



WaterNSW 2023 compliance audit

# Report to the Minister

March 2024

Water >>



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We recognise the unique cultural and spiritual relationship and celebrate the contributions of First Nations peoples.

## **Tribunal Members**

The Tribunal members for this report are:

Carmel Donnelly PSM, Chair  
Jonathan Coppel

Enquiries regarding this document should be directed to a staff member:

Jonathan Hopson (02) 9019 1915  
Leonie Huxedurp (02) 9019 1928

Members of the Secretariat for this report are:

Jonathan Hopson, Leonie Huxedurp and Shweta Shrestha

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# Contents

<b>Summary</b>	<b>4</b>
WaterNSW's operational performance in 2023	4
Key findings from the 2023 audit	4
Previous audit findings	5
<b>1 Introduction</b>	<b>6</b>
1.1 Annual statement of compliance	6
1.2 Audit scope	7
<b>2 Audit findings and recommendations</b>	<b>8</b>
2.1 Audit findings and recommendations summary	9
<b>3 Progress on previous audit findings</b>	<b>19</b>
<b>A Compliance grades</b>	<b>21</b>
<b>B WaterNSW's statement of compliance</b>	<b>22</b>
<b>C Audit process</b>	<b>25</b>
C.1 2023 audit scope	25
C.2 2023 audit plan	27
<b>D 2023 audit scope</b>	<b>28</b>
<b>E Audit findings for IPART checked conditions</b>	<b>54</b>
<b>F Auditor's report</b>	<b>56</b>

## Summary

This is our compliance report to the Minister for Water (Minister) under section 58 of the *Water NSW Act 2014* (Act). This report considers WaterNSW's compliance with its operating licence 2022-2024 (Licence) from 1 September 2022 to 30 June 2023 as tested by an operational audit.

### WaterNSW's operational performance in 2023

WaterNSW was cooperative throughout the audit process, demonstrating a culture and commitment to compliance. Of the 49 clauses we audited, we assigned either Compliant or Compliant (minor shortcomings) grades to 43 clauses. We note however, that there are opportunities for WaterNSW to improve compliance with implementation of aspects of its Water Quality Management System (WQMS) in addition to other matters.

### Key findings from the 2023 audit

WaterNSW demonstrated a high overall level of compliance with the audited Licence obligations during the audit period. WaterNSW was Compliant with 40 of 49 audited obligations. There was No Requirement for WaterNSW to comply with 1 of the 49 audited Licence clauses during the audit period.

WaterNSW was Non-Compliant (non-material) with 5 Licence obligations as follows:

Three Non-Compliances related to WaterNSW's implementation of its WQMS as follows:

- WaterNSW had not fully addressed the *Australian Drinking Water Guideline* (ADWG) requirements for both the declared and non-declared catchments (clauses 2.1.1 and 2.1.2).
- WaterNSW had not conducted formal debriefs within the timeframe required under its WQMS. The auditors also found that some improvements were not tracked through WaterNSW's Water Quality Improvement Plan and some planned assurance activities were substituted without evidence of senior management awareness (clause 2.1.3).
- One Non-Compliance related to WaterNSW's requirement to notify the Minister that future demand for bulk water may exceed system yield. WaterNSW erroneously considered that this aspect of the Greater Sydney water supply augmentation planning function was transferred from WaterNSW to Sydney Water on 31 January 2021 via Ministerial direction (clause 2.5.2(b)).
- The other Non-Compliance related to WaterNSW's obligation to comply with the Greater Sydney Water Strategy (GSWS) data sharing agreement following the finalisation of the GSWS (clause 2.8.8(b)). Following the release of GSWS WaterNSW mistakenly ceased sharing information (required for the development of the GSWS) with the Department.

WaterNSW was Compliant (minor shortcomings) with 3 obligations relating to:

- its asset management system.
- its environmental management system.

- the memorandum of understanding with the Natural Resources Access Regulator (NRAR).

We made 15 recommendations to address the deficiencies and shortcomings identified.<sup>a</sup> We have discussed the audit findings and recommendations in Chapter 2.

## Previous audit findings

The audit also followed up WaterNSW's progress in addressing 3 outstanding recommendations related to non-compliances or shortcomings identified in previous audits. WaterNSW has fully addressed the 3 outstanding recommendations. Our discussion of WaterNSW's progress with previous recommendations is presented in Chapter 3.

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<sup>a</sup> Auditors are only required to make recommendations for grades other than Compliant grades – that is for Compliant (minor shortcomings), Non-compliant (non-material) and Non-compliance (material) grades. This is consistent with our audit guideline for public water utilities ([Guideline – Public Water Utility, July 2023](#)).

# 1 Introduction

WaterNSW is a State-Owned Corporation established under the *Water NSW Act 2014* and a monopoly service provider that provides two-thirds of the water used in NSW to its customers across the state. Amongst other things, WaterNSW manages and operates the bulk water supply system for Greater Sydney, manages and operates the Fish River Water Supply Scheme (FRWSS) and supplies NSW's bulk water needs outside of Greater Sydney. It operates under the NSW Government issued WaterNSW Operating Licence 2022-2024 (Licence) which outlines obligations and standards for the provision of safe and reliable services.

We conduct annual audits of WaterNSW's compliance with its Licence to assess if WaterNSW is meeting its obligations.

This report summarises the findings and recommendations of the 2023 audit.

## 1.1 Annual statement of compliance

In preparing this report we have also considered WaterNSW's annual Statement of Compliance (Appendix B). The Statement of Compliance is an exception-based report certified by WaterNSW's Chief Executive Officer and the Chair of the Board of Directors. It provides details of any identified non-compliances and explains any remedial action WaterNSW has taken, or is taking, to resolve outstanding non-compliances.

In 2022-23, WaterNSW self-identified a non-compliance with Item 8 of Schedule A to the Memorandum of Understanding for Information Sharing between WaterNSW and the former Department of Planning, Industry and Environment. Under this Item, WaterNSW is required to provide monthly extracts of specified flows, storage and pumping information to the Department.

