.4
1997-98	380	83.7	489	15.1	302	297.0	473	52.7	332.4	108.0
1998-99	492	75.3	824	12.3	470	243.0	616	50.1	506.6	86.4
1999-2000	435	79.5	857	12.3	567	216.0	685	44.8	670.1	86.4
2000-01	466	79.5	776	13.0	435	256.5	530	52.7	400.3	102.6
2001-02	321	87.9	592	14.4	340	283.5	479	52.7	273.7	113.4
2002-03	178	96.2	340	15.8	193	324.0	256	60.6	256.0	113.4
2003-04	398	83.7	755	13.0	434	256.5	416	58.0	329.2	108.0
2004-05	424	83.7	730	13.7	350	270.0	417	55.3	321.8	113.4
2005-06	363	83.7	657	13.7	406	270.0	434	55.3	372.0	108.0
2006-07	272	96.2	375	15.8	240	310.5	312	60.6	237.8	124.2
2007-08	274	92.0	606	13.7	352	270.0	377	58.0	357.0	108.0
2008-09	293	92.0	426	15.8	315	283.5	382	58.0	332.6	108.0
<b>Average APT (GL/year)</b>		<b>83.6</b>		<b>13.7</b>		<b>270.8</b>		<b>52.8</b>		<b>108.0</b>
<b>Volume of SDL attributable to take from groundwater</b>		<b>83.7</b>		<b>13.7</b>		<b>270.0</b>		<b>53.5</b>		<b>108.0</b>

**Table 18. Application of the variable permitted take method for take from northern groundwater SDL resource units over historic climate conditions**

	- Moree		- Gunnedah		- Tamworth		- Mudgee		- Gunnedah		- Dubbo	
	Rainfall (mm)	Permitted Take (GL)	Rainfall (mm)	Permitted Take (GL)	Rainfall (mm)	Permitted Take (GL)	Rainfall (mm)	Permitted Take (GL)	Rainfall (mm)	Permitted Take (GL)	Rainfall (mm)	Permitted Take (GL)
1895-96	523	32.29	780	77.4	786	8.6	686	2.49	709	116.0	646.7	16.7
1896-97	559	32.29	455	94.7	633	9.1	499	2.74	496	128.2	396.3	20.2
1897-98	602	32.29	718	81.7	839	8.2	676	2.49	736	109.9	720.6	15.8
1898-99	284	38.75	323	103.3	533	9.6	593	2.61	395	140.4	405.4	20.2
1899-1900	724	29.06	645	86.1	752	8.6	721	2.49	568	122.1	579.0	17.6
1900-01	425	35.52	405	99.0	564	9.6	639	2.49	368	140.4	389.9	20.2
1901-02	255	38.75	319	103.3	426	10.5	368	2.99	365	140.4	237.4	21.1
1902-03	447	35.52	574	90.4	541	9.6	500	2.74	516	128.2	558.5	17.6
1903-04	834	25.83	864	73.1	864	7.7	606	2.49	646	122.1	543.1	17.6
1904-05	497	33.90	745	81.7	693	9.1	693	2.49	673	116.0	602.9	17.6
1905-06	423	35.52	442	99.0	402	10.5	512	2.74	349	146.5	365.3	20.2
1906-07	574	32.29	756	81.7	703	9.1	742	2.37	660	122.1	690.6	16.7
1907-08	691	29.06	834	77.4	827	8.2	560	2.61	720	116.0	628.6	17.6
1908-09	644	29.06	593	86.1	692	9.1	526	2.74	680	116.0	487.9	18.5
1909-10	747	27.45	803	77.4	869	7.7	752	2.37	690	116.0	641.7	16.7
1910-11	564	32.29	597	86.1	635	9.1	644	2.49	441	134.3	533.8	17.6
1911-12	457	33.90	512	94.7	647	9.1	461	2.86	456	134.3	492.2	18.5
1912-13	731	29.06	631	86.1	725	8.6	579	2.61	718	116.0	666.5	16.7
1913-14	578	32.29	560	90.4	556	9.6	501	2.74	465	134.3	488.7	18.5
1914-15	296	38.75	629	86.1	461	10.5	578	2.61	446	134.3	480.4	18.5
1915-16	474	33.90	597	86.1	732	8.6	618	2.49	510	128.2	541.6	17.6
1916-17	818	25.83	748	81.7	816	8.2	885	2.12	749	109.9	664.4	16.7
1917-18	506	33.90	574	90.4	801	8.2	774	2.37	618	122.1	538.3	17.6
1918-19	423	35.52	478	94.7	469	10.0	373	2.99	391	140.4	309.0	21.1
1919-20	443	35.52	566	90.4	527	10.0	548	2.61	452	134.3	321.5	21.1
1920-21	887	25.83	918	68.8	795	8.2	1098	1.99	790	103.8	872.1	14.1
1921-22	735	29.06	615	86.1	585	9.6	621	2.49	503	128.2	361.4	20.2
1922-23	331	38.75	457	94.7	426	10.5	425	2.86	447	134.3	390.7	20.2
1923-24	550	32.29	544	90.4	610	9.1	581	2.61	499	128.2	438.8	19.4
1924-25	618	32.29	626	86.1	776	8.6	659	2.49	595	122.1	787.3	15.0
1925-26	458	33.90	623	86.1	731	8.6	897	2.12	511	128.2	815.1	14.1
1926-27	416	35.52	467	94.7	537	9.6	406	2.86	393	140.4	415.4	19.4
1927-28	708	29.06	938	68.8	715	9.1	779	2.37	796	103.8	651.1	16.7
1928-29	416	35.52	495	94.7	445	10.5	380	2.99	405	140.4	339.2	21.1
1929-30	459	33.90	501	94.7	541	9.6	503	2.74	491	128.2	512.0	18.5
1930-31	739	27.45	803	77.4	760	8.6	903	2.12	634	122.1	865.6	14.1
1931-32	393	37.13	470	94.7	474	10.0	426	2.86	447	134.3	488.8	18.5
1932-33	484	33.90	523	90.4	648	9.1	625	2.49	601	122.1	490.8	18.5
1933-34	629	29.06	922	68.8	843	8.2	693	2.49	778	109.9	626.4	17.6
1934-35	529	32.29	580	86.1	661	9.1	711	2.49	483	134.3	543.3	17.6
1935-36	394	37.13	444	99.0	542	9.6	626	2.49	511	128.2	586.3	17.6
1936-37	551	32.29	445	99.0	588	9.6	558	2.61	447	134.3	472.6	18.5
1937-38	560	32.29	592	86.1	537	9.6	486	2.74	502	128.2	344.3	21.1
1938-39	590	32.29	602	86.1	599	9.1	514	2.74	573	122.1	497.7	18.5
1939-40	387	37.13	344	103.3	432	10.5	448	2.86	419	140.4	450.7	19.4
1940-41	546	32.29	807	77.4	789	8.6	675	2.49	778	109.9	540.9	17.6
1941-42	310	38.75	508	94.7	456	10.5	442	2.86	338	146.5	477.2	18.5
1942-43	599	32.29	802	77.4	774	8.6	653	2.49	668	116.0	705.8	15.8
1943-44	422	35.52	464	94.7	607	9.1	562	2.61	423	140.4	444.1	19.4
1944-45	509	33.90	559	90.4	588	9.6	546	2.61	546	122.1	647.9	16.7

