



Natural Resources Commission

Final report
**Audit of the implementation of
the Namoi, Gwydir and Macquarie
regulated water sharing plans**
August 2022



Enquiries

Enquiries about this report should be directed to:

Name	Alex Benecke
Phone	(02) 9228 4844
Fax	(02) 9228 4970
E-Mail	nrc@nrc.nsw.gov.au
Postal address	GPO Box 5341, Sydney NSW 2001

Acknowledgement of Country

The Natural Resources Commission acknowledges and pays respect to traditional owners and Aboriginal peoples. The Commission recognises and acknowledges that traditional owners have a deep cultural, social, environmental, spiritual and economic connection to their lands and waters. We value and respect their knowledge in natural resource management and the contributions of many generations, including Elders, to this understanding and connection.

In relation to the Namoi, Gwydir and Macquarie regulated rivers, the Commission pays its respects to the Kamilaroi, Wailwan, Wongaibon and Wiradjuri traditional owners past, present and future, as well as other Aboriginal peoples for whom these waterways are significant.

This work is copyright. The *Copyright Act 1968* permits fair dealing for study, research, news reporting, criticism and review. Selected passages, table or diagrams may be reproduced for such purposes provided acknowledgement of the source is included.

Document No: D21/4923

ISBN: 978-1-925204-77-3

Acronyms and abbreviations

Act	<i>Water Management Act 2000 No 92 (NSW)</i>
AHD	Australian Height Datum
AWD	Available Water Determination
ASAE	Australian Standard on Assurance Engagements
CAG	Customer Advisory Group
CAIRO	Computer-aided improvements to river operations
CARM	Computer-aided River Management
Commission	the Natural Resources Commission
CIRaM	Compliance Investigation Reporting and Management system
DPE-EHG	Department of Planning and Environment – Environment and Heritage Group
DPE-Water	Department of Planning and Environment – Water
DPIE-EES	(former) Department of Planning, Industry and Environment – Environment, Energy and Science
DPIE-Water	(former) Department of Planning, Industry and Environment – Water
DPI-Water	(former) Department of Primary Industries – Water
EFRG	Environmental Flow Reference Group (Macquarie plan)
EWA	Environmental Water Allowance (Macquarie plan)
F	Finding
GL	gigalitre
Gwydir 2004 plan	<i>Water Sharing Plan for the Gwydir Regulated River Water Source 2002</i>
Gwydir plan	<i>Water Sharing Plan for the Gwydir Regulated River Water Source 2016</i>
iWAS	Internet Water Accounting System
LTEL	Long-term extraction limit
Namoi 2004 plan	<i>Water Sharing Plan for the Upper Namoi and Lower Namoi Regulated River Water Sources 2003</i>
Namoi plan	<i>Water Sharing Plan for the Upper Namoi and Lower Namoi Regulated River Water Sources 2016</i>
NRAR	Natural Resources Access Regulator
Macquarie 2004 plan	<i>Water Sharing Plan for the Macquarie and Cudgegong Regulated Rivers Water Source 2003</i>
Macquarie plan	<i>Water Sharing Plan for the Macquarie and Cudgegong Regulated Rivers Water Source 2016</i>
ML	megalitre

O	Observation
Proposed Macquarie plan 2020	<i>Water Sharing Plan for the Macquarie and Cudgegong Regulated Rivers Water Source 2020</i>
R	Recommendation
ROSCCo	River Operations Stakeholder Consultation Committee
SA	Suggested action
Regulation	<i>Water Management (General) Regulation 2018 (NSW)</i>
WAL	Water access licence
WAS	Water Accounting System
WLS	Water Licensing System

The Commission notes that as a result of machinery of government changes effective 1 April 2022, the Department of Planning, Industry and Environment (DPIE) changed to the Department of Planning and Environment (DPE). Within that department the Environment, Energy and Science group (EES) also changed to the Environment and Heritage Group (EHG). The Commission has adopted the new names throughout this report, acknowledging that DPIE and EES were the names throughout the audit period.

Table of Contents

1	Executive summary	1
1.1	Audit conclusion	1
1.2	Audit findings and recommendations	1
2	The Commission's role and audit approach	11
2.1	The Commission's role in auditing management plans.	11
2.2	Audit objective	11
2.3	Audit standards	11
2.4	Audit criteria	12
2.5	Audit procedures	12
2.6	Limitations	13
2.7	Exclusions	13
3	Audit context	14
3.1	Purpose of water sharing plans under the Act	14
3.2	Context for implementation	14
4	Plan areas	16
5	Criterion 1 – Vision, objectives, strategies and performance indicators	24
5.1	Criterion overview	24
5.2	Current roles, systems and processes	24
5.3	Performance monitoring provisions have not been given effect to	24
5.4	Potential impacts	26
5.5	DPE-Water is making efforts to improve MER	26
5.6	Recommendations	27
6	Criterion 2 – System operation rules	28
6.1	Criterion overview	28
6.2	Current roles, systems and processes	28
6.3	Systems operations provisions have partially been given effect	30
7	Criterion 3 – Long-term extraction limits	45
7.1	Criterion overview	45
7.2	Current roles, systems and processes	45
7.3	Long term extraction limit provisions have been partially given effect to	46
7.4	Potential impacts	47
7.5	DPE-Water is making efforts to address LTEL requirements	47
7.6	Recommendations	47
8	Criterion 4 – Available water determinations	49
8.1	Criterion overview	49
8.2	Current roles, systems and processes	49
8.3	Provisions relating to AWDs have been partially implemented	50
8.4	Recommendations	57
9	Criterion 5 – Granting access licences	58
9.1	Criterion overview	58
9.2	Current roles, systems and processes	59

9.3	Granting access licences provisions were implemented	60
9.4	Recommendations	60
10	Criterion 6 – Managing access licences	61
10.1	Criterion overview	61
10.2	Current roles, systems and processes	61
10.3	Managing access licence rules have partially been given effect to	64
11	Criterion 7 – Rules for water supply work approvals	78
11.1	Criterion overview	78
11.2	Current roles, systems and processes	78
11.3	Rules for water supply work approvals were partially implemented	80
11.4	Potential Impacts	82
11.5	Recommendations	82
12	Criterion 8 – Access licence dealing rules	84
12.1	Criterion overview	84
12.2	Current roles, systems and processes	84
12.3	Rules for access licence dealing rules were implemented	86
12.4	Recommendations	86
13	Criterion 9 – Mandatory conditions	88
13.1	Criterion overview	88
13.2	Current roles, systems and processes	89
13.3	Rules for mandatory conditions have been partially implemented	90
13.4	Potential impacts	93
13.5	Recommendations	94
14	Criterion 10 – Amendments	96
14.1	Criterion overview	96
14.2	Current roles, systems and processes	96
14.3	Non-mandatory amendment provisions were given due consideration	96
14.4	Recommendations	96
Appendix A – Water supply works in the Namoi, Gwydir and Macquarie plans		97

1 Executive summary

The Natural Resources Commission (the Commission) has audited three water sharing plans in the northern Murray Darling Basin in NSW (referred to in this report as 'the plans') to ascertain whether the provisions of the plans are being given effect to, as required under Section 44 of the *Water Management Act 2000 No 92* (the Act).¹

The plans audited in this report include the:

- *Water Sharing Plan for the Upper Namoi and Lower Namoi Regulated River Water Sources 2016* (Namoi plan)
- *Water Sharing Plan for the Gwydir Regulated River Water Source 2016* (Gwydir plan)
- *Water Sharing Plan for the Macquarie and Cudgegong Regulated Rivers Water Source 2016* (Macquarie plan).

The implementation of these plans is critical and should the government not be able to meet its commitments under these plans, there is potential for reputational and financial penalties as well as impacts to communities.

1.1 Audit conclusion

While many of the provisions of the plans are being implemented, the Commission considers that on balance the provisions of the plans have not been given full effect in accordance with the Act.

The audit conclusion is based on the procedures performed and the evidence obtained. The Commission is of the view that the information presented fairly reflects the implementation of the plans.

1.2 Audit findings and recommendations

The Commission found that across most criteria, the relevant organisations generally have systems, processes and procedures in place that align with legislative requirements and support implementation of the plans.

The audit focussed on current implementation practices to determine recommendations but also considered evidence from the full audit period, which is defined as being from Plan commencement under the Act (1 July 2016) to 30 June 2021 (comprising five water years).

The Commission found that key aspects of the plans were being implemented as outlined below:

- water access licences (WAL) and supply work approvals were generally assessed and processed in accordance with legislative requirements
- WAL management tools and processes were generally in place to manage WALs
- dealings were undertaken in accordance with legislative requirements
- Available water determinations (AWD) were made and generally applied to licences in accordance with legislative requirements (however some gaps were observed in the AWD calculation process)

¹ Note that in this report, 'the Act' is used to refer only to the *Water Management Act 2000* and 'the Regulations' refers only to the *Water Management (General) Regulations 2018*.

- Long-term extraction limit (LTEL) assessment and compliance processes have commenced in the Gwydir and Macquarie.

The key issues needing to be addressed across the three plans are:

- Prioritisation of water sharing needs to be undertaken in accordance with Section 5(3) in the Act. The environment and basic landholder rights have not been prioritised in relation to:
 - delivery of replenishment flows (see Finding **F2.1** and **F2.2**)
 - planned environmental flows in the Namoi (see Finding **F2.6**)
 - delivery of orders to general security whilst depleting essential supply account balances (see Finding **F6.1**).
- There need to be rules in accordance with Clause 61 in the Namoi and Clause 60 in the Gwydir and Macquarie plans to govern decision making in relation to release rates from storages and grouping of orders. Release rates can adversely impact the environment, river banks and public safety (see Finding **F2.3**). Release rates are important particularly in the implementation of grouping of orders, which can have the potential to cause adverse impacts to the environment, and to downstream users as the impacts and the benefits are not shared equally across all users (see Suggested Action **SA2.3**).
- Gaps in mandatory conditions should be addressed to support accountability for WAL holders to manage take within allocation in accordance with Clause 56 in the Namoi plan and Clause 55 in the Gwydir and Macquarie plans (see Finding **F9.1**).

Table 1 outlines the audit findings and recommendations against the ten audit criteria:

- **Criterion 1:** The relevant responsible parties have implemented plan provisions relating to vision, objectives, strategies and performance (see **Chapter 5**)
- **Criterion 2:** The relevant responsible parties have implemented the system operation rules as set out in the Plan, incorporating planned environmental water provisions (see **Chapter 6**)
- **Criterion 3:** The relevant responsible parties have implemented plan provisions relating to limits to the availability of water, specifically long-term average annual extraction limits (see **Chapter 7**)
- **Criterion 4:** The relevant responsible parties have implemented plan provisions relating to limits to the availability of water, specifically available water determinations (see **Chapter 8**)
- **Criterion 5:** The relevant responsible parties have implemented plan provisions relating to granting access licences (see **Chapter 9**)
- **Criterion 6:** The relevant responsible parties have implemented plan provisions relating to managing access licences (see **Chapter 10**)
- **Criterion 7:** The relevant responsible parties have implemented plan provisions relating to rules for water supply work approvals (see **Chapter 11**)
- **Criterion 8:** The relevant responsible parties have implemented plan provisions relating to access licence dealing rules (see **Chapter 12**)
- **Criterion 9:** The relevant responsible parties have implemented plan provisions relating to mandatory conditions (see **Chapter 13**)
- **Criterion 10:** The relevant responsible parties have implemented plan provisions relating to amendments (where these are not optional) and there is evidence that identified amendments (which may include optional amendments) have been given due consideration (see **Chapter 14**).

The Commission has raised recommendations (R) only for material findings (F) relating to gaps in the implementation of legislative requirements that result in the plans not being given full effect under Section 44 of the Act. The Commission focussed on the fundamental elements of plan implementation. The Commission did not explore the quality of implementation in detail in this audit.

The Commission undertook detailed limited assurance sample testing and examined roles and responsibilities, systems, processes, and procedures as relevant for all criteria. Relevant information was examined against detailed legislative requirements as set out for each criterion. Implementation was found to comply with legislative requirements except where the report identifies gaps. In the interests of brevity, neither the discussion nor the tables of findings and observations list all positive findings, only identified gaps to enable future action to be taken to address them.

The Commission did not prioritise legislative provisions or recommendations in relation to gaps in implementing these provisions. The Commission has not assigned specific time frames to recommendations. However, given the findings are gaps to legislative requirements, the Commission considers that all recommendations should be implemented as soon as practicable within a maximum timeframe of 12 months.

The Commission has also raised observations (O) and suggested actions (SA) related to areas that are not specifically legislative requirements but support the implementation of these requirements.

While this report discusses specific consequences for each criterion, the overarching consequence of not giving full effect to provisions of the plans is that the objectives of the plans are unlikely to be achieved. These objectives are intended to support environmental, social and economic outcomes. In addition, the principles set out in Section 5 of the Act are not likely being given full effect.

Table 1: Audit findings and recommendations

Findings	Recommendations	Applicable plan		
		Namoi	Gwydir	Macquarie
Criterion 1 Finding: The relevant responsible parties have not implemented Plan provisions relating to vision, objectives, strategies and performance indicators				
F1.1 Provisions related to vision, objectives, strategies, and performance indicators under Part 2 of the Plan were not implemented in the audit period.	R1.1 DPE-Water to lead the monitoring and evaluation of performance indicators to measure the success of the strategies to reach the objectives set out in Part 2 of the Plan and to use generated data to support decision making for Plan implementation.	X	X	X
Criterion 2 Finding: The relevant responsible parties have partially implemented the system operation rules as set out in the Plan				
F2.1 Replenishment flows under clause 59 of the Namoi plan and 58 of the Gwydir plan and Macquarie plan were not delivered in accordance with the requirements in the 2018-19 water year.	R2.1 WaterNSW to deliver replenishment flows required under the Namoi, Gwydir and Macquarie plans unless directed otherwise in writing by the Minister.	X	X	X
F2.2 Volumes of water were not maintained in the combined storages for the period December 2018 to February 2020 to facilitate the delivery of replenishment flows under clause 59(2) in the Namoi plan.	R2.2 DPE-Water (with the support of WaterNSW) to maintain adequate reserves in the combined storages in the Namoi, to cover replenishment flows consistent with the requirements of Clause 59(2).	X		
F2.3 Rules regarding rates of change in releases from storages have not been established to take into account environmental considerations, damage to river banks and public safety under Clause 61 of the Namoi plan and Clause 60 of the Gwydir plan and Macquarie plan.	R2.3.1 DPE-Water to establish procedures in relation to the rates of change for storage releases for the Namoi, Gwydir and Macquarie. Procedures should consider environmental considerations, damage to river banks and public safety. DPE-Water may consult with relevant stakeholders including WaterNSW and DPE-EHG.	X	X	X
	R2.3.2 Upon completion of R2.3.1 , WaterNSW (for Macquarie) and DPE-Water (for Namoi and Gwydir) to formally document rules for rates of change for storage releases, addressing environmental considerations, damage to river banks and public safety in accordance with the Minister's procedures.			
	R7.2.1 , 7.2.2 and 7.2.3 apply.			

<p>F2.4 Appropriate monitoring of the Namoi plan bulk water transfer events did not occur in the 2017-2018 and 2018-2019 water years as required under Clause 62(2d).</p>	<p>R2.4 WaterNSW (in consultation with DPE-EHG and DPE-Water) to conduct monitoring of bulk water transfer events in line with Clause 62(2d) of the Namoi plan.</p>	<p>X</p>			
<p>F2.5 A bulk water transfer from Windamere to Burrendong Dam took place in 2019 but not in time (or sufficient volume) to address insufficient supply to downstream needs in the Macquarie River during the audit period as described under Clause 61 of the Macquarie plan.</p>	<p>R2.5 DPE-Water to develop clear thresholds and triggers for when bulk water transfer planning and implementation should occur. These should be formally documented and published.</p>		<p>X</p>		
<p>F2.6 Planned environmental water provisions in the Namoi plan under Clause 14 were not always met during the audit period:</p> <ul style="list-style-type: none"> ▪ The minimum daily flow was not met at Walgett (gauge 419091) for 32 days in June to August 2017 when the combined dam storage should have enabled this flow to be delivered. ▪ Gauge 419091 has not recorded flow data since 15 July 2020 which does not allow tracking of planned environmental water or monitoring of compliance. 	<p>R2.6.1 WaterNSW to maintain minimum daily flow targets at Walgett when conditions under planned environmental water provisions are met, as specified in the plan.</p> <p>R2.6.2 DPE-Water to determine an appropriate measurement mechanism for end of system flow to replace the 419091 gauge that is no longer functioning.</p> <p>R7.2.1, 7.2.2 and 7.2.3 apply.</p>	<p>X</p>			
<p>F2.7 The distributions of the Macquarie environmental water sub-allowances have been two fifths to sub-allowance 1 (translucent) and three-fifths to sub-allowance 2 (active) throughout the audit period, which is not in accordance with Clause 14(12)(c).</p>	<p>R2.7 DPE-Water to assess the most appropriate distribution of the Macquarie environmental water sub-allowances and take appropriate action to address the gap between operations and plan requirements. This could include changing operations to align with the plan, publishing an order or changing the requirement in the plan to align with agreed operational protocols.</p>		<p>X</p>		
<p>Criterion 3 Finding: The relevant responsible parties have not implemented Plan provisions relating to limits to the availability of water, specifically long-term average annual extraction limits</p>					
<p>F3.1 In relation to Part 8 Division 1 and planned environmental provisions of Part 3- Provisions related to limits to availability of water, specifically LTEL:</p> <ul style="list-style-type: none"> ▪ Compliance assessments were not implemented within the audit period every year in accordance with the plans, except for Gwydir and Macquarie WSPs in 2020-21 	<p>R3.1 DPE-Water to manage LTEL and assess LTEL compliance for these Regulated River plans in accordance with Part 8 Division 1 (as relevant) of each plan to prevent LTEL exceedance.</p>	<p>X</p>	<p>X</p>	<p>X</p>	

water year when the first compliance assessment was undertaken.

- LTEL was exceeded in the Gwydir plan for at least one water year (2020-21) by 11.5 percent which is not in accordance with Clause 31 and Clause 13(a).

Criterion 4 Finding: The relevant responsible parties have partially implemented Plan provisions relating to limits to the availability of water, specifically available water determinations

F3.1 Applies as it relates to the application of AWDs should LTEL be exceeded.	R3.1 Applies	X	X	X
---	---------------------	----------	----------	----------

F4.1 There is insufficient evidence to demonstrate that the maintenance of water supply for domestic and stock, high security and local water utilities WALs set out in clauses 34(1), 35(1) and 36(1) in the Namoi, Gwydir and Macquarie plans can be met through the worst period of low inflows to this water source.	R4.1 DPE-Water to review the evidence base for the numbers (including losses) underpinning the AWD calculations and demonstrate that they provide the protections to assure maintenance of supply as specified in clauses 34(1), 35(1) and 36(1) in the Namoi, Gwydir and Macquarie plans.	X	X	X
---	---	----------	----------	----------

Criterion 5 Finding: The relevant responsible parties have implemented Plan provisions relating to granting access licences

Meets criterion, no findings identified.	Meets criterion, no recommendations identified.	X	X	X
---	--	----------	----------	----------

Criterion 6 Finding: The relevant responsible parties have partially implemented Plan provisions relating to managing access licences

F6.1 Evidence does not demonstrate that prioritisation and principles established in sections 5(3) and 58 of the Act that apply to the management of access licences were implemented in the Namoi and Gwydir plans. Specifically, documentary evidence shows that water from the higher priority requirements budget was borrowed for the delivery of regulated river (general security) water between January and December 2018 in the Namoi plan and January 2019 and February 2020 in the Gwydir plan, despite there being no water to cover losses associated with delivery to regulated river (general security) access licences. The Commission had insufficient evidence to make a finding in the Macquarie plan.	R6.1. DPE-Water to cease the practice of borrowing from the higher priority requirements budget within the resource assessment process for the purpose of delivery of regulated river (general security) water and adhere to principles and prioritisation set out in sections 5(3) and 58 of the Act.	X	X	
--	---	----------	----------	--

<p>F6.2 Supplementary water assessments were not sufficiently detailed to demonstrate that all applicable requirements were considered under clause 48 of the Namoi plan and clause 47 of the Gwydir plan. For example, assessments against the requirements of the North West Unregulated Flow Management Plan for the Namoi or Gwydir were not explicitly documented during the audit period to inform assessments of available supplementary water.</p>	<p>Nil. This finding was resolved following the audit period.</p>	<p>X</p>	<p>X</p>	
<p>Criterion 7 Finding: The relevant responsible parties have partially implemented Plan provisions relating to rules for water supply work approvals</p>				
<p>F7.1 Approval holders of existing approvals granted under the plans did not receive written notice of the mandatory conditions for each supply work approval until January 2018 (Namoi and Gwydir plans) and December 2018 (Macquarie plan) (19 and 18 months respectively after plan commencement), giving delayed effect to Section 102 (4) and 102 (5) and 100(1A) of the Act.</p>	<p>Nil. This finding was resolved during the audit period.</p>	<p>X</p>	<p>X</p>	<p>X</p>
<p>F7.2 WaterNSW has not been notified of all relevant mandatory conditions under its Statement of Approvals (90WA811444 Namoi plan, 90WA811596 in the Gwydir plan, 80WA704431 in the Macquarie) to reflect all relevant requirements set out in clauses 57(3), 56(3), 56(3) respectively to give effect to Parts 3, and 12 of the plans as relevant.</p>	<p>R7.2.1 DPE-Water to prepare relevant conditions for WaterNSW Statement of Approvals (90WA811444 Namoi plan, 90WA811596 in the Gwydir plan, 80WA704431 in the Macquarie plan) in accordance with relevant plan provisions to give effect to all relevant requirements of Parts 3, 12 of the plans as required under sections 102(4), 102(5) and 100(1A) of the Act. This should include the specification of gauge numbers where appropriate.</p> <p>R7.2.2 DPE-Water to place relevant conditions on the WaterNSW Statement of Approvals (90WA811444 Namoi plan, 90WA811596 in the Gwydir plan, 80WA704431 in the Macquarie plan) to give effect to all relevant requirements of Parts 3, 12 of the plans as required under sections 102(4), 102(5) and 100(1A) of the Act.</p> <p>R7.2.3 Upon completion of R7.2.1 and R 7.2.2, DPE-Water to notify WaterNSW of its updated Statement of Approvals conditions (90WA811444 Namoi plan, 90WA811596 in the Gwydir plan, 80WA704431 in the Macquarie plan) that reflect relevant plan requirements, as required under sections 102(4), 102(5) and 100(1A) of the Act.</p>	<p>X</p>	<p>X</p>	<p>X</p>

F7.3 In the Gwydir plan, the capacity of the work is not consistently stated in advertisements as required under Section 26(8)(d) of the Regulation.

R7.3 WaterNSW to update procedures and quality assurance checks in relation to placing advertisements for new approvals so that capacity is consistently stated in accordance with Section 26(8)(d) of the Regulation.

X

Criterion 8 Finding: The relevant responsible parties have implemented Plan provisions relating to access licence dealing rules

Meets criterion, no findings identified.

Meets criterion, no recommendations identified.

Criterion 9 Finding: The relevant responsible parties have partially implemented Plan provisions relating to mandatory conditions

F5.1, F7.1 and F7.2 apply.

R7.2.1, 7.2.2 and 7.2.3 apply.

X

X

X

F9.1 Mandatory conditions on WALs were missing to give effect to:

- Clause 56(2)(d) in the Namoi plan, Clause 55(2)(d) in the Gwydir and Macquarie plans, which relate to WAL holder entitlements.
- Clause 56(6)(b) in the Namoi plan, Clause 55(5) in the Gwydir plan to give effect to Clause 32 in the plans, which relates to the volume limits that may be taken or assigned from Regulated River (General Security) WALs.

R9.1.1 DPE-Water to prepare relevant conditions for WALs to ensure all relevant mandatory conditions to the plans are adequately addressed. This includes:

- Clause 56(2)(d) in the Namoi plan, Clause 55(2)(d) in the Gwydir and Macquarie plans, which relate to WAL holder entitlements.
- Clause 56(6)(b) in the Namoi plan, Clause 55(5) in the Gwydir plan to give effect to Clause 32 in the plans, which relates to the volume limits that may be taken or assigned from Regulated River (General Security) WALs.

X

X

X

R9.1.2 DPE-Water to place relevant mandatory conditions (as set out in **R9.1.1**) on the WALs in the licencing and approval system.

R9.1.3 Upon completion of **R9.1.1** and **R9.1.2**, WaterNSW to notify all relevant WAL holders to give effect to the mandatory conditions and Section 100(1A) of the Act.

Criterion 10 Finding: The relevant responsible parties have implemented Plan provisions relating to amendments (where these are not optional) and there is evidence that identified amendments (which may include optional amendments) have been given due consideration

Meets criterion, no findings identified.

Meets criterion, no recommendations identified.

Table 2: Audit observations and suggested actions

Observations	Suggested actions
O1.1 There is no transparent reporting of Plan performance in relation to progress towards achieving stated objectives.	SA1.1 DPE-Water to publicly report on progress towards objectives of the Plan.
O2.1 Decision-making processes for delivery volumes of replenishment flow requirements by the operator are not documented and it is unclear how all requirements for replenishment flows per plan dictionary (pools and water holes in effluent river systems, household, town use and stock) are considered.	SA2.1 WaterNSW to develop Standard Operating Procedures to document processes and guide decision-making as to when and how replenishment flows will meet the needs under the plan provisions in accordance with the plan dictionary definitions (pools and water holes in effluent river systems, household, town use and stock).
O2.2 Channel capacity constraints in the Macquarie have not been determined and specified as required under Clause 59.	SA2.2 DPE-Water to determine and specify channel capacity constraints in the Macquarie – Cudgegong Regulated Water Sources on the WaterNSW Statement of Approval.
O2.3 It is not transparent when periodic grouping of orders under Clause 63 in the Namoi and Clause 61 in the Gwydir is required and when it has occurred. 'Block releases' have occurred and been conducted in accordance with Clause 63 in the Namoi and Clause 61 in the Gwydir, without triggering reporting and compliance activities associated with this clause for the Gwydir.	SA2.3 DPE-Water to document and publish clear thresholds under which grouping of orders would be triggered, including defining block releases and whether these are considered 'grouping of orders' under the Namoi and Gwydir plans.
O2.4 The flood operation manuals for Keepit Dam, Copeton Dam and Burrendong Dam have not been finalised.	SA2.4 WaterNSW to finalise the draft Flood Operations Manual for Keepit Dam, Copeton Dam and Burrendong Dam (and Windamere as appropriate) and ensure it is part of formal document management process. Procedures should align with floods and spills operation clauses in the applicable water sharing plan and Statement of Approval.
O3.1 Systems and processes, including quality assurance for the LTEL assessment and compliance work are not documented.	SA3.1 DPE-Water to establish, document and publish a methodology for LTEL assessment and compliance. This methodology and associated model should be reviewed by an independent expert hydrologist. The documented methodology should include adequate information in relation to the models and assumptions underpinning these assessments.
O6.1 Proactive triggers do not exist to support timely objective risk-based decision making to avoid borrowing from higher priority users.	SA6.1 DPE-Water to set up proactive triggers to restrict take when required so that higher priority requirements are prioritised above other water users in accordance with the principles and priorities set out in sections 5(3) and 58 of the Act.

Observations	Suggested actions
O6.2 The higher priority requirements budget does not compartmentalise water sufficiently to allow for the prioritisation outlined in sections 5(3) and 58 of the Act.	SA6.2 DPE-Water to document and implement how prioritisation within the higher priority requirements budget should occur within the water allocation process so that the relative priority of environmental, basic landholder rights, native title rights and regulated river (high security) requirements clearly aligns to requirements of sections 5(3) and 58 of the Act.
O6.3 The higher priority requirements budget for the Gwydir plan has been reduced from the volume held until June 2021 according to the methodology.	SA6.1 Applies
O6.4 DPE-Water has changed the information published in water allocation statements during the audit period that makes it difficult for water users to track water availability over time. There were instances where information available internally to DPE-Water was not made public via water allocation statements impacting on transparency of system management.	SA6.4 DPE-Water to implement a consistent and transparent approach to information made publicly available via water allocation statements to allow water users and stakeholders to easily track water use and water availability over time.
O7.1 Capacity of works or its location (latitude and longitude) is not consistently stated in the Statement of Approval for supply work approvals.	SA7.1 WaterNSW and DPE-Water to include capacity and detailed location (latitude, longitude) information on all supply work Statement of Approvals for transparency and to support enforcement activities (both new and existing).
O8.1 In processing dealings under Section 71T of the Act, there is the potential for WAL holders to trade water whereby the resulting debit results in a negative account balance.	SA8.1 WaterNSW to reconcile accounts prior to undertaking a dealing involving assignment of water allocations between access licences.
O9.1 Instances of users over-pumping were observed in the Namoi and in the Gwydir plans.	SA9.1 WaterNSW to provide NRAR with regular output from the Water Accounting System showing instances of over-pumping.
O9.2 Clause 56(2)(e) in the Namoi plan, Clause 55(2)(e) Gwydir and Macquarie plans, which requires the taking of water not to exceed the remaining water allocation did not appear as mandatory conditions on WALs. However, the Commission identified that this would be enforced for these plans via Section 60C of the Act.	SA9.2 DPE-Water to consider a strategic approach for applying mandatory conditions which are already included in higher instruments such as the Act and Regulation. Conditions could include a rewrite of provisions of higher instruments, reference specific relevant higher instruments or they should be omitted. This approach should be uniformly adopted and accompanied with an education campaign to inform WAL and approval holders what to expect.

2 The Commission's role and audit approach

2.1 The Commission's role in auditing management plans.

The Commission is an independent body with broad investigating and reporting functions that aim to establish a sound evidence base to inform natural resource management in the social, economic and environmental interests of NSW.

The Commission has a role under Section 44 of the Act to audit water management plans within the first five years of each plan to ascertain whether their provisions are being given effect to. This role began on 1 December 2018 under changes to the Act.

Water management plans include:

- **water sharing plans** – statutory documents that establish the rules for sharing water between the environment and other water users
- **floodplain management plans** – frameworks to coordinate flood work development to minimise future changes to flooding behaviour, and to increase awareness of risk to life and property from flooding.

More detail on the purpose of plans is provided in **Chapter 3.1**.

2.2 Audit objective

The objective of this audit was to determine, in accordance with Section 44 of the Act, whether the provisions of the following three water sharing plans are being given effect to:

- *Water Sharing Plan for the Upper Namoi and Lower Namoi Regulated River Water Sources 2016* (Namoi plan)
- *Water Sharing Plan for the Gwydir Regulated River Water Source 2016* (Gwydir plan)
- *Water Sharing Plan for the Macquarie and Cudgegong Regulated Rivers Water Source 2016* (Macquarie plan).

2.3 Audit standards

This audit was executed as a limited assurance engagement in accordance with the following standards:

- *Standards on Assurance Engagements (ISAE) 3000 Assurance Engagements other than Audits or Reviews of Historical Financial Information*
- *ISAE 3100 Compliance Engagements*
- *Auditing Standard ASQC 1 Quality Control for Firms that Perform Audits and Reviews of Financial Reports and Other Financial Information, and Other Assurance Engagements.*

In accordance with these standards, the Commission has:

- complied with applicable ethical requirements
- planned and performed procedures to obtain independent assurance about whether the relevant responsible parties have implemented the plans, in all material respects, as evaluated against the audit criteria.

2.4 Audit criteria

Audit criteria were developed based on common parts of water sharing plans that the Commission considered warranted examination to ascertain whether provisions are being given effect to. The audit criteria were:

- **Criterion 1:** The relevant responsible parties have implemented plan provisions relating to vision, objectives, strategies and performance
- **Criterion 2:** The relevant responsible parties have implemented the system operation rules as set out in the plan, incorporating planned environmental water provisions
- **Criterion 3:** The relevant responsible parties have implemented plan provisions relating to limits to the availability of water, specifically long-term extraction limits
- **Criterion 4:** The relevant responsible parties have implemented plan provisions relating to limits to the availability of water, specifically available water determinations
- **Criterion 5:** The relevant responsible parties have implemented plan provisions relating to granting access licences
- **Criterion 6:** The relevant responsible parties have implemented plan provisions relating to managing access licences
- **Criterion 7:** The relevant responsible parties have implemented plan provisions relating to rules for water supply work approvals
- **Criterion 8:** The relevant responsible parties have implemented plan provisions relating to access licence dealing rules
- **Criterion 9:** The relevant responsible parties have implemented plan provisions relating to mandatory conditions
- **Criterion 10:** The relevant responsible parties have implemented plan provisions relating to amendments (where these are not optional) and there is evidence that identified amendments (which may include optional amendments) have been given due consideration.