WaterNSW ceased to share the above information with the Department once the work required to develop the Greater Sydney Water Strategy (GSWS) was completed. It was WaterNSW's understanding that the data was no longer required in real time once the GSWS was published. The GSWS was published on 29 August 2022. Therefore, WaterNSW considered itself to be non-compliant from 30 August 2022 onwards (i.e., including the audit period). The auditors checked this clause and concluded that it was a non-material non-compliance on the basis of correspondence from the Department to WaterNSW. This correspondence confirmed that the Department was satisfied that WaterNSW had responded to all data/information requests and had acted fully in the spirit of the MOU.

WaterNSW self-reported another minor non-compliance whereby a 6<sup>th</sup> customer out of an allowable 5, was not contacted within a designated timeframe of one working day after placing a non-complying water order. The customer was contacted to rectify the non-complying water order within 4 days of placing it. We did not require the auditors to check compliance against this obligation. This performance target is under review in WaterNSW's Operating Licence review.

## 1.2 Audit scope

In 2023, we audited WaterNSW's compliance with 49 clauses of the Licence. We engaged a specialist auditing firm, Stantec, in association with Atom Consulting, to audit 31 Licence clauses and we audited the other 18 clauses.

The audit covered the period from 1 September 2022 to 30 June 2023. Appendix C describes the audit process and Appendix D includes the detailed audit scope.

## 2 Audit findings and recommendations

This chapter sets out the audit findings relating to non-compliances and compliances with minor shortcomings. Our assessment of the Licence clauses that we checked is in Appendix E. The auditor's report is provided at Appendix F.

Where we found WaterNSW non-compliant or compliant with minor shortcomings with a clause, we have made recommendation(s) as to how to address the non-compliance and minor shortcomings.

Section 7.1.3 of our Reporting Manual<sup>1</sup> requires WaterNSW to report on its progress in implementing these recommendations by 30 April each year (or, if we agree, a later date).

The 2023 audit is the second audit of WaterNSW's compliance with the requirements of the current Licence however the 2022 audit had a reduced scope with considerably fewer clauses audited compared to 2023.

Table 1 shows the percentages of audit findings for each audit grade during the Licence term. The number of clauses that we audited varies from year to year reflecting our risk based approach to auditing.

Table 1 Percentages of audit findings for the 2022-2024 Licence






Compliance grades	2022 (24 clauses audited)	2023 (49 clauses audited)
 Compliant	79%	82%
 Compliant (minor shortcomings)	13%	6%
 Non-Compliant (non-material)	0%	10%
 Non-Compliant (Material)	0%	0%
 No Requirement	8%	2%

Table 2 provides a comparison of non-compliance and compliance with minor shortcomings audit findings across audits during the 2022-2024 Licence term. Table 2 does not include all the Licence clauses where WaterNSW has been Compliant when audited during the Licence term. It also does not include clauses assigned No Requirement grades,

While some clauses relating to WaterNSW's WQMS appear to have deteriorated between the 2 audit periods, we note that the deficiencies identified in the 2023 audit were unrelated to the shortcomings identified in the same clauses of the 2022 audit. These clauses relate to WaterNSW's WQMS which comprises many elements. For example, there are 12 elements under the ADWG.



Table 2 Comparative record of non-compliant and compliant with minor shortcomings findings for the 2022-2024 Licence

Licence clause	Requirement	Compliance grade <sup>a</sup>	
		2022 <sup>b</sup>	2023
2.11	Maintain a WQMS (Declared catchment areas) consistent with specified requirements		
2.12	Maintain a WQMS (Non-Declared catchment areas) consistent with specified requirements		
2.13	Fully implement relevant WQMSs and carry out all relevant activities consistent with WQMSs		
2.5.2	Advise the Minister of any changes or potential exceedances to the System Yield	-	
2.8.8	Maintain and comply with a Greater Sydney Water Strategy (GSWS Data Sharing Agreement) with DPE <sup>b</sup>	-	
5.1.2	Fully implement and carry out activities in accordance with the AMS	-	
5.2.2	Fully implement and carry out activities in accordance with the EMS		
6.16.1	Use best endeavours to maintain and comply with an MoU with NRAR .	-	

Note 1: - Compliant; - Compliant (minor shortcomings); - Non-Compliant (non-material); - Non-Compliant (material)

Note 2: The 2022 audit period was for 1 September 2021 to 31 August 2022.

Sources: IPART, *WaterNSW's compliance with its operating licence 2021-2022 – Report to the Minister*, March 2023; Cobbitty Consulting, *2022 Operational Audit of WaterNSW*, February 2023 (contained at Appendix E of WaterNSW's compliance with its operating licence 2021-2022 – Report to the Minister).

## 2.1 Audit findings and recommendations summary

Table 3 provides details of non-compliances and compliances with minor shortcomings identified in the audit. It also includes details of our recommendations to address these deficiencies. IPART will test the extent to which recommendations have been addressed in the next annual audit of WaterNSW's compliance with its Licence.

<sup>b</sup> Effective from 1 January 2024 the functions relevant to this audit that were previously undertaken by the Department of Planning and Environment (DPE) are now undertaken by the Department of Climate Change, Energy, the Environment and Water (DCCEE).

## WaterNSW needs to improve compliance with its WQMS licence conditions

While WaterNSW's compliance against its WQMS has generally been improving over recent years, we note that there remain opportunities for WaterNSW's to improve. Three of the 5 non-compliant (non-material) audit findings relate to deficiencies in WaterNSW's WQMS or its implementation. Ten of the 15 recommendations made relate to these non-compliances. Of note are the audit findings against WaterNSW's obligations to implement its WQMS, as this condition has a more direct bearing on water quality being experienced by the end user.


## WaterNSW continues to be responsible for notifying the Minister of changes to system yield

On 31 January 2021, the prior Minister gave WaterNSW a direction regarding the transfer of accountability to Sydney Water for the Greater Sydney water supply augmentation planning function. The prior Minister did not transfer the accountability of notifying the Minister where forecast bulk water demand exceeds forecast system yield. However, WaterNSW understood that this requirement was implicitly transferred. This misunderstanding resulted in a non-compliance and one recommendation. We nevertheless also note that WaterNSW worked closely with Sydney Water and the Department in the water supply planning for Greater Sydney.


