



NSW AND MDBA INTERAGENCY AGREEMENT

# Surface Water Final Report

---

## Attachment A

June 2019



Published by NSW Department of Planning, Industry and Environment

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

Title: Surface Water Final Report

Subtitle: Attachment A

First published: June 2019

Department reference number: INT19/93924

---

© 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.

## Surface Water 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 1-5 and 7-10 of Schedule 2<sup>1</sup> will be met.

---

<sup>1</sup> Actions 1 to 5 and 7 to 10 relate to surface water

# Contents

<b>1. The implementation commitment</b>	<b>4</b>
<b>2. Reporting and assurance</b>	<b>7</b>
2.1. Meeting the requirements Action item 1	8
2.1.1. Determining annual permitted take	8
2.1.2. Additional information to meet the Basin Plan requirements	9
2.1.3. Intersecting Streams WRP	9
2.2. Meeting the requirements Action item 2	15
2.2.1. Demonstrating the annual permitted take method relates to the SDL	15
2.3. Meeting the requirements Action Item 3	17
2.3.1. Ensuring SDL compliance – rules for take	17
2.4. Meeting the requirements Action Item 4	18
2.4.1. Limits on take for consumptive use	18
2.4.2. Floodplain Harvesting	19
2.5. Meeting the requirements Action Item 5	20
2.5.1. Determining annual take for consumptive use	20
2.6. Meeting the requirements Action Item 7	23
2.6.1. Estimates of BDL	23
2.7. Meeting the requirements Action Item 8	23
2.7.1. Prerequisite policy measures	23
2.8. Meeting the requirements Action Item 9	24
2.8.1. Better management of environmental water	24
2.9. Meeting the requirements Action Item 10	24
2.9.1. NSW and ACT interjurisdictional trade	24

## Tables

Table 1. Schedule 2 surface water actions	4
Table 2. WRP public exhibition details	7
Table 3. WRP Table F-2 Parameters for the method for determining Annual Permitted Take	10
Table 4. WRP Table F-4 Explanation of how the APT method accounts for matters listed under 10.12 of the Basin Plan	12
Table 5. WRP Table F-3 Demonstration of APT method with the SDL	16
Table 6. WRP Table F-1. Parameters for the method for determining Annual Actual Take	21
Table 7. Risks to project delivery (NSW / ACT Trade)	25
Table 8. NSW / ACT Trade Phases and milestones	26

## Appendices

<b>Appendix A. Outstanding BDL model issues .....</b>	<b>32</b>
---	-----------

# 1. The implementation commitment

Certain matters in the Agreement relate the management of the NSW surface water 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 Sustainable Diversion Limits (SDLs) 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. The Schedule 2 actions relevant to surface water are shown in Table 1.

**Table 1. Schedule 2 surface water actions**

## Schedule 2 actions relevant to surface water

### 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.

---

**Schedule 2 actions relevant to surface water**


---

**Action Item 4:**

1. Subject to (3), for each surface water SDL resource unit in a WRP area, specify the limits that will be placed on take for consumptive use by:
  - (a) take under basic rights; or
  - (b) take by runoff dams; or
  - (c) net take by commercial plantations.

so that take does not exceed the level specified in column 2 of Schedule 3 to the Basin Plan, for that form of take in that SDL resource unit.
2. Subject to (3), for the SDL resource units in the Barwon-Darling, Border Rivers, Gwydir, Namoi and Macquarie-Castlereagh WRP areas, specify the limits that will be placed on take for consumptive use by floodplain harvesting so that take does not exceed the level:
  - (a) estimated by the Authority to be taken under BDL conditions when the Basin Plan was made, or
  - (b) estimated under a revised estimate presented to meet action 7 of this Schedule.
3. Limits placed on a form of take specified in (1) or (2) may be increased above the specified limits, if:
  - (a) reductions are specified in another form of take in that SDL resource unit that ensures there is no overall change in the long-term annual average quantity of water that can be taken, and
  - (b) take by the forms of take affected by the changes are capable of being accurately measured, or, if such measurement is not currently possible, being reasonably estimated using the best available method, and
  - (c) the changes are not expected to result in take from the SDL resource unit ceasing to be an environmentally sustainable level of take.

**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.

**Action item 7:**

Propose amended estimates of BDL for each SDL resource unit in the WRP area.

For this action, 'estimates of BDL' are estimates set out as Notes to the description of BDL in Column 2 of Schedule 3 to the Basin Plan.

**Action item 8:**

For each of the following WRP areas:

- Murrumbidgee (item 8 in Schedule 1) and
  - NSW Murray and Lower Darling (item 9 in Schedule 1)
- 1) Demonstrate that appropriate policy settings are in place for the implementation of the measures described in the Basin Plan as unimplemented policy measures (see s 7.15), by 30 June 2019.
  - 2) Develop and agree a timetable with the Authority for NSW delivery of PPM implementation evidence and Authority comments.

## Schedule 2 actions relevant to surface water

### Action item 9:

For each of the following WRP areas:

- Barwon-Darling Watercourse (item 2 in Schedule 1)
- Gwydir (item 4 in Schedule 1) and
- Macquarie-Castlereagh (item 6 in Schedule 1)

- 1) Provide a clear work plan setting out a pathway including milestones for progressing solutions to better manage environmental water where relevant under NSW law

Solutions include, but are not limited to nor prescribed as:

- better understand northern connectivity
  - managing resumption of flows in the Barwon-Darling after an extended dry period
  - limiting daily water take in the Barwon-Darling
  - actively managing environmental water in stream in the Barwon-Darling, and relevant water sources in the Gwydir and Macquarie-Bogan unregulated water sharing plans where regulated held environmental water is delivered.
- 2) Publish a progress report on delivery of the roadmap for Better management of environmental water— Interim Solutions Package (NSW Government, June 2018).
  - 3) Share the draft rules to improve the management and protection of environmental water in the Barwon-Darling, Gwydir and Macquarie-Bogan catchments with the MDBA, noting that these will be publically released as part of the draft WRP public exhibition process.

*Note: The Natural Resources Commission review of the Water Sharing Plan for the Barwon-Darling Unregulated and Alluvial Water Sources 2012 under section 43A of the Water Management Act 2000 has commenced. The timing, process and recommendations of this review may influence the content and timing of the deliverables specified in this action. Notwithstanding this, it is anticipated that public exhibition may commence in June 2019.*

### Action item 10:

For the Murrumbidgee WRP area (item 8 in Schedule 1):

- 1) Work with the ACT to develop a process for enabling two-way inter-jurisdictional water trading between NSW and the ACT,
- 2) Provide a workplan to establish the required arrangements, including principles, milestones, and timing.

*Note: NSW acknowledges the Ministerial Council agreement on 14 December 2018 to enable two-way inter-jurisdictional water trading between NSW and the ACT.*

Under the agreement, NSW must conduct public consultation and engagement, where appropriate, in developing the final outputs specified in Schedule 2.

For surface water this has been undertaken as part of the public exhibition of the draft water resource plans (WRPs) as per Table 2 below.



**Table 2. WRP public exhibition details**

Water Resource Plan	Public exhibition dates
Gwydir Surface Water WRP	18 October to 29 November 2018
Macquarie – Castlereagh WRP	22 November to 1 February 2019
Lachlan Surface Water WRP	27 November to 1 February 2019
Border Rivers Surface Water WRP	5 December to 1 February 2019
Murrumbidgee Surface Water WRP	6 June 2019 to 14 July 2019

Public exhibition of the remaining four surface water WRPs is proposed for July to September 2019.

For the purpose of this report, a reference to a regulated surface water WRP applies to the following surface water WRPs:

- Murray – Lower Darling
- Murrumbidgee
- Lachlan
- Macquarie – Castlereagh
- Namoi
- Gwydir
- Border Rivers

The unregulated Barwon Darling in the main is treated as a regulated surface water WRP for the purposes of this report, as the WRP includes a both Baseline Diversion Limit (BDL) and annual permitted take models. The unregulated Intersecting Streams WRP does not include a numerical model and is treated in a slightly different manner to the other WRP areas.

In this report the Gwydir WRP is used to demonstrate the methods used. The NSW WRP template ensures consistency across the WRPs. Apart from variations to address identified risks, the methods used are essentially be the same across WRPs. NSW continues to work with the MDBA to ensure all of provisions in the WRP template are accepted as nominally meeting MDBA's requirements.

## 2. Reporting and assurance

The Agreement requires reporting against these measures on the 16 April 2019 (**progress report**) and 16 June 2019 (**final report**). Reporting requirements are set out in the Agreement. In relation to surface water, 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 5, 7 and 9 of Schedule 2,
- 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,
- e) an explanation of how PPMs will be implemented from 1 July 2019, for action 8 of Schedule 2, and
- f) the progress report for action 10 of Schedule 2.