	Lower Gwydir Alluvium		Lower Namoi Alluvium		Peel Valley Alluvium		Cudgegong Alluvium		Upper Namoi Alluvium		Upper Macquarie Alluvium	
	Rainfall (mm) - Moree	Permitted Take (GL)	Rainfall (mm) -Gunnedah	Permitted Take (GL)	Rainfall (mm) -Tamworth	Permitted Take (GL)	Rainfall (mm) - Mudgee	Permitted Take (GL)	Rainfall (mm) - Gunnedah	Permitted Take (GL)	Rainfall (mm) - Dubbo	Permitted Take (GL)
1945-46	337	38.75	297	103.3	592	9.6	484	2.74	286	146.5	368.9	20.2
1946-47	447	35.52	609	86.1	408	10.5	485	2.74	409	140.4	413.5	19.4
1947-48	547	32.29	829	77.4	974	7.3	1041	1.99	821	103.8	854.8	14.1
1948-49	463	33.90	654	86.1	692	9.1	619	2.49	543	128.2	438.6	19.4
1949-50	738	27.45	1029	68.8	919	7.7	1178	1.99	1052	97.7	987.3	14.1
1950-51	837	25.83	853	73.1	868	7.7	1045	1.99	804	103.8	961.9	14.1
1951-52	320	38.75	497	94.7	586	9.6	600	2.61	427	134.3	496.8	18.5
1952-53	548	32.29	681	86.1	609	9.1	694	2.49	556	122.1	561.6	17.6
1953-54	473	33.90	505	94.7	440	10.5	690	2.49	478	134.3	470.5	18.5
1954-55	909	25.83	895	73.1	958	7.3	801	2.37	772	109.9	903.8	14.1
1955-56	918	25.83	988	68.8	1125	7.3	1269	1.99	996	97.7	1094.5	14.1
1956-57	408	35.52	436	99.0	620	9.1	563	2.61	461	134.3	399.1	20.2
1957-58	447	35.52	351	103.3	465	10.0	520	2.74	460	134.3	488.4	18.5
1958-59	880	25.83	727	81.7	783	8.6	800	2.37	710	116.0	898.0	14.1
1959-60	631	29.06	443	99.0	580	9.6	580	2.61	487	128.2	467.9	18.5
1960-61	542	32.29	523	90.4	691	9.1	617	2.49	640	122.1	534.2	17.6
1961-62	717	29.06	1005	68.8	716	9.1	754	2.37	693	116.0	657.5	16.7
1962-63	656	29.06	956	68.8	834	8.2	781	2.37	789	103.8	665.9	16.7
1963-64	664	29.06	885	73.1	784	8.6	771	2.37	774	109.9	654.5	16.7
1964-65	368	37.13	546	90.4	411	10.5	537	2.61	341	146.5	392.8	20.2
1965-66	381	37.13	449	99.0	430	10.5	538	2.61	398	140.4	529.6	17.6
1966-67	590	32.29	755	81.7	663	9.1	805	2.24	637	122.1	629.3	17.6
1967-68	423	35.52	621	86.1	659	9.1	505	2.74	603	122.1	464.0	19.4
1968-69	449	35.52	692	86.1	737	8.6	826	2.24	587	122.1	823.5	14.1
1969-70	629	29.06	975	68.8	654	9.1	893	2.12	832	103.8	855.3	14.1
1970-71	713	29.06	830	77.4	846	8.2	834	2.24	801	103.8	842.0	14.1
1971-72	589	32.29	640	86.1	586	9.6	658	2.49	567	122.1	665.9	16.7
1972-73	451	35.52	671	86.1	634	9.1	858	2.24	600	122.1	804.2	15.0
1973-74	777	27.45	921	68.8	649	9.1	1054	1.99	930	97.7	944.7	14.1
1974-75	641	29.06	498	94.7	597	9.1	576	2.61	598	122.1	545.3	17.6
1975-76	775	27.45	785	77.4	885	7.7	656	2.49	740	109.9	730.2	15.8
1976-77	725	29.06	1020	68.8	945	7.3	766	2.37	958	97.7	616.5	17.6
1977-78	473	33.90	590	86.1	595	9.1	695	2.49	647	122.1	556.1	17.6
1978-79	618	32.29	701	86.1	684	9.1	717	2.49	612	122.1	601.8	17.6
1979-80	349	37.13	505	94.7	477	10.0	472	2.74	585	122.1	523.1	17.6
1980-81	470	33.90	447	99.0	449	10.5	561	2.61	413	140.4	352.2	20.2
1981-82	583	32.29	512	94.7	649	9.1	695	2.49	552	122.1	573.7	17.6
1982-83	582	32.29	733	81.7	529	9.6	545	2.61	608	122.1	559.5	17.6
1983-84	776	27.45	958	68.8	827	8.2	793	2.37	850	97.7	724.8	15.8
1984-85	589	32.29	454	94.7	692	9.1	605	2.49	616	122.1	507.8	18.5
1985-86	605	32.29	551	90.4	561	9.6	567	2.61	580	122.1	456.7	19.4
1986-87	603	32.29	748	81.7	779	8.6	769	2.37	740	109.9	696.9	16.7
1987-88	678	29.06	734	81.7	813	8.2	682	2.49	730	109.9	631.8	17.6
1988-89	692	29.06	814	77.4	756	8.6	854	2.24	909	97.7	721.1	15.8
1989-90	583	32.29	650	86.1	843	8.2	797	2.37	757	109.9	712.1	15.8
1990-91	580	32.29	699	86.1	709	9.1	740	2.37	796	103.8	525.5	17.6
1991-92	551	32.29	507	94.7	599	9.1	646	2.49	669	116.0	562.6	17.6
1992-93	530	32.29	522	90.4	525	10.0	678	2.49	612	122.1	703.6	15.8
1993-94	538	32.29	603	86.1	468	10.0	636	2.49	619	122.1	600.8	17.6
1994-95	590	32.29	469	94.7	423	10.5	536	2.61	400	140.4	464.3	19.4
1995-96	640	29.06	548	90.4	596	9.1	775	2.37	637	122.1	530.4	17.6
1996-97	566	32.29	896	73.1	770	8.6	796	2.37	843	103.8	640.4	16.7
1997-98	569	32.29	684	86.1	503	10.0	751	2.37	743	109.9	548.9	17.6