## The Greater Sydney Water Strategy was delivered during the audit period


On 29 August 2022 the Greater Sydney Water Strategy (GSWS) was published. Following its release, WaterNSW mistakenly ceased sharing information (required for the development of the GSWS) with the Department. This was inconsistent with the GSWS Data Sharing Agreement. WaterNSW self-identified this non-compliance in its annual Statement of Compliance (Appendix B). On the basis of correspondence from the Department to WaterNSW the auditors were able to confirm that WaterNSW had responded to all data/information requests and had acted fully in the spirit of the MOU. One recommendation was made in relation to this non-compliance.

Table 3 2023 compliance with WaterNSW's Licence – grades other than fully Compliant


Licence clause	Requirement	Compliance grade	Audit finding	Recommendations
2.1.1	<p>With respect to Declared Catchment Areas, Water NSW must maintain a Water Quality Management System that is consistent with either:</p> <p>a. the Australian Drinking Water Guidelines; or</p> <p>b. if NSW Health were to specify any amendment or addition to the Australian Drinking Water Guidelines that applies to Water NSW, the Australian Drinking Water Guidelines as amended or added to by NSW Health; or</p> <p>c. any other requirements specified or approved by NSW Health or IPART.</p>	 Non-compliant (non-material)	<p>We have assigned WaterNSW a non-compliant (non-material) grade for clause 2.1.1. This aligns with the auditor's findings.</p> <p>WaterNSW had not fully addressed the <i>Australian Drinking Water Guideline</i> (ADWG) requirements for the declared catchment. The auditors identified issues against the following elements of the ADWGs:</p> <ul style="list-style-type: none"> <li>• Element 1 (Commitment to drinking water quality management): the Register does not capture the detail on how legal requirements apply to WaterNSW.</li> <li>• Element 2 (Assessment of the drinking water supply system): The approach and methodology for hazard identification and risk assessment for the operational risk assessments is not documented.</li> <li>• Element 3 (Preventive measures for drinking water quality management): Inadequate documentation around critical control points (CCP): to avoid nuisance alarms, document changes in CCP instrument locations, and whether to stand up an Incident Management Team (IMT) when a CCP is exceeded.</li> <li>• Element 4 (Operational procedures and process control): Inadequate operational documentation found for some identified assets.</li> <li>• Element 10 (Documentation and reporting): Various documentation findings, including those listed here.</li> <li>• Element 12 (Review and continual improvement): Inadequate documentation for some review and improvement processes.</li> </ul>	<p><b>2023-01:</b> By 30 June 2024, WaterNSW should undertake a gap analysis and develop a project plan including resourcing and timelines to update the WQMS to meet all aspects of the actions in the ADWG Framework.</p> <p><b>2023-02:</b> By 30 June 2025, WaterNSW should implement the project plan to rectify gaps in the WQMS (developed under <b>recommendation 2023-01</b>) to meet all aspects of the actions in the ADWG Framework. At a minimum, the update should:</p> <ol style="list-style-type: none"> <li>Ensure that responsibilities for meeting water quality regulatory and formal obligations are understood and assigned in sufficient detail to ensure these obligations are understood and met</li> <li>Confirm there are processes for ensuring staff are trained, competent and understand their delegations to implement the aspects of the WQMS relevant to their roles</li> <li>Document WaterNSW's approach to operational water quality risk assessments and how uncertainty is evaluated in water quality risk assessments</li> </ol>

Licence clause	Requirement	Compliance grade	Audit finding	Recommendations
			<p>We have considered that, when taken as a whole, these finding warrant a non-compliant (non-material) grade. This is because overall they pose a low risk to WaterNSW meeting the objectives of the licence condition.</p>	<ul style="list-style-type: none"> <li>d. Formalise processes that consolidate improvement actions e.g. from C2C risk assessments, internal and tripartite incident debriefs, Health Checks, operational risk assessments and ensure accountability, timelines and reporting are documented</li> <li>e. Review the Water Quality Data Review and Reporting Procedure (CD2012/130) to ensure it provides assurance that all the monitoring in the Water Monitoring Program Manual (CD2011/179) is undertaken and the context sections of the Water Quality Monitoring Program (CD2011/170) are current</li> <li>f. Review the processes recorded under the short-term evaluation of results to confirm if they are relevant to this action or if they should be recorded as processes elsewhere in the WQMS.</li> </ul> <p><b>2023-03:</b> By 30 June 2024, WaterNSW should formalise processes and record keeping associated with changing CCP instrument locations and SCADA (Supervisory Control and Data Acquisition) alarm values including the return to documented values following incidents.</p> <p><b>2023-04:</b> By 30 June 2024, WaterNSW should finalise the O&amp;M Manual for the Upper Canal to ensure it meets the requirements of Element 4 of the ADWG Framework.</p>