These criteria were selected for audit as they are:

- key to plan implementation
- governed by requirements under the Act (for example, granting and managing access licences and), or
- not explicitly governed by requirements under the Act but important for determining if plan implementation supports, or is in accordance with, the Act requirements (for example, monitoring and performance indicator assessment information can be used to inform legislated plan reviews).

2.5 Audit procedures

Audit procedures included:

- document review, including overarching frameworks, procedures, guidelines, manuals, policies and reports
- interviews with process owners, implementors and users including:
 - auditee NSW responsible organisations – Department of Planning and Environment-Water (DPE-Water) (formerly Department of Planning, Industry and Environment – Water during the audit period), DPE-Environment and Heritage Group (DPE-EHG)

(formerly DPIE – Environment, Energy and Science during the audit period), the Natural Resources Access Regulator (NRAR) and WaterNSW

- Land Registry Services.
- walk throughs of material activities, including key systems and processes with system implementors, owners and users
- sampling of data.

These procedures were carried out on a test basis to provide sufficient appropriate evidence to provide a limited assurance conclusion.

2.6 Limitations

This audit was a limited assurance engagement. The procedures performed in a limited assurance engagement vary in nature and timing and are of lesser extent than for a reasonable assurance engagement. As such, the level of assurance obtained in a limited assurance engagement is substantially lower than the assurance that would have been obtained through a reasonable assurance engagement.

Further, the audit cannot be relied on to comprehensively identify all weaknesses, improvements or areas of non-compliance. Inherent limitations mean that there is an unavoidable risk that some material matters may not be detected, despite the audit being properly planned and executed in accordance with the standards outlined in **Chapter 2.3**.

The Commission also has a function under Section 43A of the Act to review the extent to which water sharing plan provisions have materially contributed to the achievement of environmental, social and economic outcomes and if changes to plan provisions are warranted. The Commission will also review the Namoi, Gwydir and Macquarie plans before they expire. Some issues raised by auditees during the course of the audit that were outside of the audit scope may be considered further as part of the Commission's Section 43A reviews.

2.7 Exclusions

The audit has not provided an assessment against all provisions or parts in the Plan. Specifically, it does not assess the:

- introduction (Part 1)
- bulk access regime (typically Parts 4)
- requirements for water (typically Part 5).

It has not examined or provided an opinion regarding:

- compliance or non-compliance of individuals
- whether the plans are being implemented efficiently
- whether stated objectives are being achieved
- whether the plans are effective, appropriate or in line with the Act
- compliance with any legislation unrelated to the Act.

3 Audit context

The first water sharing plans for the Namoi, Gwydir and Macquarie Regulated River Water Sources under the Act (referred to collectively as the '2004 plans') were:

- Water Sharing Plan for the Upper Namoi and Lower Namoi Regulated River Water Sources 2003 (referred to as the 'Namoi 2004 plan')
- Water Sharing Plan for the Gwydir Regulated River Water Source 2002 (referred to as the 'Gwydir 2004 plan')
- Water Sharing Plan for the Macquarie and Cudgegong Regulated Rivers Water Source 2003 (referred to as the 'Macquarie 2004 plan').

The current plans which are the subject of this audit (Namoi plan, Gwydir plan and Macquarie plan) replaced the 2004 plans and commenced 1 July 2016.

3.1 Purpose of water sharing plans under the Act

Water sharing plans, like all water management plans, are subject to the objects, water management principles, requirements and general provisions in the Act.²

The following specific principles related to water sharing are stated in Section 5(3) of the Act and are part of a broader set of water management principles.³ The Act specifies that:

- a) sharing of water from a water source must protect the water source and its dependent ecosystems, and*
- b) sharing of water from a water source must protect basic landholder rights, and*
- c) sharing or extraction of water under any other right must not prejudice the principles set out in paragraphs (a) and (b).*

Core provisions for water sharing plans are stated in Section 20 of the Act, which specifies matters that the provisions in water sharing plans must address.

3.2 Context for implementation

3.2.1 NSW water reforms and compliance have focussed on other priorities

Responsible parties with a role in water management implementation are currently undertaking policy reforms including the non-urban metering policy and reforms, prioritising the implementation of the Murray-Darling Basin Plan, development of water resource plans and long-term environmental watering plans. There has also been a focus on developing NSW floodplain harvesting and measurement policies to establish the process for bringing floodplain harvesting into the water licensing framework. This has contributed to the plans having fewer resources assigned for implementation.

In relation to compliance and enforcement, the *Natural Resources Access Regulator Act 2017* specifically provides that NRAR's priorities are to be set independently. These regulatory priorities are reviewed on a regular basis and published.⁴ Interviews with NRAR reinforced that

² Objects, water management principles, requirements and general provisions for all water management plans are stated in Section 3, Section 5, Section 16 and Section 17 of the Act, respectively.

³ *Water Management Act 2000*, Section 5.

⁴ NRAR (2019) [Natural Resource Access Regulator Regulatory Priorities 2019 – 2021](#)

the northern Murray-Darling Basin has been a regulatory priority in accordance with NRAR's risk assessments and therefore is the focus of proactive compliance activities.^{5,6,7} Some of this work is discussed later in **Chapter 13**. NRAR monitors and inspects reactively in response to reports of alleged breaches of water laws, incidents or other intelligence received. NRAR also receives reports of suspicious water activities from members of the public and other regulators such as councils. No documented risk assessment was provided to the Commission as part of this audit. The Commission is not seeking to comment on the appropriateness of decisions regarding NRAR's compliance priorities.

3.2.2 Roles and responsibilities have changed over time

There has been a complex history of changes in government agencies in water management and regulation, and their roles and governance.

An investigation by the NSW Ombudsman into water compliance and enforcement reported that the high level of restructuring and moving of water administration functions and regulation between different government agencies has resulted in significant impacts on staff, loss of expertise and corporate knowledge, and disruptions to systems, strategy and continuity of service delivery.^{8,9}

Roles and responsibilities for various criteria have changed during the audit period. For this audit, DPE-Water is assumed to be responsible, except where other agencies are documented as being responsible (for example through the Water NSW Operating Licence and the *Natural Resources Access Regulator Act 2017*). In June 2021, DPE-Water, NRAR and WaterNSW signed an agreement which clarifies roles and responsibilities including those relating to water sharing plans and water supply work approvals.¹⁰

3.2.3 Drought

Some of the years during the audit period have been times of significant drought in the Namoi, Gwydir and Macquarie, particularly during the 2018-19 and 2019-20 water years, with record low inflows and impacts to communities and water users.¹¹ Auditees informed the Commission that these conditions were worse than previously experienced and impacted on their ability to implement the plan rules. Around this time, clauses of the plans were suspended by Order in the NSW Government Gazette. The NSW Extreme Events Policy was also introduced in October 2018 to guide development of incident response to manage water in extreme events.¹² The Commission has not examined plan criteria where clauses were formally suspended by Order in the NSW Government Gazette and has not audited the implementation of the NSW Extreme Events Policy as this was considered to be outside of the Commission's audit scope under Section 44 of the Act.

⁵ *Ibid.*

⁶ NRAR (n.d.) [Routine monitoring campaign map](#)

⁷ NRAR's routine monitoring program is focussed on the inland water sharing plan areas.

⁸ NSW Ombudsman (2017) [Investigation into water compliance and enforcement 2007-17](#)

⁹ Prior to 2015 there were numerous agencies responsible for implementing various aspects of the water sharing plans. These included the Department of Primary Industries, NSW Office of Water, Department of Environment, Climate Change and Water, Department of Environment, Climate Change, Department of Natural Resources as well as the Office of Environment and Heritage.

¹⁰ [Roles and Responsibilities Agreement: DPIE, NRAR and WaterNSW](#). Executed 30 June 2021.

¹¹ DPIE (n.d.) [Drought stages and measures implemented during the 2017-20 drought](#)

¹² *Ibid.*

4 Plan areas

This chapter provides an overview of the plan areas subject to this audit. **Figure 1** below shows the location of the plan areas. WaterNSW produced schematics of the regulated river systems in its *20 Year Infrastructure Options Study Rural Valleys Summary Report*, which are shown for the Namoi, Gwydir and Macquarie plans in **Figure 2**, **Figure 3** and **Figure 4** respectively.¹³

In the northern basin, approximately 37 percent of surface water in the Namoi plan, 41 percent in the Gwydir plan and 24 percent in the Macquarie plan is diverted annually by water users.^{14,15,16} This water is diverted for irrigated agriculture, urban water supply, stock and domestic purposes and mining.^{17,18,19}

The Gwydir and Macquarie plan areas are ecologically important with the rivers providing water for Ramsar listed wetlands including the Macquarie Marshes and the Gwydir Wetlands. The Namoi River supports key threatened and endangered fish species and populations including eel-tailed catfish, Murray cod and Silver Perch.²⁰ The northern basin rivers feed into the Darling River and critically provide flows to the Barwon-Darling system.²¹ The importance of this connectivity for the provision of flows for critical environmental needs, basic landholder rights and town water supply requirements along the Barwon-Darling system²² is recognised in the *Interim Unregulated Flow Management Plan for the North West*.²³

Urban water supply, while representing a small portion of water access licences issued across the plans (less than 3 percent of total access licences issued), is critical for the major towns of Dubbo, Mudgee, Narrabri and Moree.²⁴ The plan areas hold significant cultural values for the Kamilaroi, Wailwan, Wongaibon and Wiradjuri traditional owners.²⁵ These include not only physical assets but flow of water in the rivers which is central to spirituality, culture and wellbeing.

Agriculture is an important industry across the plan areas, particularly in the Namoi plan (\$390 million or 10 percent of gross regional output)²⁶ and Gwydir plan (\$160 million or 40 percent of gross regional output).²⁷ Irrigated agriculture is a major water user but represents 5 percent or less of land area across each of the plans.^{28,29,30} Despite this, it is a significant contributor to economic value in these communities. For example, the Gwydir region accounts for 23 percent

¹³ WaterNSW (2018) [20 Year Infrastructure Options Study Rural Valleys Summary Report](#)

¹⁴ MDBA (2021) [Namoi – catchment](#)

¹⁵ MDBA (2021) [Gwydir – catchment](#)

¹⁶ MDBA (2021) [Macquarie – catchment](#)

¹⁷ MDBA (2021) [Namoi – catchment](#)

¹⁸ MDBA (2021) [Gwydir – catchment](#)

¹⁹ MDBA (2021) [Macquarie – catchment](#)

²⁰ DPIE (2018) *Namoi surface water resource plan area description: Appendix A*, p 25.

²¹ MDBA (2017) [Ecological needs of low flows in the Barwon-Darling: Technical report](#)

²² Namoi Regulated River Management Committee (n.d.) *Draft Water Sharing Plan for the Namoi Regulated River Water Source. Part A – Background Document*, p 32.

²³ Department of Water Resources (1992) [Interim Unregulated Flow Management Plan for the North West](#)

²⁴ The Commission calculated local water utility access licences represent 2 percent in the Namoi plan, 0.5 percent in the Gwydir plan and 3 percent in the Macquarie plan of total access licences issued.

²⁵ The Commission has adopted the language, social or nation groups as represented in the Australian Institute of Aboriginal and Torres Strait Islander Studies [Map of Indigenous Australia](#)

²⁶ REMPLAN (n.d.) [Narrabri – Economy, jobs and business insights](#). Data developed using information sourced from ABS 2016 Census Place of Work Employment (Scaled), ABS 2018 / 2019 National Input Output Tables, and ABS June 2020 Gross State Product

²⁷ Gwydir Shire Council (n.d.) [Gwydir Shire Local Government Area](#), p 10.

²⁸ MDBA (2021) [Namoi – catchment](#)

²⁹ MDBA (2021) [Gwydir – catchment](#)

³⁰ MDBA (2021) [Macquarie – catchment](#)

of the NSW cotton crop by volume,³¹ with the combined irrigated and non-irrigated cotton industry in NSW worth nearly \$916 million gross value in 2020-21.³²

³¹ DPIE (2020) [Draft Regional Water Strategy – Gwydir strategy](#), p 73.

³² Australian Bureau of Statistics (2021) [Value of agricultural commodities produced, Australia, 2020-2021](#)

Table 3: Summary of plan areas for the plans subject to this audit

Plan	Location/ area	Major towns	Environmental values	Cultural values	Socioeconomic values
Namoi plan	The Namoi plan area is defined as all water between the banks of the river from the dam wall of Split Rock Dam to Keepit Dam and downstream to the junction of the Namoi River with the Barwon River at Walgett. ³³	Boggabri, Gunnedah, Manilla, Narrabri, Walgett and Wee Waa. ³⁴	The lowland and midland sections of the Namoi River support medium to high fish diversity including support of threatened and endangered fish species and populations including eel-tailed catfish, Murray cod and Silver Perch. ³⁵	The traditional owners of the Namoi plan area are the Kamilaroi nation. ^{36,37} The Kamilaroi people have longstanding ties to country and hold the Namoi River in high regard. The natural flow of water in the river maintains aquatic ecosystems central to spirituality, culture and wellbeing. ³⁸	Agricultural industries are significant in the region with sheep and cattle grazing the dominant industry, accounting for 54 percent of land use by area. Dryland cropping accounts for 17 percent of land use in the catchment. Water is diverted from the river system for irrigated production, stock, domestic and urban use. Irrigated crops cover approximately 4 percent of land use and production includes lucerne and grains (sorghum, maize and wheat) in the Upper Namoi with irrigation principally used for cotton production in the Lower Namoi. ³⁹
Gwydir plan	The Gwydir plan area is defined as the area between	Bingara, Biniguy, Gravesend,	Four parcels of land including the Gwydir Wetlands conservation area are Ramsar listed. The wetlands provide habitat for 13 migratory	The traditional owners of the Gwydir plan area are the Kamilaroi nation. ^{43, 44}	Agriculture is the dominant industry in the plan area. ⁴⁶

³³ DPIE (2018) *Namoi surface water resource plan area description: Appendix A*, p 3.

³⁴ *Water Sharing Plan for the Upper Namoi and Lower Namoi Regulated River Water Sources 2016, Appendix 2 – Namoi water management area.*

³⁵ DPIE (2018) *Namoi surface water resource plan area description: Appendix A*, p 25.

³⁶ The Commission has adopted the language, social or nation groups as represented in the Australian Institute of Aboriginal and Torres Strait Islander Studies [Map of Indigenous Australia](#)

³⁷ The Kamilaroi nation group is also referred to as the Gamilaraay nation group. See the [Kamilaroi/Gamilaraay Dictionary](#)

³⁸ DPIE (2020) *Namoi long term water plan. Part A: Namoi catchment*. p 5-6.

³⁹ DPIE (2018) *Namoi surface water resource plan area description: Appendix A*, p 10.

⁴³ The Commission has adopted the language, social or nation groups as represented in the Australian Institute of Aboriginal and Torres Strait Islander Studies [Map of Indigenous Australia](#)

⁴⁴ The Kamilaroi nation group is also referred to as the Gamilaraay nation group. See the [Kamilaroi/Gamilaraay Dictionary](#)

⁴⁶ *Ibid*, p 35.

Plan	Location/ area	Major towns	Environmental values	Cultural values	Socioeconomic values
	the banks of all rivers from Copeton Dam to the junction of the Gwydir River and its effluent rivers with the Barwon River. ⁴⁰	Moree and Pallamallawa. ⁴¹	birds listed under agreements with Japan, China and the Republic of Korea. The Gingham and Gwydir watercourses support a significant population of critically endangered marsh club rush. The Gwydir River has very high ecological values including high fish diversity, threatened fish species (eel-tailed catfish and Murray cod), large areas of riparian vegetation and undisturbed river reaches. ⁴²	The Kamilaroi people have stories and songlines for the management of the Gwydir River. These guide management of the river at a landscape scale using a collaborative and holistic approach, recognising obligations to downstream communities. ⁴⁵	Land use is dominated by extensive grazing for cattle and sheep production. Dryland cropping occurs predominantly on the plains. Wheat is the primary crop, with crops including cereals and oilseeds. ⁴⁷ Water is diverted from the river system for irrigated production, stock, domestic and urban use. Irrigated crops include cotton, sorghum, maize, wheat, lucerne and horticultural crops (pecans and olives). ⁴⁸
Macquarie plan	The Macquarie plan area is defined as the area from the upstream limit of Windamere Dam, located on the	Dubbo, Mudgee, Narromine, Nyngan and Warren ⁵¹	The Macquarie plan has high to very high ecological values due to the presence of the Macquarie Marshes, a Ramsar listed site. There is a significant spread of threatened fish species (including eel-tailed catfish, Trout cod, Silver perch, Murray cod and Purple-	The traditional owners of the Macquarie plan area are the Wiradjuri, Wongaibon and Wailwan nations. ^{53, 54} The Macquarie River was formally recognised by its Wiradjuri name,	The Macquarie catchment supports agriculture, agribusiness, tourism, mining and viticulture. Grazing covers 70 to 80 percent of the land area in the catchment. Water is diverted from the river for irrigation, stock, domestic and urban

⁴⁰ DPIE (2018) *Gwydir surface water resource plan area description: Appendix A*, p 3.

⁴¹ *Water Sharing Plan for the Gwydir Regulated River Water Source 2016, Appendix 2 – Gwydir river system.*

⁴² DPIE (2018) *Gwydir surface water resource plan area description: Appendix A*. p 16-17.

⁴⁵ DPIE (2018) *Gwydir surface water resource plan area description: Appendix A*, p 36.

⁴⁷ *Ibid.*

⁴⁸ *Ibid.*

⁵¹ *Water Sharing Plan for the Macquarie and Cudgegong Regulated Rivers Water Source 2016, Appendix 2 – Central West Water Management Area.*

⁵³ The Commission has adopted the language, social or nation groups as represented in the Australian Institute of Aboriginal and Torres Strait Islander Studies [Map of Indigenous Australia](#)

⁵⁴ The Wongaibon language group may also be referred to as Wangaaypuwan as part of the Ngiyampaa family group. The Wailwan people may also call their language Ngiyampaa. See [Ngiyampaa / Wongaibon Nyngan community – Wangaaypuwan \(Wongaibon\) language groups](#)

Plan	Location/ area	Major towns	Environmental values	Cultural values	Socioeconomic values
	Cudgegong River, ⁴⁹ to the junction of the Macquarie River and the effluent rivers with the Barwon River. ⁵⁰		spotted gudgeon) and endangered ecological communities including carex sedgeland, coolabah-black box woodlands, carbeen open forest and the lowland Darling River. ⁵²	Wambuul (winding river), in December 2021. Aboriginal and cultural values of Wambuul include traditional stone toolmaking and ovens, scarred coolamon and canoe trees, and culturally significant reed beds. ⁵⁵	use. Irrigated agriculture covers approximately 5 percent of land area in the catchment. Most of the water used for irrigated agriculture is for cotton production. Other significant irrigated crops include lucerne, cereals and oilseeds, and fruit and vegetable production. ⁵⁶

⁴⁹ DPIE (2018) *Macquarie-Castlereagh surface water resource plan area description: Appendix A*, p 4.

⁵⁰ *Ibid*, p 7.

⁵² DPIE (2018) *Macquarie-Castlereagh surface water resource plan area description: Appendix A*, p 27.

⁵⁵ Mackay, R (2017). *Australia state of the environment 2016: heritage*, p 18, independent report to the Australian Government Minister for the Environment and Energy, Australian Government Department of the Environment and Energy, Canberra

⁵⁶ MDBA (2021) [Macquarie – catchment](#)

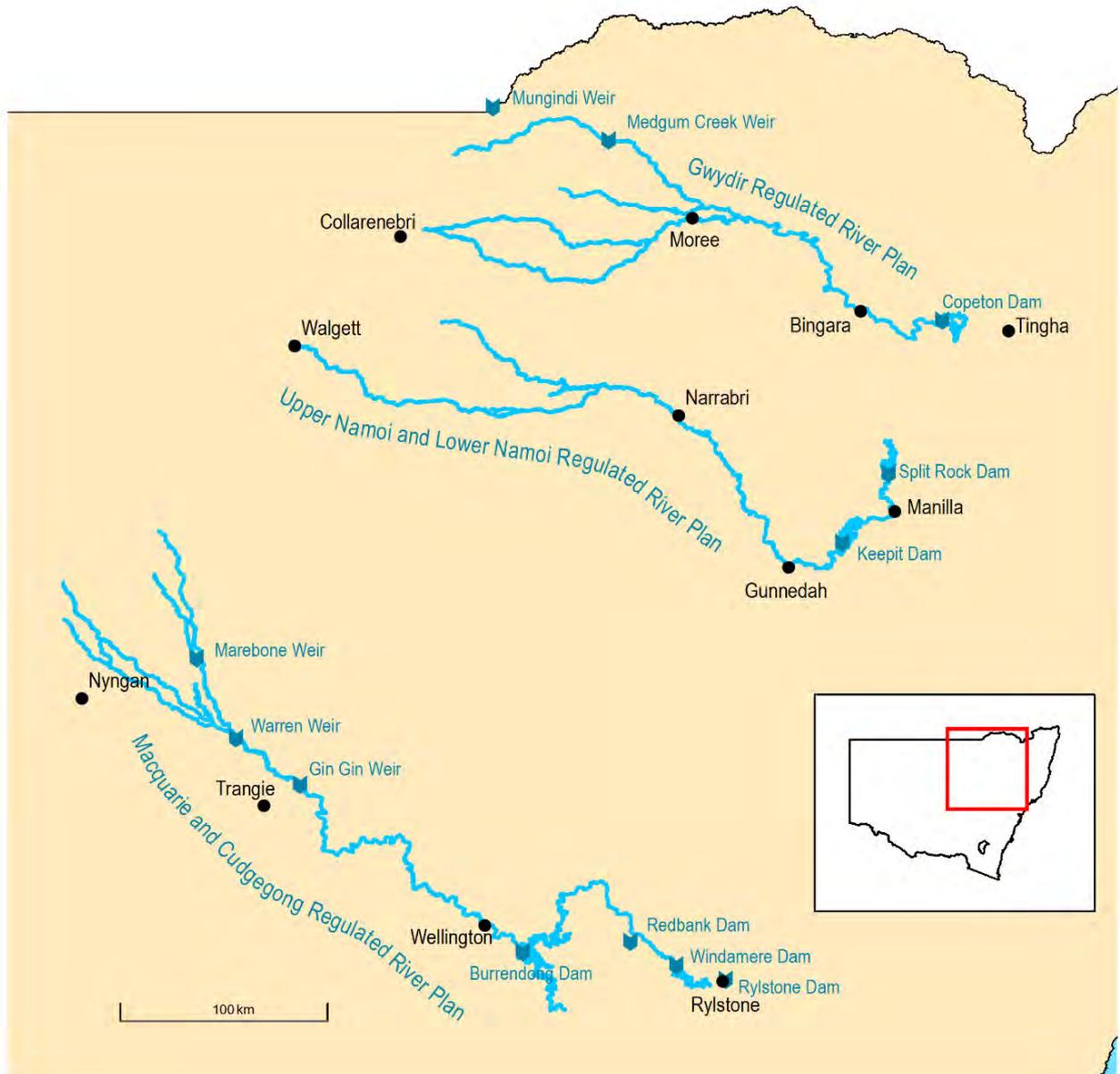


Figure 1: Plan area map for the plans



⁵⁷ WaterNSW (2018) [20 Year Infrastructure Options Study Rural Valleys Summary Report](#), p 20
⁵⁸ *Ibid*, p 17.

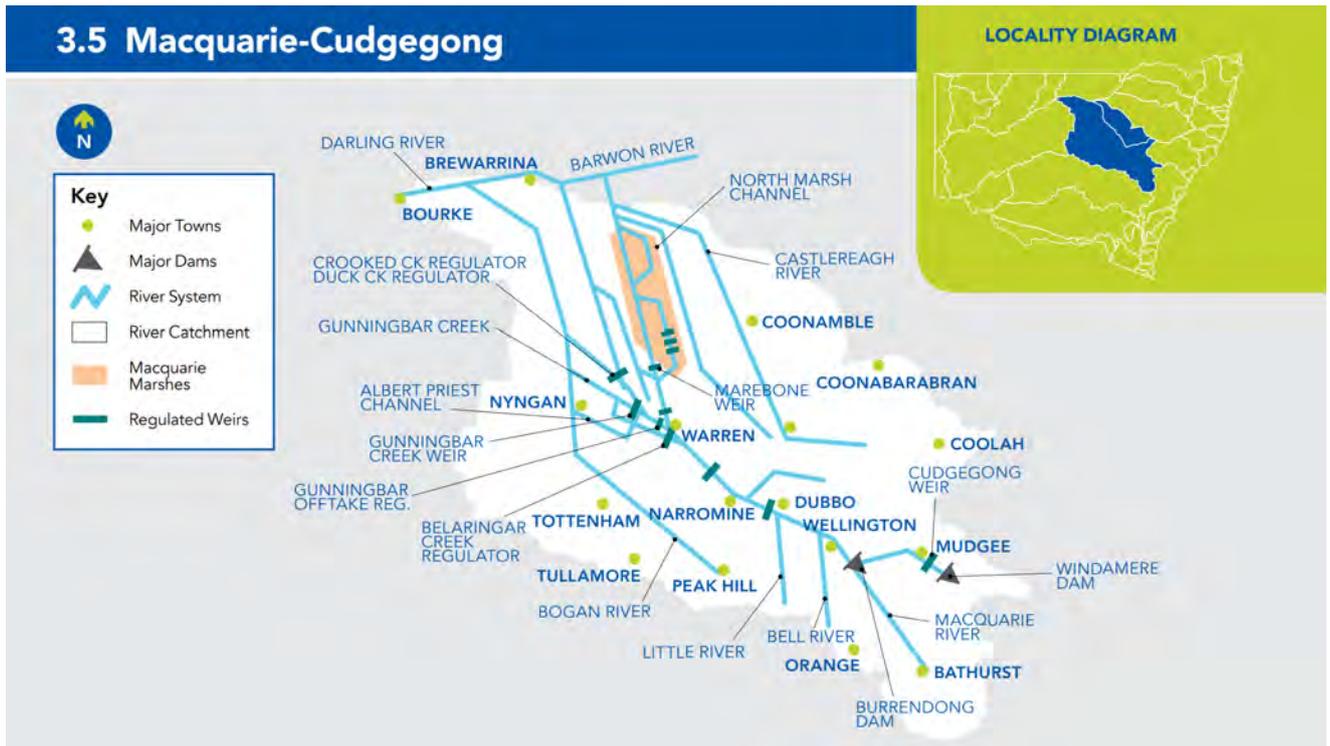


Figure 4: Schematic diagram of the Macquarie-Cudgong regulated valley⁵⁹

⁵⁹ *Ibid*, p 28.

5 Criterion 1 – Vision, objectives, strategies and performance indicators

5.1 Criterion overview

Part 2 of the plans are made in accordance with Section 35(1) the Act. This section requires water sharing plans to include a vision statement, objectives consistent with the vision statement, strategies for reaching objectives, and performance indicators to measure the success of strategies.

Clause 11 (Part 2) in all plans was examined for this audit. It states that *‘the following indicators are to be used to determine the performance of this Plan against its objectives...’*

This clause requires the performance indicators to be assessed by comparing the ecological condition, the economic benefits and the social and cultural use of water at plan commencement and plan expiration and considering the extent of change that can be attributed to the rules and strategies of the plans.

While the clauses specify measurement should occur only at plan expiration, the Commission would expect to see at a minimum a plan for what data will be collected, how it will be collected for the purpose of undertaking this assessment and some progress towards implementing this plan.

5.2 Current roles, systems and processes

DPE-Water is the lead agency responsible for giving effect to performance provisions, including during the audit period.⁶⁰ This includes using performance indicators to measure the success of the strategies in meeting plan objectives.

The Commission considers that there were no processes or procedures to manage the implementation of plan provisions relating to monitoring performance to measure the success of the strategies in meeting plan objectives during the audit period.

There are no specific systems to manage the implementation of these provisions. However, water quality and quantity monitoring undertaken by WaterNSW is managed using the Hydstra and HydroTel systems, with data available to DPE-Water. There are also other systems under development to undertake monitoring (see **Chapter 5.5**).

5.3 Performance monitoring provisions have not been given effect to

DPE-Water has not monitored or assessed performance indicators

The plans include provisions to satisfy this requirement of the Act but the relevant responsible parties have not implemented them during the audit period.⁶¹

⁶⁰ Clauses 65, 63 and 64 for the Namoi, Gwydir and Macquarie plans respectively (Part 13) state that ‘The monitoring of the performance indicators specified in Clause 11 of this Plan shall be undertaken by the Minister’, making DPE-Water responsible for this provision.

⁶¹ Note: there is no auditable provision in the plans that relates to achieving the vision. The vision is accepted as a statement in the plans, and it is assumed that the intent of the plan performance indicators clause is to achieve the vision through meeting the objectives.

There are no plan provisions requiring performance monitoring to take place before the fifth year and Part 2 of the plans sets no timeframe around when the performance monitoring is to be carried out. However, the Commission would expect that data are collected or datasets are identified so that emerging issues are identified, reporting is evidence based and to ensure robust data are available to inform the 10-year review.

DPE-Water indicated that performance indicators have not been used to measure the success of strategies to reach the objectives of the plans, as required. While there are some ongoing monitoring activities conducted by multiple agencies in the plan areas – for example, DPE – Environment and Heritage Group (EHG) undertake some monitoring of environmental water – these are not specific to the plans and have not been used to inform plan performance to date.

There are also monitoring activities driven by the environmental and water quality objectives summarised in the draft MER plans developed for the draft regulated river water sharing plans intended to replace the three plans subject to this audit. The draft MER plans are valley wide and designed to meet the *Basin Plan 2012* reporting requirements as well as meeting requirements of the proposed plans. While these datasets could potentially be used for future assessment of plan performance, data and analysis has not been used to inform assessment to date.

DPE-EHG manages environmental water allowances under plans and NSW environmental water holdings.⁶² DPE-EHG additionally delivers environmental water for its partners including the Commonwealth Environmental Water Office and non-government organisations.⁶³ DPE-EHG tracks delivery of environmental water through its E-Flo⁶⁴ and Power BI⁶⁵ platforms that record volumes of water delivered against environmental water access licences, delivery points, and objectives and outcomes of environmental watering events. DPE-EHG monitors ecological objectives against the *Basin-wide environmental watering strategy* that includes monitoring of vegetation, waterbirds, fish and ecosystem processes (carbon and nutrient cycling).⁶⁶ DPE-EHG additionally monitor ecological outcomes and catchment specific objectives identified in the *Long-Term Water Plans* not identified in the Basin-wide environmental watering strategy such as frogs.⁶⁷ Outcomes of environmental flows are reported on annually and act as an interim approach to reporting against *Long-Term Water Plans*.^{68,69,70}

The lack of implementation of these provisions is likely due in part to the lack of a robust MER framework for the plans.

Without this:

- the linkages between performance indicators and objectives are not clear

⁶² Walcott, A., Ocock, K., Spencer, J., Thomas, R., Karunaratne, S., Preston, D., Heath, J. and Kuo, W. (2020) *Results of frog monitoring in the Northern Murray-Darling Basin: Evaluation of frog responses to flows over 2014 to 2019*. Unpublished report. NSW Department of Planning, Industry and the Environment – Environment, Energy and Science.

⁶³ *Ibid.*

⁶⁴ EFlo is an internal DPIE-EES administrative software tool designed to track environmental water use including management of the portfolio of environmental water licences for both NSW, the Commonwealth and non-government organisations; orders and approvals of environmental water use by DPIE-EES and agreements with Commonwealth agencies where required.

⁶⁵ Power BI is an internal DPIE-EES software tool that collates environmental water information for reporting purposes providing a summary of environmental water ordered, delivered and available across catchments.

⁶⁶ MDBA (2020) [Basin-wide environmental watering strategy](#), second edition, 22 November 2019, revised February 2020.

⁶⁷ Thomas, R.F., Spencer, J., Heath, J., Walcott, A., Amos, C., Honeysett, J., Mason, T., Kuo, W. and Henderson, M. (2020) [Monitoring outcomes of environmental water in NSW, summary report for 2018-2019](#).

⁶⁸ DPIE-EES (2020) [Namoi Long-Term Water Plan: Part A and B](#)

⁶⁹ DPIE-EES (2020) [Gwydir Long-Term Water Plan: Part A and B](#)

⁷⁰ DPIE-EES (2020) [Macquarie-Castlereagh Long-Term Water Plan: Part A and B](#)

- the performance indicators are not specific, measurable, achievable, relevant and time-bound (SMART), and no metrics and targets have been set to better define these performance indicators.