## 2.1. Meeting the requirements Action item 1

### 2.1.1. Determining annual permitted take

#### Action item 1

Specify for each form of take within each SDL resource unit in the Water Resource Plan (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.

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**).

Annual permitted take (APT) will be determined separately for the regulated and unregulated rivers in each WRP area.

For the regulated rivers, APT will be defined at the end of each water accounting period using the approved BDL/SDL model. It will be the volume of water that could have been taken under the WSP (and hence WRP) rules given the actual climate conditions that occurred in that period. Additionally the APT will be the sum of the BDL components associated with the regulated rivers.

For the unregulated rivers, in the absence of any use metering or other long term data upon which to develop hydrologic models, the APT will be the sum of the BDL components associated with the unregulated rivers.

Held Environmental Water (HEW) will be accounted for as part of the SDL process. Use will be deemed to have occurred when the HEW is released from a dam or it has flowed past a nominated place along a river. The use of HEW will be accounted for through its exclusion as part of the SDL accounting process.

The APT (using the Gwydir as an example) can be expressed as the following formula:

#### **Gwydir SDL resource unit (SS22) annual permitted take =**

- Regulated river permitted take
- + watercourse permitted take
- + floodplain harvesting permitted take
- + runoff dams permitted take
- + basic rights permitted take
- + commercial plantations permitted take
- +/- trade in and out of the WRP area
- local reduction amount
- shared reduction amount
- efficiency measures outcomes
- + SDL adjustment mechanism project outcomes

Further detail regarding the method outlined above is provided in Schedule F, Table F2 of the NSW Surface Water WRP, included below at Table 3.

The SDL models will be applied at the end of each water accounting period to determine the APT by undertaking the following steps:

- extending the SDL Model input data (inflows, rainfall, evaporation, demands) to 30 June, being the end of the last water accounting year;
- running the SDL Model from 1 July 2019 to end of the last water accounting year by initialising the simulation with recorded storage volumes and account limits at 30 June 2019;
- determining the annual permitted take using the consumptive diversions calculated by the SDL Model plus the unmodelled estimates of take.

NSW will provide updated APT models and reports that will enable the MDBA to undertake an assessment. NSW continues to work with the MDBA to ensure that the revised estimates of BDL are based on best available information.

The most up to date APT models and supporting documents are provided to the MDBA through Confluence at: <https://nswwmmi.atlassian.net/wiki/spaces/BSU/overview>

### 2.1.2. Additional information to meet the Basin Plan requirements

The Basin Plan requires additional information to determine APT for each SDL resource unit. NSW has provided this in the following tables in this report:

- Table 3 provides a greater level of detail of how the volume for each of the APT parameters is determined and additional information that will be used by the MDBA to inform their assessment.
- Table 4 demonstrates how NSW has met the requirements of section 10.12 of the Basin Plan. It explains how the APT considers a range of different matters that are relevant to or could have an influence on the determination of the APT.

Note these tables are provide in Schedule F of the WRP as referred to below.

### 2.1.3. Intersecting Streams WRP

The Intersecting Streams WRP does not include a modelled component. The text provided above and associated tables will be modified to reflect the lack of a numeric model for determining annual permitted take.

Table 3. WRP Table F-2 Parameters for the method for determining Annual Permitted Take

APT method parameters	APT method sub-parameters	Method description	Responsible agency	Additional information (not for accreditation)
<b>Regulated river permitted take</b>	N/A	The volume determined by the <i>Gwydir SDL Model</i> and adjusted for <i>Net Gwydir Trade</i> in the relevant water year.		
	<i>Gwydir SDL Model</i>	<p>Volume determined at the end of the relevant water year using the Gwydir SDL Model (SDL-014.sq) and IQQM Version 7.92.0 RC2 [Rev3375]</p> <p>Table 3 in the Sustainable Diversion Limit Scenario Model demonstrates the entitlements covered by the model:</p> <ul style="list-style-type: none"> <li>• High security</li> <li>• General security</li> <li>• Supplementary</li> <li>• Local Water utilities</li> </ul> <p>Estimates of the unmodelled entitlement/take types are also included in Table 3 of the Sustainable Diversion Limit Scenario Model</p> <p>For clarity, the Gwydir SDL model will be applied at the end of each water accounting period to determine the APT by undertaking the following steps:</p> <ul style="list-style-type: none"> <li>• extending the SDL Model input data (inflows, rainfall, evaporation, demands) to 30 June, being the end of the last water accounting year.</li> <li>• running the SDL Model from 1 July 2019 to end of the last water accounting year by initialising the simulation with recorded storage volumes and account limits at 30 June 2019.</li> <li>• determining the annual permitted take using the consumptive diversions calculated by the SDL Model plus the unmodelled estimates of take</li> </ul>	NSW Department of Planning, Industry & Environment	<p>The non-accreditable Gwydir Water Resource Plan Sustainable Diversion Limit Scenario Model report for the Gwydir Surface WRP is included in the WRP</p> <p>This is the most up to date numerical planning model. The model has been reviewed by MDBA as part of the WRP process</p>
	<i>Gwydir Regulated HEW</i>	The total volume of allocation to regulated HEW entitlements in the Gwydir SDL resource unit (SS22) at 30 June of the relevant water year plus any account balance on 1 July of the relevant water year plus/minus HEW entitlement trade.	NSW Department of Planning, Industry & Environment	The determination of HEW and how it is dealt with in the model is discussed in the Sustainable Diversion Limit Scenario Model report as part of the WRP
	<i>Net Gwydir Trade</i>	The net volume of consumptive water traded into and out of the Gwydir SDL resource unit (SS22) at 30 June of the relevant water year will be 0.	NSW Department of Planning, Industry & Environment	Under Clause 50(2)(a) of the Water Sharing Plan for the Gwydir Regulated River 2016 there is no trade between it and the Water Sharing Plan for Gwydir Unregulated River Water Sources 2012
<b>Floodplain harvesting permitted take</b>		The sum of water able to be taken by permitted floodplain harvesting from the Gwydir SDL resource unit (SS22) in the relevant water year.	NSW Department of Planning, Industry & Environment	For the period before the full inclusion of floodplain harvesting in the BDL/SDL model annual permitted take will equal the long term average as specified for the Gwydir SDL resource unit (SS22) under Schedule 3 column 2 of the Basin Plan.
<b>Watercourse permitted take</b>	N/A	The average annual extraction of water from watercourses other than regulated rivers in the Gwydir SDL resource unit (SS22), over the period from 1 July 1993 to 30 June 1999, under entitlements issued under Part 2 of the Water Act 1912.	NSW Department of Planning, Industry & Environment	<p>Annual watercourse permitted take will equal the long term average as specified for the Gwydir SDL resource unit (SS22) under Schedule 3 column 2 of the Basin Plan. The Basin Plan notes this to be 11GL.</p> <p>This information is the best available information and is sourced from the MDBA report Review of Cap Implementation 2008-09 (p40).</p>
<b>Runoff dams permitted take</b>	N/A	Annual runoff dams permitted take will equal the long term average as specified for the Gwydir SDL resource unit (SS22) under Schedule 3 column 2 of the Basin Plan	NSW Department of Planning, Industry & Environment	<p>Annual runoff dams permitted take will equal the long term average as specified for the Gwydir SDL resource unit (SS22) under Schedule 3 column 2 of the Basin Plan. The Basin Plan notes this to be 124GL.</p> <p>This information is the best available and is sourced from the National Water Commission report Surface and/or groundwater interception activities: initial estimates (p165)</p>