Licence clause	Requirement	Compliance grade	Audit finding	Recommendations
2.1.2	<p>With respect to Non-Declared Catchment Areas from which Water NSW Supplies water, Water NSW must maintain Water Quality Management Systems that are consistent with:</p> <p>a. In the case of water with the final end use as Drinking Water:</p> <p>i. a relevant quality assurance program under section 25 of the Public Health Act 2010 (NSW);</p> <p>ii. the Australian Drinking Water Guidelines; or</p> <p>iii. any other requirements as specified or approved by NSW Health or IPART,</p> <p>b. in the case of water that does not have a final end use as Drinking Water and that is not to be managed according to a Water Quality Management System that satisfies clause 2.1.2(a):</p> <p>i. the Australian Guidelines for Water Recycling; or</p> <p>ii. any other requirements as specified or approved by NSW Health or IPART.</p>	 <p>Non-compliant (non-material)</p>	<p>We have assigned WaterNSW a non-compliant (non-material) grade for clause 2.1.2. This aligns with the auditor's findings.</p> <p>WaterNSW had not fully addressed the <i>Australian Drinking Water Guideline</i> (ADWG) requirements for the non-declared catchment.</p> <p>The auditors identified issues against the following elements of the ADWGs:</p> <ul style="list-style-type: none"> <li>• Element 1 (Commitment to drinking water quality management): the Register does not capture the detail on how legal requirements apply to WaterNSW.</li> <li>• Element 3 (Preventive measures for drinking water quality management): Inadequate documentation around critical control points (CCP): to avoid nuisance alarms and document changes in CCP instrument locations.</li> <li>• Element 4 (Operational procedures and process control): A conflict identified between two operational documents.</li> <li>• Element 7 (Employee awareness and training): No process found to ensure that third party contractors have appropriate qualifications and experience.</li> <li>• Element 9 (Research and development): No process found for research and development programs to increase understanding of the FRWSS and where evidence of any programs are held.</li> <li>• Element 10 (Documentation and reporting): Various documentation findings, including those listed here.</li> <li>• Element 12 (Review and continual improvement): Inadequate documentation for some review and improvement processes.</li> </ul>	<p><b>2023-05:</b> By 31 December 2024, WaterNSW should confirm that the FRWSS annual review adequately meets the ADWG requirements for long term evaluation of results.</p> <p><b>Recommendation 2023-02</b> also applies to this clause.</p>



Licence clause	Requirement	Compliance grade	Audit finding	Recommendations
2.1.3	Water NSW must ensure that the relevant Water Quality Management Systems are fully implemented and that all relevant activities are carried out in accordance with the relevant Water Quality Management System and to the satisfaction of NSW Health.	 Non-compliant (non-material)	<p>We have considered that, when taken as a whole, these finding warrant a non-compliant (non-material) grade. This is because overall they pose a low risk to WaterNSW meeting the objectives of the licence condition.</p> <p>We have assigned WaterNSW a non-compliant (non-material) grade for clause 2.1.3. This aligns with the auditor's findings.</p> <p>The auditors found that WaterNSW did not fully implement its WQMS. In particular:</p> <ul style="list-style-type: none"> <li>• Element 1 (Commitment to drinking water quality management): unable to establish that WaterNSW understands and implements regulations concerning Quality Assurance Programs (QAP), as they apply to the FRWSS. The relationship between activities being conducted by WaterNSW and the QAP is not documented.</li> <li>• Element 2 (Assessment of the drinking water supply system): Evidence unavailable for the following items: schematics had been verified in the field; water quality improvement plans incorporated recommendations from certain risk assessments; risk management controls had their effectiveness assessed; and NSW Health being invited to participate in all risk assessment processes.</li> <li>• Element 3 (Preventive measures for drinking water quality management): some incident review findings did not match hazard assessments.</li> </ul>	<p><b>2013-06:</b> By 30 June 2024, WaterNSW should update the C2C risk assessment procedure to define WaterNSW's role in C2C risk assessments for customers other than Sydney Water.</p> <p><b>2023-07:</b> By 30 June 2024, WaterNSW should conduct its own formal incident debriefs within the two-week standdown timeframe as recorded in the incident management procedure, independent of customer incident status. These debriefs should include an improvement action plan that assigns responsibilities and due dates for actions.</p> <p><b>2023-08:</b> By 30 June 2024, WaterNSW should review and update its processes to ensure exceedances are appropriately recorded in RACS. This recommendation addresses the findings of lead exceedance in FRWSS, SCADA exceedance not recorded in RACS and consequence descriptors not matching CCP hazards.</p>

Licence clause	Requirement	Compliance grade	Audit finding	Recommendations
			<ul style="list-style-type: none"> <li>Element 4 (Operational procedures and process control): it is not clear how preventative measures from risk assessments link to operational procedures. No evidence was found that a lead joint used for pipe repairs in FRWSS complies with AS4020, nor evidence that hemp and lead were assessed as suitable materials for these works.</li> <li>Element 5 (Verification of drinking water quality): no record of manganese sampling in the FRWSS network.</li> <li>Element 6 (Management of incidents and emergencies): No evidence of a formal debrief following an incident, as required by the Incident Management Procedure.</li> <li>Element 10 (Documentation and reporting): Various low risk deficiencies in record keeping and reporting.</li> <li>Element 11 (Evaluation and audit): misalignments found between summary reports to the Board (or associated subcommittees) and the activities undertaken.</li> <li>Element 12 (Review and continual improvement): Unable to clearly identify how actions are tracked and reported to the Board. There is evidence some actions had been progressed to closure but for FRWSS only one action tracked had been closed during the year with limited reporting as to why the other actions had not progressed.</li> </ul> <p>We do not consider these deficiencies led to adverse impacts to public health during the audit period. However, these deficiencies identified may result in future events which have preventable impacts to public health.</p>	<p><b>2023-09:</b> By 30 June 2024, WaterNSW should review industry practice and assess options for replacing lead seals for mains pipeline connections during repairs and maintenance. If an alternative process that meets AS4020:2018 cannot be implemented, WaterNSW should update their WQMS with a process for allowing products that do not comply with AS4020:2018 to be assessed for water quality safety and document the repair procedure following this assessment processes.</p> <p><b>2023-10:</b> By 31 December 2024, WaterNSW should review and update the WQMS assurance reporting processes and associated delegations to ensure that board reporting is accurate and changes to metrics and targets are being undertaken by those with appropriate delegations.</p>