Water source/ Year	Lower Gwydir Alluvium		Lower Namoi Alluvium		Peel Valley Alluvium		Cudgegong Alluvium		Upper Namoi Alluvium		Upper Macquarie Alluvium	
	Rainfall (mm) - Moree	Permitted Take (GL)	Rainfall (mm) -Gunnedah	Permitted Take (GL)	Rainfall (mm) -Tamworth	Permitted Take (GL)	Rainfall (mm) - Mudgee	Permitted Take (GL)	Rainfall (mm) - Gunnedah	Permitted Take (GL)	Rainfall (mm) - Dubbo	Permitted Take (GL)
1998–99	781	27.45	907	68.8	815	8.2	915	2.12	849	97.7	800.5	15.0
1999–2000	656	29.06	713	81.7	640	9.1	1031	1.99	679	116.0	842.7	14.1
2000–01	732	29.06	673	86.1	636	9.1	799	2.37	756	109.9	685.4	16.7
2001–02	504	33.90	561	90.4	519	10.0	706	2.49	516	128.2	575.9	17.6
2002–03	424	35.52	520	90.4	552	9.6	565	2.61	376	140.4	298.3	21.1
2003–04	595	32.29	655	86.1	824	8.2	665	2.49	651	122.1	445.8	19.4
2004–05	802	25.83	941	68.8	713	9.1	756	2.37	724	116.0	476.3	18.5
2005–06	463	33.90	691	86.1	606	9.1	695	2.49	536	128.2	528.3	17.6
2006–07	463	33.90	489	94.7	593	9.1	544	2.61	549	122.1	394.6	20.2
2007–08	572	32.29	477	94.7	758	8.6	663	2.49	695	116.0	555.4	17.6
2008–09	673	29.06	633	86.1	891	7.7	689	2.49	729	109.9	583.5	17.6
<b>Average APT (GL/year)</b>		<b>32.2</b>		<b>86.1</b>		<b>9.1</b>		<b>2.50</b>		<b>122.1</b>		<b>17.59</b>
<b>Volume of SDL attributable to take from groundwater</b>		<b>32.3</b>		<b>86.1</b>		<b>9.1</b>		<b>2.5</b>		<b>122.1</b>		<b>17.6</b>