APT method parameters	APT method sub-parameters	Method description	Responsible agency	Additional information (not for accreditation)
<b>Basic rights permitted take</b>	<i>Domestic and stock basic rights</i>	The sum of water estimated as required to be taken under domestic and stock basic rights (regulated), domestic and stock basic rights (unregulated) and native title basic rights from the Gwydir SDL resource unit (SS22) in the relevant water year.  At the start of the WRP this volume was estimated to be 8.0GL from the Water Sharing Plan for the Gwydir Regulated River 2016 and the Water Sharing Plan for Gwydir Unregulated River Water Sources 2012	NSW Department of Planning, Industry & Environment	At the start of the WRP this volume was estimated to be 8.0GL from the Water Sharing Plan for the Gwydir Regulated River 2016 and the Water Sharing Plan for Gwydir Unregulated River Water Sources 2012.  The estimated volume was derived using farm water supplies data and a river length calculation method
	<i>Native title basic rights</i>	As at 1 April 2019, No determinations of native title rights have been made in relation to the water source under the <i>Native Title Act 1993</i> of the Commonwealth. As at that date, no water requirements have been identified for native title holders	NSW Department of Planning, Industry & Environment	
	<i>BLR regulated</i>		NSW Department of Planning, Industry & Environment	BLR regulated is included in the volume was estimated to be 8.0GL from the <i>Water Sharing Plan for the Gwydir Regulated River 2016</i> and the <i>Water Sharing Plan for Gwydir Unregulated River Water Sources 2012</i> at the start of the WRP
	<i>BLR unregulated</i>		NSW Department of Planning, Industry & Environment	BLR regulated is included in the volume was estimated to be 8.0GL from the <i>Water Sharing Plan for the Gwydir Unregulated River 2016</i> and the <i>Water Sharing Plan for Gwydir Unregulated River Water Sources 2012</i> at the start of the WRP
<b>Commercial plantations permitted take</b>	N/A	The long-term average estimate of net water taken by commercial plantations in the Gwydir SDL resource unit (SS22), as described in SKM, CSIRO & BRS (2010) Surface and/or groundwater interception activities: initial estimates Waterlines report No. 30, National Water Commission, Canberra.	NSW Department of Planning, Industry & Environment	The long-term average estimate of net water taken by commercial plantations in the Gwydir SDL resource unit will equal the long term average as specified for the Gwydir SDL resource unit (SS22) under Schedule 3 column 2 of the Basin Plan.
<b>Local reduction amount</b>		Volume of water recovered under various Commonwealth programs	NSW Department of Planning, Industry & Environment	Local reduction volume is recorded on MDBA website at TBC
<b>Shared reduction amount</b>		Volume of water recovered under various Commonwealth programs	NSW Department of Planning, Industry & Environment	Shared reduction volume is recorded on MDBA website at TBC
<b>Efficiency measures</b>		At accreditation there are no efficiency measures in the Gwydir WRP area	NSW Department of Planning, Industry & Environment	
<b>SDL adjustment mechanism projects</b>		At accreditation there are no SDL adjustment projects in the Gwydir WRP area	NSW Department of Planning, Industry & Environment	

Table 4. WRP Table F-4 Explanation of how the APT method accounts for matters listed under 10.12 of the Basin Plan

10.12 sub-clause	10.12 sub-sub-clause	How this is accounted for in the method for 10.10	Supporting information (not for accreditation)
(1)			
	(a) Forms of take	Table 3 sets out how the methods accounts for all forms of take and all classes of water access rights in the Gwydir SDL RU.	
	(b) Carryover allocations - Regulated River	Permitted take Model (ref Table 3) incorporates all applicable continuous accounting rules and provisions as specified in WSP	(b) Carryover allocations - Regulated River
	(b) Carryover allocations- Watercourse permitted take	Account management rules ensure take is accounted for in the annual permitted take	(b) Carryover allocations- Watercourse permitted take
	(c) Return flows	There are no permitted return flows (as defined by NSW) in the Gwydir Surface WRP area	Reference WMA 2000 Chapter 3 Part 2 Division 5
	(d) Trade	The net volume of consumptive water traded into and out of the Gwydir SDL resource unit (SS22) at 30 June of the relevant water year will be 0.	Under Clause 52 and 54 of the <i>Water Sharing Plan for the Gwydir Regulated River 2016</i> there is no trade of water entitlement or water allocation between it and the <i>Water Sharing Plan for Gwydir Unregulated River Water Sources 2012</i>

10.12 sub-clause	10.12 sub-sub-clause	How this is accounted for in the method for 10.10	Supporting information (not for accreditation)
	(e) Hydrological connection	Clause 14(1) and 48 of the <i>Water Sharing Plan for the Gwydir Regulated River 2016</i> is concerned with ensuring flows through the Gwydir to connected systems through limiting supplementary take	Clause 14(1) of the <i>Water Sharing Plan for the Gwydir Regulated River 2016</i> specifies the planned environmental water that is unavailable for take in the WRP area and represents water that could make a connection with the Barwon Darling system
	(f) Circumstances in which there is a change in way water held or taken	The Gwydir SDL model reflects current conditions in the regulated river, including updated inflow information, planning assumptions etc.	Any material change to the circumstances in which there is a change in way water held or taken will be factored into the model in consultation with the MDBA
	(g) Change in utilisation	Growth in use provisions in the WSPs are how the plan responds to changes in utilisation	<p>NSW manages growth in use through managing extraction to the long term annual average extraction limit or SDL.</p> <p>Any management action to growth in extraction from rivers will be managed through managing take from the regulated or unregulated rivers e.g. reducing supplementary take</p> <p>Any management action to growth in extraction in floodplain harvesting will be managed through managing take from the floodplain e.g. reducing floodplain take</p>

10.12 sub-clause	10.12 sub-sub-clause	How this is accounted for in the method for 10.10	Supporting information (not for accreditation)
	(h) Great Artesian Basin (GAB)	N/A	No water is sourced from the Great Artesian Basin and released into the Gwydir SDL resource unit.
	(i) Managed aquifer recharge	MAR does not occur in the Gwydir SDL resource unit as it is a surface water resource and this is a groundwater provision	This requirement is not applicable to surface water WRPs.
<b>(2)</b>	N/A	N/A	Not a requirement that needs to be demonstrated as being met.
<b>(3)</b>	disposal and acquisition of held environmental water	Accounting for the disposal and acquisition of HEW will be undertaken after the SDL method has been processed. This does not affect the method as it is undertaken after the method has been completed	



## 2.2. Meeting the requirements Action item 2

### 2.2.1. Demonstrating the annual permitted take method relates to the SDL

#### **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.

The relationship between the volumetric outputs and parameters of the annual permitted take method and the SDL method is demonstrated in Table 5. It displays the take parameters derived from the SDL model plus the other forms of take and the same parameters as determined by the APT method.

The changes in the APT methods for the modelled components (General Security and supplementary access entitlements) demonstrate a better understanding of the take behaviour of water users in the system. It also demonstrates changes in this behaviour due to water availability and other factors since 2009.

The volumes for floodplain harvesting are yet to be finalised in the NSW WRP areas where this will be managed under the entitlement system. A separate process is being undertaken to determine the volume. To improve transparency and stakeholder confidence in this process, NSW Department of Planning, Industry & Environment - Water and MDBA jointly commissioned an Independent Review of the implementation of the Floodplain Harvesting Policy in northern NSW. A draft peer review report was released for public comment from 8 May 2019 until 22 May 2019.

The draft peer review's findings verify progress to date and validate the significant investment made by the NSW and Commonwealth Governments. The review includes draft recommendations that NSW Department of Planning, Industry & Environment - Water is currently developing into an action plan for implementation. A key recommendation relates to the publication of documents explaining the modelling process used to determine licence entitlement and a need for workshops to be held to field questions on the modelling methodology.

Table 5. WRP Table F-3 Demonstration of APT method with the SDL

Form of Take	Sustainable Diversion Limit (GL/year)	Annual average permitted take, applied over a repeat of the historical climate conditions 1895–2009 (GL/year)
High Security <sup>1</sup>	9.3	9.3
General Security <sup>2</sup>	197.6	190.5
Supplementary access	81.6	84.2
Local Water Utilities	3.8	3.8
Floodplain Harvesting <sup>3</sup>	TBC	TBC
Unmodelled (MDBA estimates)		
Unregulated (excluding Basic Rights)	11.0	11.0
Runoff Dams	124.0	124.0
Commercial plantations	1.0	1.0
Other	11.1	11.1
<b>TOTAL</b>	<b>439.3</b>	<b>434.8</b>

The scenario includes ongoing development of a new method to estimate FPH that uses more detailed and up to date information to make a direct representation of FPH activities. This new model feature is incomplete as at the date of this report and the previous estimate of FPH take prepared by MDBA will continue to be used until the Healthy Floodplains Project is complete.

<sup>1</sup> Includes 400 ML of S&D piped entitlement issued Basin Pipe Project

<sup>2</sup> Includes S&D diversions modelled together with GS entitlements, which are estimated at 1.1 GL/y in both scenarios

<sup>3</sup> Floodplain harvesting APT to be finalised

## 2.3. Meeting the requirements Action Item 3

### 2.3.1. Ensuring SDL compliance – rules for take

#### Action item 3

For each SDL Resource unit in the WRP 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.

The rules for that manage the quantity of water taken from rivers are included in the NSW regulated and unregulated water sharing plans.

In the regulated rivers for example, the rules that limit how much water can be taken in the *Water Sharing Plan for the Gwydir Regulated River Water Source 2016* are under Part 7, Part 8, Part 10 Division 2, and Part 11 Division 2.

In the unregulated rivers, the rules that limit how much water can be taken in the *Water Sharing Plan for the Gwydir Unregulated River Water Sources 2012* are under Part 6 Division 2, Part 8 and Part 11 Division 2.

Take by run off dams is controlled under Sections 53 and 54 of the *Water Management Act 2000* (NSW). The method for estimating annual permitted take and annual actual take is an identical long term average annual figure method. Therefore, by definition, the annual actual take can never exceed annual permitted take.