Licence clause	Requirement	Compliance grade	Audit finding	Recommendations
2.5.2	In accordance with the Reporting Manual, Water NSW must advise the Minister: a. of any changes to the System Yield relative to the previous System Yield (including reasons for change) following a re-calculation under clause 2.5.1; or b. if Water NSW considers that future demand for Bulk Water may exceed the System Yield and when this exceedance might occur.	 Non-compliant (non-material)	<p>We have considered that, when taken as a whole, these finding warrant a non-compliant (non-material) grade. This is because overall they pose a low risk to WaterNSW meeting the objectives of the licence condition.</p> <p>We have assigned WaterNSW a non-compliant (non-material) grade for clause 2.5.2. This aligns with the auditor's findings.</p> <p>On 31 January 2021, the Minister gave WaterNSW a direction regarding the transfer of accountability for the Greater Sydney water supply augmentation planning function. Under this direction, WaterNSW incorrectly understood that its requirement (to notify the Minister of future bulk water demand exceeding system yield) was transferred from WaterNSW to Sydney Water. Therefore, WaterNSW failed to inform the Minister that demand would exceed system yield.</p> <p>We note, however, that WaterNSW worked closely with Sydney Water and the Department in the water supply planning for Greater Sydney. The Minister was made aware of the aforementioned exceedance during the audit period.</p> <p>We do not consider this deficiency resulted in any adverse impacts to Sydney Water, the Department or the Minister's ability to undertake water planning during the audit period.</p>	<p><b>2023-11:</b> By 30 June 2024, WaterNSW should develop and implement a process for advising the Minister if it considers that future demand for Bulk Water may exceed System Yield and when this exceedance might occur. The effective implementation of this process will require Sydney Water to provide WaterNSW with information on future demand for Bulk Water.</p> <p>Note: this recommendation only applies if the requirements of this clause remain unchanged under WaterNSW's new operating licence, which is anticipated to come into effect on 1 July 2024.</p>



Licence clause	Requirement	Compliance grade	Audit finding	Recommendations
2.8.8	WaterNSW must: a. use its best endeavours to maintain a data sharing agreement with DPE to assist in the development and review of the Greater Sydney Water Strategy (GSWS Data Sharing Agreement); and b. comply with the GSWS Data Sharing Agreement referred to in clause 2.8.8(a).	 Non-compliant (non-material)	<p>We have assigned WaterNSW a non-compliant (non-material) grade for clause 2.8.8. This aligns with the auditor's findings.</p> <p>Following release of the GSWS, WaterNSW failed to continue to share information (required for the development of the GSWS) with the Department, as required under the GSWS Data Sharing Agreement (entitled Memorandum of Understanding for Information Sharing).</p> <p>The intent of the Agreement/MOU was to provide data to the Department for the development of the GSWS. Therefore, we consider this is a technical non-compliance.</p>	<p><b>2023-12:</b> By 31 December 2024, WaterNSW should agree with the Department of Planning and Environment the preferred agreement arrangement for the ongoing sharing of data and/or information. This is to take into account the requirements of WaterNSW's new operating licence, anticipated to come into effect on 1 July 2024.</p> <p>Options for the preferred agreement may include, but are not limited to, cessation of existing agreements (such as the Memorandum of Understanding for Information Sharing), variation and expansion of existing agreements (such as the Data Sharing Agreement), or the creation of new agreements. The preferred arrangement must not lead to a breach of licence.</p>
5.1.2	Water NSW must fully implement the Asset Management System and carry out all relevant activities in accordance with the Asset Management System.	 Compliant (minor shortcomings)	<p>We have assigned WaterNSW a compliant (minor shortcomings) grade for clause 5.1.2. This aligns with the auditor's findings.</p> <p>WaterNSW currently has 2 processes for recording asset improvement opportunities:</p> <ul style="list-style-type: none"> <li>• Its risk and compliance system (RACS) for improvement opportunities and non-conformances</li> <li>• The AMS continuous improvement register (spreadsheet) for actions from external audit findings (e.g. IPART audits, ISO certification audits or benchmarking projects).</li> </ul> <p>We consider that duplication could result in inefficiencies and errors (i.e. some improvement opportunities may not be captured) when managing continual improvement opportunities.</p> <p>At this stage, we consider that this is a shortcoming of WaterNSW's AMS and not a non-compliance.</p>	<p><b>2023-13:</b> By 30 June 2024, WaterNSW should develop its first Integrated Asset Management System Improvement Plan.</p>

Licence clause	Requirement	Compliance grade	Audit finding	Recommendations
5.2.2	Water NSW must fully implement the Environmental Management System and carry out all relevant activities in accordance with the Environmental Management System.	 Compliant (minor shortcomings)	<p>We have assigned WaterNSW a compliant (minor shortcomings) grade for clause 5.2.2. This aligns with the auditor's findings.</p> <p>WaterNSW implemented its EMS for all functions during the audit period. However, WaterNSW could not demonstrate that it had communicated and implemented the EMS in relation to investigating incidents.</p> <p>We consider this a shortcoming and not a non-conformance because it did not lead to adverse environmental impacts. However, without robust assurance and review processes, there is a risk that missed learnings could result in future events which have preventable environmental impacts.</p>	<b>2023-14:</b> By 30 June 2024, WaterNSW should review and update business processes to ensure that all reported environmental incidents and hazards are investigated, and preventive as well as corrective actions are identified prior to closure of the incident.
6.16.1	Water NSW must: a. use its best endeavours to maintain a memorandum of understanding with the NRAR; and b. comply with the memorandum of understanding maintained under clause 6.16.1(a).	 Compliant (minor shortcomings)	<p>We have assigned WaterNSW a compliant (minor shortcomings) grade for clause 6.16.1. This aligns with the auditor's findings.</p> <p>Under the MOU, WaterNSW is required to notify NRAR of any serious field safety issues as soon as practicable. WaterNSW took an extended length of time to notify NRAR about a safety issue in the Parramatta office.</p> <p>We consider this a shortcoming and not a non-conformance as we understood the 'field safety issue' was an office-incident which would not escalate into a more serious incident in the future. We consider that clarifying what constitutes a "serious field safety issue" would avoid this confusion in future.</p>	<b>2023-15:</b> By 30 June 2024, WaterNSW should agree with NRAR (and DPE) on a clearer definition of a 'serious field safety issue' and reasonable expectations on notification periods.