### 2.1.3. Comparing actual annual take with annual permitted take

#### Action item 3

For each SDL resource unit in the WRPA, specify rules that will be applied by NSW after 30 June 2019 to ensure, as far as practicable, that the quantity of water actually taken for consumptive use in a water accounting period for the SDL resource unit does not (after making any adjustments for the disposal or acquisitions of held environmental water) exceed the unit's annual permitted take for the period.

For this action, 'annual permitted take' means the sum of the maximum quantity of water permitted to be taken by each form of take for consumptive use from the SDL resource unit, determined in accordance with the method specified in Action 1.

### 2.1.4. General overview

At the end of each water year, the quantity of water actually taken for consumptive use (the **annual actual take**) as 'take from groundwater' and 'take under basic rights' from each SDL resource unit is determined as outlined in Table 19 of this report.

This annual actual take is compared to the **annual permitted take** determined in accordance with one or other of the methods outlined in Appendix 1 and SDL compliance is assessed.

In many instances, the NSW 'groundwater sources' align with the 'SDL resource units' for groundwater detailed in Schedule 4 of the Basin Plan. There are some exceptions to this, where two or more NSW groundwater sources together make up a Basin Plan SDL resource unit. The long term average annual extraction limits (**LTAELs**) for each groundwater source (or group of groundwater sources) specified in existing NSW water sharing plans and in the proposed new water sharing plans also align with the Basin Plan SDLs for SDL resource units.

Divisions 1 and 3 of Chapter 6 of the Basin Plan establishes the method for determining compliance with the SDL within each SDL resource unit.

At the completion of a water year, the annual actual take and the annual permitted take will be determined, and these values will be recorded in a 'register of take'. Under the Basin Plan, there is non-compliance with an SDL for a groundwater SDL resource unit in a water accounting period ending on or before 30 June 2028 if:

- From 1 July 2019 to 30 June 2018, the sum of the annual actual take (AAT) from the water accounting periods since 1 July 2019 exceeds the sum of the annual permitted take (APT) from the water accounting periods since 1 July 2019 plus 20% of the SDL for that SDL resource unit, and NSW does not have a 'reasonable excuse' for the excess.
- After 30 June 2028, the AAT averaged over the proceeding 10-year period is greater than the APT averaged over the same time period, and NSW does not have a 'reasonable excuse' for the excess.

Grounds for a reasonable excuse are set out in the Basin Plan and cover where the excess debit results from the operation of this Plan or other circumstances beyond NSW's control.

SDL compliance will be assessed in accordance Chapter 6, Part 4 of the Basin Plan and the *MDBA Sustainable Diversion Limit Reporting and Compliance Framework (in prep)*. Where a finding of 'non-compliant' or 'compliant with a reasonable excuse' is made, the *Water Act 2007* (Cth) would require NSW to 'make good' by advising actions it proposes take to rectify the situation and ensure future SDL compliance. Make good actions could range from improving methods for determining permitted take to triggering a 'growth in use response' under the draft *Water Sharing Plan for the Lachlan Alluvial Groundwater Sources 2019* to comply with the SDLs.