Take by basic rights is managed under Division 2 of the regulated and unregulated water sharing plans. For example, basic rights are managed under Part 4 Division 2 of the *Water Sharing Plan for the Gwydir Regulated River Water Source 2016* and Part 5 Division 2 of *Water Sharing Plan for the Gwydir Unregulated River Water Sources 2012*. It is also managed under Sections 52 and 55 *Water Management Act 2000* (NSW). The method for estimating annual permitted take and annual actual take is an identical long term average annual figure method. Therefore, by definition, the annual actual take can never exceed to annual permitted take.

Take by commercial plantations is not currently included in the NSW water management framework. In all SDL resource units the risk to water availability from net growth in commercial plantations is low. The method for estimating annual permitted take and annual actual take is an identical long term average annual figure method. Therefore, by definition, the annual actual take can never exceed to annual permitted take.

Floodplain harvesting is currently not included under the NSW water management framework. NSW is implementing a floodplain management system and floodplain harvesting licencing through the Healthy Floodplains project. The implementation of floodplain harvesting entitlements and account management rules will result in rules that ensure that, as far as practicable, annual actual take does not exceed annual permitted take. Until the entitlements are issued and water sharing plans amended, interception by floodplain harvesting and potential growth in use under the SDL accounting framework will be met through the existing mechanisms in the NSW water sharing plans.

NSW has established clauses in the regulated and unregulated water sharing plans to manage any non-compliance with the Basin Plan SDLs. For example in the Gwydir WRP area, clauses 30, 33 and 34 of the *Water Sharing Plan for the Gwydir Regulated River 2016*, and clauses 28, 29 and 30

of the *Water Sharing Plan for Gwydir Unregulated River Water Sources 2012* establish the rules for compliance with a long-term annual diversion limit for the Gwydir SDL resource unit in a water accounting period. Similar rules will be included in all the NSW surface water resources in the Murray-Darling Basin.

## 2.4. Meeting the requirements Action Item 4

### 2.4.1. Limits on take for consumptive use

#### Action item 4

1. Subject to (3), for each surface water SDL resource unit in a WRP area, specify the limits that will be placed on take for consumptive use by:
  - (a) take under basic rights; or
  - (b) take by runoff dams; or
  - (c) net take by commercial plantations.

so that take does not exceed the level specified in column 2 of Schedule 3 to the Basin Plan, for that form of take in that SDL resource unit.
2. Subject to (3), for the SDL resource units in the Barwon-Darling, Border Rivers, Gwydir, Namoi and Macquarie-Castlereagh WRP areas, specify the limits that will be placed on take for consumptive use by floodplain harvesting so that take does not exceed the level:
  - (a) estimated by the Authority to be taken under BDL conditions when the Basin Plan was made, or
  - (b) estimated under a revised estimate presented to meet action 7 of this Schedule.
3. Limits placed on a form of take specified in (1) or (2) may be increased above the specified limits, if:
  - (a) reductions are specified in another form of take in that SDL resource unit that ensures there is no overall change in the long-term annual average quantity of water that can be taken, and
  - (b) take by the forms of take affected by the changes are capable of being accurately measured, or, if such measurement is not currently possible, being reasonably estimated using the best available method, and

the changes are not expected to result in take from the SDL resource unit ceasing to be an environmentally sustainable level of take.

The risk of growth in take by basic rights and the interceptions by run off dams and commercial plantations is low in NSW. NSW Department of Planning, Industry & Environment - Water, in consultation with the MDBA, has determined that the limits included in the Basin Plan for these forms of take will be deemed to remain the same for the purposes of SDL accounting. The risk these forms of take pose to other water sources and any potential growth will be reviewed when the NSW water sharing plans are reviewed.

For take by basic rights and the interceptions by run off dams and commercial plantations any growth in use will be managed through the rules for operating water accounts and managing access licences in the *Water Sharing Plan for the Gwydir Regulated River Water Source 2016* (Part 8) and the *Water Sharing Plan for the Gwydir Unregulated River Water Sources 2012* (Part 6). Consistent with the requirements of section 10.13(2) of the Basin Plan, any form of take that would be offset using this mechanism would be able to be measured or reasonably estimated.

## 2.4.2. Floodplain Harvesting

The purpose of the NSW Floodplain Harvesting Policy is to manage floodplain water extractions more effectively in order to protect the environment and the reliability of water supply for downstream water users, ensure compliance with the requirements of the WMA 2000, and meet the objectives of the National Water Initiative. Effective management of floodplain harvesting activities can only be achieved if there is a licensing system established that clearly articulates the access and sharing arrangements for these extractions.

There have been a number of complex issues raised in the process of developing the Floodplain Harvesting program. To improve stakeholder confidence, NSW Department of Planning, Industry & Environment - Water and the MDBA commissioned an independent peer review of the implementation of the Floodplain Harvesting Policy in northern NSW.

The key objective of the review is to provide transparency around the technical information and to also provide stakeholders with the confidence that the technical rigour and supporting processes are suitable to support policy implementation. The review findings will improve the process around the establishment of a robust floodplain harvesting licencing and management system.

As part of the implementation of the Floodplain Harvesting Policy, NSW Department of Planning, Industry & Environment - Water will work with the MDBA to amend relevant WRPs to incorporate floodplain harvesting entitlements and the rules for the management of floodplain harvesting. This is expected to happen during stages 4 and 5 of the Floodplain Harvesting Policy implementation.

### Monitoring Floodplain Harvesting

The methods to estimate the volume of floodplain take stated in relevant WRPs include but are not limited to:

- estimate of take based on knowledge gained during the Healthy Floodplains event,
- remote sensing information,
- an assumption of full utilisation.

To improve the understanding and quantification of floodplain harvesting, NSW released a draft monitoring and auditing strategy in February 2019. (<https://www.industry.nsw.gov.au/water/plans-programs/healthy-floodplains-project/monitoring-and-auditing-strategy>)

The strategy outlines the initial methods that will be used to quantify, report and assess compliance for floodplain harvesting take and then how this will be improved. As part of the amendments this WRP to include the floodplain harvesting entitlements and the rules, the methods of monitoring floodplain harvesting will also be included.

NSW is further developing the analytical models that will be used to determine the baseline diversion limit of floodplain harvesting in the Barwon-Darling, Border Rivers, Gwydir, Namoi and Macquarie-Castlereagh WRP areas. These volumes are expected to be greater than the BDL volumes specified in the Basin Plan. They represent the current best available information and most up to date determination of the volumes of water taken under floodplain harvesting.

When floodplain harvesting entitlements are in place, any growth in use will be managed through floodplain harvesting. Until the entitlements are issued and water sharing plans amended, interception by floodplain harvesting and potential growth in use under the SDL accounting framework will be met through the existing mechanisms in the NSW water sharing plans.

## 2.5. Meeting the requirements Action Item 5

### 2.5.1. Determining annual take for consumptive use

#### **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 6 and further detailed in text below the table. These provisions are offered for accreditation in the relevant water resource plans.

Table 6. WRP Table F-1. Parameters for the method for determining Annual Actual Take

AAT method parameters	AAT method sub-parameters	Method description	Responsible agency	Additional information (not for accreditation)
<b>Regulated river actual take</b>	N/A	The sum of all regulated river access licence diversions (as listed in Table 5-1) in the Gwydir SDL resource unit (SS22) for the relevant water year, as officially recorded in the Database system of the responsible agency.	WaterNSW	Measured and estimated in accordance with Water Management (General) Regulation 2018 and associated metering policies and practices outlined below
<b>Floodplain harvesting actual take</b>	N/A	The sum of water taken by all <i>actual floodplain harvesting (regulated)</i> and <i>actual floodplain harvesting (unregulated)</i> in the Gwydir SDL resource unit (SS22) for the relevant water year.	WaterNSW	
	<i>Actual floodplain harvesting (regulated and unregulated)</i>	Equal to the <b>floodplain harvesting take</b> volume described in Schedule F-2		Measured in accordance with the floodplain harvesting policy (under review)
<b>Watercourse actual take</b>	N/A	Equal to the <b>watercourse permitted take</b> volume described in Schedule F-2. Since the method for estimating annual actual take and annual permitted take is identical, annual permitted take cannot be exceeded meeting the requirements of s10.10(1)	NSW Department of Planning, Industry & Environment	Measured and estimated in accordance with Water Management (General) Regulation 2018 and associated metering policies and practices outlined below
<b>Runoff dams actual take</b>	N/A	Equal to the <b>runoff dams actual take</b> volume described in Schedule F-2. This take is not metered. Since the method for estimating annual actual take and annual permitted take is identical, annual permitted take cannot be exceeded meeting the requirements of s10.10(1)	NSW Department of Planning, Industry & Environment	To NSW knowledge when WRP is accredited the BDL represents the best available information in regards to this form of take

AAT method parameters	AAT method sub-parameters	Method description	Responsible agency	Additional information (not for accreditation)
<b>Basic rights actual take</b>	N/A	Equal to the <b>basic rights permitted take</b> volume described in Schedule F-2. Since the method for estimating annual actual take and annual permitted take is identical, annual permitted take cannot be exceeded meeting the requirements of s10.10(1)	NSW Department of Planning, Industry & Environment	To NSW knowledge when WRP is accredited the BDL represents the best available information in regards to this form of take
<b>Commercial plantations actual take</b>	N/A	Equal to the <b>commercial plantations permitted take</b> volume described in Schedule F-2. Since the method for estimating annual actual take and annual permitted take is identical, annual permitted take cannot be exceeded meeting the requirements of s10.10(1)	NSW Department of Planning, Industry & Environment	To NSW knowledge when WRP is accredited the BDL represents the best available information in regards to this form of take

1. These diversions will be measured by landholders and self-reported. The Floodplain Harvesting Monitoring Policy (yet to be finalised) sets out random auditing process for compliance

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

- all authorised works (including open channels and closed pipe), except pumps less than 100 mm, to have a meter that is pattern-approved and installed in accordance with Australian Standard 4747 by December 2021;
- 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;
- users with works that meet the infrastructure size or multiple works thresholds who wish to keep their existing meters will need to demonstrate, by the roll-out date, 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.