Source: IPART, *WaterNSW's compliance with its operating licence 2021-2022 – Report to the Minister*, March 2023; Cobbitty Consulting, *2022 Operational Audit of WaterNSW – IPART*, February 2023 (contained at Appendix E of *WaterNSW's compliance with its operating licence 2021-2022 – Report to the Minister*).

### 3 Progress on previous audit findings

The previous audit identified areas where WaterNSW did not achieve compliance with its Licence obligations. We made recommendations to address these issues.<sup>2</sup> Table 4 outlines WaterNSW's progress in implementing the recommended actions.

WaterNSW closed out all 3 of our previous recommendations.

Table 4 WaterNSW's progress in 2023 to address our recommendations from the previous audit






Licence clause	Compliance grade	Recommendation	Progress
<p><b>2.1.1:</b> With respect to Declared Catchment Areas, Water NSW must maintain a Water Quality Management System that is consistent with either:</p> <p>a. the Australian Drinking Water Guidelines; or</p> <p>b. if NSW Health were to specify any amendment or addition to the Australian Drinking Water Guidelines that applies to Water NSW, the Australian Drinking Water Guidelines as amended or added to by NSW Health; or</p> <p>c. any other requirements specified or approved by NSW Health or IPART.</p>	 Compliant (minor shortcomings)	By 30 June 2023, WaterNSW should revise the Conduct Catchment to Customer (C2C) Risk Assessment Procedure to include the step-by-step process for undertaking a water quality risk assessment. This should include the risk assessment matrix and definitions, and the process for identifying hazards, hazardous events, consequence, and likelihood. It should also state what is an appropriate control and may state how these should be implemented (relates to Element 2 of the Australian Drinking Water Guidelines (ADWG)).	Complete
<p><b>2.1.2:</b> With respect to Non-Declared Catchment Areas from which Water NSW Supplies water, Water NSW must maintain Water Quality Management Systems that are consistent with:</p> <p>a. in the case of water with the final end use as Drinking Water:</p> <p>i. a relevant quality assurance program under section 25 of the Public Health Act 2010 (NSW);</p> <p>ii. the Australian Drinking Water Guidelines; or</p> <p>iii. any other requirements as specified or approved by NSW Health or IPART.</p> <p>b. in the case of water that does not have a final end use as Drinking Water and that is not to be managed according to a Water Quality Management System that satisfies clause 2.1.2(a):</p> <p>i. the Australian Guidelines for Water Recycling; or</p> <p>ii. any other requirements as specified or approved by NSW Health or IPART.</p>	 Compliant (minor shortcomings)	By 30 June 2023, WaterNSW should revise the scope of the Water Quality Policy to clarify its application to the non-declared catchment areas. The coverage is dependent on the definition of the word "Supply" in each Licence. It should be clear to readers of the policy what the scope of its application is, without seeking clarification (relates to Element 1 of the ADWG).	Complete
<p><b>2.1.3:</b> Water NSW must ensure that the relevant Water Quality Management Systems are fully implemented and that all relevant activities are carried out in accordance with the relevant Water Quality Management System and to the satisfaction of NSW Health.</p>	 Compliant (minor shortcomings)	By 30 June 2023, WaterNSW should review its flow diagrams to ensure that all steps and processes from source to handover point, such as destratification systems, are included in the scheme flow diagrams (relates to Element 2 of the ADWG).	Complete

Source: IPART, *WaterNSW's compliance with its operating licence 2021-2022 – Report to the Minister*, March 2023; Cobbitty Consulting, *2022 Operational Audit of WaterNSW – IPART*, February 2023 (contained at Appendix E of *WaterNSW's compliance with its operating licence 2021-2022 – Report to the Minister*).

# Appendices

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## A Compliance grades

Compliance grades		Description
	Compliant	<p>There is sufficient evidence to confirm that the public water utility has materially met the operating licence obligation during the audit period.</p> <p>No shortcomings have been identified.</p>
	Compliant (minor shortcomings)	<p>There is sufficient evidence to confirm that the public water utility has materially met the operating licence obligation during the audit period.</p> <p>Minor shortcomings have been identified that must be addressed. However, minor shortcomings are unlikely to have an impact on the public water utility meeting the objectives of the licence obligation.</p>
	Non-Compliant (non-material)	<p>There is sufficient evidence to confirm that the public water utility has not met the operating licence obligation or there is insufficient evidence to confirm that the public water utility has met the operating licence obligation during the audit period.</p> <p>The inconsistencies, inadequacies or deficiencies pose a low or nonmaterial risk to the public water utility meeting the objectives of the licence obligation.</p>
	Non-Compliant (material)	<p>There is sufficient evidence to confirm that the public water utility has not met the operating licence obligation or there is insufficient evidence to confirm that the public water utility has met the operating licence obligation during the audit period.</p> <p>The inconsistencies, inadequacies or deficiencies pose a high or material risk to the public water utility meeting the objectives of the licence obligation.</p>
	No Requirement	There was no requirement for the public water utility to comply with the licence obligation during the audit period

Source: Extract from IPART, [Public Water Utility Audit Guideline](#), July 2023, Figure 4-1.

## B WaterNSW's statement of compliance

1 September 2023

Statement of Compliance 2023

For 2022/2023

Submitted by WaterNSW

To:

The Chief Executive Officer  
Independent Pricing and Regulatory Tribunal of NSW  
PO Box K35  
Haymarket Post Shop NSW 1240

WaterNSW reports as follows:

1. This statement documents compliance during 2022-2023 with all obligations to which WaterNSW is subject by virtue of its operating licence.
2. This report has been prepared by WaterNSW with all due care and skill, including to ensure that all information provided is true and correct, in full knowledge of conditions to which WaterNSW is subject under the Water NSW Act 2014.
3. Schedule A provides information on all obligations with which WaterNSW did not comply during 2022-2023.
4. Other than the information provided in Schedule A, WaterNSW has complied with all conditions to which it is subject.
5. This compliance report has been approved by the Chief Executive Officer (or equivalent) and the Chairman of the Board of Directors of WaterNSW/ Duly authorised Board Member of WaterNSW.