The lack of MER is a significant and recurring issue across NSW that has been repeatedly highlighted by stakeholders, in previous Commission reviews and audits,^{71,72} and in Section 44 implementation audits undertaken in 2019 for other water sharing plans.⁷³

5.4 Potential impacts

Performance indicators are key to measuring the success of plan strategies in meeting Plan objectives. Potential impacts of not using performance indicators include having:

- no ability to determine and demonstrate if plan implementation aligns with the objects and principles of the Act (including to inform Section 43A plan reviews)
- no ability to benchmark or identify good practices that could be adopted in other water sharing plan areas
- no ability to transparently report on the achievement of plan outcomes
- insufficient information to make evidence-based decisions, apply adaptive management, or continually improve implementation
- no ability to measure the consequence of the partial or non-implementation of Plan provisions (see remaining chapters in this report).

5.5 DPE-Water is making efforts to improve MER

DPE-Water indicated that it has established and are expanding an implementation team who are responsible for implementation of water sharing plans. The draft MER plans developed to meet Basin Plan requirements and inform the monitoring of the proposed regulated river plans have not yet commenced as those plans have been withdrawn from the Murray Darling Basin Authority assessment process.

DPE-Water should continue to build on state-wide efforts to improve MER across NSW. They should also ensure that all planning efforts are comprehensive and associated funding accounts for implementation arrangements. MER planning should be supported by clear funding arrangements that are allocated to the implementation of these plans.

⁷¹ Natural Resources Commission (n.d.) [Water sharing plan reviews](#)

⁷² Natural Resources Commission (n.d.) [Water management plan audits](#)

⁷³ DPIE-Water. (n.d.) [Audits of water sharing plans under Section 44 of the Water Management Act 2000](#)

5.6 Recommendations

The Commission makes one recommendation and raises one suggested action.

R1.1	DPE-Water to lead the monitoring and evaluation of performance indicators to measure the success of the strategies to reach the objectives set out in Part 2 of the Plan and to use generated data to support decision making for plan implementation.
-------------	--

Although not a specific requirement of the plans or the Act, public reporting is becoming increasingly important in relation to water sharing. It was a key theme in reports such as Ken Mathews' *Independent investigation into NSW water management and compliance*⁷⁴ and in the NSW Government's *Water Reform Action Plan*.⁷⁵

Data accessibility to support transparency is consistent with the NSW Government's *Open Data Policy*⁷⁶ and its importance is highlighted in DPE-Water's statement that '*we provide transparent stewardship of water resources, and deliver services and reforms which support sustainable and healthy environments, economies and societies*'.⁷⁷

SA1.1	DPE-Water to publicly report on progress towards objectives of the plans.
--------------	---

⁷⁴ Ken Mathews (2017) [Independent investigation into NSW water management and compliance](#)

⁷⁵ NSW Government (2017) [Securing our water NSW Government water reform action plan](#)

⁷⁶ NSW Department of Finance, Service and Innovation (2016) [NSW Government Open Data Policy](#). Accessed 25 September 2020.

⁷⁷ DPE-Water (n.d.) [Water](#)

6 Criterion 2 – System operation rules

6.1 Criterion overview

Part 6 of the plans set out system operations rules relevant to each of the plans. Provisions examined in this part were:

- Requirements for replenishment flows – Clause 59 (Namoi) and Clause 58 (Gwydir, Macquarie)
- Water delivery and channel capacity constraints – Clause 60 (Namoi) and Clause 59 (Gwydir, Macquarie)
- Rates of change to storage releases – Clause 61 (Namoi) and Clause 60 (Gwydir, Macquarie)
- Supply of orders when remaining allocations are low – Clause 63 (Namoi) and Clause 61 (Gwydir)
- Rules for bulk transfer between storages – Clause 62 (Namoi) and Clause 61 (Macquarie)
- Operation of storages during floods and spills – Clause 64 (Namoi) and Clause 62 (Gwydir, Macquarie)
- Rules for airspace operations – Clause 63 (Macquarie).

Part 3 of the plans set out the relevant planned environmental provisions. The Commission has assessed these provisions alongside systems operations as environmental water provisions are typically undertaken as part of systems operations, by the same personnel and fall under Part 6 (system operations) of other regulated water sharing plans in NSW.

Provisions under Part 3 include:

- Planned environmental water provisions incorporating long-term extraction limits, rules for minimum daily flow and rules for environmental water accounts, as applicable
- Adaptive environmental water rules which allow creation of these licences and have not been tested by the Commission.

In the instance where a clause was not triggered in the audit period, it was unable to be tested and therefore findings or recommendations were not made. In some of these cases, the Commission examined processes and procedures in place to manage the system should the clause be triggered. Observations and suggested actions were made in some cases to reduce potential future risks of non-compliance, and risks to the environment and water users.

6.2 Current roles, systems and processes

A summary of roles for organisations is provided below.

WaterNSW is responsible for:

- running river operations⁷⁸
- operating (“capture, store and release water”) the dams and regulated structures in the plan areas
- operating dams and other infrastructure in accordance with the conditions of the Statement of Approval (90WA811444 for the Namoi plan, 90WA811596 for the Gwydir plan, 80WA704431 for the Macquarie plan)

⁷⁸ [Roles and Responsibilities Agreement: DPIE, NRAR and WaterNSW](#), Executed 30 June 2021.

- delivering planned environmental water per plan provisions
- implementing bulk water transfers in accordance with the rules that are developed by WaterNSW and approved by DPE-Water
- providing input to the resource allocations process for DPE-Water's use in making AWDs
- Facilitating River Operations Stakeholder Consultation Committees (ROSCCo) and Customer Advisory Committees (CAG).⁷⁹

NRAR is responsible for:

- issuing and managing compliance with WaterNSW's Statement of Approval (90WA811444 for the Namoi plan, 90WA811596 for the Gwydir plan, 80WA704431 for the Macquarie plan)
- reviewing annual compliance reports produced by WaterNSW against the conditions of the applicable Statement of Approval.⁸⁰

DPE-Water is responsible for:

- the resource allocations process and making AWDs⁸¹
- placing conditions on the relevant Statement of Approval to direct WaterNSW in its operations
- establishing procedures in relation to channel capacity constraints and rules for rates of change to water storage releases
- decisions around when unacceptably high delivery losses should allow the grouping and periodic release of orders
- approval of the rules that govern bulk water transfers between water storages
- input to NRAR's review of annual compliance reports produced by WaterNSW.⁸²

DPE-Environment, Energy and Science (DPE-EHG) is responsible for:

- managing environmental water (environmental water account if applicable and any environmental water held by the state or Commonwealth governments)
- planning for the use of environmental water account in consultation with the environmental water advisory group (in the Gwydir and Macquarie)
- providing needs and options information for environmental water to WaterNSW and other stakeholders.

The main systems and processes to operate the system are:

- **Computer-aided River Management (CARMLite)** - maintained by WaterNSW. This system transitioned from **Computer-aided improvements to river operations (CAIRO)**, which is a computer system (based on Microsoft Excel) which is a tool for River Operations. By the entry of known factors such as Water Orders and Water Taken, and by using empirical data such as Actual Unaccounted Differences and climatic data, it assists in the calculation of available flows at various points along a Stream.
- **Realtime data** website - maintained by WaterNSW, which makes publicly available relevant data such as release volumes from the dams, flow gauge data, and dam levels⁸³.

⁷⁹ [Roles and Responsibilities Agreement: DPIE, NRAR and WaterNSW](#), Executed 30 June 2021.

⁸⁰ *Ibid.*

⁸¹ *Ibid.*

⁸² *Ibid.*

⁸³ WaterNSW (n.d.) [Realtime data](#).

- **Water allocation methodologies** - DPE-Water allocates water to users via the water allocation process.^{84,85,86} This process is described in the DPE-Water's recently published methodologies for the Namoi and Gwydir plans.⁸⁷ The Macquarie water allocation methodology is in draft form and has not been made publicly available. DPE-Water staff indicated that this draft is under review and will be soon made public.
- **Resource assessment spreadsheet** - maintained by WaterNSW, used to support the water allocations process. It is reviewed by DPE-Water and used to make AWD orders.⁸⁸

Relevant procedures are discussed in the sub-sections below.

The Commission considers that there are opportunities to improve systems, processes or procedures to support the implementation of provisions relating to Systems Operations.

6.3 Systems operations provisions have partially been given effect

6.3.1 Replenishment flows were partially given effect

Clause 59 in the Namoi plan and Clause 58 in the Gwydir and Macquarie plans set out the two main requirements for replenishment flows:

- replenishment flows are required to be delivered.
 - These clauses specify volumes 'up to' which replenishment flows must be provided 'if required' to various water sources.⁸⁹ The creeks and reaches named in the plans require replenishment flows to be delivered by dam releases if natural flows do not meet the needs of the replenishment flows.⁹⁰
- water to deliver replenishment flows must be set aside and maintained in storages.
 - For the water courses requiring regulated releases to supplement natural tributary flows, water must be set aside and maintained (reserves held in the relevant dam) to ensure replenishment flows can be delivered.⁹¹ The Commission is of the view that the total volume required for replenishment flows to be provided by dam releases should be held in storage and made available in line with plan requirements. This may rely on inflows that can be stored for the purposes of replenishment flows.

The following aspects of these clauses have not been examined:

- Clause 58 of the Macquarie plan names numerous targets for replenishment flows that are to be provided by tributary inflows only.⁹² However, the Commission has not assessed these for compliance as they are dependent on rainfall.
- four of the five water reaches in the Gwydir plan no longer require replenishment flows, as instructed by the Minister due to the creation of three supply schemes to provide water for stock and domestic use.⁹³

⁸⁴ DPIE-Water (n.d.) [Principles for allocating regulated river water in NSW](#).

⁸⁵ DPIE (2021) [Water Allocation Methodology Namoi Regulated River Water Sources](#)

⁸⁶ DPIE (2021) [Water Allocation Methodology Gwydir Regulated River Water Source](#)

⁸⁷ DPE-Water (n.d.) [Resource assessment process](#)

⁸⁸ *Ibid.*

⁸⁹ Clause 59(1) in the Namoi plan, Clause 58(1) in the Gwydir plan and Clause 58(1), 58(2) and 58(4) in the Macquarie plan.

⁹⁰ The Macquarie plan wording in Clause 58(2) states that replenishment flows 'may' be made available to these river reaches.

⁹¹ Clause 59(2) in the Namoi plan, Clause 58(2) in the Gwydir plan and Clause 58(3) in the Macquarie plan.

⁹² All water courses listed in 58(1). The section from "Miltara" to the Barwon River at Clause 58(4) may be supplemented by regulated flows per the Note at Clause 58.

⁹³ These are the Lower Gingham Domestic Water Supply Scheme (2011), Lower Gwydir Domestic Water Supply Scheme (2013) and Mallowa / Ballinboora Creek Water Efficiency Scheme (2015).

WaterNSW indicated that the wording of 'if required' in the plans supports operational flexibility so that where available natural flows can furnish replenishment flows. To determine the volume and timing of water releases required to meet these needs, WaterNSW consults with landholders who use replenishment flows to meet stock and domestic needs.

Replenishment flows were not always delivered during drought in all plans

The Commission reviewed available WaterNSW annual compliance reports for the years 2016-2017 to 2019-2020 inclusive, undertook walk-throughs with WaterNSW staff and checked gauge data where available. The wording in the plan provisions is 'up to' a stated volume. This makes auditing this requirement challenging. The Commission is of the view that the volumes required to be held in reserve in the plans is the amount that should be available for WaterNSW to release, and therefore lower volumes may be recorded at gauges along the system due to losses. In addition, WaterNSW staff indicated in interviews that significantly lower volumes than the plans state can satisfy the requirements of replenishment flows in some of the water courses. In this case, the Commission has not made a finding where replenishment flows were of significantly lower volumes than the upper limit stated in the plans, if:

- the annual compliance reports stated that systems were fully replenished and
- WaterNSW was able to provide justification in interview (for example through walkthroughs, description of consultation undertaken), such as for the lower Bogan River in the Macquarie.

The Commission found that replenishment flows under Clause 59 of the Namoi plan and 58 of the Gwydir and Macquarie plans were not delivered in accordance with the requirements in the 2018-19 water year. These included:

- Pian Creek downstream of Dundee Weir (Namoi): 0ML, no flow was provided by tributaries or dam releases compared to up to 14,000ML required by the Namoi plan
- Thalaba Creek (Gwydir): 2,135ML released from Copeton Dam, compared to up to 4,000ML required by the Gwydir plan
- Marra Creek (Macquarie): 1,698ML provided by releases and tributaries (as measured at Carinda road gauge 421097), WaterNSW staff indicated in interview that up to 8,000ML is required to replenish this system compared to the upper limit of 15,000ML when required under the Macquarie plan.

The Namoi annual compliance reports also show that replenishment flows were partially provided in the Namoi in 2019-20 (approximately 480 ML), as no flow was provided in the first half of the year.⁹⁴

DPE-Water staff indicated that the decision not to provide some replenishment flows during 2018-19 was due to very high delivery losses being estimated, which DPE-Water deemed to be unacceptable during a drought. DPE-Water indicated that this decision was discussed at Critical Water Advisory Panel meetings and with stakeholders at WaterNSW River Operations Stakeholder Consultation Committees.^{95,96} However, DPE-Water did not provide a written directive to WaterNSW to advise it not to deliver these replenishment flows, which would allow WaterNSW not to deliver in accordance with the conditions of the Statement of Approval⁹⁷. In addition, the Commission notes that no formal mechanism such as a formal directive or suspension of the plans under Section 49B of the Act was in place at the time. Therefore, plan requirements related to replenishment flows still applied.

⁹⁴ Approximately 480ML was provided in the second half of the year.

⁹⁵ NSW Department of Industry (2019) [Critical Water Advisory Panel, Northern Inland Regulated Rivers – Summary of meetings in 2018](#)

⁹⁶ WaterNSW (2018) [Macquarie-Cuddeong Customer Advisory Group – Notes of Meeting Thursday 29 November 2018](#)

⁹⁷ 90WA811444 for the Namoi plan, 90WA811596 for the Gwydir plan, 80WA704431 for the Macquarie plan.

In 2018-19 DPE-Water advised users that WaterNSW could provide alternate means to supply their potable water requirements in place of the Pian Creek replenishment flow in the Namoi plan area.⁹⁸ A domestic water carting rebate was also made available to eligible users in the lower Macquarie Valley.⁹⁹ These actions may have partially mitigated the absence of replenishment flows for water users during this drought period. The Commission is not aware of an alternate water delivery option being made available to supply domestic and stock needs in the Gwydir where replenishment flows were not delivered in 2018-19.

WaterNSW delivers replenishment flows. Replenishment flows are required to be delivered each year in accordance with plan requirements. Not all replenishment flows were delivered in the three audit regions during 2018-19.

Water to deliver replenishment flows was not held in reserve in the Namoi

The Commission reviewed water allocation methodology statements and resource assessments for the full audit period.¹⁰⁰ Under the Namoi plan, volumes of water were not held in reserve in the combined storages for the period December 2018 to February 2020 to facilitate the delivery of replenishment flows under Clause 59(2). Water for replenishment flows is part of the 'Higher priority requirements' budget, which was depleted in the Namoi during this time as described below and in **Chapter 10**. The Gwydir resource assessment spreadsheet showed that the required replenishment flow volume was held in reserve in the Gwydir storage throughout the audit period. The Commission found no evidence to suggest that replenishment flow volumes were not held in reserve during the audit period under the Macquarie plan.

The resource assessment for the Namoi plan indicated that:

- the Higher priority requirements budget was full (58.24GL) as at January 2018
- the Higher priority requirements budget was progressively depleted until it reached 1.49GL in December 2018
- the Higher priority requirements budget was 0GL by January 2019 through to February 2020.

Water allocation methodologies state that the Higher requirements budget includes a two-year budget for replenishment flows, which is 28GL for the Namoi.¹⁰¹ As the Higher priority requirements budget was at the stated maximum in January 2018, there would be enough water to provide 14GL for replenishment flows in the following water year of July 2018 to June 2019. The WaterNSW annual compliance report for 2018-19 in the Namoi plan showed that no water was released for replenishment flows in 2018-19. Therefore, water which was set aside in the Namoi in January 2018 was not held in reserve for replenishment flows but was used for other purposes between January 2018 and January 2019 (see **Chapter 10**).

DPE-Water indicated in interview that water was set aside in the Namoi for replenishment flows but was not held in reserve in storages throughout the audit period. DPE-Water staff advised the Commission that the delivery losses associated with delivery of the replenishment flow to Pian Creek would have threatened the targeted 24-month critical need reserve in the Namoi plan.

Published water allocation statements for the Namoi plan state that the Higher priority requirements budget (which includes water for replenishment flows) was borrowed from to provide water to support delivery losses to enable general security water deliveries and that this

⁹⁸ NSW Government (2018) [Water Allocation Statement, Namoi Valley](#), 14 November 2018.

⁹⁹ NSW DPIE (2021) [Macquarie Valley snapshot – 2017-2020 Drought](#)

¹⁰⁰ The Commission has reviewed a final draft of the Macquarie resource allocation methodology document. [Valley-based Allocation Methodology Summaries](#) are published by DPIE-Water as they are finalised.

¹⁰¹ DPIE (2021) [Water Allocation Methodology Namoi Regulated River Water Sources](#)

is in accordance with 'prior practice'.¹⁰² This practice does not support the requirement to set aside and maintain water for replenishment flow delivery. DPE-Water should ensure both volumes and losses to facilitate replenishment flows are held in reserve to support WaterNSW's ability to deliver replenishment flows.

There are not documented processes to guide decision making to increase the likelihood of meeting replenishment flow requirements

The dictionaries for these plans state that the purpose of replenishment flows is to:

'refill pools and water holes in effluent systems downstream of the water source and provide water for household and town use and stock'.¹⁰³

In 2018-19 in the Namoi and Macquarie, water tanking was offered as an alternative to landholders to supply stock and domestic rights which WaterNSW and DPE-Water staff indicated to the Commission during interviews as an alternate way to meet the needs of replenishment flows.¹⁰⁴ However, whilst this meets one part of the definition of replenishment flow purpose, it does not provide a 'flow' to the system to refill pools and water holes as required in accordance with the definition of replenishment flows identified in the dictionary. Therefore, it is unclear how all replenishment flow requirements (including refilling water holes and pools) under all plan dictionary definitions were met.

WaterNSW uses its discretion to determine the volumes and timing of replenishment flows required, as the plans provide this flexibility. For example, in the Macquarie plan, Marra Creek and the Lower Bogan together require up to 30,000ML per year. WaterNSW staff indicated during interviews that in practice, around 13,000ML is required to fully replenish both targets. WaterNSW also emphasised the importance of these flows reaching their end points, which typically can be measured by gauging stations. No formal documentation exists to inform decision-making in relation to replenishment flow volumes that are 'required'. WaterNSW staff also indicated that consultation with landholders informs decision-making for the delivery of replenishment flows but these processes are also not documented.

WaterNSW staff informed the Commission that there are Standard Operating Procedures for replenishment flows that are not yet finalised. These were not provided to the Commission, despite multiple requests. Decisions surrounding replenishment flow delivery are communicated to River Operations Stakeholder Consultation Committees (ROSCCo) and Customer Advisory Committees (CAG) which have publicly available minutes. However, processes for consultation, typical volumes required and other intended targets for replenishment flows (for example, pools) are not documented and therefore open to individual operator discretion and interpretation. Documentation of these processes would increase consistency of replenishment flow delivery between operators and promote delivery to all intended targets under the plan dictionary definitions.

¹⁰² NSW Government (2018) [Water Allocation Statement, Namoi Valley](#), 14 November 2018. Note (6) to the Resource Distribution (as at 31 October 2018) Figure, p 3.

¹⁰³ Schedule 1 Dictionary of the Namoi plan, Gwydir plan and Macquarie plan.

¹⁰⁴ NSW Government (2018) [Water Allocation Statement, Namoi Valley](#), 14 November 2018.

Recommendations and suggested actions

The Commission makes two recommendations and raises one suggested action.

R2.1	WaterNSW to deliver replenishment flows required under the Namoi, Gwydir and Macquarie plans, unless directed otherwise in writing by the Minister.
R2.2	DPE-Water (with the support of WaterNSW) to maintain adequate reserves in the combined storages in the Namoi to cover replenishment flows consistent with the requirements of Clause 59(2).

SA2.1	WaterNSW to develop Standard Operating Procedures to document processes and guide decision-making as to when and how replenishment flows will meet the needs under the plan provisions in accordance with the plan dictionary definitions (pools and water holes in effluent river systems, household, town use and stock).
--------------	---

6.3.2 Channel capacity constraints have been partially given effect

Water delivery and channel capacity constraints are governed by Clause 60 in the Namoi plan and Clause 59 in the Gwydir and the Macquarie plans. These clauses require that any system constraints should be specified in accordance with procedures set by the Minister (where necessary). In each case no procedures have been developed by DPE-Water. For the Namoi and Gwydir, channel capacity constraints have been determined by DPE-Water and formalised through mandatory conditions on the WaterNSW Statement of Approvals (90WA811444 and 90WA811596 respectively). In the absence of procedures established by the Minister, these mandatory conditions set requirements for WaterNSW in its dam operations and WaterNSW reports against these to NRAR in its annual compliance reports. These conditions require that daily regulated flows in the regulated system do not exceed the plan constraints (ML per day) on the nominated river reaches.

The Commission assessed compliance with channel capacity constraints in the Namoi and Gwydir plans using stream gauge data from the WaterNSW *Realtime data* website for the period 1 July 2016 to 30 June 2020:¹⁰⁵

- Namoi: Pian Creek measured at Gunidgera Offtake (gauge 419061) had 6 exceedances of channel capacity of 2,000ML per day occurred during September 2016
- Gwydir:
 - Carole Creek (gauge 418011) constraint of 2,200 ML per day was exceeded 4 times in September 2016
 - Mehi River (gauge 418044) constraint of 5,800ML per day was not exceeded
 - Moomin Creek (gauge 418062) constraint of 2,200ML per day was not able to be verified as the gauge data is not available, annual compliance reports indicate that exceedances occurred in September and October 2016 and in October 2017
 - Gwydir River downstream of Tyreel (gauge 418063) constraint of 1,100ML per day was exceeded a total of 13 times, in late August and September 2016, October 2017 and February 2020.

The Commission's analysis of the Realtime data confirmed that the performance reflected what was reported by WaterNSW in its compliance reports. The Commission found no evidence to

¹⁰⁵ Data from WaterNSW (n.d.) [Realtime data](#)

contradict WaterNSW's compliance reports statements that exceedances were due to unregulated flows stemming from high rainfall.

Clause 59 of the Macquarie plan requires that channel capacity constraints be determined and specified in accordance with procedures established by the Minister, however there are no documented constraints in the Macquarie Statement of Approval (80WA704431).

There are two constraints in the Macquarie known to WaterNSW staff; at Marebone Break and Bulgeragar Creek and at Mumblebone Break. WaterNSW and DPE-Water indicated that there is an inter-agency agreement from 2008 for the Marebone Break and Bulgeragar Creek constraint, however documentation to verify this has not yet been provided. It is not clear whether this agreement satisfies Clause 59 requirements. In addition, WaterNSW provided a list of known channel capacity constraints in the Macquarie which were determined by the Commonwealth Environmental Water Holder in collaboration with WaterNSW.

Airspace operations provisions under Clause 63 highlight the potential for flooding at the town of Warren. WaterNSW staff in interview indicated that channel capacity exceedance has not been a problem in the Macquarie and therefore they are not required to be specified. This means that the absence of procedures in accordance with Clause 59 has potentially had an immaterial impact in the audit period. The Commission notes that although there is flexibility in the wording of Clause 59 to specify constraints 'where necessary', the existence of an agreement between agencies from 2008 indicates that there is precedent for the documentation of channel capacity constraints in the Macquarie. WaterNSW has access to a list of relevant channel capacity constraints in the Macquarie, some of which are identified as having the potential to impact environmental water delivery. There is a risk that because these constraints are not coded onto the WaterNSW Statement of Approval (80WA704431) as conditions to comply with, that issues relating to channel capacity are not monitored, reported against, and enforced.

To be consistent with the other plan areas, specification of constraints could be done through including them on the Statement of Approval (80WA704431) so that WaterNSW has clear guidance in the absence of procedures established by the Minister. DPE-Water staff confirmed in interview that it considers the statement of the approval to be the appropriate means of specifying channel capacity constraints. DPE-Water also indicated that channel capacity has not been an issue in the Macquarie during the audit period. However, the Commission suggests that management of channel capacity in line with the other plans would reduce the risk of potential exceedances in the future.

Effective management of channel capacity constraints is important to mitigate potential negative impacts such as inundation, transmission losses and damage to infrastructure.

The Commission makes one suggested action.

SA2.2	DPE-Water to determine and specify channel capacity constraints in the Macquarie – Cudgong Regulated Water Sources on the WaterNSW Statement of Approval.
--------------	---

6.3.3 Procedures and rules for rates of change to storage releases have not been established

Rules regarding rates of change in releases from storages have not been established to consider environmental needs, damage to river banks and public safety as required by Clause 61 of the Namoi plan and Clause 60 of the Gwydir and Macquarie plans.

Thus, there is no implementation guidance that sets out release rate parameters for WaterNSW for:

- Keepit and Split Rock dams (Namoi plan)
- Copeton Dam (Gwydir plan)
- Windamere and Burrendong dams (Macquarie plan).

In all plans, provisions require that these rules should be made in accordance with procedures established by the Minister. However, in no cases have these rules been established.

The Macquarie plan is the only plan of the three which has any documentation regarding rates of change in releases from dams. This documentation includes WaterNSW's operating protocols for rates of change to storage releases for Burrendong and Windamere dams. However, these documents provide analysis on historical rates of change. They do not provide operational rules to guide current and future decisions that consider requirements of Clause 60 including the environment, river banks and public safety.

In the absence of any rules across the plans, individuals within WaterNSW have discretion to change the rate of storage releases based on their experience, knowledge and the situation.

The implementation of rates of change of storage releases is important as it has the potential to adversely impact the environment, river banks and public safety.¹⁰⁶ In addition, not making releases that mimic the natural hydrograph and making releases in 'blocks' may result in stranding of aquatic organisms. This therefore relates to provisions for grouping of orders (see **Chapter 6.3.4**), which would also be guided by any rules for rates of change to storage releases.

The WaterNSW Statement of Approval for the Macquarie plan (80WA704431) includes a mandatory condition which requires WaterNSW to develop rules for rates of change to storage releases. However, the Namoi Statement of Approval (90WA811444) and Gwydir Statement of Approval (90WA811596) do not include mandatory conditions that relate to rules for rates of change to storage releases.

Therefore, the Commission has assigned this recommendation to WaterNSW for the Macquarie only, and DPE-Water as the Minister's delegate for the other two plans.

The Commission makes two recommendations.

R2.3.1	DPE-Water to establish procedures in relation to the rates of change for storage releases for the Namoi, Gwydir and Macquarie. Procedures should consider environmental considerations, damage to river banks and public safety. DPE-Water may consult with relevant stakeholders including WaterNSW and DPE-EHG.
R2.3.2	Upon completion of R2.3.1 , WaterNSW (for Macquarie) and DPE-Water (for Namoi and Gwydir) to formally document rules for rates of change for storage releases, addressing environmental considerations, damage to river banks and public safety in accordance with the Minister's procedures.

¹⁰⁶ As stated in Clause 61 of the Namoi plan and Clause 60 of the Gwydir and Macquarie plans.

6.3.4 Procedures for supply of orders when allocations are low are not clearly defined

Clause 63 in the Namoi and Clause 61 in the Gwydir describe the requirements for periodic grouping of orders that may occur if in the opinion of the Minister, 'the total remaining volume of water in access licence allocation accounts has reduced to a level where the continuous delivery of water orders would involve unacceptably high delivery losses'. There is no equivalent provision in the Macquarie plan.

Draft documentation prepared by DPE-Water indicated that it considers there to be different types of grouping of orders that are used in the northern valleys and indicated this applies to the Namoi and Gwydir plan areas:

- 'Consolidated releases' which deliver multiple orders at a time (and may group orders for multiple days to a week), are considered normal practice
- 'Pulse releases' involve grouping of orders with regular release such as once a week and are used to reduce losses
- 'Block releases' are implemented in a severe drought and may occur once to twice a year or many months apart. These are planned, following consultation and are implemented when necessary to deliver remaining volumes held or accessible in accounts, when the general security delivery loss account is otherwise insufficient to deliver the water.

DPE-Water indicated in interview that the above reflects initial thinking and that work is currently underway to define these grouping types more accurately and to gain consistency and agreement on their use between organisations.

There is no formal documentation describing what constitutes a 'block release'. From conversations with auditees and reviewing the draft documentation described above, the Commission is of the view that 'block releases' align best to clauses 61 and 63 in the Namoi and Gwydir plans respectively.

The Commission examined evidence of WaterNSW's annual compliance reports for the period July 2016 to June 2020 to identify if 'block releases' took place in the Namoi and Gwydir. Where a block release was identified, the Commission reviewed Water Allocation Statements to confirm that DPE-Water identified a threat to access licence allocations or high delivery losses to require a block release. The Commission also reviewed stakeholder minutes (ROSCCo and CAG meeting minutes) to confirm that consultation with irrigators took place.

The Commission found that:

- a block release was delivered to the Lower Namoi in October 2018 (reported in WaterNSW's Annual Compliance Report 2018-2019 for the Namoi)
 - DPE-Water approved this decision through publication of a Water Allocation Statement which noted the dry conditions requiring a block release¹⁰⁷
 - irrigators were consulted via various means (CAG for the Namoi and Peel)¹⁰⁸
- three block releases were carried out by WaterNSW in the Gwydir
 - DPE-Water approved three block releases in the Gwydir in the summer of 2018-2019 to allow delivering of remaining general security water to Moomin, Carole and Mehi Creeks¹⁰⁹

¹⁰⁷ NSW Government (2018) [Water Allocation Statement, Namoi Valley](#), 10 October 2018.

¹⁰⁸ WaterNSW (2018) [Namoi-Peel Customer Advisory Group – Minutes of Meeting](#), 23 August 2018..

¹⁰⁹ NSW Government (2018) [Water Allocation Statement, Gwydir Valley](#), 8 November 2018.

- consultation with irrigators took place to determine appropriate timing of the block releases via the Gwydir CAG.^{110,111}
- while these block releases occurred, they were not reported in the annual compliance report for the Gwydir.

The Commission found that all of these 'block releases' were conducted in accordance with the requirements of Clause 63 in the Namoi plan and Clause 61 in the Gwydir plan respectively. Therefore, the Commission makes no recommendation in relation to this finding. However, the Commission observed that there is not a clear link between the practice of 'block releases' (or any other grouping of orders described in DPE-Water's draft documentation) and 'grouping of orders' under Clauses 61 and 63 of the Gwydir and Namoi plans. This is important for effective reporting and compliance. This is potentially demonstrated by 'block releases' in the Gwydir not being reported by WaterNSW in its 2018-19 annual compliance report against mandatory conditions that related to grouping of orders.

The types and triggers for the grouping of orders approach should be transparent to all users and implemented in a systematic way in accordance with plan provisions and reported as part of the annual compliance reports in accordance with mandatory conditions. WaterNSW and DPE-Water staff indicated in interviews that interagency discussion is underway to better define different types of groupings that occur under the plans and how they should be triggered and reported.

The Commission concludes that the intent of provisions for grouping of orders were given effect where 'block releases' occurred, in accordance with Clause 63 and Clause 61 in the Namoi and Gwydir plans respectively. The Commission has no evidence to demonstrate that any grouping of order events occurred that were not undertaken in accordance with plan provisions and the plans are silent on different types of groupings. The review of plan provisions is likely to assist in improving clarify around how these events should be defined and managed, however this is beyond the scope of this audit. Therefore, the Commission makes no recommendations.

However, it is not transparent when periodic grouping of orders under Clause 63 in the Namoi plan and Clause 61 in the Gwydir plan is required and when it has occurred. The Commission raises one suggested action.

SA2.3	DPE-Water to document and publish clear thresholds under which grouping of orders would be triggered, including defining block releases and whether these are considered 'grouping of orders' under the Namoi and Gwydir plans.
--------------	---

6.3.5 Rules for bulk water transfers between storages were partially given effect

Clause 62 and Clause 61 in the Namoi and Macquarie plans respectively set out the rules in each plan area for bulk water transfers between water storages. Bulk water transfer criteria are not applicable to the Gwydir plan which has one major water storage. Schematics showing the layout of the water storages in each plan area are shown in **Figure 2**, **Figure 3** and **Figure 4**. In the audit period:

- One bulk water transfer occurred in the Macquarie from Windamere to Burrendong Dam (January 2019)
- Two bulk water transfers occurred in the Namoi from Split Rock to Keepit dam (in 2017-18 and 2018-19).

¹¹⁰ WaterNSW (2018) [Gwydir Customer Advisory Group – Minutes of Meeting](#), Thursday 30 August 2018.

¹¹¹ WaterNSW (2019) [Gwydir Customer Advisory Group – Minutes of Meeting](#), 12 March 2019.