The new metering requirements will be implemented in a staged manner. The staged roll-out takes a risk-based approach, aiming to ensure the largest water users in NSW are metered and telemetered in the first year of the roll-out. The roll-out will also allow time for the market to adjust to meet demand for both pattern-approved meters and certified meter installers.

The roll-out dates are:

- Stage 1: Surface water users with pumps of 500 mm or larger must comply by 1 December 2019
- Stage 2: Remaining users in northern inland regions must comply by 1 December 2020
- Stage 3: Remaining users in southern inland regions must comply by 1 December 2021.



## 2.6. Meeting the requirements Action Item 7

### 2.6.1. Estimates of BDL

#### Action item 7

Propose amended estimates of BDL for each SDL resource unit in the WRP area.

For this action, 'estimates of BDL' are estimates set out as Notes to the description of BDL in Column 2 of Schedule 3 to the Basin Plan.

To meet these requirements NSW will provide updated BDL models and reports that will enable the MDBA to undertake an assessment. NSW has previously provided updated BDL models to the MDBA and continues to work with the MDBA to ensure that the revised estimates of BDL are based on best available information.

The most up to date BDL models and supporting documents are provided to the MDBA through Confluence at: <https://nswwmmi.atlassian.net/wiki/spaces/BSU/overview>

Appendix 1 of this report provides a list of the outstanding issues for each BDL model.

The Basin Plan and the NSW water management framework provide for adjustments to the SDL as a result of changes to the BDL arising from, but not limited to:

- improvements in the BDL model for the regulated river
- extension of the climate sequence used in the BDL model for the regulated river
- improvements in information about, and modelling of, floodplain harvesting take
- better information on baseline diversions for BDL components that are estimated.

## 2.7. Meeting the requirements Action Item 8

### 2.7.1. Prerequisite policy measures

#### Action item 8

For each of the following WRP areas:

— Murrumbidgee (item 8 in Schedule 1) and

— NSW Murray and Lower Darling (item 9 in Schedule 1)

- 1) Demonstrate that appropriate policy settings are in place for the implementation of the measures described in the Basin Plan as unimplemented policy measures (see s 7.15), by 30 June 2019.
- 2) Develop and agree a timetable with the Authority for NSW delivery of PPM implementation evidence and Authority comments.

NSW has submitted all Prerequisite Policy Measures documentation for the Murrumbidgee and Murray Lower Darling WRP areas to the MDBA for final assessment.

MDBA is assessing and has provided the documents to the independent assessors for their recommendations.

## 2.8. Meeting the requirements Action Item 9

### 2.8.1. Better management of environmental water

#### Action item 9

For each of the following WRP areas:

- Barwon-Darling Watercourse (item 2 in Schedule 1)
- Gwydir (item 4 in Schedule 1) and
- Macquarie-Castlereagh (item 6 in Schedule 1)

- 1) Provide a clear work plan setting out a pathway including milestones for progressing solutions to better manage environmental water where relevant under NSW law

Solutions include, but are not limited to nor prescribed as:

- better understand northern connectivity
- managing resumption of flows in the Barwon-Darling after an
- extended dry period
- limiting daily water take in the Barwon-Darling
- actively managing environmental water in stream in the Barwon-Darling, and relevant water sources in the Gwydir and Macquarie-Bogan unregulated water sharing plans where regulated held environmental water is delivered.

- 2) Publish a progress report on delivery of the roadmap for Better management of environmental water— Interim Solutions Package (NSW Government, June 2018).

- 3) Share the draft rules to improve the management and protection of environmental water in the Barwon-Darling, Gwydir and Macquarie-Bogan catchments with the MDBA, noting that these will be publically released as part of the draft WRP public exhibition process.

*Note: The Natural Resources Commission review of the Water Sharing Plan for the Barwon-Darling Unregulated and Alluvial Water Sources 2012 under section 43A of the Water Management Act 2000 has commenced. The timing, process and recommendations of this review may influence the content and timing of the deliverables specified in this action. Notwithstanding this, it is anticipated that public exhibition may commence in June 2019.*

The progress report on delivery of the roadmap for Better management of environmental water— Interim Solutions Package will be provided separately to this report.

## 2.9. Meeting the requirements Action Item 10

### 2.9.1. NSW and ACT interjurisdictional trade

#### Action item 10

For the Murrumbidgee WRP area (item 8 in Schedule 1):

- 1) Work with the ACT to develop a process for enabling two-way inter-jurisdictional water trading between NSW and the ACT,
- 2) Provide a workplan to establish the required arrangements, including principles, milestones, and timing.

Note: NSW acknowledges the Ministerial Council agreement on 14 December 2018 to enable two-way inter-jurisdictional water trading between NSW and the ACT.

NSW is committed to establishing a retail trade framework between the ACT and NSW. On 28 February, NSW and MDBA signed an agreement providing an extension on NSW's WRP

accreditation until 31 December 2019 with a commitment from NSW to work with the ACT government to agree to a process and work plan for gaining agreement on trade arrangements between NSW and the ACT.

Table 7 outlines the risks to developing the trade framework. A number of tasks are the responsibility of the ACT or the Commonwealth and have not included input from NSW. As NSW has no control over the ACT's decisions or timelines we regard these as risks to the development and implementation of the NSW elements of the trade framework and the timeline for these actions.

Many of these tasks and actions must be completed by the ACT before any action can be undertaken by NSW. Until the ACT has finalised these tasks a more accurate timeframe cannot be confirmed. An estimate of time required to complete tasks is included in the workplan.

Table 8 provides the workplan to develop a trade framework between NSW and ACT. The workplan included responsibilities of each state, an outline of the timeframe to complete each process and the objectives of the framework. The workplan was developed in consultation with the ACT and agreed to by both states. As part of the agreement, a progress report on the implementation of the workplan would be provided to the MDBA. This document serves as the progress report, provides an update of outstanding and current issues and lists additional risks that are outside the control of NSW.

The workplan outlined timeframes for various tasks necessary to finalise the framework. Whilst the task timelines are not currently definitive, the workplan highlights the objective that trade between the two states would be implemented by 31 December 2020 and should satisfy ACT's medium and long-term trade goals.

ACT have engaged consultants to develop a discussion/options paper on options for an interstate trade framework between NSW and ACT. A workshop with the consultants, ACT, NSW, MDBA and DAWR is scheduled for 24 June 2019 to discuss the options. Upon being provided with this information, it will be possible for NSW to update timelines to reflect a more accurate timeframe and assess whether work is on track.

**Table 7. Risks to project delivery (NSW / ACT Trade)**

Risk	Treatment
Delay in decision making by Commonwealth and ACT	NSW advocates for timely decision making
Inability to meet key deliverables due to competing priorities	Maintain focus on key deliverables
Inability to realise outcomes in the short term due to the length of time processes can take	Inform/educate decision makers and other key stakeholders on the process and timeframes
Lack of resources to develop trade requirements	Recruitment/outsourcing or recast project timelines to reflect resource availability and competing priorities
Current proposal of MDBA to recognise SRA rejected	ACT & DAWR are in discussions to fast track a new process to recognise ACT's SRA prior to 30 June 2019
Failure of ACT to develop an entitlement system	ACT to develop an alternative approach that would permit trade
Inability of NSW and ACT to reach an agreement on trade framework	MDBA to facilitate outcome that is Basin Plan compliant and achievable under NSW and ACT legislation.