### 2.1.5. Ensuring SDL compliance

The primary mechanisms for ensuring SDL compliance are set out in the NSW statutory water sharing plans for groundwater and the applicable water resource plans. Water sharing plan provisions will be offered for accreditation under the relevant water resource plan. The plans provide for:

- the calculation of annual actual take and the annual permitted take for each form of take from each SDL resource unit
- the assessment of extractions against the SDLs, consistent with the Basin Plan requirements outlined above
- measures to ensure compliance with the SDL over the medium term, consistent with the Basin Plan requirements discussed above

If any current or future held or acquired environmental water in an SDL resource unit is disposed of and then used for consumptive use, that use will be determined in accordance with the take method Appendix 3 for the take type and class of water access right and included in the annual actual take.

Extracts of water sharing plan provisions for the Lachlan alluvium SDL resource units are provided here by way of example. These are mirrored in all groundwater sharing plans in the Basin.

## 29 Long-term average annual extraction limits

- (1) The long-term average annual extraction limit for the Belubula Valley Alluvial Groundwater Source is 2,883 ML/year.
- (2) The long-term average annual extraction limit for the Lower Lachlan Groundwater Source is 117,000 ML/year.
- (3) The long-term average annual extraction limit for the Upper Lachlan Alluvial Groundwater Source is 94,168 ML/year.

**Note.** The long-term average annual extraction limits for the groundwater sources equate to the long-term average sustainable diversion limits for the respective SDL resource units specified in Schedule 4 to the Basin Plan.

## 30 Calculation of annual extraction

The Minister is to determine the volume of water taken during a water year for each of the groundwater sources under the following entitlements (the *annual extraction*):

- (a) all categories of access licences,
- (b) basic landholder rights.

**Note.** The volume of water taken in any water year under basic landholder rights is assumed to be the volumes specified in Part 5.

## 31 Assessment of compliance with long-term average annual extraction limits

- (1) The Minister is to undertake an assessment under this clause comparing the long-term average annual extraction limit for each of the groundwater sources against the average of annual extractions for the preceding five water years for the respective groundwater source.
- (2) There is non-compliance with a long-term average annual extraction limit if the average of the annual extraction for a groundwater source in the preceding five water years exceeds the long-term average annual extraction limit for that groundwater source by the following:
  - (a) 10% or more for the Belubula Valley Alluvial Groundwater Source,
  - (b) 5% or more for the Lower Lachlan Groundwater Source,
  - (c) 10% or more for the Upper Lachlan Alluvial Groundwater Source.



### 32 Assessment of compliance with Basin Plan long-term average sustainable diversion limits

The Minister is to undertake an assessment of compliance with the Basin Plan long-term average sustainable diversion limit for each groundwater source in accordance with the processes set out in Divisions 1 and 3 of Part 4 of Chapter 6 of the Basin Plan.

**Note.** The *Long-term average sustainable diversion limit* is defined in section 4 of the *Water Act 2007* of the Commonwealth.

### 33 Compliance with limits

- (1) If an assessment for a groundwater source under either clause 27 or clause 28 demonstrates non-compliance with the long-term average annual extraction limit or the long-term average sustainable diversion limit, the Minister is to take, in relation to that groundwater source, any one or more of the following actions:
  - (a) reduce the maximum water account debit for aquifer access licences or aquifer (high security) access licences under clause 36,
 

**Note.** *Water account debit* has the meaning set out in clause 36.
  - (b) make an available water determination for aquifer access licences in accordance with clause 33 of less than 1 ML per unit share of access licence share component,
  - (c) make an available water determination for aquifer (high security) access licences in accordance with clause 34 of less than:
    - (i) 0.3 ML per unit share of access licence share component for aquifer (high security) access licences,
    - (ii) plus 70% of the available water determination made for regulated river (high security) access licences in the Belubula Regulated River Water Source to which the *Water Sharing Plan for the Belubula Regulated River Water Source 2012* (or any relevant replacement of that plan) applies.
- (2) Any action under subclause (1) is to be taken to the extent the Minister considers the following is necessary:
  - (a) in the case of non-compliance with the long-term average annual extraction limit— to return average annual extractions in the relevant groundwater source to the long-term average annual extraction limit,
  - (b) in the case of non-compliance with the Basin Plan long-term average sustainable diversion limit— to meet the requirements of Division 3 of Part 4 of Chapter 6 of the Basin Plan.

## 2.2. Meeting the requirements Action item 5

### Action Item 5

For each SDL resource unit in the WRP area, specify how the quantity of water actually taken for consumptive use by each form of take will be determined after the end of the water accounting period using the best information available at the time.

Note: The specification must be consistent with the requirements of s10.15(2), (3) and (4) of the Basin Plan.