DATE: 1/9/23

DATE: 1/9/23

Signed 

Signed 

Name: Kaye Dalton

Name: ANDREW GEORGE

Designation: Chair (Acting)

Designation: CEO & MD

**Schedule A: Non Compliances for WaterNSW as at 30 June 2023**

List of clauses breached	Description of non compliance
<p>Clause 2.8.8 Water NSW must:</p> <ul style="list-style-type: none"> <li>a. Use its best endeavours to maintain a data sharing agreement with DPE to assist in the development and review of the Greater Sydney Water Strategy (GSWS Data Sharing Agreement); and</li> <li>b. Comply with the GSWS Data Sharing Agreement referred to in clause 2.8.8(a).</li> </ul>	<p><b>PERIOD OF NON-COMPLIANCE 30 August 2022 – ongoing</b></p> <p><b>Reason for non-compliance:</b> The Greater Sydney Water Strategy was published on 29 August 2022. WaterNSW did not continue data sharing in accordance with the GSWS data sharing agreement once the GSWS was published. It was WaterNSW's understanding that the data was no longer required in real-time. However, we sought, but did not find evidence of a formal agreement from DPE that WaterNSW could stop sharing the data, nor did we work with DPE to update the DSA appropriately.</p> <p><b>The following activity has been completed:</b></p> <ul style="list-style-type: none"> <li>• Discussions with DPE to review data sharing requirements.</li> </ul> <p><b>Date of full compliance:</b> Ongoing non-compliance until the DSA is updated via agreement with DPE.</p>
<p>Clause 4.3.2 Water NSW must ensure that in each financial year no more than 5 Customers who place a Non-Complying Water Order are contacted more than one working day after Water NSW receives that order to rectify that order.</p>	<p><b>PERIOD OF NON-COMPLIANCE 28 June – 30 June 2023</b></p> <p>The non-compliance was for the last three days of the financial year 2022-2023. A sixth customer placed a non-complying water order on 26 June 2023. The non-compliance then occurred from 28 June 2023, when the customer was not contacted within the designated timeframe. Prior to the 28 June 2023, WaterNSW had five non-complying water orders for FY23.</p> <p><b>Reason for non-compliance:</b> Significant increase in customer contact for end-of-year mailouts and restricted resourcing due to vacancies and staff illness.</p> <p><b>The following activity has been completed:</b></p> <ul style="list-style-type: none"> <li>• Vacancies have since been filled, with appropriate resourcing in place.</li> <li>• Customer contacted to rectify non-complying water order on 30 June 2023.</li> </ul> <p><b>Date of full compliance:</b> 1 July 2023</p>



## C Audit process

We apply our Compliance and Enforcement Policy in developing the annual audit scopes.<sup>3</sup> The policy explains our risk-based regulatory model. Under the policy, we can:

- focus on allocating resources to areas of higher risk
- increase our efficiency in undertaking audits
- tailor our enforcement response.

Our risk-based approach centres around evaluating the risk that each part of our regulatory function aims to reduce. We evaluate risks by considering the likelihood of harm occurring in the absence of our regulatory controls and the potential consequence of that harm. We then consider how likely it is that a regulated entity will not properly implement a regulatory control.

We identify and document historical, current and emerging risks. This allows us to allocate resources proportionately to the risk and complexity of a regulated entity and its behaviours.

The audit process involves receiving and reviewing reports, undertaking and attending audit interviews with Sydney Water staff, and undertaking field verification to investigate how effectively the requirements of the licence are met in practice. This year, we undertook these interviews remotely while field verification visits were undertaken by a combination of physical and virtual inspections.

### C.1 2023 audit scope

We do not audit all licence clauses annually. Instead, we adopt a risk-based audit approach, which means we audit 'high risk' clauses more frequently and 'low risk' clauses less frequently. We conduct audits in accordance with our Public Water Utility Audit Guideline.

The audit scope for WaterNSW's 2023 audit included obligations on:

- Water source protection and conservation (Part 2) – maintain and implement a WQMS, maintain research programs for relevant Declared Catchment Areas, ensure catchment infrastructure works are managed in accordance with design criteria and the Asset Management System, system yield calculation and notifications, water conservation planning and drought response.
- Bulk Water storage and transmission (Part 3)– assets are managed in accordance with the Asset Management System.
- Organisation management systems (Part 5) – maintain and implement an asset management system and environmental management system.
- Customer and stakeholder relations (Part 6) – maintain customer supply agreements and MOUs with stakeholders other than Sydney Water, and an online data portal and protocols for data sharing.

The audit scope is in Appendix D.

We also consulted with NSW Health, Environment Protection Authority (EPA), National Resources Access Regulator (NRAR), and the former Department of Planning and Environment (DPE) and sought public submissions to determine the scope of the audit. We received submissions from NSW Health, NRAR, and DPE. We did not receive any public submissions.

The auditors were provided with a copy of NSW Health, NRAR and DPE's submissions which were used to inform their audit questions.

We had regard to the following comments in finalising the audit scope:

- NSW Health was generally satisfied that WaterNSW had considered water quality and public health risks during the audit period. However, NSW Health suggested that we consider the following as part of the audit:
  - Review progress on previous debrief recommendations to ensure reliability of monitoring and opportunities to improve data exchange during events in the Greater Sydney area.
  - Review progress on actions to improve data exchange and operational assistance between WaterNSW and Lithgow City Council following several incidents related to asset failures and water quality raised in the 2021-2022 audit.
  - Review progress on actions to manage disinfection by-products in the Fish River network.
- NRAR nominated a range of matters for consideration:
  - Data and systems provided by WaterNSW are critical to efficient and effective compliance
  - The MoU supports a cooperative relationship between WaterNSW and NRAR
  - The Data Sharing Agreement is aligned with the Water NSW Operating Licence
  - Non-urban metering and Duly Qualified Person (DQP) data and system concerns are being addressed
  - The NSW Non-Urban Metering framework is being reviewed to enhance compliance and enforcement
  - The audit report should consider barriers to WaterNSW delivering operating licence obligations.