The Commission reviewed evidence of advertising notices, minutes of meetings and the rules governing the bulk water transfers to determine compliance with plan provisions as to how and when the transfers took place. The Commission found the following:

- No evidence of monitoring of either of the Namoi plan bulk water transfer events was provided to the Commission to demonstrate monitoring occurred as required under Clause 62(2d). Bulk water transfers can adversely impact the environment, community and water users. Without monitoring there is no way to determine the impact of the bulk water transfer.
- Bulk water transfers did not occur from Windamere to Burrendong Dam in 2019 in time (or of sufficient volume) to prevent insufficient supply to downstream needs in the Macquarie River (including basic landholder rights, access licence water allocations, the environmental water allowance and delivery losses) as described under Clause 61(1) of the Macquarie plan. This is described in more detail below.

In September 2018, general security and environmental water in the Macquarie were restricted to 70 percent of the carryover account available for 2018-2019 under a Section 324(1) Order due to a water shortage.¹¹² This 324(1) Order did not restrict take upstream of Burrendong Dam.¹¹³ In January 2019, WaterNSW transferred 10GL from Windamere Dam to Burrendong Dam. This transfer was originally published as intended to be 35GL, however this event was paused due to a rain event.¹¹⁴

By July 2019, the Macquarie plan was suspended under Section 49B of the Act for the Macquarie River downstream of Burrendong Dam due to the shortage of supply.¹¹⁵ Accordingly, restrictions were placed on local water utility, stock and domestic access licences, high security water and general security water along this river reach.¹¹⁶ The potential for another transfer was proposed by WaterNSW at Customer Advisory Group and River Operation Stakeholder Consultation Committee meetings during 2019 and 2020, but no more bulk transfers occurred in 2019 beyond the initial 10GL.¹¹⁷

Bulk water transfers were progressively postponed during the audit period until drought conditions eased, at which point a bulk water transfer was deemed not to be required until at least February 2022.¹¹⁸

Windamere Dam is required to retain 70,000ML to supply the drought security for the Cudgegong Valley under the Bulk Water Transfer Protocol.¹¹⁹ The Commission's analysis of Windamere Dam levels available on WaterNSW's Realtime data website indicates that Windamere Dam held:¹²⁰

- 149,596ML as at 1 September 2018 around the time of 70 percent restriction to general security users under the 342 Order
- 139,620ML as at 1 January 2019 around the time the 10GL bulk water transfer commenced

¹¹² NSW Government (2018) [Government Gazette Number 89 of 11 September 2018](#)

¹¹³ *Ibid.*

¹¹⁴ WaterNSW (2020) [Windamere-Burrendong water transfer info session planned](#)

¹¹⁵ NSW Government (2019) [Government Gazette Number 69 of 4 July 2019](#).

¹¹⁶ [Available Water Determination Order for Various NSW Regulated River Water Sources \(No. 2\) 2019](#)

¹¹⁷ WaterNSW (2020) [Macquarie-Cudgegong Valley Operations update – River Operations Stakeholder Consultation Committee \(ROSCCo\)](#)

¹¹⁸ NSW Government (2020) [Water Allocation Statement – Macquarie and Cudgegong Regulated Rivers Water Source, 11 December 2020](#)

¹¹⁹ NSW DPIE (2021) [Windamere Dam releases – Frequently asked questions](#)

¹²⁰ Analysis of data downloaded from realtime data site for Windamere Dam over the audit period. WaterNSW (n.d.) [Realtime data](#)

- 120,000ML as at 1 July 2019 when all users in the Macquarie regulated river were restricted by the plan suspension under Section 49B of the Act
- 96,485ML as at 24 March 2020 which is the lowest volume in the dam during the audit period.

Windamere Dam did not drop to the minimum reserve of 70,000ML required to be retained in the event of a bulk water transfer, during the audit period. Therefore, the Commission interprets that water was available for a bulk water transfer throughout this period which could have provided for some downstream needs during 2018-2019 and 2019-2020 when users in the Macquarie valley were on water restrictions. The Macquarie Valley was classified as being in Stage 4 Critical Drought from May 2019 to May 2020, while the Cudgegong Valley was in Stage 1 Normal Operations or Stage 2 Emerging Drought throughout this time.¹²¹

The Commission understands that moving water downstream should be done cautiously as there is no infrastructure to return water to Windamere Dam once it is released. However, during the audit period there were significant restrictions placed on Macquarie valley users while Windamere Dam had sufficient water available to provide a bulk water transfer. This is not in accordance with Clause 61(1) of the Macquarie plan. DPE-Water staff indicated by email that rather than using a bulk water transfer, the drought management strategy that was adopted for Macquarie River under the NSW Extreme Events Policy was to implement infrastructure and operational measures (such as deep storage access). The Commission notes that options were considered to promote drought efficiency and minimise impacts to communities, but that the NSW Extreme Events Policy does not supersede requirements of the Macquarie plan.¹²²

Implementation of bulk water transfers are governed by the Bulk Water Transfer Protocol, the Resource Assessment process allocates water available for use in a Bulk Water Transfer in the accounts, however there are no documented triggers for the use of this allocated water in a bulk water transfer. DPE-Water in its Water Allocation Statements provides regular updates to water users on the likelihood of a bulk water transfer to secure 'high priority entitlements' during the audit period through the water allocation statements.¹²³

The *Allocation Methodology Summary* for the Macquarie describes that the resource assessment for the Macquarie assumes inflows from periodic bulk water transfers from Windamere Dam.¹²⁴ It describes that 70,000ML must be reserved in Windamere Dam for critical needs in the Cudgegong but does not describe what storage levels in Burrendong Dam would trigger a bulk water transfer. Clear triggers and thresholds would promote transparency and support decisions as to when bulk water transfers should take place, considering the needs and impacts to both valleys. This would also promote transparency for users in both valleys to understand under what circumstances they can expect bulk water transfers to take place and what constitutes 'insufficient' supply as described in Clause 61 of the Macquarie plan. WaterNSW has indicated it is in the process of developing a drought management plan for the Macquarie-Cudgegong which will include consideration of bulk water transfers.

The Commission makes two recommendations.

R2.4	WaterNSW (in consultation with DPE-EHG and DPE-Water) to conduct monitoring of bulk water transfer events in line with Clause 62(2d) of the Namoi plan.
-------------	---

¹²¹ NSW DPIE (n.d.) [Drought stages and measures implemented during the 2017-20 drought](#)

¹²² NSW Department of Industry (2018) [NSW Extreme Events Policy - Policy framework for the management of NSW Murray-Darling Basin water resources during extreme events](#)

¹²³ NSW Government (2018) [Water Allocation Statement – Macquarie and Cudgegong Valleys](#), 11 October 2018.

¹²⁴ The Commission has reviewed a final draft of this document. [Valley-based Allocation Methodology Summaries](#) are published by DPIE-Water as they are finalised.

R2.5	DPE-Water to develop clear thresholds and triggers for when bulk water transfer planning and implementation should occur. These should be formally documented and published.
-------------	--

6.3.6 Rules governing dam operations in floods and spills were not triggered, however guidance should be formally documented

Clause 64 in the Namoi plan and Clause 62 in the Gwydir and Macquarie plans provide for dam operation during floods and spills. Available information from WaterNSW Realtime data website indicated that during the audit period of 1 July 2016 to 30 June 2021, there was no time when the flood and spilling of water occurred for any relevant dam. Therefore, clauses for flood and spill operations in these plans were not triggered and the implementation of these provisions was not tested.¹²⁵

WaterNSW has overarching flood operation procedures to guide flood operations in NSW. It is updating flood operations manuals for each of these dams¹²⁶ which have not yet been finalised.

Keepit, Burrendong and Copeton dams are gated, increasing the importance of having formalised protocols to manage high dam and downstream river levels. WaterNSW has indicated that these flood operations manuals were intended to be finalised by December 2021.

Flood operations are extremely important and there is a high degree of public interest and scrutiny on flood operations. In the absence of current, formally documented procedures to guide operators making decisions, there is a risk to auditee organisations and the government, in reputation, public safety and financial penalties.

The Commission makes no recommendations and raises one suggested action.

SA2.4	WaterNSW to finalise the draft Flood Operations Manual for Keepit Dam, Copeton Dam and Burrendong Dam (and Windamere as appropriate) and ensure they are part of a formal document management process. Procedures should align with floods and spills operation clauses in the applicable water sharing plan and Statement of Approval.
--------------	---

6.3.7 Rules governing airspace operations in the Macquarie were given effect

Airspace operations in the Macquarie are governed by rules under Clause 63 of the Macquarie plan. There are no provisions for airspace operations in the Namoi or Gwydir plans. Airspace operations requirements in the Macquarie were triggered and applied between September 2016 and January 2017, when airspace operations were carried out for Burrendong Dam. Releases were made to benefit the Macquarie Marshes, Marebone floodplain and effluent creeks, in consultation with the Macquarie Flood Mitigation Zone Reference Panel. The Commission concludes that airspace operations provisions were given effect.

The Commission therefore makes no recommendations.

¹²⁵ Analysis of data downloaded from realtime data site for Keepit Dam, Copeton Dam, Windamere Dam and Burrendong Dam over the audit period. WaterNSW (n.d.) [Realtime data](#)

¹²⁶ Windamere is included in the Burrendong manual.

6.3.8 Environmental provisions were partially given effect in the Namoi and Macquarie

Planned environmental water provisions in the Gwydir were met in all material respects during the audit period, however there were some gaps in the Namoi and Macquarie implementation.

Minimum daily flow targets in the Namoi were not always met

Planned environmental provisions under the Namoi plan in Clause 14 were not always met during the audit period. The Commission’s analysis using publicly available data across the audit period on the WaterNSW Realtime data website found that:¹²⁷

- the minimum daily flow was not met at Walgett (gauge 419091) for 32 days between June and August 2017
- combined dam storage in Keepit Dam and Split Rock Dam was well above the 120,000ML trigger volume to enable delivery of minimum daily flows to Walgett
- the resulting shortfall was 162ML below the target minimum flow across these 32 days.

Figure 5 below from the General Purpose Water Accounting Report for the Namoi supports the above.¹²⁸

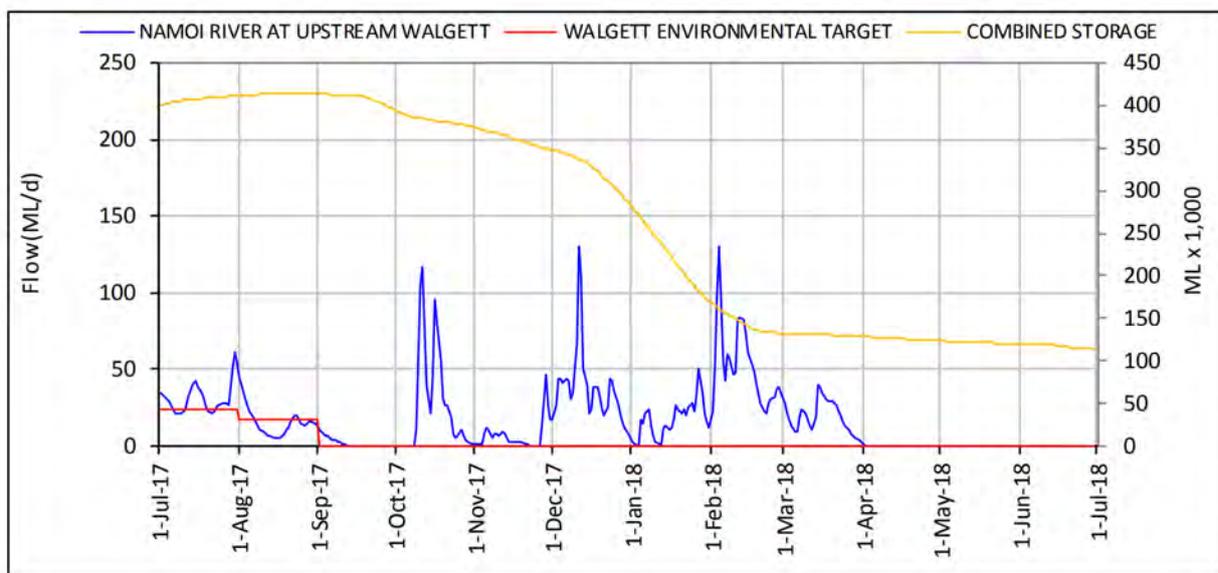


Figure 5: Minimum flow requirement performance for the Namoi 2017-2018¹²⁹

The Commission notes that WaterNSW reported only nine days when the minimum daily flow target was not met during August 2017 in its *Annual Compliance Report 2017-2018* for the Upper and Lower Namoi Regulated River Water Source. This Annual Compliance Report does not make it clear how this number was calculated and the Commission notes that the volumes reported are inconsistent with publicly available data. The *General Purpose Water Accounting Report 2017–18: Namoi Catchment* cites the period 11 August 2017 to 17 August 2017 as the period below the minimum flow target, despite the graph showing performance twice below-target in July and across much of August.¹³⁰ This is also inconsistent with the nine days below-target reported by WaterNSW. The Commission’s analysis of 32 days, the majority of which

¹²⁷ Analysis of data downloaded from Realtime data site for the ‘Namoi River at Upstream Walgett’ (gauge 419091), Keepit Dam (419041) and Split Rock Dam (419080) over the audit period. WaterNSW (n.d.) [Realtime data](#)

¹²⁸ NSW Department of Industry Lands and Water (2019) [General Purpose Water Accounting Report 2017–18: Namoi Catchment](#), Figure 37, p 30.

¹²⁹ *Ibid.*

¹³⁰ *Ibid.*

occurred in August 2017, appears consistent with the graph in the General Purpose Water Accounting Report shown above.

Gauge 419091 is identified in both the Namoi plan and WaterNSW’s Statement of Approval (90WA811444) as the gauge to measure the minimum daily flow target at Walgett. The Commission observed that flow data has not been recorded on the WaterNSW Realtime data website since 15 July 2020.¹³¹ WaterNSW confirmed that this is due to this gauge being permanently back water effected by the Walgett Weir and DPE-Water indicated that an alternate measurement solution has not yet been found. Therefore, there is reduced capacity for tracking of planned environmental water (minimum daily flow targets) for monitoring, reporting or compliance purposes. The Commission therefore makes no comment on compliance with the minimum daily flow target since 15 July 2020. An appropriate measurement mechanism for end of system flows in the Namoi should be determined and implemented. Corresponding updates should be made to the Namoi plan and conditions in the WaterNSW Statement of Approval (90WA811444).

DPE-Water recently developed a Hydrometric Improvement Plan for the next three years which identifies a replacement flow gauge at Walgett as one of the top ranked northern basin sites to be installed or upgraded.¹³² However, these priorities have not yet been confirmed or implemented.

The Commission makes two recommendations in relation to the minimum daily flow targets in the Namoi.

R2.6.1	WaterNSW to maintain minimum daily flow targets at Walgett when conditions under planned environmental water provisions are met, as specified in the plan.
R2.6.2	DPE-Water to determine an appropriate measurement mechanism for end of system flow to replace the 419091 gauge that is no longer functioning.

Management of EWA proportions was not always in line with Macquarie plan provisions

There are many provisions relating to the management of the Environmental Water Allowance (EWA) in the Macquarie plan. The Commission found that this water is being managed in accordance with the plan in all material respects with one exception described below.

Clause 14(12)(c) in the Macquarie plan sets out Environmental Water Allowance (EWA) rules for the Macquarie Marshes and the Macquarie River downstream of Burrendong Dam. It has two sub-allowances:

- sub-allowance 1 (translucent) which is released under the provisions of Clause 14(16), is triggered by inflows during part of the year and receives three fifths of the EWA volume
- sub-allowance 2 (active) which is released under the provisions of Clause 14(22) at any time of year under the advice of the Environmental Flow Reference Group (EFRG) and receives two fifths of the EWA volume.

Throughout the audit period the management of the sub-allowances has been to allocate two fifths to sub-allowance 1 (translucent) and three-fifths to sub-allowance 2 (active), which is not in accordance with allocations described in the plan. Both sub-allowances are managed by DPE-EHG in consultation with the EFRG and released by WaterNSW.

¹³¹ WaterNSW (n.d.) [Realtime data](#)

¹³² DPIE (2021) [Hydrometric Improvement Plan](#)

In 2005, the Department of Infrastructure, Planning and Natural Resources instructed WaterNSW that under subclause (12)(c) the sub-allowances should be distributed to have two fifths allocated to sub-allowance 1 (translucent) and three fifths to sub-allowance 2 (active). However, the Macquarie plan that commenced in 2016 does not reflect this instruction and therefore the current management is not in accordance with the Macquarie plan.

Under Clause 14(13) the proportions may be varied by the Minister under Section 45(1)(b) of the Act, providing that each sub-allowance receives at least two-thirds and the sum of the proportions remains one. Under Section 45(1)(b) of the Act, the Minister may make amendments that a management plan provides for, by making an order that is published on the NSW legislation website. No orders were published to give effect to Clause 14(13) of the Macquarie plan. The Commission notes that the current management arrangement falls within the intent of Clause 14(13), with each sub-allowance receiving at least two fifths, and the sum of the proportions is one. Therefore, the Commission does not consider this to be material. However, the current arrangement has not been formalised through an Order from the Minister in accordance with Clause 45(1)(b) of the Act.

There are also provisions under Clause 14(15) to amend Clause 14(13) to change the proportions, which triggers additional requirements under Clause 66. This amendment provision was not triggered during the audit period.

DPE-EES and WaterNSW both acknowledged, by email and annual compliance reports respectively, the difference between the current management and the wording of the Macquarie plan. The *Water Sharing Plan for the Macquarie and Cudgegong Regulated Rivers Water Source 2020* (proposed Macquarie plan 2020) submitted to the MDBA allocates two fifths to sub-allowance 1 (translucent) and three fifths to sub-allowance 2 (active).¹³³ This indicates that steps have been taken towards legislating the current management of the EWA sub-allowances, but this has not yet been given effect. Given the Macquarie plan is not being replaced by the proposed Macquarie plan 2020 in the near term, an Order should be gazetted to enact the provisions of Clause 14(13).

To address this, the Commission makes one recommendation in relation to the EWA management in the Macquarie.

R2.7	DPE-Water to assess the most appropriate distribution of the Macquarie environmental water sub-allowances and take appropriate action to address the gap between operations and plan requirements. This could include changing operations to align with the plan, publishing an order or changing the requirement in the plan to align with agreed operational protocols.
-------------	---

¹³³ [Draft Water Sharing Plan for the Macquarie and Cudgegong Regulated Rivers Water Source Order 2020](#), p 48.

7 Criterion 3 – Long-term extraction limits

7.1 Criterion overview

Part 8 in the plans establishes long term extraction limits (LTEL) volumes by water source in accordance with the Act¹³⁴ and requires:

- assessment of the LTEL and current long-term average annual extraction at the end of each water year using the hydrologic computer model approved by the Department¹³⁵
- that long-term average annual extraction from a water source may not exceed the LTEL¹³⁶¹³⁷
- compliance with the long-term extraction limits to be assessed annually, whereby if extraction exceeds LTEL by 3 percent or more, the maximum available water determines for supplementary WALs will be reduced followed by subsequent reduction actions as specified in the provisions¹³⁸
- a Compliance Assessment Advisory Committee should be set up in the Gwydir¹³⁹ and Macquarie¹⁴⁰ plans.

The requirements that the long-term average annual extraction may not exceed the LTEL and should be managed to prevent exceedance of the LTEL, are also included as a Part 3 environmental provision of the plans.¹⁴¹ In this audit, the Commission has not reviewed the adequacy of the models used to undertake LTEL compliance and assessment. It has sought only to comment whether the provisions have been implemented.

7.2 Current roles, systems and processes

A summary of roles for organisations is as follows:

- **DPE-Water** is responsible for implementing LTEL provisions in water sharing plans, including the assessment of compliance of take in accordance with plan provisions. According to DPE-Water, this includes developing procedures to implement LTEL provisions and providing associated modelling services. DPE-Water has no documented systems or established processes or procedures for managing LTEL for regulated river systems.
- **WaterNSW** is responsible for managing water accounts. It uses the WAS to implement its account management responsibilities. The *WaterNSW Operating Licence 2017-2022* states that WaterNSW must determine the volume of water extracted by, or supplied to,

¹³⁴ Relevant sections of the Act relating to LTELs include: Section 8F, which requires the auditing of compliance with the long-term extraction limit under a plan; Section 20(2)(a), which requires the bulk access regime established by a plan to recognise and be consistent with any limits to the availability of water that are set (whether by the relevant management plan or otherwise) in relation to the water sources to which the regime relates; and Section 8(1A)(b), which requires a plan to commit water as planned environmental water in at least two ways, including by reference to the long-term average annual commitment of water as planned environmental water.

¹³⁵ Clause 30 of the Gwydir, Macquarie and Cudgegong and Namoi plans.

¹³⁶ Clause 31 of the Gwydir, Macquarie and Cudgegong and Namoi plans.

¹³⁷ The Namoi plan (Clause 31) does not permit exceedance of the long-term average annual extraction plus 95% of the growth in extraction by Tamworth Council in accordance with Clause 30.

¹³⁸ Clause 31 of the Gwydir, Macquarie and Cudgegong and Namoi plans.

¹³⁹ Clause 31 of the Gwydir plan.

¹⁴⁰ Clause 32 in the Macquarie plan.

¹⁴¹ Clause 13 of the Namoi plan, Gwydir plan and Macquarie plan.

each of its customers, at least annually, for the purpose of accurate account management, billing and reporting.¹⁴²

WaterNSW's Determining Water Take procedure outlines the critical steps and processes used by WaterNSW staff when determining a customer's water take.¹⁴³ It is relevant to determining take for all WAL holders.

The Commission considers that there were no systems, processes or procedures in place to support the implementation of plan provisions relating to LTEL during the audit period.

7.3 Long term extraction limit provisions have been partially given effect to

LTEL provisions have not been given effect, except in 2021 in the Gwydir and the Macquarie plans

The Commission found that DPE-Water has not implemented plan provisions relating to limits to the availability of water, specifically LTEL during the audit period, except for:

- LTEL compliance assessments that were undertaken for the Gwydir and Macquarie plans in 2021
- subsequent growth in use reduction was applied through reductions to the Available Water Determinations (AWD) in the Gwydir plan implemented 1 July 2021.

LTEL compliance assessments were able to be undertaken for the Gwydir and Macquarie plans in 2021 due to the models being updated for the first time in 2021 since the plans commenced. Models have not yet been updated for the Namoi plan.

Results of the LTEL compliance assessment undertaken in the Gwydir and Macquarie plans show that:

- there was an exceedance by 11.3 percent¹⁴⁴ (based on latest estimates and model update) in the Gwydir plan
- there was no exceedance in the Macquarie plan as there was a reduction in total diversions compared to the LTEL.

This result for the Gwydir is not in accordance with Clause 13 of the Gwydir plan, which requires that the LTEL is not exceeded.

The Compliance Assessment and Advisory Committee had not been set up under the Macquarie and Gwydir plans

The Commission found that a Compliance Assessment Advisory Committee had not been established at plan commencement in accordance with clauses 31 and 32 in the Gwydir and Macquarie plans respectively. DPE-Water staff in interview indicated that it was considered not appropriate to set up such a Committee. The plans do not require that this must be implemented, however the Commission is of the view that such a Committee would increase accountability and transparency in relation to the implementation of LTEL provisions. As the wording of the plan allows some discretion in the implementation of these Committees, the Commission has not made a recommendation in relation to this finding.

¹⁴² State of NSW (n.d.) [Water NSW Operating Licence 2017-2022](#), Clause 6.3.1, p 16.

¹⁴³ WaterNSW (n.d.) [Determining Water Take Procedure](#), ARK Ref: 2019/80.

¹⁴⁴ DPIE-Water (2021) [Floodplain harvesting entitlements for the Gwydir Valley regulated river system. Model scenarios](#), p 16.

7.4 Potential impacts

By not implementing LTEL provisions, DPE-Water is not monitoring annual extraction in relation to LTEL and not able to determine whether extraction adjustments are required as part of the resource assessment process. These adjustments are necessary to reduce the likelihood of:¹⁴⁵

- adverse environmental impacts to ecosystems^{146,147,148}
- adverse impacts to downstream users.^{149,150,151}

7.5 DPE-Water is making efforts to address LTEL requirements

DPE-Water staff indicated they are currently updating models to support LTEL assessment and LTEL compliance for the Namoi Plan, which should be complete by the end of 2021.

DPE-Water also advised that it is developing an implementation program for LTEL provisions, which will document DPE-Water's roles and responsibilities, focussing on inland and northern basin regulated systems. DPE-Water also intends to produce a procedures document for implementation of LTEL by mid-2022.

7.6 Recommendations

The Commission makes one recommendation and raises one suggested action.

R3.1	DPE-Water to manage LTEL and assess LTEL compliance for these Regulated River plans in accordance with Part 8 Division 1 of each plan to prevent LTEL exceedance.
-------------	---

While DPE-Water staff understand that LTEL compliance work is the responsibility of DPE-Water, they advised that these roles and responsibilities are not documented.

Multiple departmental restructures before and during the audit period resulting in the creation of new water management bodies may have contributed to the lack of clearly documented roles and responsibilities for LTEL compliance work.

¹⁴⁵ DPE-Water (2021) [An overview of legal limits](#)

¹⁴⁶ Note Clause 13 of the Namoi Plan states: "Note—By limiting long-term average extractions to an estimated 238,000 megalitres per year this Plan ensures that approximately 73% of the long-term average annual flow in these water sources (estimated to be 870,000 megalitres per year) will be preserved and will contribute to the maintenance of basic ecosystem health."

¹⁴⁷ Note Clause 13 of the Gwydir Plan states "Note—By limiting long term average annual extractions to an estimated 392,000 megalitres per year this Plan ensures that approximately 66% of the long-term average annual flow in this water source (estimated to be 1,141,000 megalitres per year) will be preserved and will contribute to the maintenance of basic ecosystem health."

¹⁴⁸ DPE-Water (2021) [Floodplain Harvesting- why is reform vital?](#)

¹⁴⁹ The note below Clause 39(2) in the Lachlan Plan states, "By limiting long term average annual extractions to an estimated 305,000 ML/year this Plan ensures that approximately 75% of the long-term average annual flow in this water source (estimated to be 1,212,000 ML/year) will be preserved and will contribute to the maintenance of basic ecosystem health."

¹⁵⁰ The note below Clause 50(1) in the Murrumbidgee Plan states, "By limiting long-term average annual extractions to an estimated 1,925,000 ML/year, this Plan ensures that approximately 50% of the long-term average annual flow in this water source (estimated to be 4,360,000 ML/year) will be preserved and will contribute to the maintenance of basic ecosystem health."

¹⁵¹ DPE-Water (2021) [Floodplain Harvesting- why is reform vital?](#)

It is not transparent how current long term average annual extraction assessment and LTEL compliance is currently undertaken. Given it relies on a model, details of the model should be published to enable transparency. The Commission suggests that a document should be produced and published that includes adequate information in relation to the models underpinning these assessments and these documents should include adequate details in relation to the assumptions used in the relevant models. The Commission considers adequate information to include for example:

- how the model was calibrated and verified
- over what period of time was the model calibrated
- how the nodes were constructed.

SA3.1	DPE-Water to establish, document and publish a methodology for LTEL assessment and compliance. This methodology and associated model should be reviewed by an independent expert hydrologist. The documented methodology should include adequate information in relation to the models and assumptions underpinning these assessments.
--------------	--

8 Criterion 4 – Available water determinations

8.1 Criterion overview

The discussion, findings and recommendations in **Chapter 7** are relevant to AWDs. This chapter does not repeat Chapter 7 and focuses only on clauses 33-38 of each plan. These clauses establish rules for AWDs, as required under sections 20(2)(b), 59 and 60 of the Act and Clause 7 of the Water Management Regulation (Regulation).

Further, Available Water Determinations (AWD) are critical to giving effect to clauses 34(1), 35(1) and 36(1) in the Gwydir, Macquarie and Namoi plans respectively.

Generally, AWDs in these plans are limited to 100 percent of the share component for domestic and stock and local water utility and 1 ML per unit share component for high security access licenses. Regulated river (general security), regulated river (conveyance) and supplementary water access licenses are generally limited to 1 ML per unit share component. The plans have provisions for AWDs to be adjusted based on compliance with long-term extraction limit (LTEL) assessments, except for local water utility and domestic and stock rights.

8.2 Current roles, systems and processes

AWDs are given effect to by a statutory water order, which is authorised by the delegated authority in DPE-Water. The order authorises WaterNSW to credit the accounts of licensed water users with the available water specified in the order.¹⁵² It also allows licensed users to take that additional water in accordance with their account balance and license conditions.¹⁵³

A summary of roles for organisations is as follows:

- **DPE-Water** – is responsible for:
 - making AWDs by order in writing, on 1 July of each water year and periodically throughout the year in accordance with Section 59(1)9a) of the Act
 - publishing AWD orders in accordance with Clause 7 of the Regulation
 - the resource allocation process underpinning AWD orders
 - preparing and publishing water allocation statements associated with AWD orders¹⁵⁴
 - reducing AWDs if the LTEL compliance assessment shows that the LTEL has been exceeded in accordance with the water sharing plan provisions (see **Chapter 7**).
- **WaterNSW** – is responsible for:
 - maintaining water allocation accounts for water access licenses (WAL).¹⁵⁵ On 1 July every year (and subsequently from time to time), DPE-Water provides WaterNSW with quantities of water or percentages of share component to be applied to each licence category and sub-category, water source and plan.
 - collecting and providing detailed information to DPE-Water to inform water resource assessments, including determinations of available water, including drought contingency measures if applicable.¹⁵⁶

¹⁵² DPIE-Water (n.d.) [Available Water Determinations](#)

¹⁵³ *Ibid.*

¹⁵⁴ DPIE-Water (n.d.) [Water Allocation Statements](#)

¹⁵⁵ State of NSW (n.d.) [Water NSW Operating Licence 2017-2022](#). Clause 6.2.1, p 15.

¹⁵⁶ [Roles and Responsibilities Agreement: DPIE, NRAR and WaterNSW](#), Executed 30 June 2021.

The main systems used to manage AWDs are the:

- **Resource assessment spreadsheet** – for regulated water sources, these spreadsheets are maintained by WaterNSW. DPE-Water uses these spreadsheets to calculate AWDs, taking into account forecast information provided by WaterNSW. The spreadsheet covers the licence categories, replenishment, evaporation, dam storages, minimum flows, committed water, available water, water take and operational loss. To support this process and increase transparency for stakeholders, DPE-Water has published a Water Allocation Methodology for each of the plans.^{157, 158, 159}
- **Water Accounting System** – used by WaterNSW to keep account information for each WAL holder and adjust the accounts each year as required by the AWD order for the relevant plan.
- **NSW Water Register** – WaterNSW also publish water allocations and AWDs on the NSW Water Register.
- **CARM and CAIRO** – WaterNSW systems used to deliver water that is ordered.
- **HYDSTRA** – The main database for river gauges, hydrometric instruments and data collection, accessed by DPE-Water to populate the resource assessment spreadsheet.

Procedural documents include:

- **Water allocation methodologies** – DPE-Water allocates water to users via the water allocation process.^{160, 161, 162} This process is described in the DPE-Water's recently published methodologies for the Namoi and Gwydir plans.¹⁶³ The Macquarie water allocation methodology is in draft form and has not been made publicly available. DPE-Water staff indicated that this draft is under review and will be soon made public.

The Commission considers there were adequate systems, processes, procedures in place to support implementation of plan provisions relating to AWDs in the audit period.

8.3 Provisions relating to AWDs have been partially implemented

During the audit period, DPE-Water made and published AWD orders in accordance with plan requirements and AWDs were applied by WaterNSW to accounts in accordance with AWD orders.

The Commission notes the findings in **Chapter 7** that DPE-Water has undertaken LTEL assessment and compliance activities for the Gwydir and Macquarie plans in 2021. As such, while AWD reductions occurred during the audit period, these were not triggered by an LTEL compliance assessment. We note the 2021 assessment in the Gwydir and Macquarie plans indicated that extraction exceeded LTEL in the Gwydir. This resulted in an AWD reduction in the Gwydir plan in 1 July 2021.

All criteria examined were given effect, however, there was not sufficient evidence to demonstrate that clauses 34(1), 35(1) and 36(1) were given effect in any of the plans. This is discussed below.