Annual take for consumptive use is quantified at the end of each water year, as outlined in Table 19 and further detailed in text below the table. These provisions are offered for accreditation in the relevant water resource plans.

Table 19. Determination of annual actual take

Form of take	Class of water access right	Take determination method
Take from groundwater	Local Water Utility, Domestic and Stock, Salinity and Water Table Management, Aquifer Access and Aquifer (high security) Access Licences	Measured and estimated in accordance with policy and practices outlined in section 1.1 of Schedule I (see below)
Take under basic rights	Basic Landholder Right—Domestic and Stock	Estimated in accordance with method outlined in section 1.2 of Schedule I (see below) as volume specified in clause 19 of the Water Sharing Plan for the Lachlan Alluvial Groundwater Sources 2019 (and similar clauses in other WSPs)
	Basic Landholder Right—Native Title	Estimated in accordance with process outlined in section 1.3 of Schedule I
Take from groundwater	Local Water Utility, Domestic and Stock, & Aquifer Access Licences	Measured and estimated in accordance with policy and practices outlined in section 1.1 of Schedule I
Take under basic rights	Basic Landholder Right-Domestic and Stock	Estimated in accordance with method outlined in section 1.2 of Schedule I as volume specified in clause 19 of the Water Sharing Plan for the Lachlan Alluvial Groundwater Sources 2019 (and similar clauses in other WSPs)
	Basic Landholder Right -Native Title	Estimated in accordance with process outlined in section 1.3 of Schedule I. At the commencement of this Plan, the native title determination for the Barkandji Traditional Owners #8 (Parts A and B, National Native Title Tribunal references NCD2015/001 and NCD2017/001) applies. Information on applicable determinations will be specified in the relevant WSP.

## 2.2.1. Measuring take from groundwater

Take from groundwater in any water year for local water utility, domestic and stock, aquifer, and salinity and water table management access licences in a Water Resource Plan Area will be measured and/or estimated.

The *Water Management (General) Regulation 2018* and associated metering policies require that:

- From April 2019, all new and replacement meters are pattern-approved and installed and validated by a duly qualified person in accordance with the requirements of the Australian Standard 4747.
- All groundwater water supply works in the groundwater WRPA to have a meter that is pattern-approved and installed in accordance with Australian Standard 4747 by December 2020, or by December 2021 unless exempt (see Table 20).
- Those with existing meters demonstrate, either by December 2020, or by December 2021 (see Table 20 for details) that the meter is pattern-approved and validated, or accurate. They will also need to install a data logger and tamper evident seal, if not already installed.

Take from groundwater in some SDL resource units (see Table 20) will be exempt from the requirement for metering if all take on a single landholding occurs from:

- one bore of diameter no more than 199 mm; or
- two bores of diameter no more than 159mm; or
- three bores of diameter no more than 129mm; or
- four or more bores of diameter less than 119mm.

Take from groundwater sources identified as “at-risk” of over extraction is not exempt.

**Table 20. Metering requirements for water supply works in each WRPA**

WRPA	SDL Resource Unit	Groundwater Source (Management Zone)	Metering installed/ validated by Dec:	Metering required for small water supply works
Darling Alluvium	Upper Darling Alluvium	Upper Darling Alluvial	2020	no
		Paroo Alluvial	2020	no
		Warrego Alluvial	2020	no
	Lower Darling Alluvium	Lower Darling Alluvial	2021	yes
Gwydir Alluvium	Upper Gwydir Alluvium	Upper Gwydir Alluvial	2020	no
	Lower Gwydir Alluvium	Lower Gwydir Alluvial	2020	yes
Lachlan Alluvium	Belubula Valley Alluvium	Belubula Valley Alluvial	2021	yes
	Upper Lachlan Alluvium	Upper Lachlan Alluvial	2021	yes
	Lower Lachlan Alluvium	Lower Lachlan Alluvial	2021	yes
Macquarie-Castlereagh	Castlereagh Alluvium	Castlereagh Alluvial	2020	no
	Lower Macquarie	Lower Macquarie Zone 1	2020	yes