Table 8. NSW / ACT Trade Phases and milestones

Tasks	Start date	Finish date	Status	Responsibility	Notes/actions
<b>Phase 1 Establish governance arrangements</b>					
<b>Milestone 1 - Form project team to deliver the action</b>					
1.1 Identify staff in each organisation and confirm members		9-Apr-19	Completed	NSW/ACT	Department of Planning, Industry & Environment - Water Project Manager - Kelly Lynch Project Sponsor - Peter Hyde  ACT Project Manager - Matt Kendall Project Sponsor - Ian Walker
1.2 Endorse workplan and operating procedures	18-Mar-19	16-Apr-19	Completed	Project team	
<b>Milestone 2 - Workshop &amp; meeting schedule</b>					
1.3 Confirm meeting arrangements		14-Mar-19	Completed	Project team	Meeting schedule shared between states includes monthly bilateral meetings and workshop dates
<b>Phase 2 develop work programs</b>					
<b>Milestone 1 - Review existing work</b>					

Tasks	Start date	Finish date	Status	Responsibility	Notes/actions
2.1 Follow-up actions from February workshop	19-Feb-19		Ongoing	Project team	<p>Minutes provided from consultant; ACT to provide NSW with formal notification and reasoning documented for the rejection of the MDBA's 2-step process for the recognition of ACT SRA; why doesn't it conform? The reasoning will drive the solution - required ASAP</p> <p>NSW wrote to the ACT on 29 March 2019 requesting the reasoning behind the decision to reject the previously agreed approach. Understanding this would assist NSW with the development of future options. To date, NSW has not received a reply from the ACT government (7/6/2019). A lack of understanding creates significant uncertainty for NSW regarding decisions that are made without NSW's opportunity of meaningful input.</p>
2.2 map out work programs:					
· NSW		9-Apr-19	Completed	NSW	NSW provided a workplan to MDBA on 16 April 2019; NSW has had several internal meetings and meets monthly with the ACT to provide updates and highlight issues.
· ACT			Commenced	ACT	ACT to provide an update on the status of their work program

Milestone 2 - agreement between the states on work programs and responsibilities

Tasks	Start date	Finish date	Status	Responsibility	Notes/actions
2.3 agreement on work programs and responsibilities within timeframes		10/4/19	Ongoing	NSW/ACT	This action is dependent on 2.2 NSW is awaiting update from ACT at 24 June 2019 workshop. Upon receiving this a more accurate timeline may be developed.
<b>Phase 3 Option development - recognition of SRA</b>					
Milestone 1 - identify options how to recognise SRA (4.9GL)					
3.1 ACT to finalise Commonwealth's position on SRA		TBA	Preferred option is for the Basin Plan to be amended to state how the ACT has already met its shared reduction amount requirement	ACT	ACT resolve Commonwealth issue with Commonwealth regarding addressing SRA through WRPs and Basin plan amendment  ACT & DAWR are in negotiations on the recovery of an 4.9GL to recognise ACT's SRA. NSW has not been part of this discussion and decisions are made beyond NSW's control. Discussions are ongoing.
3.2 Identify alternate options for SRA		TBA	Notional interstate trade arrangements	ACT/ Commonwealth	This action is dependent on 3.1 and is currently driven by ACT.
3.3 Identify outcomes for current NSW entitlement associated with ACT shared reduction volume		CEWO to complete	Not yet commenced	CEWO/ Commonwealth	This action is dependent on 3.1 Discussion on ACT's SRA are being driven by ACT & DAWR, NSW has not been party to these discussions.

Tasks	Start date	Finish date	Status	Responsibility	Notes/actions
Milestone 2 - recognition of the SRA					
3.4 Finalise options for recognising SRA		Subject to bilateral agreement with the MDBA and arrangements and timelines set	Not yet commenced	ACT/ Commonwealth	This action is dependent on 3.1. This is currently driven by DAWR and the ACT without input from NSW..
3.5 Identify options for protection of ACT SRA		2 months after Action 3.4	Not yet commenced	NSW/ACT	This action is dependent on 3.1 & 3.4
3.6 Finalise option for protection of ACT SRA		3 months after Action 3.5	Not yet commenced	NSW/ACT	This could include a number of mechanisms including trade or the protection of flow events in the unregulated Murrumbidgee

#### Phase 4 - Develop trade framework to enable ACT medium and long-term goals

##### Milestone 1 - option development

4.1 Identify options for medium term trade:	1-Oct-19		Commenced	NSW/ACT	This action is linked to Milestone 2 as the outcome may influence which options are viable
---	----------	--	-----------	---------	--

Tasks	Start date	Finish date	Status	Responsibility	Notes/actions
IVT Temporary trade framework (callable) Lease options		TBA or following the workshop?			Consultants are in the process of developing a discussion paper on IVTs and entitlement allocation framework for discussion with NW.  A workshop is scheduled with consultants, ACT, NSW, DAWR & MDBA on 24 June 2019 to discuss options.
4.2 Finalise options		3 months after Action 4.1	Not yet commenced	NSW/ACT	This includes seeking legal advice on preferred and other options
4.3 Implementation		6 - 12 months after 4.2	Not yet commenced	NSW/ACT	This includes the potential making of any new regulations or amendments to the NSW WMA 2000
<b>Phase 5 - Progress reporting</b>					
Milestone 1 -					
5.1 Identify relevant authorities requiring reporting (eg MDBA, Minco etc)			Ongoing	NSW/ACT	
5.2 Develop template for reporting		16/4/2019	Completed	NSW/ACT	
5.3 report to MDBA as per agreement					
Submit workplan		16-Apr-19	Completed	NSW	An agreed workplan, developed in consultation with ACT was submitted to the MDBA 16 April 2019.



Tasks	Start date	Finish date	Status	Responsibility	Notes/actions
Progress report on workplan implementation		16-Jun-19	Completed	NSW	This progress report, with input from ACT was submitted to the MDBA 17 June 2019
<b>Phase 6 - Basin Plan compliance</b>					
Milestone 1 - framework delivered within BP rules					
6.1 identify issues that may represent a trade restriction under the Basin Plan		Ongoing		NSW/ACT	Ongoing as part of development of any trade regime
6.2 Identify issues that would require Schedule D or Act amendments			Not yet commenced	NSW/ACT/MDBA	

## Appendix A. Outstanding BDL model issues

	Valley	Issue description	Level of issue	Comment/solution
1	Barwon-Darling	<p>NSW informed that the documentation to track changes in the historical versions of model is not available. NSW will prepare notes about historical changes and share it with MDBA. The last reliable version available is R62. The information will be cross checked from other sources like irrigator behaviour questionnaires (IBQs).</p> <p>Supply r62 scenario file, check for spreadsheets etc., supply copy of changes to r62 from confluence.</p>	Provision of existing documentation	<p><b>Future work – BDL not changed until updated Cap model accredited after FPH</b></p> <p>Cap = 198 GL = BDL by definition in the schedule.</p> <p>BDL remains 198 GL, unless the Barwon-Darling Cap model is redefined and re-accredited</p> <p>Cap model for B-D is due to be refined and re-accredited as a part of the FPH process. In the meantime, the BDL for the Barwon-Darling will remain as 198 GL. The independent model improvements will not be addressed in IQQM, deferred to a Source model.</p> <p>r62 is the model that best represents the conditions in 2009 and is consistent with the 198 GL of Cap (MDBA agrees)</p>
2	Barwon-Darling	<p><i>NSW clarified that there will be no proposed changes to the BDL (excluding impacts of FPH). <b>PI confirm this</b></i></p> <p>Andrew Brown</p>	Written confirmation of verbal advice	<b>NSW will make changes</b>
3	Barwon-Darling	<p>NSW will clarify the statement “pre-WSP” in the scenario report to show it refers to 30 June 2009 level of development.</p>	Written confirmation of verbal advice	<b>NSW will make changes</b>

	Valley	Issue description	Level of issue	Comment/solution
4	Barwon-Darling	Principally NSW and MDBA agreed to extend the revised BDL model till Menindee inflows. It's a joint action item for both the organisations and details of its implementation process will be discussed separately.	Accepted, but potential for follow-up requests	<p><b>Agreed</b></p> <p>NSW are pulling together a simple report on how well this work matches the back-calculated inflows.</p> <p>It was in the MDBA's BDL model, and so will be included</p> <p>Additional improvements will be made once MDBA work is complete, but not necessarily for current model (timing is aligned with SOURCE)</p>
5	Barwon-Darling	<ul style="list-style-type: none"> <li>Differences between tributary valley BDL models and BD model inflows. Need to add a section that explicitly documents what upstream model scenario was used. Also look at updating QLD models inflows. Issues around timing of model builds.</li> <li>NSW will add a table in the scenario report showing the origin of tributary inflows. The revised BDL model will be updated after the revised BDL models of tributaries are finalized.</li> </ul>	Documentation, further discussion on versions required.	<p><b>Agreed</b></p> <p>A table will be added to the BDL reports to make it clear which model runs from upstream valleys have been used for inflows.</p> <p>Barwon-Darling is the last valley in the schedule, and so best efforts will be made to use the final or latest version of upstream inflow sequences. MDBA to share info with NSW about the model run numbers used by Qld for its BDL/WRPs to facilitate this process.</p>