¹⁵⁷ DPIE (2021) [Water Allocation Methodology Namoi Regulated River Water Sources](#)
¹⁵⁸ DPIE (2021) [Water Allocation Methodology Gwydir Regulated River Water Source](#)
¹⁵⁹ DPIE (2021) [Water Allocation Methodology Summary Macquarie- Cudgegong Regulated River Water Source](#).
¹⁶⁰ DPIE-Water (n.d.) [Principles for allocating regulated river water in NSW](#)
¹⁶¹ DPIE (2021) [Water Allocation Methodology Namoi Regulated River Water Sources](#)
¹⁶² DPIE (2021) [Water Allocation Methodology Gwydir Regulated River Water Source](#)
¹⁶³ DPE-Water (n.d.) [Resource assessment process](#)

There is not sufficient evidence to demonstrate that the maintenance of water supply for WAL holders can be met through the worst period of low inflows to water sources in the plans

Clause 34(1), 35(1) and 36(1) in the Namoi, Gwydir and Macquarie plans require that AWDs of 1 ML per share can be maintained for domestic and stock, high security and local water utilities WALs through the worst period of low inflows to this water source.

There is not sufficient evidence to demonstrate that the current approach delivers the same (or greater) level of security of supply as applying losses applicable to the worst period of inflows on record (similar to how minimum inflow are currently applied).

DPE-Water has recently published *Water Allocation Methodology Namoi Regulated River Water Sources* (Namoi methodology) and *Water Allocation Methodology Gwydir Regulated River Water Source* (Gwydir methodology).^{164, 165} These methodologies describe how the resource assessments underpinning the AWDs are undertaken. At the time of undertaking the analysis for the audit the *Water Allocation Methodology for the Macquarie Cudgegong Regulated River Water Source* (Macquarie methodology) was not publicly available. The Commission was provided a copy of the final draft.¹⁶⁶

The Namoi methodology and the Gwydir methodology states that system losses comprise:

- fixed percentage loss figures applied to delivery volumes calculated based on a study undertaken of deliveries between 2001 to 2016. These fixed percentage loss figures are:
 - 30 and 80 percent for general security and higher priority requirements respectively for the Namoi plan¹⁶⁷
 - 30 and 60 percent for general security and higher priority requirements respectively for the Gwydir plan¹⁶⁸
- evaporation from the dams.¹⁶⁹

However, the Macquarie methodology states that system losses comprise:

- a fixed base loss each year irrespective of delivery demand
- an incremental loss of 4 percent of delivery volumes expected over the assessment period.¹⁷⁰

The Macquarie methodology indicates that regular adjustments are made to system losses as the year unfolds.¹⁷¹ It is not clear why the Macquarie methodology for estimating losses is different to the Namoi and Gwydir methodologies.

DPE-Water's publicly available General Purpose Accounts document annual system take, losses, current trends, demand, accessibility, status and use of water for each water year. These General Purpose Accounts are publicly available for the plans. The Commission analysed these accounts from 2015 to 2020 to see how the systems performed in terms of losses in comparison to what was estimated. This analysis identified that during the audit period

¹⁶⁴ DPIE (2021) [Water Allocation Methodology Namoi Regulated River Water Sources](#)

¹⁶⁵ DPIE (2021) [Water Allocation Methodology Gwydir Regulated River Water Source](#)

¹⁶⁶ DPIE (2021) *Allocation Methodology Summary Macquarie Cudgegong Regulated River Water Source*, p 5-6.

¹⁶⁷ DPIE (2021) [Water Allocation Methodology Namoi Regulated River Water Sources](#), p 6.

¹⁶⁸ DPIE (2021) [Water Allocation Methodology Gwydir Regulated River Water Source](#), p 5.

¹⁶⁹ Burrell M., Moss P., Petrovic J., Ali A., Nicholls D., Ching M. (2020) [General Purpose Water Accounting Report 2018–19: Namoi Catchment](#), DPIE, p 45.

¹⁷⁰ DPIE (2021) *Allocation Methodology Summary Macquarie Cudgegong Regulated River Water Source*, p 5-6.

¹⁷¹ *Ibid.*

system losses (excluding storage losses) varied significantly from the 30 percent fixed regulated river (general security) delivery loss adopted by the Namoi and Gwydir methodology.¹⁷²

Specifically:

- for the Lower Namoi, the net loss¹⁷³ as a percentage of water delivered (extraction) varied since 2015-16 to 2019-20 from approximately 266 percent in 2015-16¹⁷⁴ to approximately 32 percent in 2017-18.¹⁷⁵ This equates to an underestimation of losses of approximately 37GL and 4GL respectively.
- for the Upper Namoi, the net loss as a percentage of water delivered (extraction) varied since 2015-16 to 2019-20 from approximately 53 percent in 2018-19¹⁷⁶ to approximately 141 percent in 2019-20.¹⁷⁷ This equates to an underestimation of losses of approximately 3L and 2GL respectively.
- for the Gwydir the net loss as a percentage of water delivered (extraction) varied since 2015-16 to 2019-20 from approximately 129 percent in 2018-19¹⁷⁸ to approximately 47 percent in 2017-18.¹⁷⁹ This equates to an underestimation of losses of approximately 65GL and 39GL respectively.

This analysis indicates that a fixed percentage based on an average of 30 percent for regulated river (general security) may be inadequate as a prediction for losses as actual figures show a large variation in losses. It is not clear whether the Water Allocation Methodology for the Namoi considers total system losses, or just evaporation losses from the dam and delivery losses. The losses used to inform the resource assessment and subsequent AWD orders should also consider seepage and evaporation from the river during non-delivery periods.

The estimation and accounting of losses is important given carryover balances of regulated river (general security) WAL holders can be significantly increased by an AWD. These carryover balances need sufficient water to cover delivery losses during subsequent years if there is no AWD made (see **Figure 6** to Figure 10). This is particularly important if those subsequent years are drier than average. WaterNSW must deliver orders made unless legislative action is taken by the Minister (such as a plan suspension or Section 324 order to prevent extraction from water already allocated to accounts). This means that when such legislative action is delayed on an already stressed system other users may be impacted, especially when the loss budget is depleted to zero (see **Chapter 10**). It would provide more certainty to users if water were allocated together with adequate losses to support delivery of any water held in accounts.

¹⁷² Commission's analysis using data presented in the General Purpose Accounts- licenced extractions exclusive of supplementary take. The analysis was done using 30 percent of extractions was done noting that 80 percent applies to higher priority licence categories which equate to less than 10 percent of total share component comparative to general security users. Available at: Department of Planning, Industry and Environment (n.d) [NSW General Purpose Water Accounting Reports](#)

¹⁷³ The Commission's 'net loss' calculations include evaporation during times of delivery and non-delivery as well as seepage to aquifers and excludes storage losses.

¹⁷⁴ Burrell M., Moss P., Petrovic J., Ali A., (2017) [General Purpose Water Accounting Report :Namoi Catchment 2015-16](#), NSW Department of Primary Industries, Sydney, p 26.

¹⁷⁵ Burrell M., Moss P., Petrovic J., Ali A., Nicholls D., Ching M. (2018) [General Purpose Water Accounting Report 2017-18: Namoi Catchment](#), NSW Department of Industry, Sydney, p 33.

¹⁷⁶ Burrell M., Moss P., Petrovic J., Ali A., Nicholls D., Ching M. (2020) [General Purpose Water Accounting Report 2018-19: Namoi Catchment](#), DPIE, p 37.

¹⁷⁷ Burrell M., Petrovic J., Ali A., Nicholls D., Ching M., Ooi X. (2021) [General Purpose Water Accounting Report 2019-20: Namoi Catchment](#), DPIE, p 38.

¹⁷⁸ Burrell M., Moss P., Petrovic J., Ali A., Nicholls D., Ching M. (2020) [General Purpose Water Accounting Report 2018-19: Gwydir Catchment](#), DPIE, p 28.

¹⁷⁹ Burrell M., Moss P., Petrovic J., Ali A., Nicholls D., Ching M. (2018) [General Purpose Water Accounting Report 2017-18: Gwydir Catchment](#), NSW Department of Industry, Sydney p 24.

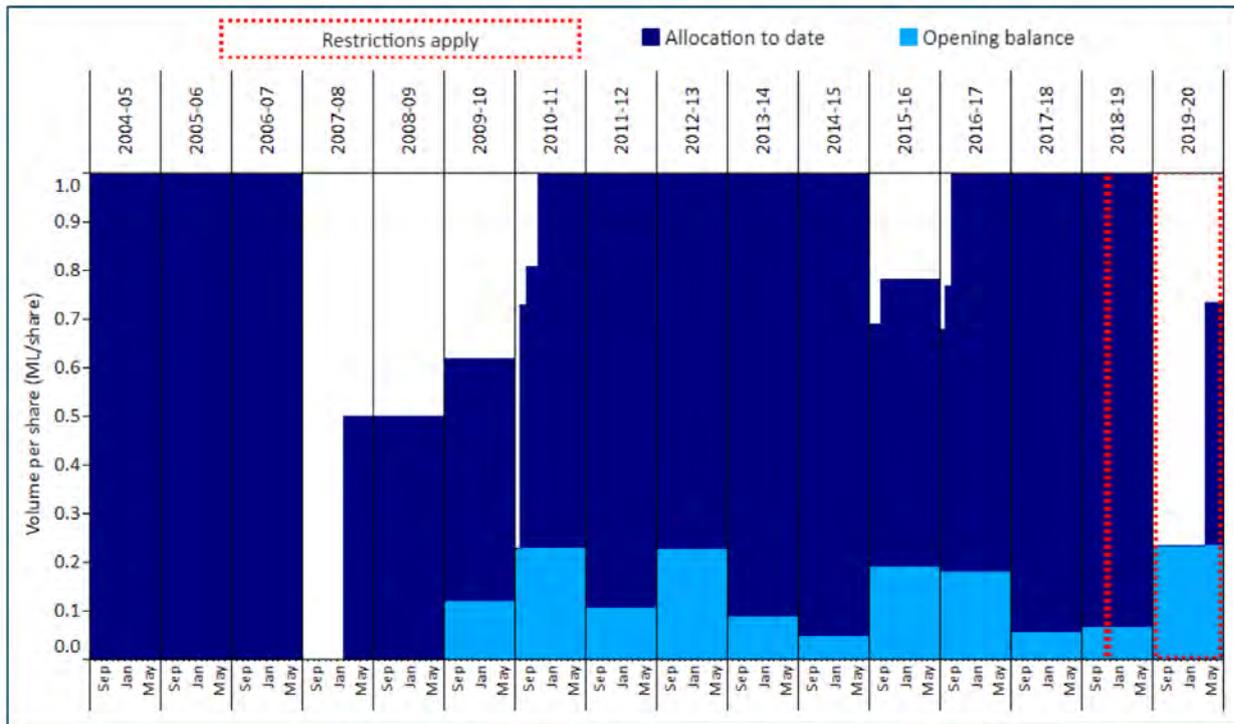


Figure 6: Incremental available water determination for Upper Namoi General Security licences as a proportion of share component¹⁸⁰

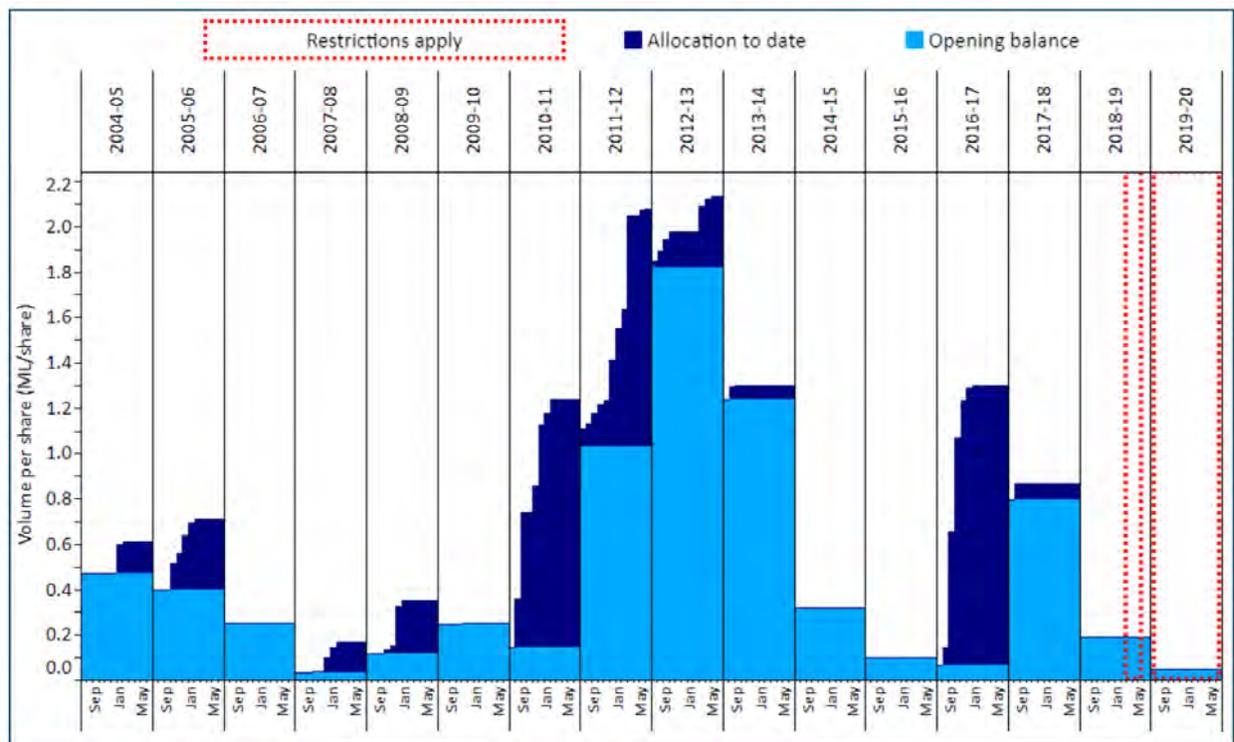


Figure 7: Incremental available water determination for Lower Namoi general security as a proportion of share component¹⁸¹

¹⁸⁰ Burrell M., Petrovic J., Ali A., Nicholls D., Ching M, Ooi X. (2021) [General Purpose Water Accounting Report 2019-20: Namoi Catchment](#), DPIE, p 19.

¹⁸¹ *Ibid*, p 28.

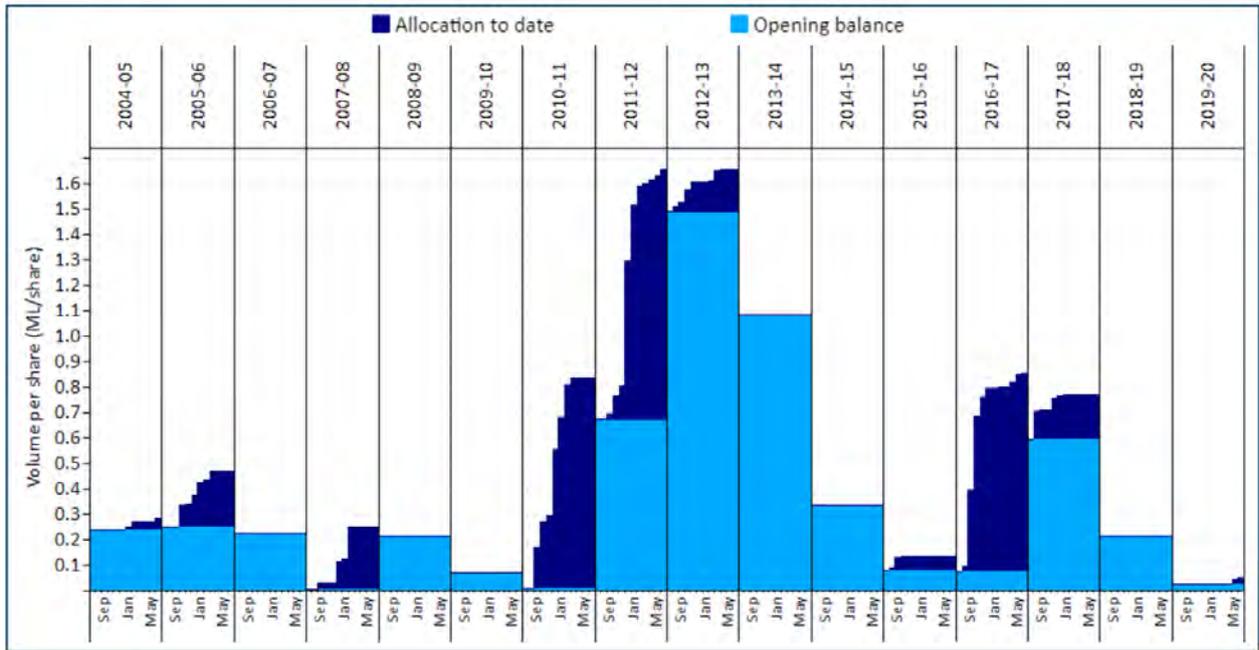


Figure 8: Incremental available water determination and carryover volumes for Gwydir 'General Security' as a proportion of share component¹⁸²

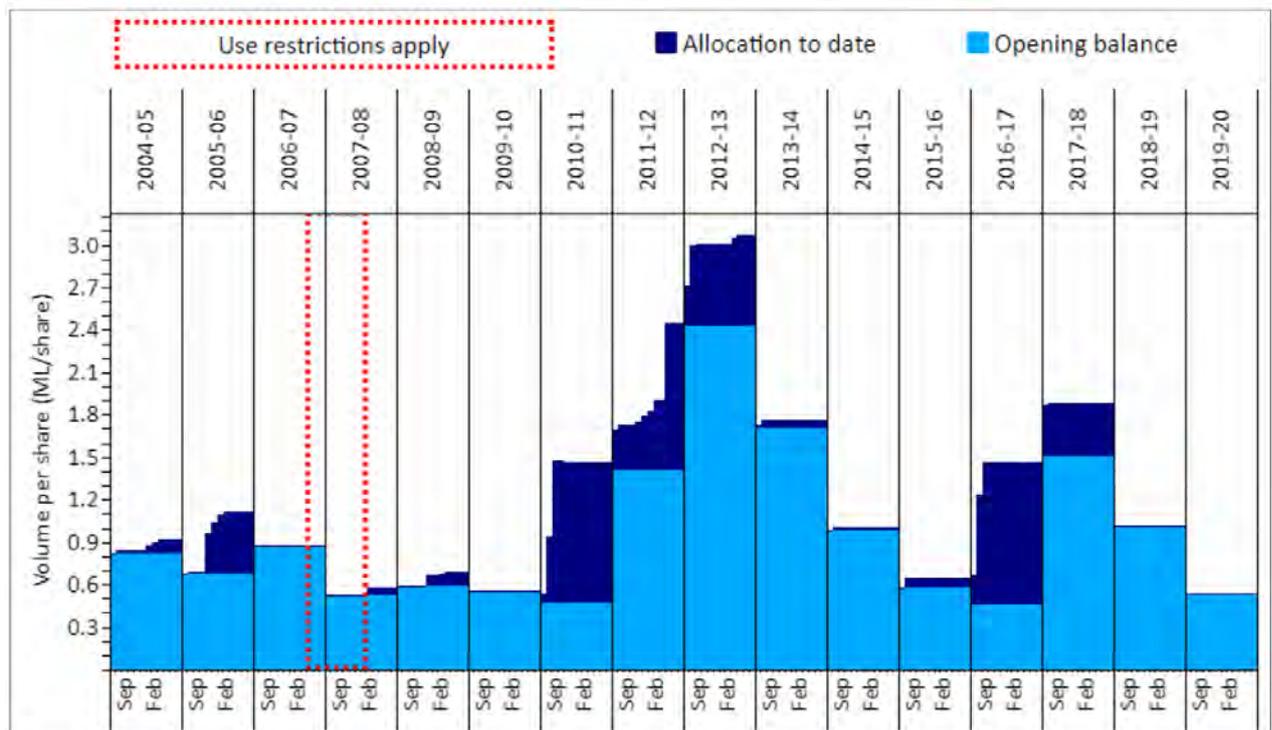


Figure 9: Incremental available water determination and carryover volumes for Cudgong General Security as a proportion of share component¹⁸³

¹⁸² Burrell M., Petrovic J., Ali A., Nicholls D., Ching M., Ooi X (2021) [General Purpose Water Accounting Report 2019-20: Gwydir Catchment](#), DPIE, p 17.

¹⁸³ Burrell M., Petrovic J., Ali A., Nicholls D., Ching M., Ooi X. (2021) [General Purpose Water Accounting Report 2019-20: Macquarie Catchment](#), DPIE, p 18.

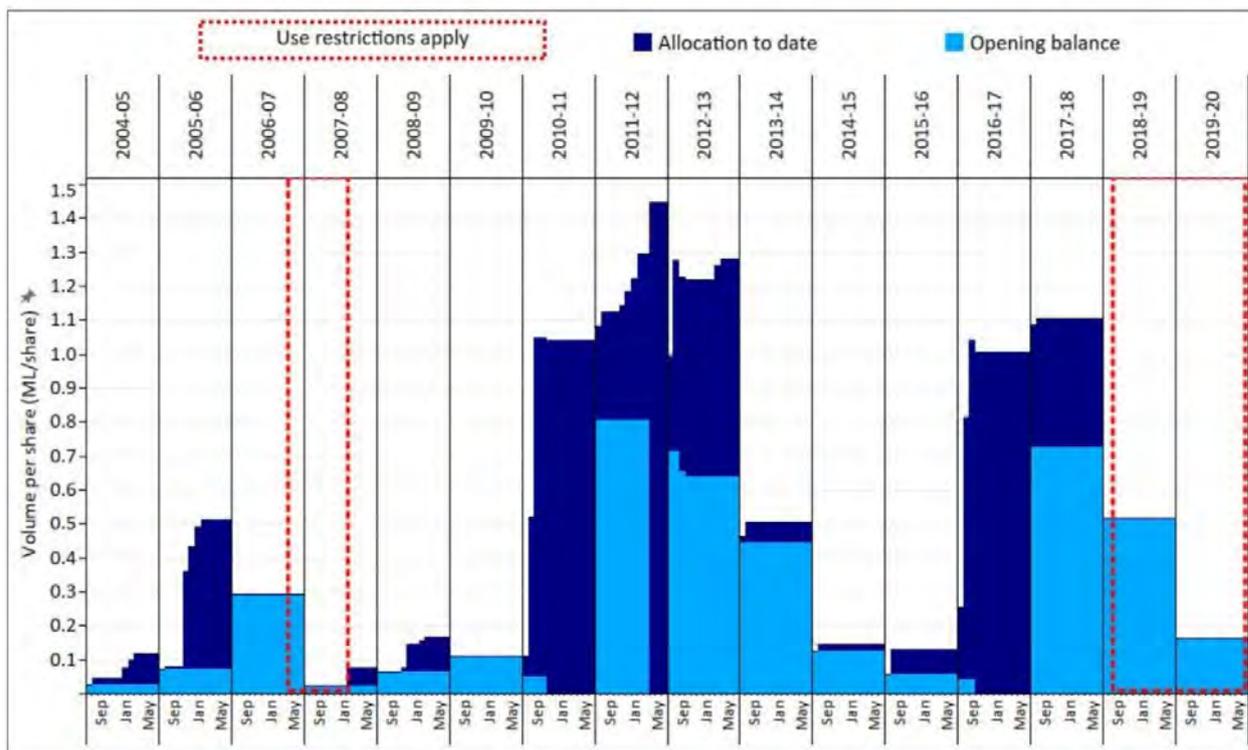


Figure 10: Incremental available water determination and carryover for Macquarie General Security as a proportion of share component¹⁸⁴

DPE-Water staff could not confirm whether the resource assessment process uses loss figures that are equal to or more conservative than the loss figures in the model. The model includes the flow information held by the DPE-Water when the first water sharing plan for this water source made under the Act came into force.

The system is required to be managed so that water supply provides for 1 ML per share holders of domestic and stock, high security local water utilities access licences through a repeat of the worst period of low inflows into this water source. The worst period of low inflows is based on historical flow information held by the Department (DPE-Water) when plans commenced. These water users need confidence their needs will be met as required by the plans per clauses 34(1), 35(1) and 36(1).

In the event that the resource assessment process is using loss figures that are less conservative than those in the model during worst period of low inflows, there is a risk that should a drought hit at a time when dam levels are low, these security of supply requirements may not be met. DPE-Water should demonstrate that the estimated losses are either using losses equivalent to the period of minimum inflows during the worst drought on record or more conservative losses.

The fact that losses estimated were not adequate is explained through the following example. In the Namoi, losses to deliver general security water were zero as at January 2018.¹⁸⁵ Water was still required to be delivered from regulated river (general security) carryover accounts. **Figure 11** below shows that inflows did not fall below the budgeted minimum inflows until August 2018, however, approximately 110GL was still delivered January and August 2018 to regulated river

¹⁸⁴ Burrell M., Petrovic J., Ali A., Nicholls D., Ching M., Ooi X. (2021) [General Purpose Water Accounting Report 2019–20: Macquarie Catchment](#), DPIE, p 29.

¹⁸⁵ DPIE-Water (2018) [Water Allocation Statement – Namoi Valley: water allocation update](#), 10 October 2018.

(general security) WAL holders.¹⁸⁶ This indicates that estimates of losses required to deliver general security water were insufficient and water was borrowed from other users to meet water held in regulated river (general security) carryover accounts. This is discussed further in **Chapter 10**.

The Commission considers that it is important for delivery losses to utilise best available information including the comparison of actual delivery loss figures against delivery loss estimates to improve forecasting of losses over time.

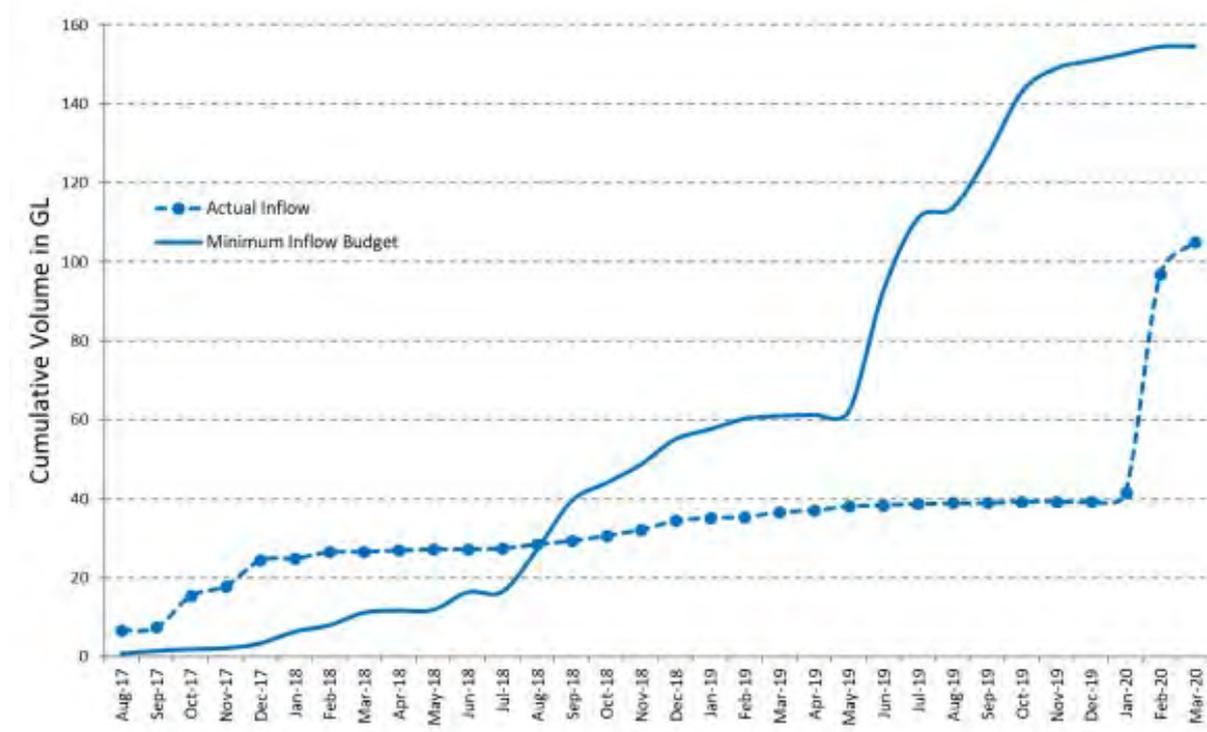


Figure 11: Cumulative inflows to the upper storages since August 2017 and the planned minimum inflow sequence (budget) in the Namoi¹⁸⁷

AWDs are determined using a variety of accounting methods as described in the General Purpose Accounts.¹⁸⁸

Specifically:

- continuous accounting in the Lower Namoi¹⁸⁹ and the Gwydir¹⁹⁰
- annual accounting in the Upper Namoi¹⁹¹ and the Macquarie.¹⁹²

The published Namoi, Gwydir and Macquarie methodologies are silent on this, and it is not clear what the benefits or costs or risks are of each method and why different methods have been

¹⁸⁶ DPE – Water (n.d.) [Water Allocation Statements](#)

¹⁸⁷ DPIE-Water (2020) [Water Allocation Statement Namoi Regulated River Water Sources](#), p 3.

¹⁸⁸ Department of Planning, Industry and Environment (n.d.) [NSW General Purpose Water Accounting Reports](#)

¹⁸⁹ Burrell M., Moss P., Petrovic J., Ali A., Nicholls D., Ching M. (2020) [General Purpose Water Accounting Report 2018–19: Namoi Catchment](#), DPIE, p 52-53.

¹⁹⁰ Burrell M., Moss P., Petrovic J., Ali A., Nicholls D., Ching M. (2018) [General Purpose Water Accounting Report 2017-18: Gwydir Catchment](#), DPIE, p 12.

¹⁹¹ Burrell M., Moss P., Petrovic J., Ali A., Nicholls D., Ching M. (2020) [General Purpose Water Accounting Report 2018–19: Namoi Catchment](#), DPIE, p 52-53.

¹⁹² *Ibid*, p 13.

selected for the different regulated systems.¹⁹³ This should be described in the published water allocation methodologies.

The Commission supports the documentation of the water allocation methodologies as it increases:

- transparency for stakeholders
- consistency and robustness of the resource assessment process.

However, the Commission recommends that these manuals include documentation of how the current approach (with due consideration of losses and assumptions underpinning the losses) provides the protections to meet commitments specified in clauses 34(1), 35(1) and 36(1) in the Namoi, Gwydir and Macquarie plans.

8.4 Recommendations

The Commission makes one recommendation. Note that **R3.1** applies as it relates to the application of AWDs should LTEL be exceeded.

R4.1	DPE-Water to review the evidence base for the numbers (including losses) underpinning the AWD calculations and demonstrate that they provide the protections to assure maintenance of supply as specified in clauses 34(1), 35(1) and 36(1) in the Namoi, Gwydir and Macquarie plans.
-------------	---

¹⁹³ The Department of Planning and Environment (n.d.) [Resource assessment process](#)

9 Criterion 5 – Granting access licences

9.1 Criterion overview

Part 7 of the plans set out rules for granting WALs in accordance with the provisions of the Act and Clause 10 of the Regulation in relation to:

- granting a zero-share WAL applied for under Section 61(1)(b) of the Act¹⁹⁴
- specific purpose access licences applied for under Section 61(1)(a) of the Act¹⁹⁵
- granting of access licences applied for and granted under Section 61(1)(c) of the Act in relation to a controlled allocation order.¹⁹⁶

This audit has focussed on the following in relation to WALs applied for and granted in the audit period:

- Section 61 of the Act (application for granting of WALs), except Section 61(3)¹⁹⁷
- Section 63 of the Act (determination of applications)
- Section 64 of the Act (notice of decision)
- Section 65 of the Act (controlled allocation of WALs)
- Section 66 of the Act (mandatory conditions included in the terms of the licence)
- Section 71B of the Act (giving effect to WALs through recording on WAL Register)
- Clause 10 of the Regulation (specific purpose access licences)
- Schedule 3 of the Regulation (categories and subcategories of licences).

The following sections were also examined in relation to access licences which were granted under the 2004 plans, which were subject to amended conditions when the plans commenced:

- Section 67(4) and (5) of the Act (notification of revised mandatory conditions for WALs granted under the 2004 plans)
- Section 71B of the Act (when matters required to be recorded in General Division of Access Register have effect).

Schedule 10, clauses 20(1) and (2) were not assessed as former entitlements under the *Water Act 1912* were converted for licence and approval holders when the 2004 plans commenced.

Section 62 of the Act (objections to granting of WALs not within the water sharing plan area) was not examined as part of this audit as this was not relevant to the scope.

¹⁹⁴ The Plans are silent in relation to zero-share licences, which are processed and granted under the provisions of the Act.

¹⁹⁵ Clause 27 of the Namoi Plan, Clause 27 of the Gwydir Plan and Clause 27 of the Macquarie Plan.

¹⁹⁶ The Plans are silent in relation to controlled allocation licences, which, where applied, would be processed and granted under the provisions of the Act.

¹⁹⁷ Section 61(3) of the Act was not examined as it relates to applications outside of water sharing plan areas.