WRPA	SDL Resource Unit	Groundwater Source (Management Zone)	Metering installed/ validated by Dec:	Metering required for small water supply works
Alluvium	Alluvium	Lower Macquarie Zone 2	2020	yes
		Lower Macquarie Zone 6	2020	yes
	Bell Valley Alluvium	Bell Alluvial	2020	yes
	Cudgegong Alluvium	Cudgegong Alluvial	2020	yes
	Coolaburragudy-Talbragar Alluvium	Talbragar Alluvial	2020	yes
	Upper Macquarie Alluvium	Upper Macquarie Alluvial	2020	yes
Murray Alluvium	Lower Murray Deep Alluvium	Lower Murray	2021	yes
	Lower Murray Shallow Alluvium	Lower Murray Shallow	2021	no
	Upper Murray Alluvium	Upper Murray	2021	yes
	Billabong Creek Alluvium	Billabong Creek Alluvial	2021	yes
Murrumbidgee Alluvium	Lower Murrumbidgee Deep Alluvium	Lower Murrumbidgee Deep	2021	yes
	Lower Murrumbidgee Shallow Alluvium	Lower Murrumbidgee Shallow	2021	yes
	Lake George Alluvium	Bungendore Alluvial	2021	yes
	Mid Murrumbidgee Alluvium	Gundagai Alluvial	2021	yes
		Kyeamba Alluvial	2021	yes
		Mid Murrumbidgee Zone 3	2021	yes
		Wagga Wagga Alluvial	2021	yes
Namoi Alluvium	Manilla Alluvium	Manilla Alluvial	2020	yes
	Upper Namoi Tributary Alluvium	Currabubula Alluvial	2020	yes
		Quipolly Creek Alluvial	2020	yes
		Quirindi Creek Alluvial	2020	yes

WRPA	SDL Resource Unit	Groundwater Source (Management Zone)	Metering installed/ validated by Dec:	Metering required for small water supply works
	Peel Valley Alluvium	Peel Alluvium Water Source	2020	yes
	Lower Namoi Alluvium	Lower Namoi	2020	yes
	Upper Namoi Alluvium	Upper Zone 1, Borambil Creek	2020	yes
		Upper Zone 2, Cox's Creek (Mullaley to Boggabri)	2020	yes
		Upper Zone 3, Mooki Valley (Breeza to Gunnedah)	2020	yes
		Upper Zone 4, Namoi Valley (Keepit Dam to Gin's Leap)	2020	yes
		Upper Zone 5, Namoi Valley (Gin's Leap to Narrabri)	2020	yes
		Upper Zone 6, Tributaries of the Liverpool Range (South to Pine Ridge Road)	2020	yes
		Upper Zone 7, Yarraman Creek (East of Lake Goran to Mooki River)	2020	yes
		Upper Zone 8, Mooki Valley (Quirindi - Pine Ridge Road to Breeza)	2020	yes
		Upper Zone 9, Cox's Creek (up-stream Mullaley)	2020	yes
		Upper Zone 10, Warrah Creek	2020	yes
		Upper Zone 11, Maules Creek	2020	yes
		Upper Zone 12, Kelvin Valley	2020	yes
NSW MDB Fractured Rock	Adelaide Fold Belt MDB	Adelaide Fold Belt MDB	2020	no
	Inverell Basalt	Inverell Basalt	2020	no
	Kanmantoo Fold Belt MDB	Kanmantoo Fold Belt MDB	2020	no

WRPA	SDL Resource Unit	Groundwater Source (Management Zone)	Metering installed/ validated by Dec:	Metering required for small water supply works
	Lachlan Fold Belt MDB	Lachlan Fold Belt MDB	2020	no
		Yass Catchment	2020	no
	New England Fold Belt MDB	New England Fold Belt MDB	2020	no
		Peel Fractured Rock Water Source	2020	no
	Orange Basalt	Orange Basalt	2020	yes
	Warrumbungle Basalt	Warrumbungle Basalt	2020	no
	Young Granite	Young Granite	2020	yes
NSW Border Rivers Alluvium	NSW Border Rivers Tributary Alluvium	Macintyre Alluvial	2020	yes
		Ottleys Creek Alluvial	2020	
	NSW Border Rivers Alluvium	NSW Border Rivers Downstream Keetah Bridge Alluvial	2020	yes
		NSW Border Rivers Upstream Keetah Bridge Alluvial	2020	yes
NSW MDB GAB Shallow	NSW GAB Central Shallow	Great Artesian Basin Central Shallow (MDB)	2020	no
	NSW GAB Warrego Shallow	Great Artesian Basin Warrego Shallow	2020	no
	NSW GAB Surat Shallow	Great Artesian Basin Surat Shallow	2020	no
NSW Murray Darling Basin Porous Rock	Gunnedah-Oxley Basin	Gunnedah-Oxley Basin MDB (Spring Ridge) Management Zone	2020	yes
		Gunnedah-Oxley Basin MDB (Other) Management Zone	2020	no
	Sydney Basin MDB	Sydney Basin MDB	2020	no
	Western Porous Rock	Western Murray Porous Rock	2020	no

WRPA	SDL Resource Unit	Groundwater Source (Management Zone)	Metering installed/ validated by Dec:	Metering required for small water supply works
	Oaklands Basin	Oaklands Basin	2020	no

Where these thresholds to install a meter are not reached, licence holders will be required to record and provide estimated use to the NSW Department of Planning, Industry & Environment - Water in an approved form.