	Valley	Issue description	Level of issue	Comment/solution
6	Barwon-Darling / Intersecting streams	The Toorale station issue is being investigated separately in the process of revision of LTDLE factors of intersecting streams. NSW will confirm that the numbers from the model should be consistent with the numbers from this work.	Timing may be an issue	<p><b>Agreed</b></p> <p>Intersecting Streams BDL will be updated to reflect interim Toorale decision on LTDLE factors.</p> <p>Paper on interim decision on Intersecting Streams already covers off on the next steps for the model (Action: NSW to reference this paper in the BDL report)</p> <p><a href="https://www.industry.nsw.gov.au/water/plans-programs/water-resource-plans/ltidle-cap-factors">https://www.industry.nsw.gov.au/water/plans-programs/water-resource-plans/ltidle-cap-factors</a></p>
7	Gwydir	MDBA has some concerns regarding extra inflows added for FPH work (ungauged estimates)	Q of technical methodology, also documentation	<p><b>Agreed post-WRP work pathway - FPH</b></p> <p>Model component for regulated rivers can be provided and documented (excluding FPH components) – with the FPH process to continue beyond WRP submission and be updated once completed.</p> <p>Documentation being addressed as part of the floodplain harvesting process (Action: NSW to provide draft FPH model reports from the Border Rivers; MDBA to consider whether scope of documentation will meet requirements)</p> <p>NSW will supply a snapshot of the current revision of the FPH report on 29 July</p> <p>MDBA comfortable that interim Reg Rivers BDL update is low risk and final documentation can be managed as a part of the longer term FPH process</p>
8	Gwydir	MDBA wants documentation regarding groundwater use on crops	Documentation	<p><b>Agreed post-WRP work pathway – FPH</b></p> <p>MDBA recognises that this is an improvement over current, and that documentation and improvement of water balance is a FPH/post-WRP work program</p> <p>Information will improve going forward</p>

	Valley	Issue description	Level of issue	Comment/solution
9	Gwydir	<p>Revised BDL model has updated representation of ECA/PEW, which is different from the previous model. NSW clarified that the revised ECA is a better representation of how the water is being used.</p> <p>It was developed in close cooperation with OEH. It is agreed that MDBA will write a letter to NSW to seek advice about the change and whether is a formal policy position as on June 2009.</p>	Documentation/policy question	<p><b>Agreed</b></p> <p>BDL model to pick up the rules of the WSP in place in 2009 for this particular issue</p>
10	Gwydir	<p>North West unregulated flow management (NWUFM) plan is neither in the new model nor in the old model. NSW confirmed that rules were not active in 2009.</p> <p>It is agreed that MDBA will write a letter to NSW to seek their advice on how the rules should be reflected in the definition of BDL.</p>	Policy question	<p><b>For Exec discussion</b></p> <p>Option A – not modelled before, so no need to pick up in new model</p> <p>Option B – pick it up as a part of BDL updates to ensure that the BDL model is more consistent with WSP</p>
11	Lachlan	Update Belubula model inflows to Lachlan	Relies on Belubula model assessment	<p><b>Agreed</b></p> <p>BDL model for Belubula can be updated as described because it will still match the 'pre-plan' in place in 2009 (ie EOS flow of 10 ML/d is provided when practically possible).</p> <p>Upon completion, Lachlan BDL inflows will be updated as well.</p>

	Valley	Issue description	Level of issue	Comment/solution
12	Lachlan	Versioning typo in BDL report	documentation	<b>Agreed</b> Wrong version number in the report – that will be fixed
13	Lachlan	<i>Action required by NSW</i>  NSW has not submitted any info yet as per following decision taken in last meeting on 18/7/2018.  <i>“MDBA has flagged 3 gauges in updated preliminary advice Oxley, Coorong and Oxley, include a statement in the BDL report that we have adjusted flows downstream of Booligal to fit with the BWR report on Lachlan wetlands to better represents water distribution in the environmental asset. Agreed no impact on BDL.”</i>	documentation	<b>Agreed</b>
14	Lachlan	Add the groundwater interaction nodes from MDBA work		<b>Agreed</b> NSW will apply in the model (plus Namoi and Murray)
15	Lachlan	Question of Lake Brewster recovery recognised through this BDL process?		<b>Agreed</b> Not to be dealt with as a part of the BDL model MDBA + DAWR – consider whether it can be recognised as an efficiency project

	Valley	Issue description	Level of issue	Comment/solution
16	Macquarie	<p>Revised estimate of diversions and differences in losses:</p> <p><i>Action required by NSW.</i></p> <p>In the last meeting NSW agreed to provide a documentation/calibration report to support the revised estimate of diversions and differences in losses. The documentation/calibration report still to be provided.</p>	Documentation	<p><b>Agreed</b></p> <p>NSW is revising the Macquarie model to address other identified issues. This will alter the diversions and losses, and NSW will provide documentation for the changes made (this may not document all changes made historically)</p> <p>Potential presentation from NSW modellers to MDBA to describe major changes</p>
17	Macquarie	<p>Increase in on-farm storage volume</p> <p><i>Action required by NSW.</i></p> <p>The information/documentation to support the increase in OFS volume is yet to be provided by NSW. NSW agreed to update the revised BDL scenario report with a source of the estimate from WaterNSW.</p>	documentation	<p><b>Agreed post-WRP work pathway - FPH</b></p> <p>MDBA agrees that NSW unable to supply documentation on the initial figure, but improved documentation of OFS volumes etc. will be developed as part of FPH process</p>

	Valley	Issue description	Level of issue	Comment/solution
18	Macquarie	<p>Reduction in EOS:</p> <p><i>Action required by NSW.</i></p> <p>The revised BDL model has approximately 35% lower EOS flows as compared to previous model. NSW explained that inflows to Burrendong Dam are lower in the revised BDL model, due to recalibration and it could be a reason of reduction in the EOS flows.</p> <p>NSW agreed to provide calibration report or supporting information in this regard which is yet to receive.</p>	Documentation	<b>Agreed – see item #16</b>
19	Macquarie	<p>Replenishment flows:</p> <p><i>Action required by NSW.</i></p> <p>Water NSW was able to meet replenishment requirements of clause 58 of the WSP by using lower volumes of water than the upper limit specified in the WSP.</p> <p>NSW agreed to provide supporting information to demonstrate this.</p>	Documentation	<p><b>Agreed</b></p> <p>Model report to describe that the WSP defines an upper limit, and the original model assumed all was used. Updates to the model apply how much was used in practice – this remains consistent with the rules in the WSP</p>



	Valley	Issue description	Level of issue	Comment/solution
20	Macquarie	<p>Flipping around of EWA sub-accounts:</p> <p><i>Action required by MDBA.</i></p> <p>The issue is discussed in detail and it was agreed that MDBA will write a letter to NSW to get a final position.</p>	Policy	<p><b>Agreed</b></p> <p>Model as per the 2009 WSP</p> <p>OEH support (requested) this rule change – model updated rule in APT model, but this doesn't influence the BDL model which should reflect the 2009 WSP rule</p> <p>BDL to have the old rule; APT to have the updated rule</p>
21	Macquarie	<p>Parts of the Macquarie model are being recalibrated to address unacceptable fit issues, mostly to do with some tributary calibrations and the storage ordering. Sufficient documentation will be required to explain the changes made</p>		<p><b>Agreed – refer to Item #16</b></p>
22	Murrumbidgee	<p>Agreed to report BDL based on net diversions for MIA, CIA &amp; Nimmie-Caira:</p> <p><i>Action required by NSW.</i></p> <p>NSW to update revised BDL scenario report.</p>		<p><b>Agreed</b></p> <p><b>General agreement for Murrumbidgee</b></p> <p>Some model changes, but any SDLAM changes made were extensively scrutinised by the MDBA and the states. Modelled diversions are very robust to these changes, and so changes are low risk.</p> <p>SOURCE model likely in 2020-21, and will include new (full) documentation suite</p>

	Valley	Issue description	Level of issue	Comment/solution
		<p>Change of entitlements:</p> <p><i>Action required by NSW.</i></p> <p>NSW agreed to add text around the entitlement update process, trade adjustments and high security conversion process in the BDL scenario report. Views of North Redbank people about the LTDLE process will also be included in the report.</p> <p>The supporting documents /revised BDL report is not received yet.</p>		<p><b>Agreed</b></p> <p>Can be documented by noting that the BDL has been updated to capture all entitlements in register at the time</p>
		<p>Blowering Dam Inflow</p> <p><i>Action required by NSW.</i></p> <p>NSW to verify if the back calculated inflows of Blowering Dam from Snowy already includes the effects of Water for Rivers (WfR) recovery. The inflow should be broken into three distinct periods' i.e. modelled snowy inflows + WfR, observed snowy inflows + WfR and just observed snowy inflows because it already includes WfR.</p> <p>NSW to update the revised BDL scenario report.</p>		<p><b>Follow up – tech discussion required with NSW to properly understand</b></p> <p>Water for rivers used to be a dam node from below storage. Was changed to demand from within storage so it doesn't compete for outflow capacity.</p>