9.2 Current roles, systems and processes

A summary of roles for organisations is as follows:

NRAR and WaterNSW are currently responsible for granting WALs. NRAR is responsible for public authorities,¹⁹⁸ while WaterNSW is responsible for rural landholders, rural industries and developments that are not state significant development or state significant infrastructure. Prior to the establishment of NRAR in April 2018, DPE-Water predecessors granted licences for public authorities and state significant developments. Since the audit period in early-2022 this role has moved back to DPE-Water.

WaterNSW is responsible for notification of all holders of former entitlements under the 2004 plans upon the commencement of new plans under the Act.

Land Registry Services is responsible for registering new WALs on the WAL register and performing any required updates in accordance with advice provided by WaterNSW or DPE-Water.

In water sources that are not fully committed, the right to apply for WALs can be provided through a controlled allocation order.¹⁹⁹ DPE-Water determines and organises controlled allocation orders, which are published in the NSW Government Gazette and announced on DPE-Water's website.²⁰⁰ Given there were no controlled allocation orders in the audit period, and therefore no access licences granted because of controlled allocations, this was not examined any further.

WALs specify mandatory conditions, which are requirements the licence holder must comply with. Section 66(1A) of the Act requires that mandatory conditions be included in the terms of the licence for them to have effect. Since September 2019, DPE-Water is largely responsible for creating, entering and coding the mandatory conditions into the Water Licencing System (WLS) (this was previous the responsibility of NRAR from April 2018 and before that DPE-Water predecessors). NRAR could provide the function of assisting DPE-Water with creating mandatory conditions for its customers during the audit period. DPE-Water and WaterNSW are responsible for imposing mandatory conditions on licences.

The main systems used to grant access licences are the:

- **Water Licencing System (WLS)** – used by WaterNSW and NRAR to process all applications and record applications, assessments, communication with stakeholders, and decisions. The system generates the statement of approval, statement of conditions, the notice of decision and the cover letter that are sent to the WAL holders.
- **NSW Water Register** – operated by WaterNSW to make some information regarding WALs available to the public.²⁰¹

¹⁹⁸ NRAR is responsible for WALs required by or for; government agencies, including NSW and Commonwealth government agencies and councils; state-owned corporations; major water utilities, water supply authorities and licensed network operators under the *Water Industry Competition Act 2006*; entities who are carrying out activities under the *Mining Act 1992*, *Offshore Minerals Act 1999*, *Petroleum (Onshore) Act 1991* or *Petroleum (Offshore) Act 1982*; irrigation corporations; public schools and public hospitals; entities who hold or are eligible to hold an Aboriginal commercial, Aboriginal community development, Aboriginal cultural or Aboriginal environmental subcategory of access licence; entities undertaking major developments (state significant developments and state significant infrastructure); those engaged in floodplain harvesting (NRAR (n.d.) *Licensing and approvals*. Available at: <https://www.industry.nsw.gov.au/natural-resources-access-regulator/licensing-and-approvals>).

¹⁹⁹ DPE-Water (n.d.) [Controlled allocations](#)

²⁰⁰ *Ibid.*

²⁰¹ WaterNSW (n.d.) [NSW Water Register](#)

- **WAL Register** – provides an online record of every WAL in NSW. Land Registry Services is responsible for operating and maintaining the WAL Register.²⁰²

The main procedural and process documents used by WaterNSW, NRAR and DPE-Water to support the granting of access licences are:

- **The Licensing Procedure Manual – Operations Section** – which sets out requirements for receiving, assessing and determining an application for a WAL.
- **Assessment summary sheets** – which set out the assessment process that is followed by WaterNSW and NRAR when determining whether to grant or decline an application.

The Commission considers that there were adequate systems, processes and procedures in place to support the implementation of Plan provisions relating to granting access licences within the audit period.

9.3 Granting access licences provisions were implemented

Legislative provisions relating to granting WALs were given effect, with one exception relating to notification of mandatory conditions granted under the 2004 plans

To assess if Plan provisions were given effect, the Commission assessed a sample of WALs processed during the audit period, as well as a sample of notifications for those former entitlements converted to WALs under the Act during the audit period.

This analysis found that the sampled access licences were generally compliant with the legislative requirements set out above, with the key exception that revised mandatory conditions for WALs granted under the 2004 plans had delayed implementation after the commencement of the plans.

WALs granted under the 2004 plans and *Water Act 1912*²⁰³ were recorded in the WAL Register, giving effect to these WALs under Section 71B of the Act.²⁰⁴ However, when the plans commenced, WAL holders did not receive written notice of the revised mandatory conditions until January 2018 (19 months after plan commencement) for the plans. Only when the landholder receives the mandatory written notice does the condition take effect as per Section 67(4) and (5) of the Act.

The Commission compared the mandatory conditions in the 2004 plans with the plans and found no material differences. So, the risks associated with delayed notification of mandatory conditions is not material for these plans for the majority of approval holders.

To assess risks around timeliness of notification under remakes going forward, the Commission considered the process for remaking plans by sampling a bulk notification for a recently made plan (the Namoi Alluvial Groundwater Sources 2020). The Commission has confidence in the broader process going forward for timely notifications.

9.4 Recommendations

The Commission makes no recommendations.

²⁰² Land Registry Services (n.d.) [Water Access Licence Register](#)

²⁰³ Former entitlements are addressed under Schedule 10 of the Act.

²⁰⁴ Section 71B of the Act states that matters required to be recorded in the Access Register take effect on being recorded.

10 Criterion 6 – Managing access licences

10.1 Criterion overview

Extraction is managed through WALs. How these are managed is critical to the operation of the plans.

The Act sets out the overarching principles and prioritisation that applies to managing access licences. Specifically:

- Section 5(3) - water sharing must protect the ecosystems and basic landholder rights above any other extractive purpose²⁰⁵
- Section 58 - prioritisation order of access licences.²⁰⁶

Part 9 of the plans establish rules for managing access licences in line with the Act²⁰⁷ and Regulation.²⁰⁸ The Commission examined the following provisions:

- Clause 40 - water allocation account management rules
- Clause 41 - accrual of water allocation in accordance with available water determinations
- Clause 42 - volume of water taken by access licences
- Clause 43 - accounting of water via dealings and return flow rules
- Clause 44 - accounting of water allocation credits and account limits
- Clause 45 - priority of extraction
- Clause 47 – extraction of water in the upper Namoi (Namoi plan only)
- Clause 47 in the Gwydir and Macquarie plans and Clause 48 in the Namoi plan - extraction of water by supplementary water access licences.

Clause 46 in the Namoi, Gwydir and Macquarie plans was not tested by the Commission as specification of extraction components was not undertaken by DPE-Water over the audit period.

10.2 Current roles, systems and processes

A summary of roles for organisations is as follows:

DPE-Water is responsible for:

- development of mandatory conditions for access licences to give effect to water allocation account management rules²⁰⁹

²⁰⁵ Section 5(3) of the Act states that (a) sharing of water from a water source must protect the water source and its dependent ecosystems, and (b) sharing of water from a water source must protect basic landholder rights, and (c) sharing or extraction of water under any other right must not prejudice the principles set out in paragraphs (a) and (b).

²⁰⁶ Section 58 of the Act states that (1) For the purposes of this Act, the following priorities are to be observed in relation to access licences—(a) local water utility access licences, major utility access licences and domestic and stock access licences have priority over all other access licences, (b) regulated river (high security) access licences have priority over all other access licences (other than those referred to in paragraph (a)), (c) access licences (other than those referred to in paragraphs (a), (b) and (d)) have priority between themselves as prescribed by the regulations, (d) supplementary water access licences have priority below all other licences.

²⁰⁷ Section 85 of the Act requires water allocation accounts to be kept for each access licence.

²⁰⁸ Section 17 of the Regulation sets out requirements in relation to debiting water allocations for WALs and carryover of water allocations to the next water year.

²⁰⁹ [Roles and Responsibilities Agreement: DPIE, NRAR and WaterNSW](#), Executed 30 June 2021.

- setting standards and outputs (including policies) for water take measurement that are implemented by WaterNSW
- approving supplementary flow announcements as the Minister's delegated authority²¹⁰
- determining water allocation through AWDs each year, which inform licensed water users how much water they can extract (see **Chapter 8**).²¹¹

WaterNSW is responsible for:

- configuring relevant account management rules in the Water Accounting System (WAS)
- establishing accounts including implementation of the WAL account management rules for each plan
- facilitating the water ordering process for WAL holders and environmental water releases
- administration and maintenance of accounts for all WAL holders.²¹²

The *WaterNSW Act 2014* defines the functions and objectives of WaterNSW and establishes the Terms and Conditions of the WaterNSW operating licence.²¹³ Specified functions and requirements outlined under the Act, the *Water Act 1912* or the Ministerial Corporation are conferred on WaterNSW through the operating licence.

- The *WaterNSW Operating Licence 2017-2022* requires the following:
 - Clause 6.2 of the Operating Licence requires WaterNSW to '*maintain a Water Allocation Account for each Customer that holds a Water Licence*'²¹⁴
 - Clause 6.3.1 of the Operating Licence requires WaterNSW to '*determine the volume of water Extracted by, or Supplied to, each of its Customers, at least annually, for the purpose of accurate account management, billing and reporting*'²¹⁵
 - Manage access to daily flows other than supplementary water.²¹⁶

NRAR was responsible for:

- administering approvals to WaterNSW for the operation of the dams (see Table 4) and other relevant infrastructure (see **Appendix A**) (this function has transferred to DPE-Water since the audit period):
 - Namoi plan (Statement of Approval 90WA811444)
 - Gwydir plan (Statement of Approval 90WA811596)
 - Macquarie plan (Statement of Approval 80WA704431).
- monitoring and enforcing compliance with the Act and the plans,²¹⁷ specifically WaterNSW operation of infrastructure as outlined in the Statement of Approvals.

²¹⁰ [Roles and Responsibilities Agreement: DPIE, NRAR and WaterNSW](#), Executed 30 June 2021. Schedule One: Roles and responsibilities schedule, Section A.2.

²¹¹ DPIE-Water (n.d.) [Available Water Determinations](#)

²¹² [Roles and Responsibilities Agreement: DPIE, NRAR and WaterNSW](#), Executed 30 June 2021.

²¹³ *WaterNSW Act 2014*, Section 6 (Objectives), Section 7 (Functions) and Section 12 ([Terms and Conditions of the Operating Licence](#))

²¹⁴ State of NSW (n.d.) [WaterNSW Operating Licence 2017-2022](#)

²¹⁵ *Ibid.*

²¹⁶ *Ibid.*, Table A.4, p 50.

²¹⁷ Section 10(a) of the *Natural Resources Access Regulator Act 2017* requires NRAR to *ensure effective efficient transparent and accountable compliance and enforcement measures for the natural resource management legislation.*

Table 4: Major dams in the Namoi, Gwydir and Macquarie plans

Plan	Major dam infrastructure
Namoi plan	Keepit Dam, Split Rock Dam
Gwydir plan	Copeton Dam
Macquarie plan	Burrendong Dam, Windamere Dam

The main systems used to manage access licences are outlined below:

- **Water Accounting System (WAS)** – operated and maintained by WaterNSW. This is used to apply water allocation account management rules to individual WAL accounts, to manage the ordering process and support dam releases. Water orders are entered into WAS to assist in determination of the daily release volume from dams. Water accounts are generally reconciled quarterly via direct reporting from telemetered meters, customer voluntary reporting or meter readings by WaterNSW customer field officers.
- **Internet WAS (iWAS)** – an online customer portal, which makes WAS account data available to registered WaterNSW regulated river customers. It enables them to undertake a range of activities including ordering water, recording usage data,²¹⁸ and accessing water account statements and the allocation assignment register.²¹⁹
- **Compliance Investigation Reporting and Management System (CIRAM)** – maintained and used by NRAR for compliance purposes. It contains compliance assessment templates to guide assessment of each Annual Compliance Report submitted by WaterNSW and other entities as required.
- **Water allocation methodologies** – DPE-Water allocates water to users via the water allocation process.^{220,221,222}

This process is described in the DPE-Water’s recently published methodologies for the Namoi and Gwydir plans.²²³ The Macquarie water allocation methodology is in draft form. DPE-Water staff indicated that this draft is currently under review and will be made publicly available following the completion of the review process.

- **Resource assessment spreadsheet** – this is underpinned by a regular resource assessment process, specific to each system and is used to determine the water allocation for regulated river (general security) WAL holders.²²⁴ Further details on the water allocation process and available water determinations are outlined in **Chapter 8**.

The main procedural and process documents used by WaterNSW, NRAR and DPE-Water to support the management of access licences are:

- **Water Accounting Rules for Water Sharing Plans procedure** – this describes the water accounting rules for managing water ordering, water usage and licence dealings. The procedure records and validates business rules that apply to water management accounting
- **Determining Water Take procedure** – this sets out the process used by WaterNSW customer field officers when determining customer water take.

²¹⁸ Customers may determine usage data based on meter reads (manual or telemetered) or conversion of power usage to a volume in ML.

²¹⁹ WaterNSW (n.d.) [Internet Water Accounting System \(iWAS\)](#)

²²⁰ DPIE-Water (n.d.) [Principles for allocating regulated river water in NSW](#)

²²¹ DPIE (2021) [Water Allocation Methodology Namoi Regulated River Water Sources](#)

²²² DPIE (2021) [Water Allocation Methodology Gwydir Regulated River Water Source](#)

²²³ DPE-Water (n.d.) [Resource assessment process](#)

²²⁴ *Ibid.*

The Commission considers there were broadly adequate systems, processes and procedures in place to support implementation of plan provisions relating to the management of access licences within the audit period. The Commission has noted gaps in relation to the resource assessment spreadsheet process, in managing the AWD process and managing WALs according to the requirements of sections 5(3) and 58 of the Act. These issues are further outlined in **Chapter 10.3** below.

10.3 Managing access licence rules have partially been given effect to

The Commission found that Part 9 of the plans was given effect to except for Clause 47 in the Gwydir plan and Macquarie plan and Clause 48 in the Namoi plan. These Clauses relate to extraction of water by supplementary water access licences and was partially given effect to over the audit period.

The Commission also found material gaps in the management of WALs in the Namoi and Gwydir plans consistent with the principles of water sharing and prioritisation of licence categories established under sections 5(3) and 58 the Act respectively.^{225,226}

These gaps and associated findings and recommendations are outlined below.

10.3.1 Principles of water sharing and prioritisation of licence categories established in the Act were not given effect to

The principles of water sharing and prioritisation of licence categories established under sections 5(3)²²⁷ and 58²²⁸ of the Act are critical considerations for account management. These sections of the Act require:

- that water sharing protects water for ecosystems and basic landholder rights above water used for other extractive purposes (Section 5(3))
- prioritisation order of access licences whereby local water utility and stock and domestic have over all other WALs (Section 58).

DPE-Water acknowledges higher priority requirements in its recently published water allocation methodologies^{229,230} in the Namoi²³¹ and Gwydir²³² plans. This allows for water to be set aside separately for higher priority requirements and for general security users in the water allocation

²²⁵ Section 5(3) of the Act states that (a) sharing of water from a water source must protect the water source and its dependent ecosystems, and (b) sharing of water from a water source must protect basic landholder rights, and (c) sharing or extraction of water under any other right must not prejudice the principles set out in paragraphs (a) and (b).

²²⁶ Principles for water sharing are established in Section 5(3) and priorities to be observed in relation to water allocation by licence category are stated in Section 58 of the Act.

²²⁷ Section 5(3) of the Act states that (a) sharing of water from a water source must protect the water source and its dependent ecosystems, and (b) sharing of water from a water source must protect basic landholder rights, and (c) sharing or extraction of water under any other right must not prejudice the principles set out in paragraphs (a) and (b).

²²⁸ Section 58 of the Act states that (1) For the purposes of this Act, the following priorities are to be observed in relation to access licences—(a) local water utility access licences, major utility access licences and domestic and stock access licences have priority over all other access licences, (b) regulated river (high security) access licences have priority over all other access licences (other than those referred to in paragraph (a)), (c) access licences (other than those referred to in paragraphs (a), (b) and (d)) have priority between themselves as prescribed by the regulations, (d) supplementary water access licences have priority below all other licences.

²²⁹ DPE-Water (n.d.) [Resource assessment process](#).

²³⁰ Higher priority requirements identified in the water allocation methodologies are referred to as essential supplies in resource assessment spreadsheets and water allocation statements.

²³¹ DPIE-Water (2021) [Water Allocation Methodology – Namoi Regulated River Water Sources](#), p 4-5.

²³² DPIE-Water (2021) [Water Allocation Methodology – Gwydir Regulated River Water Source](#), p 4.

process. The Macquarie plan methodology has not been made publicly available at this stage (see **Chapter 10.2**). The higher priority requirements budget sets aside water for the following purposes:

- basic landholder rights²³³
- replenishment flows
- domestic and stock access licences, local water utility access licences, high security access licences
- delivery losses²³⁴
- bulk water transfer losses and Walgett targets and associated delivery losses (Namoi plan only).²³⁵

The higher priority requirements components of the Namoi and Gwydir plans identified as being required in the methodologies are set out in **Table 5**.

Table 5: Higher priority requirements for the Namoi and Gwydir plans set out in the methodologies^{236, 237}

Higher priority requirements	Namoi		Gwydir	
	Water sharing plan requirement (ML)	Budget (ML)	Water sharing plan requirement (ML)	Budget (ML)
Keepit minimum release		2,000		
Split Rock minimum release		2,000		
Basic Landholder Rights (Domestic and stock rights)	1,936	2,000	6,000	8,500
Domestic and stock access licences	2,013	2,100	4,245	3,124
Local water utility access licences	2,421	2,800	3,836	3,836
Regulated river (high security access licence)	3,498	4,000	19,293	20,200
Replenishment flows	14,000	14,000	21,000	11,000
Delivery losses for higher priority requirements		23,120		21,096
Bulk water transfer losses		6,000		
Walgett target		5,000		
Total		63,020		67,800
Total higher priority requirements reserve for 24 months post budget for minimum inflows		58,240		82,900

²³³ Basic landholder rights currently represent domestic and stock rights as there are no current native title rights across the northern regulated plans.

²³⁴ The higher priority requirements delivery loss account covers losses that are incurred when no water is being delivered for general security purposes but is required for delivery of higher priority requirements.

²³⁵ DPIE-Water (2021) [Water Allocation Methodology – Namoi Regulated River Water Sources](#)

²³⁶ DPIE-Water (2021) [Water Allocation Methodology – Namoi Regulated River Water Sources](#)

²³⁷ DPIE-Water (2021) [Water Allocation Methodology – Gwydir Regulated River Water Source](#)

Sections 5(3) and 58 of the Act require that higher priority requirements are prioritised over other water users in all situations while plans are in force. These principles and priorities are reiterated in the Namoi and Gwydir methodologies, which state that:

“every monthly assessment ensures that a reserve of 58,200 ML (Namoi) / 82,900ML (Gwydir) is maintained”.^{238,239}

These methodologies indicate that higher priority requirements are depleted by volumes supplied to these higher priority needs and actual associated loss, with the reserve topped up prior to any further allocation.^{240,241}

The Gwydir methodology additionally states that the water allocation process should:

*“set aside adequate reserve to secure higher priority requirements for a 24 month drought”.*²⁴²

While the Namoi methodology, does not explicitly state that volumes for higher priority requirements are secured for a period of 24 months, it does indicate that the resource assessment process allows for all commitments over the next 24 months.

The Commission reviewed resource assessment spreadsheets in the Namoi, Gwydir and Macquarie plans for the period from July 2016 (all plans) to:

- May 2021 (Macquarie plan)
- August 2021 (Namoi plan)
- September 2021 (Gwydir plan).

Where the Commission observed a depletion of the higher priority requirements budget, water allocation statements were reviewed for this period.

The Commission used these resource assessment spreadsheets to determine:

- volumes of water held in storages for the purpose of higher priority requirements
- volumes of water ordered and associated delivery losses with delivery of higher priority requirements and regulated river (general security) account water
- changes to dam volumes.

The higher priority requirements budget was depleted to deliver lower priority requirements in the Namoi plan

Resource assessment spreadsheets showed that the higher priority requirements budget was depleted for the benefit of regulated river (general security) water users between January 2018 and December 2018 in the Namoi plan. This is not in accordance with the requirements of sections 5(3) and 58 of the Act.

In the Namoi plan, the delivery loss account for the supply of regulated river (general security) water reached 0 ML in January 2018.²⁴³ Despite there being no available budget for losses incurred during the delivery of regulated river (general security) water, between January 2018 and December 2018, a total of 150GL was ordered across the upper and lower Namoi regulated

²³⁸ DPIE-Water (2021) [Water Allocation Methodology – Namoi Regulated River Water Sources](#)
²³⁹ DPIE-Water (2021) [Water Allocation Methodology – Gwydir Regulated River Water Source](#), p 4.
²⁴⁰ DPIE-Water (2021) [Water Allocation Methodology – Namoi Regulated River Water Sources](#), p 5.
²⁴¹ DPIE-Water (2021) [Water Allocation Methodology – Gwydir Regulated River Water Source](#), p 4.
²⁴² DPIE-Water (2021) [Water Allocation Methodology – Gwydir Regulated River Water Source](#), p 4.
²⁴³ DPIE-Water (2018) [Water Allocation Statement – Namoi Valley: water allocation update](#), 10 October 2018.

rivers.²⁴⁴ Resource assessment spreadsheets showed that delivery of this water incurred delivery losses of approximately 141GL.

Given these delivery losses were not available within the regulated river (general security) loss account, water was borrowed from other water accounts to ensure ongoing delivery. The practice of borrowing water from other water users is described in water allocation statements, when there is a zero balance for regulated river (general security) delivery losses:

*“water must be borrowed to continue the delivery of general security water, in accordance with prior practice”.*²⁴⁵

This practice is referred to also in the drought statement.²⁴⁶ DPE-Water staff in interview also confirmed that water was borrowed from the higher priority requirements budget to cover regulated river (general security) delivery losses.

Water allocation methodologies, however, are silent in relation to this practice of borrowing of water from the higher priority requirements budget to cover regulated river (general security) delivery losses as a standard practice.²⁴⁷

Examination of the Namoi resource assessment spreadsheets between January 2018 and December 2018 indicated that only 13GL of reductions to the 58GL allocated to the higher priority requirements budget was due to use of high priority water. A full higher priority requirements budget was available in January 2018; however, this had been reduced to zero by December 2018.^{248,249} This means that 45GL was borrowed from the higher priority requirements budget to cover delivery losses associated with the delivery of lower priority regulated river (general security) water between January 2018 and December 2018.

DPE-Water reported in its January 2019 water allocation statement that operational measures were being put in place to extend longevity of ‘critical water’ supplies.²⁵⁰ However, this water allocation statement did not detail the components of ‘critical water’ supplies. It is unclear how ‘critical water’ supplies correspond to higher priority requirements budget items as defined in the Namoi methodology and the resource assessment spreadsheets.

DPE-Water reported that in July 2019 town water and regulated river (high security) WALs could not be provided from Keepit or Split Rock dams and that these demands were dependent on downstream tributary inflows.²⁵¹

It is beyond the scope of the Commission’s audit to comment on the adequacy of the volumes held in the higher priority requirements budget for its stated purposes. Assuming the budget is adequate, the 45GL of water reserved in the higher priority requirements budget could have been used to meet these requirements. Instead, it was borrowed to deliver regulated river (general security) water, which is inconsistent with the principles and prioritisation set out in sections 5(3) and 58 of the Act.

²⁴⁴ This figure was calculated using the DPIE-Water [Water Allocation Statements](#) for the period February 2018 to December 2019 for the Namoi.

²⁴⁵ DPIE-Water (2018) [Water Allocation Statement – Namoi Valley: water allocation update](#), see footnote 6, p 3, 10 October 2018.

²⁴⁶ DPIE-Water (2021) *Upper and Lower Namoi Valley snapshot – 2017 2020 Drought*. Available at: https://www.industry.nsw.gov.au/__data/assets/pdf_file/0008/469250/Namoi-Valley-snapshot-drought-2017-20-20210914.pdf.

²⁴⁷ DPIE-Water (2021) [Water Allocation Methodology – Namoi Regulated River Water Sources](#)

²⁴⁸ DPIE-Water (2018) [Water Allocation Statement – Namoi Valley: water allocation update](#), 7 February 2018.

²⁴⁹ DPIE-Water (2019) [Water Allocation Statement – Namoi Valley: water allocation update](#), 11 January 2019.

²⁵⁰ *Ibid.*

²⁵¹ DPIE-Water (2021) [Upper and Lower Namoi Valley snapshot – 2017 2020 Drought](#)

To mitigate consequences of ongoing delivery of regulated river (general security) water, DPIE-Water restricted take by regulated river (general security) WAL holders. It issued a Section 324 order effective 6 November 2018.^{252,253}

This order stated that for regulated river (general security) WAL holders:

- in the upper Namoi regulated river, take was restricted by 15 percent of the volume of water in accounts as at 6 November 2018
- in the lower Namoi regulated river, no water could be taken except where an existing order had already been placed. Where water had been ordered on or before the 5 November 2018, but the full volume had not been taken by the WAL holder, 85 percent of the volume ordered could be extracted.

The higher priority requirements budget was depleted to deliver lower priority requirements in the Gwydir plan

Resource assessment spreadsheets showed that the higher priority requirements budget was depleted for the benefit of regulated river (general security) water users between January 2019 and February 2020 in the Gwydir plan. This is not in accordance with the requirements of sections 5(3) and 58 of the Act.

In the Gwydir plan, the delivery loss account for the supply of regulated river (general security) water reached 0 ML in January 2019.²⁵⁴ Despite there being no available budget for losses incurred during the delivery of regulated river (general security) water, between January 2019 and February 2020 a total of 48GL was ordered from the Gwydir river according to the Gwydir resource assessment spreadsheet.²⁵⁵ Delivery of this water incurred delivery losses of 27GL according to the Gwydir resource assessment spreadsheet. The Gwydir resource assessment spreadsheet showed that 69 percent of the total volume of orders and 73 percent of the volume of delivery losses over this period occurred in January 2019. The March 2019 water allocation statement indicated that deliveries for general security users had ceased for the season.²⁵⁶ The May 2019 to December 2019 water allocation statements indicated that the majority of regulated river (general security) water delivered for this period was held environmental water.^{257,258,259,260,261}

Between January 2019 and February 2020 42GL of the 95GL higher priority requirements budget was used for delivery of high priority water and associated losses according to the Gwydir resource assessment spreadsheet. Analysis undertaken by the Commission indicated

²⁵² Under Section 324 of the Act, the Minister or delegate (DPIE-Water) can apply temporary water restrictions within a water source for a specified period if restrictions are required to cope with a water shortage, due to threats to public health or safety, or to manage water for environmental purposes.

²⁵³ NSW Government (2018) [NSW Government Gazette No. 121 of 14 November 2018](#)

²⁵⁴ DPIE-Water (2019) [Water Allocation Statement – Gwydir Valley: water allocation update](#), 8 February 2019.

²⁵⁵ This figure was calculated using the DPIE-Water [Water Allocation Statements](#) for the period February 2018 to December 2019 for the Namoi.

²⁵⁶ DPIE-Water (2019) [Water Allocation Statement – Gwydir Valley: allocation and water availability update](#), 8 March 2019.

²⁵⁷ DPIE-Water (2019) [Water Allocation Statement – Gwydir Valley: allocation and water availability update](#), 7 May 2019.

²⁵⁸ DPIE-Water (2019) [Water Allocation Statement – Gwydir Valley: allocation and water availability update](#), 7 June 2019.

²⁵⁹ DPIE-Water (2019) [Water Allocation Statement – Gwydir Valley: allocation and water availability update](#), 8 August 2019.

²⁶⁰ DPIE-Water (2019) [Water Allocation Statement – Gwydir Valley: allocation and water availability update](#), 7 November 2019.

²⁶¹ DPIE-Water (2019) [Water Allocation Statement – Gwydir Valley: allocation and water availability update](#), 6 December 2019.

that the volume of higher priority requirements budget borrowed to deliver this lower priority water between January 2019 and February 2020 was approximately 9GL.²⁶²

Given these delivery losses were not available within the regulated river (general security) loss account, water was borrowed from other water accounts to ensure ongoing delivery. The practice of borrowing water from other water users is described in water allocation statements, when there is a zero balance for regulated river (general security) delivery losses:

*“the delivery loss account is now empty and the essential supply reserve is supporting the remaining account delivery”.*²⁶³

Similar to practices in the Namoi plan, DPE-Water staff in interview also confirmed that water was borrowed from the higher priority requirements budget to cover regulated river (general security) delivery losses. However, in contrast to the Namoi Plan, the Gwydir higher priority requirements budget did not fall to zero and the January 2020 water allocation statement indicated that higher priority requirements continued to be delivered.²⁶⁴ DPE-Water reported that in October 2019 the native fish were moved to more secure water sources in the Gwydir river and the relocation of threatened fish species from drying refugia along the river.²⁶⁵ Annual compliance reports stated that replenishment flows were not delivered in the Gwydir plan in the 2018-2019 year. This is further discussed in **Chapter 6**.

To mitigate consequences, DPE-Water issued a Section 324 order for northern inland tributaries including the Gwydir plan effective 20 December 2019.²⁶⁶ The order prohibited the take of water by regulated river (general security) WALs unless approved by DPE-Water. The Gwydir resource assessment spreadsheet showed limited orders (4GL) and delivery losses (2GL) post the issuing of the Section 324 order. The March 2020 water allocation statement reported full recovery of the higher priority requirements budget (95GL held in reserve) and minor recovery of the regulated river (general security) delivery loss budget (6GL of a total budgeted 256GL for delivery losses).²⁶⁷

There was no clear evidence to suggest that higher priority requirements were depleted in favour of lower priority users in the Macquarie plan

The Commission was unable to develop a position on whether the requirements of the Act were given effect in the Macquarie plan. The Commission requested detailed resource assessment spreadsheets from DPE-Water to support an analysis of whether prioritisation and principles in the Act were adhered to in the Macquarie plan during the audit period. However, no additional evidence was provided, and this analysis could not be completed.

Published water allocation methodologies suggest that in July 2018 regulated river (general security) WAL holders were advised to plan for a 75 percent restriction on take of carryover water.²⁶⁸ This was implemented as a water conservation measure and a 70 percent restriction was officially put in place in September 2018.²⁶⁹

²⁶² The Commission’s analysis was based on changes to the higher priority requirements budget recorded in the Gwydir resource assessment spreadsheet.

²⁶³ DPIE-Water (2019) [Water Allocation Statement – Gwydir Valley: allocation and water availability update](#), 8 February 2019.

²⁶⁴ DPIE-Water (2020) [Water Allocation Statement – Gwydir Valley: allocation and water availability update](#), 10 January 2020.

²⁶⁵ DPIE-Water (2021) [Gwydir Valley snapshot – 2017 2020 Drought](#)

²⁶⁶ NSW Government (2019) [NSW Government Gazette No. 178 of 18 December 2019](#)

²⁶⁷ DPIE-Water (2020) [Water Allocation Statement – Gwydir Valley: allocation and water availability update](#), 7 April 2020.

²⁶⁸ DPIE-Water (2018) [Water Allocation Statement – Macquarie Cudgegong Valley: allocation and water availability update](#), 25 July 2018.

²⁶⁹ NSW Government (2018) [Government Gazette Number 89 of 11 September 2018](#)

The October 2018 water allocation statement indicated that all commitments to high priority requirements were able to be met.²⁷⁰ All water allocation statements from November 2018 to plan suspension in July 2019²⁷¹ indicated that restrictions on take of regulated river (general security) carryover water would remain in place until there was sufficient water to assure higher priority requirements.^{272,273} However, across this period of restrictions there is insufficient information to indicate whether any borrowing of water from the higher priority requirements was in place to deliver water to regulated river (general security) WAL holders. Resource assessment supporting spreadsheets to determine whether any borrowing of water from the higher priority requirements budget occurred in the Macquarie plan were not made available by DPE-Water.

From July 2018 water allocation statements indicated that all timing of stock and domestic deliveries for 2018-2019 would be dependent on dam inflows and flows from downstream tributaries.²⁷⁴ This position was stated in water allocation statements until April 2019.²⁷⁵ It is unclear whether the stock and domestic deliveries relate to replenishment flows or delivery of basic landholder rights. However, this position is inconsistent with the prioritisation of requirements of section 5(3) and 58 of the Act.

Based on the inconsistency of information presented in the water allocation statements, where higher priority requirements were reported as both met and unable to be delivered without system inflows, the Commission has been unable to develop a clear position on prioritisation of water requirements according to the Act in the Macquarie plan.

Given the findings in the Namoi and Gwydir plans the Commission makes one recommendation.