Prior to December 2020 (or 2021), when the full provisions of the *Water Management (General) Regulation 2018* take effect in each WRPA, annual actual take from groundwater will be determined as follows:

- Where meters are installed, metered data will be used to measure take.
- Where meters are not installed, but estimated take has been provided in an approved form, that estimated take will be used.
- Where meters are not installed, and estimated take has not been provided in an approved form, that estimated take will be determined as follows:
  - For access licences, other than those associated with mining activities, the access licence share component multiplied by the average proportion of known take (metered and estimates reported) for that SDL resource unit.
  - For access licences associated with mining activities, the volume available in the water allocation account for that water year.

### 2.2.2. Estimating take under domestic and stock basic rights

Take under basic rights for domestic and stock use in groundwater WRPAs is estimated as being the full utilisation of the total annual volume in each SDL resource unit specified in Division 2 of the relevant water sharing plan. A geographical area-based method was used to specify these volumes. The method uses Australian Census household information and land use data to calculate take under basic rights for domestic and stock purposes.

The general assumptions behind this method are as follows:

- People tend to use surface water in preference to more costly bore water sources.
- Bores predominate in areas capable of providing high yield and reasonable quality water economically.
- NSW can be subdivided into four zones based on rainfall reliability, evaporation rate, and topography and known reliance on groundwater sources. These four zones are coast; tablelands, slopes and plains. The proportion of each SDL resource unit within each zone was generated digitally using a GIS program.
- Australian Census population and housing data, in consideration of housing proximity to water courses and availability of ground water can be used to estimate a volumetric allowance per house in areas without reticulated water.
- The extent of grazeable pasture available to stock within each zone is used to estimate stock watering usage.
- Urban areas with reticulated water and buffer areas around surface water courses are excluded from groundwater source area calculations.

### 2.2.3. Estimating take under basic rights for domestic use

Estimated volume (in ML/yr) for domestic use = (houses in groundwater use area) X (domestic consumption estimated and adjusted for reliance on groundwater, based on zone). Where:

- Houses in water source = (housing density) X (groundwater source area)
- Housing density = (dwellings in relevant Census district)/(area of Census district)
- Groundwater use area is the water source area excluding urban areas with reticulated water and buffer areas around surface water (where groundwater use is non-preferred)
- Based on zone, domestic consumption estimated as per Table 1 and adjusted for reliance on groundwater as per Table 2.

#### 2.2.4. Estimating take under basic rights for stock use

Estimated volume (in ML/yr) for stock use = (grazeable land area) x (stock consumption estimated and adjusted for reliance on groundwater, based on zone) x (stock watering usage estimate), where:

- Grazeable land area is the water source area excluding urban areas with reticulated water and buffer areas around surface water (where groundwater use is non-preferred).
- Based on zone, stock consumption estimated as per Table 3 and adjusted for reliance on groundwater as per Table 2.
- Stock watering usage estimate is adjusted per zone, for pasture type (improved being sown pastures including pasture species of grasses and/or legumes and unimproved being locally native pastures) as per Table 3.

**Table 1: Estimated domestic water use for rural lots**

Zone	Estimate (ML/Yr)
1 Coastal	1.0
2 Tablelands	1.1
3 Slopes	1.4
4 Plains	2.1

**Table 2: Groundwater reliance by Zone**

Zone	Groundwater Reliance
1 Coastal	10% dwellings and 15% stock
2 Tablelands	25% dwellings and 40% stock
3 Slopes	35% dwellings and 50% stock
4 Plains	70% dwellings and 80% stock

**Table 3: Stock watering estimate by Zone and pasture type**

Zone	Pasture type	Estimate (ML/Ha/Yr)
1 Coastal	Unimproved pasture	0.025
	Improved pasture	0.045
2 Tablelands	Unimproved pasture	0.020
	Improved pasture	0.045
3 Slopes	Unimproved pasture	0.015
	Improved pasture	0.045
4 Plains	Unimproved pasture	0.010
	Improved pasture	0.020
All zones	Irrigated pasture	0.050

#### 2.2.5. Estimating take under Native Title basic rights

The Native Title rights as set out in any determination under the Native Title Act 1993 (Cth) will determine the nature and extent of the water access rights in the Lachlan WRPA. This is not a specified volume of water take. The volume of water take may be identified through Indigenous Land Use Agreement (ILUA) negotiations with the recognised Native Title holders. This volume of water take will vary between Native Title holder groups and WRPAs. The method for determining take volumes under Native Title basic rights will need to be determined on a case by case basis, noting these volumes are included with the LTAAEL. The method for estimating annual actual take will assume full utilisation based on the lesser of:



1. The allowable volume as set out in any determination under the Native Title Act 1993 (Cth),  
or
2. An alternate volume estimated using best available information in relation to any  
determination under the Native Title Act 1993 (Cth)