	Valley	Issue description	Level of issue	Comment/solution
		<p>Finley escape drain operation</p> <p><i>Action required by NSW.</i></p> <p>The inflows through the Finley escape is the same in both the original and updated BDL models. The Finley escape was recalibrated during the implementation of SDL projects. It was decided in the last meeting that the recalibrated escape flows should be adopted.</p> <p>NSW to update the revised BDL model and revise the scenario report accordingly.</p>		<p><b>Needs further discussion with NSW</b></p> <p>MDBA can provide updated time series for Finley escape. If it is as simple as a new time series, it could be accommodated. If it required additional modelling work, it will not be dealt with in this round.</p>
		<p>Burrinjuck Dam translucent window</p> <p><i>Action required by NSW.</i></p> <p>The difference in ending dates of translucent window between model and water sharing plan is to be sorted out by NSW and update model and scenario report.</p>		<p><b>Agreed</b></p> <p>Noted as an issue that is v. minor, and can be dealt with in SOURCE model</p>

	Valley	Issue description	Level of issue	Comment/solution
		<p>Blowering Dam transparent releases</p> <p><i>Action required by NSW.</i></p> <p>It was agreed to using the natural inflow sequence approximation method to determine the release rate. NSW will check why model maximum release of 565 ML/d is different from what mentioned in WSP of 560 ML/d.</p> <p>NSW to update the revised BDL model and scenario report.</p>		<p><b>Agreed</b></p> <p>Noted as an issue that is v. minor, and can be dealt with in SOURCE model</p>
		<p>Representation of Water for Rivers</p> <p><i>Action required by NSW.</i></p> <p>NSW to investigate the difference in WfR recoveries reflected in model (i.e. 83 GL/year) against what was reflected in basin plan modelling i.e. 96 GL/year LTCE.</p> <p>NSW to update the revised BDL model and revise the scenario report accordingly.</p>		<p><b>For Tech follow up</b></p> <p>Have correct tools. Need to collectively agree the right numbers to include. Only a number issue – can be fixed.</p>

	Valley	Issue description	Level of issue	Comment/solution
		<p>Issue 8, 10, 11, 12, 13, 14, 15, 16, 17, 19:</p> <p><i>Issues agreed, NSW to provide report</i></p> <p>The issues are agreed, however NSW has to provide report, which is not received yet.</p>		<p><b>Agreed</b></p> <p>NSW to provide; plus two other reports</p>
		<p>Change in inflows of two gauges:</p> <p><i>Action required by NSW.</i></p> <p>MDBA mentioned two gauges i.e. Billabung and Kyeamba Creeks where approximately 10% changes in daily flow patterns are observed across the entire period.</p> <p>NSW agreed to look into the issue and revise the scenario report after adding a one page addendum to report explaining the difference. The revised scenario report is yet to receive.</p>		<p><b>Agreed post-WRP work pathway - SOURCE</b></p> <p>Can be documented and fixed in SOURCE model</p>

	Valley	Issue description	Level of issue	Comment/solution
		<p>Estimation of ungauged inflows based on a factor of nearby gauged inflow</p> <p><i>Action required by NSW.</i></p> <p>The long term average (LTA) value of residual inflows of Hillas Creek is 44% of LTA of gauged inflow at Mt Adrah (410043) which is same as the catchment area ratio of two catchments. However the daily residual inflow values are not in the same proportion as LTA value and catchment ratio.</p> <p>NSW agreed to investigate the issue and amend the model and report accordingly. The revised model and report are not received yet.</p>		<p><b>Agreed post-WRP work pathway - SOURCE</b></p> <p>Can be documented and fixed in SOURCE model</p>

	Valley	Issue description	Level of issue	Comment/solution
		<p>Burrinjuck Dam Inflow</p> <p><i>Action required by MDBA.</i></p> <p>Technical difference of opinion exists between the MDBA and the NSW. MDBA position is that calculating Burrinjuck Dam inflows ACT water demand should be based on full use of entitlements as per their cap provisions. However, NSW thinks that it should be based on the actual use of water in ACT.</p> <p>MDBA will elevate the issue to be resolved at the policy level.</p>	policy question	<p><b>For Exec discussion</b></p> <p>MDBA would like to reflect full development (in BDL conditions)</p> <p>NSW flags that if we use full development, would seek to use published studies on increased urban runoff</p>
		<p>Recognition of Tandou IVT as contributing to the Cap of the Murrumbidgee valley (and hence the BDL). MDBA currently states that the modelled Tandou IVT is subtracted from the Lower Darling accounts each year, however this figure is not then added onto a source valley (i.e. Murrumbidgee) to close the loop. Independent review recommended that this trade be included because it was absent from the Murrumbidgee model.</p>		<p><b>For Exec discussion</b></p> <p>MDBA to write a half page summary of the differing views so the exec can consider.</p> <p>NSW want to add to Murrumbidgee to close loop</p> <p>MDBA suggests that those entitlements are already in the Murrumbidgee model, and so don't need to be represented</p>

	Valley	Issue description	Level of issue	Comment/solution
		<p>Issues 1, 2, 5, 6:</p> <p><i>Partly resolved.</i></p> <p>NSW provided a short report which identifies the calibration changes updated in 2012. It provides a very basic level information and will be good to include some graphs and statistics comparing the modelled and observed flows like FDC, bias etc.</p> <p>MDBA accepts that these are model improvements but some extra evidence is required to demonstrate it. The evidences may exist in the following reports, it is good if NSW can share them with MDBA.</p> <p><i>1. Ref Updating Rainfall, Evaporation &amp; Streamflow Data used in Namoi IQQM 2012.doc</i></p> <p><i>2. Ref paragraph 'Background Analysis' in PianRchFlowCalib.doc</i></p> <p><i>3. Ref NamoiFlowCalibV4.ppt</i></p>	<p>additional documentation request</p>	<p><b>Agreed post-WRP work pathway - FPH</b></p> <p>The listed documents have been provided</p> <p>NSW to confirm the extent of model reporting (i.e. is the FPH just for the FPH changes, or is it a full model build report) – share Border Rivers working draft of FPH report</p>



	Valley	Issue description	Level of issue	Comment/solution
		<p>Issue 7; decrease in EOS @ Goangra (Namoi) and @ Waminda (Pian):</p> <p><i>Action required by NSW.</i></p> <p>Not covered in the calibration report submitted by NSW. NSW is requested to provide some evidence to support it.</p>	additional documentation request	<p><b>Agreed</b></p> <p>NSW to confirm the extent of model reporting (i.e. is the FPH just for the FPH changes, or is it a full model build report)</p> <p>If in FPH report, all good</p> <p>If not, a graph comparing model EOS to recorded EOS flows to demonstrate improved performance that can be attached to MDBA report to confirm the model is behaving - share Border Rivers working draft of FPH report</p>
		<p>Issue 8, 9, Peel model calibration report:</p> <p><i>Action required by NSW.</i></p> <p>NSW agreed to provide Peel model calibration report, not yet received.</p>	additional documentation request	<p><b>Agreed</b></p> <p>There is a PowerPoint presentation – NSW to share with MDBA and MDBA to review to satisfy that Peel is robust</p>
		<p>Issue 11; permanent trade:</p> <p><i>Action required by NSW.</i></p> <p>NSW agreed to investigate the representation of permanent trade in models. Info is not yet received from NSW.</p>	request to add new feature	<p><b>Agreed</b></p> <p>Permanent trade was not allowed for under BDL conditions (Julianne to confirm this is the case; amendment made to allow for this in 2014)</p>

	Valley	Issue description	Level of issue	Comment/solution
		<p>Issue 12; groundwater interactions:</p> <p><i>Issue settled.</i></p> <p>NSW confirmed that surface water groundwater interactions will be modelled in Namoi Source model.</p>	add MDBA work	<p><b>Agreed (see Item #14)</b></p> <p>Will be included as best available</p>
		<p>Issue 13; North West unregulated flows management rule</p> <p><i>Unresolved.</i></p> <p>North West unregulated flow management (NWUFM) plan is neither in the new model nor in the old model. NSW confirmed that rules were not active in 2009.</p> <p>It is agreed that MDBA will write a letter to NSW to seek their advice on how the rules should be reflected in the definition of BDL.</p>	policy	<b>For Exec discussion (see Item #10)</b>
		<p>Confirm that all BDL figures are being calculated as per the agreed process co-developed through the LTDLE process</p>		<b>Agreed</b>
		<p>Add unmodelled components as per agreed estimating method co-developed for the LTDLE process</p>		<b>Agreed</b>