R6.1	DPE-Water to cease the practice of borrowing from the higher priority requirements budget within the resource assessment process for the purpose of delivery of regulated river (general security) water and adhere to principles and prioritisation set out in sections 5(3) and 58 of the Act.
-------------	--

Proactive triggers are needed to implement requirements of the Act

The Commission recognises that where the higher priority requirements budget was depleted in the Namoi and Gwydir plans for the delivery of lower priority licence requirements, these timeframes correspond to periods of drought.²⁷⁶

However, the principles and priorities of the Act apply regardless of drought. During times of abundant water or periods of 'normal' regulated system operation, there is limited risk that requirements of water users will not be met. However, in periods of drought or water scarcity, the risk to WAL holders is greater. As such, system management and adhering to prioritisation and principles of the Act is critical during drought periods to ensure higher priority requirements are met ahead of general security users during these times.

²⁷⁰ DPIE-Water (2018) [Water Allocation Statement – Macquarie Cudgegong Valley: allocation and water availability update](#), 11 October 2018.

²⁷¹ NSW Government (2019) [Government Gazette Number 69 of 4 July 2019](#)

²⁷² DPIE-Water (2018) [Water Allocation Statement – Macquarie Cudgegong Valley: allocation and water availability update](#), 13 November 2018.

²⁷³ DPIE-Water (2018) [Water Allocation Statement – Macquarie Cudgegong Valley: allocation and water availability update](#), 13 November 2018.

²⁷⁴ DPIE-Water (2018) [Water Allocation Statement – Macquarie Cudgegong Valley: allocation and water availability update](#), 25 July 2018.

²⁷⁵ DPIE-Water (2019) [Water Allocation Statement – Macquarie Cudgegong Valley: allocation and water availability update](#), 11 April 2019

²⁷⁶ DPIE-Water (2021) [Gwydir Valley snapshot – 2017 2020 Drought](#)

The common practice of borrowing of water from the higher priority requirements budget for the delivery of water to lower priority regulated river (general security) users, is not in accordance with sections 5(3) and 58 of the Act. Proactive triggers to guide action ahead of constraints occurring are important. The risk of not being able to support delivery of general security water within budget could be assessed using data such as inflows, losses, climate forecasts, and other suitable information. This risk profile could be used to determine triggers and inform decisive action ahead of and as soon as drought exceeds conditions allowed for under the plans. The use of triggers, including the proactive introduction of 324 orders, that restrict take of existing account water by regulated river (general security) WAL holders, would avoid borrowing water from higher priority users for the purpose of delivery water to lower priority users.

The NSW Extreme Events Policy and accompanying incident response guides may provide the mechanism to establish, communicate and implement triggers for proactive system management. The NSW Extreme Events Policy commenced in NSW in October 2018.²⁷⁷ The key objective of the NSW Extreme Events Policy is to:

“improve resilience and provide certainty for communities:

- *during drought and periods of water shortage*
- *in the event of a water quality event of an intensity, magnitude and duration that is sufficient to render water acutely toxic or unusable for establishment local uses and values.”²⁷⁸*

DPE-Water advised in interview that at this stage the NSW Extreme Events Policy is principally used as a communications tool. It is the intention of the NSW Extreme Events Policy to outline the range of measures that water managers can use as situations deteriorate and valleys move through the four defined stages of drought.²⁷⁹ The policy is used to guide development of incident response to manage water in extreme events. These incident response guides are intended to secure critical human water needs and give effect to water sharing priorities under the Act. DPE-Water advised during interview that it is currently updating the incident response guides to clearly define the measures to be put in place across valleys at the different drought stages. The Commission has not sighted or reviewed these guides. The Commission supports the incorporation of triggers within these guidance documents to improve transparency for system managers and stakeholders. Systematic proactive management would increase the ability to align operations to the requirements of the Act, throughout all scenarios including periods of drought.

The Commission notes that the higher priority requirements budget reserves water for higher priority needs prior to allocating water to other water users – regulated river (general security) WAL holders. The higher priority requirements are treated as one budget item in both the resource assessment and water allocation methodologies. Each component is not individually prioritised as required by the Act. For example, according to the Act, the meeting of water for ecosystems should be prioritised above basic landholder rights, which should be prioritised above water used for extractive use. However, the practice of reserving a budget for higher priority requirements does formalise the process of prioritising these needs above regulated river (general security) WAL holders. This has been the primary focus of the findings of this audit.

The Commission understands that any trade-offs amongst water users identified in higher priority requirements budget is likely to only occur during drought. However, if there is a drought, systems should support prioritisation processes between water users and needs identified within the higher priority requirements budget. The water allocation methodologies

²⁷⁷ DPIE-Water (n.d.) [Drought stages and measures implemented during the 2017-20 drought](#)

²⁷⁸ DPIE-Water (2018) [NSW Extreme Events Policy. Policy framework for the management of NSW Murray-Darling Basin water resources during extreme events](#), p 2.

²⁷⁹ *Ibid.*

and resource spreadsheets do not include guidance for this. The Commission supports outlining a more hierarchical prioritisation to meet the requirements in sections 5(3) and 58 of the Act.

Based on these findings, the Commission makes no recommendations and raises two suggested actions.

SA6.1	DPE-Water to set up proactive triggers to restrict take when required so that higher priority requirements are prioritised above other water users in accordance with the principles and priorities set out in sections 5(3) and 58 of the Act.
SA6.2	DPE-Water to document and implement how prioritisation within the higher priority requirements budget should occur within the water allocation process so that the relative priority of environmental, basic landholder rights, native title rights and regulated river (high security) requirements clearly aligns to requirements of sections 5(3) and 58 of the Act.

Transparency of allowances for higher priority requirements could be improved

The Commission observed inconsistencies in accounting of the higher priority requirements between the Gwydir methodology and the resource assessment spreadsheets. Similar inconsistencies were not observed in the Namoi methodology and resource assessment spreadsheets. In the Gwydir plan the total volume of higher priority requirements reserved for a 24 month period was approximately:

- 83GL in the methodology
- 95GL in the resource assessment spreadsheet until June 2021 when the budget was aligned with the total volume allowed for in the Gwydir methodology.

The differences in the Gwydir higher priority requirements allowances between the Gwydir plan, methodology and resource assessment spreadsheet are detailed in **Table 6**.

Table 6: Higher priority requirements as allowed for in the Gwydir plan, methodology and resource assessment²⁸⁰

Higher priority requirements	Gwydir plan allowance (ML)	Methodology allowance (ML)	Resource assessment allowance (ML)
Basic Landholder Rights (Domestic and stock rights)	6,000	8,500	Not specified
Minimum releases from Copeton Dam	Not specified	Not specified	8,500
Domestic and stock access licences	4,245	3,124	2,700
Local water utility access licences	3,836	3,836	3,800
Regulated river (high security) access licence)	19,293	20,200	16,100
Replenishment flows	21,000	11,000	11,000
Delivery losses for higher priority requirements	Not specified	21,096	18,400
Total		67,800	60,500
Total required for 24 months		135,512	121,000
Minimum inflows*		52,600	26,200
Total higher priority requirements reserve for 24 months post budgeted allowance for minimum inflows		82,900	94,800

* Minimum inflows for have been determined over an 18 month period in the Gwydir resource assessment spreadsheet and a 24 month period in the Gwydir methodology.

As identified in **Table 6** the total volumes allowed for basic landholder rights, regulated river (high security), domestic and stock access licences and replenishment flows are not consistent between the Gwydir plan and the methodology. The Gwydir methodology indicated that these differences are due to:

- additional allowances to basic landholders rights to maintain river continuity
- changes to regulated river (high security) and domestic and stock access WAL holdings
- requirements for replenishment flows due to development of pipelines (see also **Chapter 6**).²⁸¹

Table 6 shows that the Gwydir resource assessment spreadsheet and the methodology specify the same volume (8.5GL) is set aside for the minimum releases for Copeton Dam and for basic landholder rights respectively. It is not clear from the documentation and different terminology used whether this volume is intended to meet the same or different purpose.

The Commission notes that the full higher priority requirements budget in the Gwydir methodology is approximately 12GL less than the resource assessment spreadsheet. This is principally due to reductions held in the budget following allowances for minimum inflows (see **Table 6**). Minimum inflows have been determined over an 18 month period in the Gwydir resource assessment spreadsheet and a 24 month period in the Gwydir methodology.

²⁸⁰ DPIE-Water (2021) [Water Allocation Methodology – Gwydir Regulated River Water Source](#), p 1 and 4.
²⁸¹ *Ibid.*

The Commission notes that when the budget for higher priority requirement was larger in total volume (95GL) the following impacts were observed:

- inability to meet replenishment flows during the 2018-2019 period in the Gwydir plan (see **Chapter 6.3.1**)
- environmental impacts reported as occurring in October 2019 with drying refugia pool and relocation of fish species.

There is potentially a risk to meet the higher priority requirements if the resource assessment process was to adopt the Gwydir methodology and budget for less water in future, given the constraints observed with a higher amount of water held. However, the Commission notes that the establishment of proactive triggers to avoid borrowing from higher priority needs may avoid constraints associated with the volumes reserved in the Gwydir. Given this, the Commission has determined that SA6.1 applies to this finding.

The Commission also noted two additional areas for improvement.

Firstly, volumes reported as being held in storages or accounting of delivery losses was not consistent across water allocation statements and the resource assessment spreadsheets indicating inaccuracies in either the information held internally or provided publicly to stakeholders. For example, information presented in the Gwydir water allocation statements for the January 2019 to February 2020 period showed delivery losses for regulated river (general security) water were 1GL. The Gwydir resource assessment spreadsheet however, indicated that delivery losses over the same timeframe were 27GL. This inconsistency in publicly available information reduces transparency and highlights potential inaccuracies in internal information, which may adversely impact allocations processes.

Secondly, the information reported in the water allocation statements has changed significantly over time. This makes it difficult to track changes to available resources across water years, and in some cases has resulted in a decrease in transparency in water availability to stakeholders. For example, for the January 2018 to December 2018 period the delivery losses reported for regulated river (general security) water in the Namoi water allocation statements totalled 92GL in the Namoi water allocation statements and 141GL in the resource assessment spreadsheet. This is due to a change in the information presented in water allocation statements. In the January 2018 to June 2018 period actual delivery losses incurred were reported in water allocation statements. From July 2018 the information on delivery losses changed to only provide information on delivery loss targets and that the available delivery loss budget was zero. This results in a decrease in transparency of delivery losses with delivery of regulated river (general security) water over this period.

The Commission supports the development of a consistent approach to reporting of the water allocation process, to provide greater transparency to all water users and stakeholders regarding the available water, including available budgeted reserves.

The Commission raises one suggested action in relation to information presented in water allocation statements.

SA6.4	DPE-Water to implement a consistent and transparent approach to information made publicly available via water allocation statements to allow water users and stakeholders to easily track water use and water availability over time.
--------------	---

10.3.2 Extraction of water by supplementary access licences rules were partially given effect to

Extraction of water by supplementary access licences rules set out in Clause 47 (Gwydir and Macquarie plans) and Clause 48 (Namoi plan) were partially given effect to.

In examining clauses relating to supplementary take announcements, the Commission reviewed the implementation of supplementary water announcements²⁸² for the audit period including:

- all supplementary announcements made for the Namoi, Gwydir and Macquarie plans in the audit period. Specifically:
 - Namoi plan: February 2020 to April 2021
 - Gwydir plan: July 2017 to March 2021
 - Macquarie plan: February 2020 to March 2021
- annual compliance reports to determine that replenishment flows were not delivered in periods where supplementary announcements occurred
- a random sample of WaterNSW and DPE-Water spreadsheets detailing calculations of supplementary events to determine that requirements of Clause 47(5) in the Gwydir and Macquarie plan had been met prior to approval of a supplementary event:
 - ensuring that only 50 percent of the total volume of a supplementary event was permitted for extraction in the Gwydir plan
 - flows exceeded 5,000ML per day at Warren.

In relation to 47(1-3 and 5) in the Gwydir and Macquarie plans, clauses 47(4) in the Gwydir plan and clauses 48(1-4) in the Namoi plan, the Commission found that all sub-clauses were given effect, except for some cases for Clause 47(2) in the Gwydir and Macquarie plans and Clause 48(2) in the Namoi plan. While there were some differences in format of announcements such as no unit of measurement, this was likely mitigated by the requirement for users to place a supplementary water order prior to take which would restrict take to within the volumes permitted via multiple controls in the management systems.

Assessments to determine supplementary water announcements did not explicitly consider all elements required under the plans

In examining Clauses 48(5-15) in the Namoi plan, Clauses 47(6-9) in the Gwydir plan and Clauses 47(4 and 6) in the Macquarie plan, the Commission requested correspondence or internal approvals or decision-making documents in relation to the declaration of supplementary take events. Evidence was provided to the Commission which demonstrates that there is a process in place whereby WaterNSW performs an assessment of available water for a supplementary water event which is provided to DPE-Water to be approved. The Commission received limited information in relation to the Namoi for the audit period.

For the Gwydir and Macquarie, the Commission saw evidence that environmental water was considered and protected from supplementary access across the sample of four events that were examined. The format of the assessments for the Gwydir and the Macquarie were different. In addition, there were multiple headline items that were considered that did not directly line up with the plan wording and did not present supporting calculations, which make it difficult to tell whether all elements of the plans were explicitly considered.

²⁸² Supplementary water announcements were obtained from the WaterNSW website prior to removal. This information is no longer publicly available.

The evidence for two events for each of the Gwydir and Macquarie indicates that prior to a supplementary announcement being made, calculations and management decisions had not explicitly and comprehensively considered the following:

- the requirements of the *Interim Unregulated Flow Management Plan for the North West* (also known as the North West Unregulated Flow Management Plan) in accordance with Clause 47(7-9) in the Gwydir plan
- the specific volumes required for each of replenishment flows, basic landholder rights, general security and higher priority access licence water orders outlined in Clause 47(6) in the Gwydir plan.
- the specific volumes required for higher priority access licences of Clause 47(4c) in the Macquarie plan.

The assessments contained headline items which grouped requirements to be considered (such as 'downstream orders/requirements') which do not allow a reviewer to easily confirm that all the requirements of the plans have been considered. For example, the Macquarie assessment format reviewed by the Commission clearly assessed stock and domestic rights and stock and domestic flows (replenishment flows), which the Gwydir did not clearly indicate. However, the Gwydir assessment format explicitly included orders which the Macquarie did not. A more consistent format with line items that align directly with requirements of the plan that need to be considered would increase the clarity of these assessments. The Commission did not receive any documented evidence of assessment of the North West Unregulated Flow Management Plan for the Namoi or the Gwydir for the audit period.

Uncontrolled flows are important for maintaining river and wetland health as the high flows provide triggers for spawning and migration of fish.^{283,284} The management of supplementary water which impacts on these uncontrolled flows therefore has impacts on environmental outcomes. Many of the plan provisions restricting supplementary take are to ensure appropriate assessments are undertaken to reduce environmental impacts associated with extraction of high flows. All plans require consideration of flow targets, limits on total volumes available for extraction, and consideration of high priority licence holders, prior to DPE-Water approval being provided for extraction associated with a supplementary water event. It would have been beneficial for the approvers if the plan requirements were made more explicit in these assessments of available supplementary water.

The North West Unregulated Flow Management Plan is aimed at ensuring that critical environmental needs, basic landholder rights and town water supply requirements along the Barwon-Darling system are not jeopardised by upstream supplementary water extraction.²⁸⁵ The Namoi and Gwydir plans establish the requirement for DPE-Water to determine whether flows from these systems can and will contribute to meeting target flows in the Barwon-Darling system prior to approving a supplementary event. This should be clearly documented to support the approval of supplementary water events by DPE-Water in the Namoi and Gwydir.

The assessments documented throughout the audit period were not of suitable detail to allow the approver (DPE) to make an informed decision with evidence that all elements of the plan criteria had been considered. The Commission has seen evidence that since the audit period, the format of the Namoi and Gwydir assessments have been improved which now includes more explicit assessment of elements described in the plans and references to specific subclauses of the plans in the assessment. These formats now address the elements that the

²⁸³ Namoi Regulated River Management Committee (n.d.) *Draft Water Sharing Plan for the Namoi Regulated River Water Source. Part A – Background Document*, p 39.

²⁸⁴ Gwydir Regulated River Management Committee (n.d.) *Draft Water Sharing Plan for the Gwydir Regulated River Water Source. Part A – Background Document*, p 33.

²⁸⁵ Namoi Regulated River Management Committee (n.d.) *Draft Water Sharing Plan for the Namoi Regulated River Water Source. Part A – Background Document*, p 32.

Commission identified as missing during the audit period, including that of the North West Unregulated Flow Management Plan targets. This is a significant improvement which has been completed since the audit period and addresses several gaps that the Commission identified in the supplementary water assessments.

Therefore, the Commission makes no recommendation in relation to this finding.

11 Criterion 7 – Rules for water supply work approvals

11.1 Criterion overview

Provisions in the Act establish rules for water supply work approvals:

- Section 92 (applications for approvals)
- Section 93 (objections to applications)
- Section 95 (determinations of applications)
- Section 96 and 97 (matters for consideration in relation to granting approvals)
- Section 98 (notification of approval holders)
- Section 100 (imposing mandatory and discretionary conditions on approvals)
- Section 102(4) (Minister must cause written notice of any conditions imposed, amended, revoked or suspended under this section to be served on the holder of the approval concerned)
- Section 102(5) (a condition imposed or a change referred to in subsection (4) takes effect on the day on which the notice referred to in that subsection is served on the holder of the approval or on such later date as may be specified in the notice in that regard).

The relevant clauses of the Regulation include:

- Clause 25(1)(a) – requires the application to be in approved form
- Clause 25(1)(b) – requires an application to include or to be accompanied by an assessment of the likely impact of the water use, water or activity concerned (if required by the Minister)
- Clause 26(7) – requires the application for approval to be published
- Clause 28(6) – requires the capacity of the work to be listed on the advertisement.

11.2 Current roles, systems and processes

WaterNSW and NRAR administer the Act, the Regulation and individual plan rules for the plans related to the granting or amending of water supply work approvals.

Roles and responsibilities for giving effect to plan provisions have been documented broadly for the public on the WaterNSW and NRAR websites.²⁸⁶ In addition, the *WaterNSW Operating Licence 2017-2022* and other internal documents outline various functions, including the Deed of Business Transfer between WaterNSW and DPE-Water and delegations. In addition, audit interviews indicate that roles in relation to approvals are well understood between the two organisations. Any gaps in documentation or understanding are considered immaterial.

On 30 June 2021, the Roles and Responsibilities Agreement was executed by DPE Water, NRAR, Water Administration Ministerial Corporation and WaterNSW, which replaces the Deed of Business Transfer and articulates the roles and responsibilities of each party in the discharge of their respective functions under the NSW Water Legislation and the WaterNSW Operating License.²⁸⁷ The agreement solidifies the existing roles and responsibilities of each of the parties.

²⁸⁶ NSW Government (2018) [Roles of water management agencies in NSW](#); NRAR (n.d.) [Licensing and approvals](#)

²⁸⁷ [Roles and Responsibilities Agreement: DPIE, NRAR and WaterNSW](#), Executed 30 June 2021.

The Commission found this agreement to be adequate as it relates to water supply work approvals.

A summary of roles for organisations is as follows:

- **WaterNSW** is responsible for assessing and granting water supply work approvals to landholders, industries and developments that are not State significant development or State significant infrastructure.²⁸⁸ WaterNSW is also responsible for notification of all holders of former entitlements under the *Water Act 1912* upon the commencement of a new water sharing plan under the Act.
- **NRAR** was responsible for assessing and granting water supply work approvals to government agencies, including other NSW Government agencies, local councils and the Australian Government; state-owned corporations; major water utilities, water supply authorities, and local water utilities; licensed network operators under the *Water Industry Competition Act 2006*; mining companies; irrigation corporations; Aboriginal communities and businesses; floodplain harvesting; major developments (State significant developments and State significant infrastructure); schools and hospitals. This responsibility has shifted to DPE since the audit period. NRAR retains the role to monitor and audit compliance with approvals, specifically detecting instances of non-compliance in a timely manner.²⁸⁹
- **DPE-Water** was responsible for supporting NRAR to craft new conditions for WaterNSW and other NRAR customers. Since the audit period DPE-Water has now taken on responsibility for the management and approval of major licence holders as described above which was performed by NRAR during the audit period.

The main systems used to grant access licences are the:

- **WLS - Approvals Transaction Module** – this is an automated workflow and storage system. It captures all applications, including water supply work approvals and supports the assessment officers to undertake the assessments of the application in line with the requirements.
- **NSW Water Register** – this is set up under Section 113 of the Act, which requires the register to be available for public inspection and record every application and every approval granted, extended, amended, transferred, surrendered, suspended or cancelled. The register can be found at the WaterNSW website.²⁹⁰
- **ArcGIS** – used by assessment officers to map key environmental and infrastructure assets, conduct environmental assessments, and check licences and landholder details.

The main procedural and process documents used by WaterNSW, NRAR to support the granting of access licences are:

- **The Licensing Procedure Manual – Operations Section** – which sets out requirements for operationalising the Act and Regulation requirements for the water supply works approval process.
- **Assessment summary report** – this provides a framework for officers to document their application assessment and decision, designed to ensure the relevant administrative and environmental checks stated in the Act and Regulation are undertaken by the assessing officer and includes space to capture the relevant signatures.

²⁸⁸ State of NSW (n.d.) [WaterNSW Operating Licence 2017-2022](#), pp 50-51., *NRAR Act 2017* cl. 11 Functions of the Regulator and Schedule 2 Additional functions of the Regulator.

²⁸⁹ NRAR (n.d.) [Licensing and approvals](#)

²⁹⁰ WaterNSW (n.d.) [NSW Water Register](#)

- **Approval assessment checklist** – this is a checklist for use by the officer to ensure they have undertaken the required processes under the Licensing Procedure Manual, the Act and the Regulation.

The Commission considers there were adequate systems, processes and procedures in place to support implementation of Plan provisions relating to water supply work approvals within the audit period.

11.3 Rules for water supply work approvals were partially implemented

To assess if plan provisions were given effect in relation to approvals applied for and granted in the audit period, the Commission assessed WaterNSW's five most recent work approvals processed under each plan. NRAR provided one approval granted in the Macquarie Plan area during the audit period. NRAR did not receive any applications for water supply work approvals in the Namoi or Gwydir plan areas during the audit period.

The Commission found that the sampled water supply work approvals were compliant with the legislative requirements set out above, with the exceptions outlined below.

Existing approval holders were notified 18-19 months after the plans were remade in 2016 of relevant mandatory conditions

The Commission found that approval holders of existing approvals granted under the 2004 plans did not receive written notice of the mandatory conditions for each supply work approval until January 2018 (Namoi and Gwydir plans) and December 2018 (Macquarie plan) (19 and 18 months respectively after plan commencement), giving delayed effect to Section 102(4) and 102(5) and 100(1A) of the Act.

The Commission compared the mandatory conditions in the 2004 plans with the plans and found no material differences. So, the risks associated with delayed notification of mandatory conditions is not material for these plans for the majority of approval holders.

As raised in **Chapter 9**, the Commission has confidence in the broader process going forward for timely notifications and therefore makes no recommendation.

For WaterNSW approvals, mandatory conditions were not amended to give effect to all relevant mandatory condition provisions

The Commission found that WaterNSW was not notified of mandatory conditions set out in Part 11 (Clause 57(3) of the Namoi plan, and Clause 56(3) of the Gwydir and Macquarie plans) as required by sections 102(4), 102(5) and 100(1A) of the Act. These mandatory conditions call up other parts of the plan relevant to WaterNSW role in plan implementation – namely Parts 3, 6 and 12.

For the WaterNSW work approvals, we note that there are some mandatory conditions that were not included in the statement of approvals granted in 2008 for the plans. These statements of approval were not amended at any time during the audit period to give full effect to Part 11 of the plans. This has impacted the implementation (and will continue to impact future implementation) of some clauses set out in Parts 3 and 12 of the plans. Specific gaps are described below:

- In the Namoi plan (WaterNSW work approval 90WA811444)

- Namoi gauge not nominated for monitoring of compliance of channel capacity constraints (Clause 60, Part 12)
- wording of the conditions to fully reflect Clause 14 given the work approval notes that non-delivery by the operator is permitted for a variety of reasons which is not in accordance with the Namoi plan (Clause 14, Part 3)
- Note 3 on the approval potentially reduces the strength of Clause 14 of the Namoi plan, which requires the minimum flow to be maintained²⁹¹
- rates of change of releases are not specified or required to be implemented (Clause 61, Part 12).
- In the Gwydir plan (WaterNSW work approval 90WA811596):
 - rates of change of releases are not specified or required to be implemented (Clause 60, Part 12).
- In the Macquarie plan (WaterNSW work approval 80WA704431):
 - channel capacity constraint requirements are not included (Clause 59, Part 12).

The WaterNSW Statement of Approval (90WA811444) for the Namoi plan includes a note under mandatory condition 3 which relates to planned environmental water:

Note 3: The Approval Holder is not responsible for potential non-delivery of required flow volumes due to circumstances beyond its control including, but not limited to, higher than expected transmission losses and unauthorised extraction of the released water before its target destination.

The Commission understands that WaterNSW cannot control instances of individual unauthorised extraction, however we also note that the wording of this clause may potentially reduce the strength of Clause 14 of the Namoi plan, which requires the minimum flow to be maintained.

Advertisements for new water supply work approvals did not consistently include capacity information in accordance with Section 28(6)(d) of the Regulation

Clause 26(8)(d) of the Regulation requires that the advertisement notice for a supply work approval must contain the capacity of the work and the water source and stream from which the work is proposed to take water.

The majority of works sampled were pumps and diversion pipes. Pump and diversion pipe size (mm) was recorded on the advertisement across all plans, except in one case in the Gwydir where one of the five sampled supply work approvals in the Gwydir processed by WaterNSW did not contain the size or capacity of the work for a diversion pipe. This is contrary to the requirement in the Regulation. The advertisement did not give details as to whether the function of this pipe is to divert water from the river or if it is on a property disconnected from the river. The materiality of this gap is therefore not clear, and it would be difficult for someone viewing the advertisement to determine if they are impacted and need to make an objection.

The Commission notes that 11 of the 15 samples included the size of the work but not the capacity (four in the Gwydir plan, two in the Macquarie plan and five in the Namoi plan).²⁹² Whilst this is technically not in accordance with 28(6)(d) of the Regulation, we deemed this to be

²⁹¹ *Note 3: The Approval Holder is not responsible for potential non-delivery of required flow volumes due to circumstances beyond its control including, but not limited to, higher than expected transmission losses and unauthorised extraction of the released water before its target destination.*

²⁹² These work types were majority pumps and diversion pipes.

immaterial as there was some indication of capacity in the advertisement to inform decision making by potentially affected parties and whether objections are warranted.

11.4 Potential Impacts

When water supply work approval holders operate without conditions, they are not obligated to comply with the plans. The plans are primarily implemented through water users complying with mandatory conditions. Without notification of relevant mandatory conditions, the plans cannot be given full effect. WaterNSW is a key party to implementing plan provisions for environmental water releases, and systems operations. The specific gaps to requirements are set out above. In addition, without mandatory conditions on water supply work approvals, NRAR (and its predecessors) cannot undertake enforcement activity should there be instances of non-compliance.

Incomplete information in the advertisements means that users cannot make a meaningful objection and transparency is reduced. Users downstream of these works ability to take water, as well as environmental assets may be impacted, particularly in relation to supplementary take. Missing capacity information on supply work approvals reduces transparency of what was applied for and approved, and limits opportunities for enforcement.

11.5 Recommendations

The Commission makes four recommendations and raises one suggested action. Although NRAR was responsible for preparation of the conditions for major licence holders including WaterNSW during the audit period, this has transferred to DPE-Water in early-2022. The Commission has therefore assigned these recommendations to DPE-Water going forward.

R7.2.1	DPE-Water to prepare relevant conditions for WaterNSW Statement of Approvals (90WA811444 Namoi plan, 90WA811596 in the Gwydir plan, 80WA704431 in the Macquarie plan) in accordance with relevant plan provisions to give effect to all relevant requirements of Parts 3, 12 of the plans as required under sections 102(4), 102(5) and 100(1A) of the Act. This should include the specification of gauge numbers where appropriate.
R7.2.2	DPE-Water to place relevant conditions on the WaterNSW Statement of Approvals (90WA811444 Namoi plan, 90WA811596 in the Gwydir plan, 80WA704431 in the Macquarie plan) to give effect to all relevant requirements of Parts 3, 12 of the plans as required under sections 102(4), 102(5) and 100(1A) of the Act.
R7.2.3	DPE-Water to notify WaterNSW of its updated Statement of Approvals conditions (90WA811444 Namoi plan, 90WA811596 in the Gwydir plan, 80WA704431 in the Macquarie plan) that reflect relevant plan requirements, as required under sections 102(4), 102(5) and 100(1A) of the Act.
R7.3	WaterNSW to update procedures and quality assurance checks in relation to placing advertisements for new approvals so that capacity is consistently stated in accordance with Section 26(8)(d) of the Regulation.

The Act, Regulation or LPM do not require that the authorised capacity or size be indicated in the Statement of Approvals. However, the Commission is of the view that this detail is important on Statements of Approval for transparency and to facilitate enforcement actions. In addition,

the latitude and longitude of each work would support enforcement activities. WaterNSW may consider upgrading the approval system capability to enable capacity to be recorded for a broader range of works (other than pump and pipe size).

SA7.1	WaterNSW and DPE-Water to include capacity and detailed location (latitude, longitude) information on all supply work Statement of Approvals for transparency and to support enforcement activities (both new and existing).
--------------	--

12 Criterion 8 – Access licence dealing rules

12.1 Criterion overview

The rules and requirements applicable to WAL dealings are set out in:

- the Act, primarily Division 4, sub-sections 71L-71Z
- parts 2 and 3 of the *Access Licence Dealing Principles Order 2004*²⁹³
- clauses 12 and 22 of the Regulation
- Part 10 of the plans.

The Act sets out the types of dealings that may occur, including:

- transfer of WALs (Section 71M) – *these dealings are out of the scope of the audit*
- term transfers of entitlements under WALs (Section 71N) – *no dealings of this type have occurred, so this dealing type was not tested*
- conversion of access licence to new category (Section 71O) – *no dealings of this type have occurred, so this dealing type was not tested*
- subdivision and consolidation of WALs (Section 71P)
- assignment of rights under WALs (Section 71Q)
- assignment of individual daily extraction component (Section 71QA) – *no dealings of this type have occurred, so these dealing types were not tested*
- amendment of share component of WAL (Section 71R)
- amendment of extraction component of WAL (Section 71S)
- assignment of water allocations between WALs (Section 71T)
- interstate transfer of WALs (Section 71U) – *no dealings of this type have occurred as they are dependent on conversion factors, which have not yet been developed*
- interstate assignment of water allocations (Section 71V) – *no dealings of this type have occurred*
- WAL may nominate water supply and extraction points (Section 71W).

12.2 Current roles, systems and processes

A summary of roles for organisations is as follows:

- **WaterNSW** – since July 2016, responsible for administering dealings in accordance with the WaterNSW Operating Licence. Specifically processing dealings under sections 71O, 71P, 71Q, 71QA, 71R, 71S, 71U, 71T and 71V and 71W of the Act.²⁹⁴
- **Land Registry Services** – responsible for maintaining the WAL Register on behalf of the Minister administering the Act,^{295, 296, 297} registering general WAL dealings on the WAL

²⁹³ NSW Government (2004) [Access Licence Dealing Principles Order 2004](#)

²⁹⁴ State of NSW (n.d.) [Water NSW Operating Licence 2017-2020](#), p 4.

²⁹⁵ Land Registry Services (n.d.) [Water Access Licence Register](#)

²⁹⁶ In July 2004, the Department of Infrastructure, Planning and Natural Resources delegated the function to maintain the WAL register to Department of Lands – Lands and Property Information Division. (Department of Lands – Lands and Property Information Division (2004) [Circular - Commencement of Water Access Licence Register](#)).

²⁹⁷ Division 3A of the Act states what must be recorded in the WAL Register, including dealings and other matters.

Register (WAL dealings only take effect when registered);²⁹⁸ printing and issuing WAL certificates;²⁹⁹ processing Section 71M and Section 71N dealings.

Land Registry Services staff indicated that once the dealing is approved, WaterNSW provide the applicant with a notification dealing form for lodgement with Land Registry Services (pre-populated by WaterNSW) and supply notification and instructions to Land Registry Services on how to register the dealing. The applicant completes the form (and includes the lodging party details), submits to Land Registry Services with the required payment. Land Registry Services receives a separate instruction from WaterNSW with similar information. Land Registry Services only register the dealing on the WAL when information is revived from both WaterNSW and the applicant.³⁰⁰

- **DPE-Water** – since July 2016, provide hydrogeological advice as required. Prior to this, this role was undertaken by predecessor agencies, including the NSW Office of Water and DPI.

The main systems used to administer dealings are the:

- **WLS** – WaterNSW uses the WLS to process dealings under sections 71O, 71P, 71Q, 71QA, 71R, 71S, 71U and 71W of the Act. The WLS has varied levels of access and functionality for officers. Review processes are in place for WAL dealings by the water regulation officer and the determining officer before the dealing is sent to Land Registry Services for processing.
- **WAS** – WaterNSW uses the WAS to process dealings (temporary allocation assignments) under sections 71T and 71V of the Act.³⁰¹ The WAS is coded with specific plan rules, water source and category of licence, which are automatically assigned to the WAL. The WAS can be coded so that dealings prohibited under plan rules cannot occur. Access and functionality to process allocation assignments in the WAS is restricted to authorised officers (customer service officer levels 1 and 2).
- **NSW Water Register** – WaterNSW includes some dealings information in the register but it uses terminology from the *Water Act 1912*, which is not consistent with the terminology used in the current Act. Despite this, the information currently in the register does add an element of transparency in relation to dealings under sections 71P, 71Q, 71R and 71T of the Act.³⁰²
- **Water Access Licence Register** – Land Registry Services uses the WAL Register to register all dealings where required.³⁰³

The main procedural and process documents are used by WaterNSW, Land Registry Services and DPE-Water to support the administration of dealings are:

- **Licensing Procedure Manual – Operations section: Water access licence dealings** outlines how the applications of dealing used by WaterNSW are processed. WaterNSW documents the dealing allocation and processing process on its website.³⁰⁴ The webpage provides information and downloadable documents for the applicant's information and use, such as pre-application searches, submitting applications, how the application is processed, registration of WAL dealings and registration of water allocation assignments.
- **Assessment summary sheet checklists** – used by WaterNSW to document assessment of dealings applications.

²⁹⁸ WaterNSW (n.d.) [Dealings and Trade](#)

²⁹⁹ Land Registry Services (n.d.) [Water Access Licence Register](#)

³⁰⁰ *Ibid.*

³⁰¹ WaterNSW (n.d.) [Water Accounting System](#)

³⁰² WaterNSW (n.d.) [NSW Water Register](#)

³⁰³ Land Registry Services (2020) [Water Access Licence Register](#)

³⁰⁴ WaterNSW (n.d.) [Water Dealings and Trade – dealings process](#)

- **Water accounting rules for WMA 2000**—sets out the detailed process and the rules for the accounting requirement of the Plan and how the accounting rules are applied in the WAS. This document is used to manage the water ordering, water usage and licence dealings under the Act. Individual plan provisions are coded into the WAS by WaterNSW.
- **Registrar General’s Guidelines – Water dealings** – these are used by Land Registry Services and outline when sections 71M and 71N transfers can take place and sets out the requirements for applicants lodging dealings with Land Registry Services.³⁰⁵ It documents high-level procedures for staff in processing dealings, including for correspondence and delivery, evidence, lost documents, minute papers, production of documents, rejection of WAL dealings and requisitions. The guidelines also outline the process to be used by Land Registry Services staff when processing, entering and recording transfers on the WAL Register.

The Commission considers there were adequate systems and processes in place to support implementation of Plan provisions relating to dealings within the audit period. The Commission has made some observations to strengthen these in **Chapter 12**.

12.3 Rules for access licence dealing rules were implemented

The relevant responsible parties implemented plan provisions relating to access licence dealing rules set out in Part 10 of the Plans within the audit period

To assess if plan dealing rules were given effect, the Commission assessed a sample of dealings across all dealings types that occurred under the Plans during the audit period. These included dealings under sections 71Q, 71R, 71U, 71W, 71S, 71P and 71T of the Act.

12.4 Recommendations

The Commission found that implementation of Plan provisions relating to implementing dealings met criteria and as such has not made any recommendations. However, the Commission has noted the potential for trades to occur where an account balance falls below zero, this issue is detailed below.

Trades may occur which take account balances below zero once the transaction is processed

The Commission found that the assignment of 71T trades was in accordance with Part 10 of the plans. However, the Commission also found that these transactions occur based on the assumption that account balances reflect actual extraction, but they only reflect orders up until such a time as an account reconciliation is performed. This is due to a lack of metering infrastructure (telemetry) and reporting requirements during the audit period, as well as the limited practicality of field officers going into the field to read meters. In general, extraction data is reconciled against orders in WAL holder accounts every three months. This means that when a dealing occurs, there is the potential for WAL holders to trade water that would not have been held in their account should the extraction have been reconciled against orders. This may result in negative account balances for some WAL holders. It is noted, however, that the application form for 71T and 71V dealings requires the applicant to confirm that there is sufficient water available in the relevant licence’s water allocation account to proceed with the application.

³⁰⁵ NSW Registrar General Guidelines (n.d.) [NSW Land Registry Services – Water Dealings s. 71M](#); NSW Registrar General Guidelines (n.d.) [NSW Land Registry Services – Water Dealings s. 71N](#); NSW Registrar General Guidelines (n.d.) [NSW Land Registry Services – Water Dealings](#)

The Commission considers that accounts are managed in accordance with Plan rules within the constraints of imperfect information. Given the complexities of metering reform, it may take some time for more accurate metering information. This means that additional controls are needed in the interim.

The Commission considers the intent of the Act³⁰⁶ is that WAL holders do not take water that is otherwise not allocated to them and imperfect information available to support account management should not be used by WAL holders to inadvertently or deliberately draw account balances below zero (if all transactions were processed in real time). WAL holders should be accountable for their own take.

To incentivise WAL holders not to trade water that is in excess of their available water, the Commission suggests that WaterNSW reconcile accounts prior to undertaking a dealing transaction. This reconciliation could be supported by updating the application form and associated amendment request forms to include a requirement for the applicant to include a meter read (where telemetry is not available). The Commission makes this suggested action given that it may not be practical:

- for Customer Field Officers to take a meter reading to support every trade application
- for all telemetry to be available now or in the near future or for 100 percent of WAL holders at all times to support trades.

The Commission has requested and not yet received information in relation to how often and to what degree this occurs, where WAL holders are in a negative balance as a result of the trade being processed, once the account is reconciled.

The Commission raises one suggested action.

SA8.1	WaterNSW to reconcile accounts prior to undertaking a dealing involving assignment of water allocations between access licences.
--------------	--

³⁰⁶ Section 71T(3) in the Act requires only that '*Such an application may only be made with respect to water allocations currently credited to the water allocation account for the access licence from which water allocations are to be assigned*'. While this does not specify that a user should not go into a negative account balance, the Commission considers that the intent of the Act is that accounts are managed as closely as possible to reality, though practically we know that we do not have perfect information to support account management. Section 60C of the Act supports this stating that user are committing a Tier 1 penalty offense if they are '*Taking water for which there is no, or insufficient, water allocation:*
(1) *Offences involving allocations under a single access licence A person who takes water from a water source to which this Part applies otherwise than in accordance with the water allocation for the access licence by which the taking of water from that water source is authorised and—*
(a) *who intentionally or negligently fails to ascertain whether the taking of water is in accordance with the water allocation, or*
(b) *who knows or has reasonable cause to believe that the taking of the water is not in accordance with the water allocation*'.

13 Criterion 9 – Mandatory conditions

13.1 Criterion overview

Part 11 of the plans sets out provisions describing the mandatory conditions that WALs and water supply work approvals must include (where required):

- mandatory conditions for access licences generally relate to water allocation and access rules, including access to supplementary and uncontrolled flows, taking of water, notification of breaches, and keeping of logbooks and other conditions on licence holders (Clause 56 in the Namoi plan, Clause 55 in the Gwydir and Macquarie plans)
- mandatory conditions for water supply work approvals generally relate to rules for appropriate installation of works metering equipment, decommission of a work, notification of breaches of conditions and logbook requirements (Clause 57 in the Namoi plan, Clause 56 in the Gwydir and Macquarie plans)
- Mandatory conditions for WaterNSW water supply work approvals to give effect to system operations rules and daily access rules as set out in Part 3, 6, 9 and 12 of the plans (Clause 57(3) in the Namoi plan, Clause 56(3) in the Gwydir and Macquarie plans)
- mandatory conditions in relation to metering requirements under Part 10 of the Regulation.

Enforcement requirements are set out in the Act, specifically:

- Part 2 Division 1A, sections 61A to 60I (offences relating to WALs)
- Part 3 Division 1A, sections 91A to 91N (offences relating to water supply work approvals)³⁰⁷
- Section 78 (WAL suspension)
- Chapter 7 (enforcement for example stop work orders, removal of unlawful water management works).

To be given effect, mandatory conditions rely on:

- adequate registering of WALs
- mandatory conditions reflecting the correct provisions in the plan on a licence or water supply work approval (approval)
- a compliance and enforcement regime promoting compliance by approval and WAL holders with the obligations set out in the conditions on the approvals and WALs.

In relation to the first dot point above, registering WALs and notifying landholders of mandatory conditions were considered critical components of previously assessed criterion and issues around these provisions are discussed in **Chapter 9** (in relation to granting access licences) and **Chapter 11** (in relation to water supply work approvals). In particular, the assessment of Criterion 5 and Criterion 7 found that notification of mandatory conditions had been delayed or had not occurred in the plan areas, meaning relevant provisions were not given effect or were given delayed effect.

This chapter focusses on the accuracy of the mandatory conditions themselves in reflecting Plan provisions, as well as the enforcement regime.

³⁰⁷ Note that offences under sections 91C, 91D and 91E of the Act are not relevant to the plans.

13.2 Current roles, systems and processes

A summary of roles for organisations is as follows:

- **DPE-Water** is responsible for creating, entering and coding the mandatory conditions into the WLS (since September 2019) and placing conditions on licences and approvals.³⁰⁸ This includes identifying the licences and water sources rules apply to and assessing if a condition is required to give effect to the rules. Prior to this, the function was at various times carried out by NRAR and DPE-Water predecessor organisations.
- **WaterNSW** is responsible for imposing mandatory conditions on a WAL and approval holders in accordance with sections 66(1)³⁰⁹ and 100³¹⁰ of the Act for its customers.³¹¹ Also currently responsible for notifying licence and approval holders upon the commencement of a new plan under the Act, conversions of rights under Schedule 10(2) or changes to or remakes of water sharing plans under the Act.³¹² Prior to this, the responsibility sat with DPE-Water predecessors or NRAR.
- **NRAR** was responsible for ensuring WALs and approvals for major water utilities and WaterNSW reflect Plan provisions including drafting and coding conditions as required (together with DPE-Water). Since the audit period in early-2022 this role has moved to DPE-Water. NRAR was and remains responsible for enforcement of WALs and water supply work approvals that give effect to plan provisions through their mandatory conditions. NRAR took over these responsibilities in April 2018, prior to this, DPI-Water and WaterNSW were responsible. Regardless of compliance behaviours, in a particular plan area, it has been recognised as important to have adequate enforcement capabilities and arrangements in place by the NSW Ombudsman (2018). The *Natural Resources Access Regulator Act 2017* objects are to: 10(a) to ensure effective, efficient, transparent and accountable compliance and enforcement measures for the natural resources management legislation, and 10(b) to maintain public confidence in the enforcement of the natural resources management legislation.
- **Land Registry Services** – maintains the WAL register under Section 71 of the Act, which provides an online record of every WAL in NSW and its associated dealings including the activation of any water supply work approval under a specific WAL. This gives effect to WALs and water supply works approvals, a pre-requisite for mandatory conditions to be assigned and given effect.

³⁰⁸ [Roles and Responsibilities Agreement: DPIE, NRAR and WaterNSW](#), Executed 30 June 2021.

³⁰⁹ State of NSW (n.d.) [WaterNSW Operating Licence 2017-2022](#)

³¹⁰ State of NSW (n.d.) [WaterNSW Operating Licence 2017-2022](#), p 53.

³¹¹ NRAR (n.d.) [Licensing and approvals](#) states that NRAR is responsible for granting approvals to government agencies, including other NSW government agencies, local councils and the Commonwealth; state owned corporations; major water utilities, water supply authorities, and local water utilities; licensed network operators under the *Water Industry Competition Act 2006*; mining companies; irrigation corporations; Aboriginal communities and businesses; floodplain harvesting; major developments (state significant developments and state significant infrastructure); schools and hospitals; and that WaterNSW is responsible for granting approvals to rural; landholders; rural industries and developments which are not state significant development or state significant infrastructure.

³¹² [Roles and Responsibilities Agreement: DPIE, NRAR and WaterNSW](#), Executed 30 June 2021.

The following systems are used to administer and manage the implementation of mandatory conditions:

- **WLS** – used by WaterNSW and NRAR to apply mandatory conditions to WALs and water supply work approvals. It generates the statement of approval, statement of conditions, the notice of decision and the cover letter that are sent to the licence and approval holders. These documents include the relevant mandatory conditions.
- **NSW Water Register** – operated by WaterNSW, this system makes WALs and work approvals available to the public including their respective mandatory conditions.
- **WAL Register** – operated by Land Registry Services, this system is used to register WALs under Section 71 of the Act.
- **Compliance Investigation Reporting and Management System (CIRaM)** – used by NRAR for compliance purposes.

The main procedural and process documents used by WaterNSW, DPE-Water and NRAR to implement mandatory conditions are:

- **The Licensing Procedure Manual**, specifically:
 - Chapter 8 Conditions provides information in relation to translating provisions into mandatory conditions in WLS for use by approval officers in WaterNSW and NRAR.
 - Section 3.4.1 – relates to processing and assessing an application for a water supply work and states that WAL must include mandatory conditions which are those set by the Minister through the Act or relevant water sharing plans.
 - Section 1.5.2 – relates to issuing approvals and states that mandatory conditions will display on screen (in WLS) and be automatically added to the statement of approval based on the location and the rules within the relevant water sharing plan.
- **The Compliance Investigations Manual** - used by NRAR to respond to compliance allegations. It is the primary reference for NRAR investigations staff and sets out the approved processes, procedures and authorities for investigating alleged breaches of water regulations. It is not clear what procedures were followed by agencies responsible for compliance before NRAR was established in April 2018.

The Commission considers there were adequate systems, processes and procedures in place to support implementation of Plan provisions relating to WALs and water supply work approvals within the audit period.

13.3 Rules for mandatory conditions have been partially implemented

Mandatory conditions provisions were accurately translated to WALs and water supply work approvals, with some exceptions in relation to WALs

To assess if plan provisions were given effect, the Commission sampled a range of WALs applied for and granted in the audit period.

Plan provisions were largely translated across to mandatory conditions in WALs accurately to give effect to requirements, with some material exceptions as set out below.

Firstly, mandatory conditions to give effect to provisions relating to WAL holder entitlements, for example carryover provisions were not included on relevant WALs. Specifically, Clause 56(2)(d) in the Namoi plan, Clause 55(2)(d) in the Gwydir and Macquarie plans were not given effect.

Secondly, mandatory conditions to give effect to provisions relating to the volume limits that may be taken or assigned from Regulated River (General Security) WALs were not included on relevant WALs. Specifically, Clause 56(6)(b) in the Namoi plan, Clause 55(5) in the Gwydir plan, (which give effect to Clause 32 in the plans) were missing on relevant WALs.

Thirdly, mandatory conditions to give effect to provisions relating to the taking of water not to exceed the remaining water allocation were not included on relevant WALs. Specifically, Clause 56(2)(e) in the Namoi plan, and Clause 55(2)(e) Gwydir and Macquarie plans were not given effect.

Plan rules of 'dam wall debiting'³¹³ may incentivise WAL holders to pump more than is ordered. Accounts with negative account balances are detected and reconciled on a quarterly basis, allowing users to overdraw their accounts for up to this period of time. This may result in inequities in the system. WaterNSW WAS records instances of over-pumping through comparisons with water orders and extraction records. The current metering infrastructure does not support comprehensive real time monitoring and accounting, so accounts are reconciled on average every few months from information gathered from WaterNSW officers taking manual meter reads for example.

Delayed account reconciliation has implications not just for over-pumping, but also for temporary trade dealings (Section 71T of Act). Currently a WAL holder can potentially take water to trade, without adequate water remaining in their account had their extraction or take to support trades been taken into account at the point the dealing was undertaken (see **Chapter 12**).

A proactive and reactive compliance and enforcement regime is in place

There is an enforcement regime in place to support implementation of the plans:

- Approvals – monitoring of offences under sections 91A-91N the Act and associated enforcement of mandatory conditions in accordance with sections 78 and 78A and Chapter 7 of the Act
- WALs (extraction) – monitoring of offences under sections 60A-60I the Act and associated enforcement of mandatory conditions in accordance with Chapter 7 of the Act.

In relation to compliance and enforcement, the *Natural Resources Access Regulator Act 2017* specifically provides that NRAR's priorities are to be set independently. These regulatory priorities are reviewed on a regular basis and published.³¹⁴

Regulatory priorities for the March 2019- March 2021 period included unauthorised water extraction and unauthorised controlled activities³¹⁵ in locations of high ecological and hydrological value. The Gwydir and Macquarie valleys were identified as very high and high priority areas respectively for regulatory activities.³¹⁶ Key regulatory priority projects covering the Gwydir and Macquarie plans included:

³¹³ Clause 42 in the plans defines how water take is to be accounted for WALs. In the Lower Namoi and the Gwydir, this accounting method is referred to as 'dam wall debiting', simply meaning that a WAL account is debited based on orders made by a water user, with no crediting back to an account if a water user does not extract the volume of water ordered.

³¹⁴ NRAR (2019) *Natural Resource Access Regulator Regulatory Priorities 2019 – 2021*. Available at: https://www.industry.nsw.gov.au/__data/assets/pdf_file/0020/227324/NRARs-regulatory-priorities-2019-to-2021.pdf.

³¹⁵ Unauthorised controlled activities are actions carried out on waterfront land, as defined in the Act. Examples of controlled activities include: modification to a watercourse such as channel realignment; construction of watercourse crossing and bed control measures. See NRAR (n.d.). What is a controlled activity? Available at: <https://www.nrar.nsw.gov.au/how-to-apply/controlled-activities/what-is-a-controlled-activity>.

³¹⁶ NRAR (2019) *Natural Resource Access Regulator Regulatory Priorities March 2019 – March 2021*.

- development of a compliance program to prevent and detect unauthorised water take during the release of environmental flows
- monitoring of compliance with the NSW non-urban water metering policy.³¹⁷

For the 2021-2022 period, regulatory priorities relevant to the Namoi, Gwydir and Macquarie plans were as follows:

- NSW non-urban water metering reforms
- overdrawn accounts and over pumping
- accurate accounting of water take
- protecting Aboriginal cultural and spiritual values in water regulation
- activities that cause harm to the environment of other water users.³¹⁸

NRAR launched its routine monitoring program in October 2020 to create a snapshot of NSW's water users level of compliance with the water laws.³¹⁹ This program aims to observe water management practices, build positive relationships with water users and gather data on compliance rates to inform future compliance campaigns.³²⁰ To date the program has provided insights in relation to:

- take of water in line with plan rules including requirements for water ordering or extraction limits
- limiting water use to licence or basic landholder rights restrictions such as water used for stock and domestic purposes
- the monitoring and reporting of water take via meter installation or logbook.³²¹

As at August 2021, rates of compliance³²² of water users in regions (inclusive of plan areas) were:

- Namoi: 66 percent
- Gwydir: 74 percent
- Macquarie: 76 percent.

Regarding overdrawn accounts, the Macquarie and Gwydir plan areas were considered very high priority for this assessment.³²³ The proactive campaign has been targeting water users in the regulated river systems who have pumped more water than they have ordered and paid for and those who have taken water in excess of their allocation balance. As part of the campaign, NRAR visits water users who have overdrawn their accounts, explains the harm done by the

³¹⁷ NRAR (2019) *Natural Resource Access Regulator Regulatory Priorities 2019 – 2021*. Available at: https://www.industry.nsw.gov.au/__data/assets/pdf_file/0020/227324/NRARs-regulatory-priorities-2019-to-2021.pdf.

³¹⁸ NRAR (2021) *Natural Resources Access Regulator Regulatory Priorities 2021-2022*. Available at: https://www.nrar.nsw.gov.au/__data/assets/pdf_file/0011/387902/nrar-regulatory-priorities-2021-22.pdf.

³¹⁹ NRAR (n.d.) *Routine monitoring campaign*. Available in: <https://www.dpie.nsw.gov.au/nrar/about-us/what-we-do/routine-monitoring>.

³²⁰ NRAR (2021) *NRAR routine monitoring staff travelled twice the distance of the globe and found the most troublesome compliance issue*. Available at: <https://www.industry.nsw.gov.au/water/news/nrar-routine-monitoring-staff-travelled-twice-the-distance-of-the-globe-and-found-the-most-troublesome-compliance-issue>.

³²¹ NRAR (2021) *Progress report 2020-2021*. Available at: https://www.nrar.nsw.gov.au/__data/assets/pdf_file/0006/477015/NRAR-progress-report-2020-21.pdf.

³²² Compliance is determined to be compliance of water users against the specific NSW water rules of focus for the routine monitoring program. Note this is not specific to plan areas, but reflect regional scale results. See NRAR (2021) *NSW water regulation – NRAR quarterly compliance report, Jan-Mar 2021*. Available at: https://www.dpie.nsw.gov.au/__data/assets/pdf_file/0004/386518/nrar-quarterly-jan-mar-2021.pdf.

³²³ NRAR (2020) *Progress report 2019-20 - Monitoring & Auditing*, p 45. Available at: https://www.industry.nsw.gov.au/__data/assets/pdf_file/0009/324909/nrar-progress-report-2019-20.pdf.

practice, finds out why it is occurring and encourages voluntary compliance. Consequences for not complying have included penalty notices, directions to install a meter and directions to bring accounts into compliance or referral to Investigations for possible further action.³²⁴

NRAR has reported on its compliance activities and outputs quarterly since the third quarter in 2019.³²⁵ These reports detail the number of investigations received and finalised and the regulatory action taken by NRAR including such as issuing a formal warning, statutory notice or penalty notice. These regional compliance reports also outline the offences that have occurred during the period and may include unauthorised controlled activities; failure to comply with a NRAR notice or direction; water take and metering offences; and licence based offences.³²⁶ A summary of findings in relation to regulatory action taken by NRAR across the northern plans can be found on the NRAR website.³²⁷

13.4 Potential impacts

Not including the correct mandatory conditions in the terms of the water supply work approvals and WALs risks uncontrolled take and installation and use of works that may impact directly on other water users and the environment.

Without mandatory conditions in place, WAL and approval holders are not obligated to comply with the plans. NRAR (and its predecessors) cannot undertake enforcement activity should there be instances of non-compliance.

The plan provisions are primarily implemented through water users complying with mandatory conditions. Without mandatory conditions, the plans cannot be given effect. The Commission notes that it was out of scope for this audit to comment on the adequacy of the provisions for mandatory conditions in the plans.

We understand that it may be duplicative of requirements in higher instruments to apply Clause 56(2)(e) in the Namoi plan and Clause 55(2)(e) in the Gwydir and Macquarie plans as a mandatory condition. This is due to Section 60C of the Act outlining that it is an offence to take water for which there is no or insufficient water allocation. However, the Commission has observed that mandatory conditions associated with the metering reform set out in Regulation Part 10 were applied to WALs. This indicates that the current approach in some cases is to reiterate requirements in higher instruments on WALs or work approvals to assist users to understand what is required.

Given this inconsistency in approach, it may be difficult for a WAL holder to determine which requirements they would expect to see as conditions on their WAL and which ones they would be expected to find in the Act or the Regulation.

The Commission notes that there are no similar higher instruments that speak to WAL holder entitlements (Clause 56(2)(d) in the Namoi plan, and Clause 55(2)(d) in the Gwydir and Macquarie plans) or volume limits for regulated river (general security) WAL holders (Clause 56(6)(b) in the Namoi plan, and Clause 55(5) in the Gwydir plan), with this currently managed by WaterNSW via the WAS. As Section 66(1AA) and 100(1AA) of the Act indicate that

³²⁴ NRAR (2021) *Quarterly compliance report – January to March 2021*, p 11. Available at:

https://www.dpie.nsw.gov.au/__data/assets/pdf_file/0004/386518/nrar-quarterly-jan-mar-2021.pdf.

³²⁵ NRAR (n.d.) *Quarterly compliance reports by region*. Available at: <https://www.dpie.nsw.gov.au/nrar/progress-and-outcomes/qrt-reports/regional-compliance-breakdown>.

³²⁶ NRAR (various dates) *Regional compliance breakdown*. Available at: <https://www.nrar.nsw.gov.au/progress-and-outcomes/qrt-reports/regional-compliance-breakdown>.

³²⁷ NRAR (various dates) *Compliance activities and outputs by region – interactive dashboard*. Available at: <https://www.dpie.nsw.gov.au/nrar/progress-and-outcomes/qrt-reports/regional-compliance-breakdown>. The Commission has searched the dashboard to determine relevant quarterly compliance statistics for the Namoi, Gwydir and Macquarie plans.

mandatory conditions do not have effect unless included in the terms of the licence, the Act or the Regulation, the Commission views that management via the WAS is insufficient according to current legislative instruments.

13.5 Recommendations

The Commission makes three recommendations to address gaps to legislative requirements.

The Commission notes that recommendations have already been raised in **Chapter 11** in relation to notifying users of mandatory conditions. These recommendations are applicable to this criterion, but not repeated here.

R9.1.1	<p>DPE-Water to prepare relevant conditions for WALs to ensure all relevant mandatory conditions to the plans are adequately addressed. This includes:</p> <ul style="list-style-type: none"> ▪ Clause 56(2)(d) in the Namoi plan, and Clause 55(2)(d) in the Gwydir and Macquarie plans, which relate to WAL holder entitlements. ▪ Clause 56(6)(b) in the Namoi plan, and Clause 55(5) in the Gwydir plan to give effect to Clause 32 in the plans, which relates to the volume limits that may be taken or assigned from Regulated River (General Security) WALs.
R9.1.2	<p>DPE-Water to place relevant mandatory conditions (as set out in R9.1.1) on the WALs in the licencing and approval system.</p>
R9.1.3	<p>Upon implementation of R 9.1.1 and R 9.1.2, WaterNSW to notify all relevant WAL holders to give effect to the mandatory conditions and Section 100(1A) of the Act.</p>

The Commission notes that the Mandatory Conditions Team at DPE-Water is currently not involved in the water sharing planning stage. While this does not inhibit the implementation of plans, early collaboration between the planning and mandatory conditions teams can result in practical input to the development of the mandatory conditions and reduce or prevent rework during the implementation of the plans.

The process that WaterNSW and DPE-Water assessing officers should follow in relation to the addition of mandatory conditions on a case by case basis to new or amended individual WALs or approvals is not clear. This means that there is a risk that assessing officers may miss mandatory condition that are applicable on a new application for an approval or they may add them as discretionary conditions, which are subject to objections by applicants (not in line with the intent of mandatory conditions).

WaterNSW and DPE-Water are currently updating procedures and WaterNSW is updating the WLS system. There is an opportunity to incorporate any changes made as part of improving this process into WLS and procedural updates in WaterNSW and DPE-Water.

This should include setting up a process to communicate clearly with DPE-Water and WaterNSW those conditions omitted at plan commencement that are applicable to some approvals or WALs that need to be considered and added as mandatory conditions on a case by case basis for each plan. The Commission has previously raised this issue so does not raise any further recommendations.

The Commission makes two suggested actions in relation to this Criterion.

Given the delayed reconciliation of accounts, and the opportunity to over-pump or undertake a trade in between account reconciliations (every few months), we suggest that WaterNSW provide NRAR with WAS output data to show instances of over-pumping on a regular basis. This will support NRAR in taking compliance action in relation to water users extracting more water than has been ordered in line with its regulatory priority of overdrawn accounts and over pumping.

The Commission's audit has only examined evidence in relation to over-pumping in the Lower Namoi and in the Gwydir plans due to plan rules potentially incentivising certain behaviour. The Commission has not looked at over-pumping resulting from different drivers for illegal take. The Commission considers that this issue should be examined across all plan areas.

SA 9.1	WaterNSW to provide NRAR with regular output from the Water Accounting System showing instances of over-pumping.
---------------	--

DPE-Water may wish to consider a more streamlined approach to implementing mandatory conditions in line with regulatory practice adopted in other areas. A potential suggestion may include only listing key individual details (for example the WAL or work approval number, the extraction and or share component and water source) on a WAL and or work approval and refer to the Regulation for all other conditions. This would require the mandatory conditions provisions included water sharing plans to be written in such a way that the conditions can be clearly understood by water users, and that these be incorporated in the Regulation (triggering sections 66(1AA) and 100(1AA) of the Act). This approach would reduce administration costs and effort in both DPE-Water and in WaterNSW in coding, applying and notification of conditions to WAL holders, and reduce errors that are incurred along the way. Some of these observed gaps potentially stem from translating plan provisions into conditions for a large number of WALs and work approvals. The Commission considers that implementation of a strategic approach to application of higher instruments on WALs is warranted to improve transparency of WALs conditions for licence holders.

SA9.2	DPE-Water to consider a strategic approach for applying mandatory conditions which are already included in higher instruments such as the Act and Regulation. Conditions could include a rewrite of provisions of higher instruments, reference specific relevant higher instruments or they should be omitted. This approach should be uniformly adopted and accompanied with an education campaign to inform WAL and approval holders what to expect.
--------------	---

14 Criterion 10 – Amendments

14.1 Criterion overview

Section 45(1) of the Act allows for water sharing plans to be amended under specific conditions. Part 14 of the plans³²⁸ includes amendment provisions. While none of the plans contain mandatory amendment provisions, they all contain provisions that allow the plans to be amended for specified reasons (non-mandatory amendments). As such, the Commission has focused on non-mandatory amendment provisions and assessed if they have been given due consideration.

14.2 Current roles, systems and processes

DPE-Water is responsible for implementing amendment provisions and updating plans as required under Section 42 of the Act. The Minister for the Environment must concur with proposed amendments as required under Section 45(3) of the Act.

There are currently no procedures, systems or process used to track decision making and progress against amendments identified in water sharing plans. There is no trigger identified for documenting decisions made, studies undertaken or required actions for implementation.

The Commission considers there are not adequate systems, processes or procedures in place to support implementation of amendment provisions within the audit period.

14.3 Non-mandatory amendment provisions were given due consideration

The Commission reviewed the non-mandatory amendment provisions and evidence of non-mandatory amendments that occurred during the audit period. Some non-mandatory amendments were made for these plans however they were largely administrative. Others were not triggered.

The Commission did not identify any instances where non-mandatory amendments should have been made but were not implemented. Therefore, the Commission concludes that although adequate systems and processes were not in place, this did not have a material impact during the audit period.

14.4 Recommendations

Previous Commission audits have found instances where potentially relevant amendments were not implemented due to a lack of clear systems, processes and procedures to trigger and track non-mandatory conditions.³²⁹

DPE-Water has indicated that it is progressing work on a database that will incorporate plan amendment documentation (current registers and spreadsheets) inclusive of regulated river plans. DPE-Water is also progressing an implementation manual, which includes an amendment theme. This will set out processes and responsibilities and may ultimately replace internal process documents. The Commission does not see the need to repeat recommendations it has made in previous audits here and therefore makes no recommendations in relation to amendment provisions of the plans.

³²⁸ Clause 64 in the Gwydir Plan, Clause 65 in the Macquarie Plan and Clause 66 in the Namoi Plan.

³²⁹ Natural Resources Commission (2022) [Water management plan audits](#)

Appendix A – Water supply works in the Namoi, Gwydir and Macquarie plans

Table A.1: Authorised water supply works for the Namoi, Gwydir and Macquarie plans as listed in the Statement of Approval

Plan	Authorised water supply works
Namoi	<ul style="list-style-type: none"> Keepit Dam Split Rock Dam Mollee weir Gunidgera weir and regulator Knights weir and regulator Weeta weir
Gwydir ³³⁰	<ul style="list-style-type: none"> Copeton Dam Booloroo weir Carole Creek regulator Combadello weir Gundare bridge and regulator Mallowa Creek regulator Mongyer Lagoon block dam and regulator Tareelaro weir and regulator Tyreel weir and regulator
Macquarie	<ul style="list-style-type: none"> Burrendong Dam Windamere Dam Belaringar Creek Regulator Bulgeraga channels No. 1, 2 and associated structures; channel regulator No. 1; regulator (at bifurcation) Crooked Creek regulator and fishway Cudgegong weir Dubbo weir Duck Creek channels No. 1, 2, regulator and fishway Gin Gin weir Gum Cowal channel regulator and cutting Gunningbar Creek weir, fishway and offtake regulator Marebone Break and regulators 1 No. 1 and 2 Marebone weir, fishway and outlet regulator; weir cutting and block dam Marra Channel and associated structures and regulator Marra Creek (offtake) regulator Monkeygar breakaway weir No. 1 North Macquarie Marsh channel and associated structures including under passes, culverts and regulators Reddenville Break, block dam and regulator Warren weir and fishway

³³⁰ Medgun Creek regulator has not been included in Table despite being an authorised water supply works as it is a decommissioned water supply work.