- DPE noted that:
  - The roles and responsibilities agreement for the Conferred Functions was executed 30 June 2021 between WaterNSW, NRAR and the Department
  - An MoU was agreed between the Department and WaterNSW regarding the sharing of data and information end of August 2020. WaterNSW has complied with the requirements of the MOU, and has provided significant data, modelling, and other resource support for the development of the GSWS.
  - WaterNSW and the Department have collaborated and established a more robust process for reporting and resolving data access and data quality issues. A backlog of issues are yet to be resolved and analysis shows that constraints limit WaterNSW implementing improvements to address systemic data issues.
  - The Department has significant dependencies on WaterNSW systems and technology to access data and perform critical business activities. System changes have impacted the Department's access to data.
  - WaterNSW provided the Department with access to the Duly Qualified Persons (DQP) Portal, however there are still some ongoing access limitations that are impacting customer service, which are being considered as part of the broader review of the WaterNSW Operating Licence.

## C.2 2023 audit plan

We engaged Stantec to undertake an audit of WaterNSW's compliance against nominated licence conditions.

We held a project start-up meeting with the auditor on 28 July 2023 to agree on the project milestones, audit timing, and outline our expectations. We participated in the audit inception meeting with WaterNSW and the auditor on the first day of the audit interviews on 16 October 2023. At this meeting, we agreed on expectations and protocols for the conduct of the audit. All parties adhered to the agreed protocols throughout the audit. The audit interviews and site visits were held on 16-20 October 2023.

We required the auditor to undertake the following tasks:

1. Review stakeholder submissions.
2. Prepare an information request (questionnaire) setting out all the requirements for information and evidence, at least 6 weeks prior to the commencement of audit interviews (for this audit, the auditor issued the questionnaire before the audit interviews commenced).
3. Review reports and documents provided by WaterNSW in response to the questionnaire.
4. Conduct interviews with WaterNSW staff as appropriate.
5. Conduct field verification to assess the implementation of WaterNSW's systems and procedures.
6. Assess the level of compliance (in line with our compliance grades) WaterNSW achieved for each of the identified Licence obligations and provide supporting evidence for this assessment.

## D 2023 audit scope

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# 2023 operational audit scope WaterNSW

## 2023 audit scope

This document sets out the 2023 operational audit scope for WaterNSW. Auditors should note any directions in the comment's column of Table 2.

## Audit period

The audit period is 1 September 2022 to 30 June 2023. The audit period has been shortened for this audit, to align with the financial year. We expect that interviews for the audit will be held in September 2023. However, this is subject to change depending on auditor availability.

## Outstanding audit recommendations

Table 3 outlines outstanding audit recommendations. The auditor is required to review these recommendations to determine progress. We report on outstanding audit recommendations separately within IPART's operational audit report to the Minister.

## Statement of compliance

The utility is required to provide a Statement of Compliance (SC), signed by the CEO and a Board Member, by 1 September. The SC is an exception-based report that outlines any non-compliances with the licence clauses during the previous financial year. The financial year is different to the audit period. The SC also identifies what remedial action has been, or is being taken, with respect to these non-compliances.

The SC covers all licence clauses regardless of whether they are scheduled to be audited in that year. The SC may cause a late variation to the audit scope to allow non-compliances relevant to this audit period to be reviewed if necessary.

## Interpretation

In the case of any discrepancies between the licence and the audit scope, the licence will prevail.

## Field verification locations

Table 4 lists the locations that we have visited in previous audits. Together with WaterNSW, we will determine the locations that we will visit in the 2023 audit and advise the auditor before the field verification visits are scheduled to commence.

Table 1 Key

Requirement	Meaning
Audit/Internal IPART check	Audit/check clause in 2023 audit
SC	Audit of this clause not required in the 2023 audit unless the utility's Statement of Compliance identifies a non-compliance relevant to the audit period, or we become aware of other reasons to audit the clause.
NR	No requirement for audit.

Table 2 2023 Audit scope for WaterNSW

Licence clause	Operating Licence obligation	2023 audit requirement	Comments/guidance for the auditor
<b>Part 1</b>	<b>Licence Context and authorisation</b>		
1.1	Objectives of this Licence		
1.1.1	This Licence aims to: <ul style="list-style-type: none"> <li>a. provide transparent, auditable terms and conditions for Water NSW to lawfully undertake its activities in accordance with industry good practice;</li> <li>b. recognise the interests of stakeholders within its Area of Operations; and</li> <li>c. impose the minimum regulatory burden on Water NSW by avoiding duplication or conflict with other regulatory instruments.</li> </ul>	NR	Objectives clause – does not require audit
1.1.2	Consistent with the Act, the purpose of this Licence is to: <ul style="list-style-type: none"> <li>a. specify the listed functions and other functions conferred upon Water NSW to which this Licence relates;</li> <li>b. authorise Water NSW to carry out the listed functions specified in this Licence and Conferred Functions;</li> <li>c. specify the areas and circumstances in which Water NSW is authorised to carry out the specified Listed Functions and Conferred Functions;</li> <li>d. set out the terms and conditions which apply to the conduct of the functions authorised by this Licence;</li> <li>e. make provision for the preparation of Operational Audits;</li> <li>f. include terms and conditions under which Water NSW is required to provide, construct, operate, manage and maintain efficient, co-ordinated and commercially viable systems and services to capture, store, release or supply water;</li> <li>g. include terms and conditions under which Water NSW is required to ensure that the systems and services meet the Performance Standards specified in this Licence in relation to water delivery, water quality, service interruptions or any other matters set out in this Licence;</li> </ul>	NR	Objectives clause – does not require audit

Licence clause	Operating Licence obligation	2023 audit requirement	Comments/guidance for the auditor
	<ul style="list-style-type: none"> <li>h. with respect to a Declared Catchment Area – include terms and conditions under which Water NSW is required to compile indicators of the direct impact of WaterNSW’s activities (including, but not limited to, the impact of energy used and waste generated) on the environment so as to provide information about its performance and enable reports to be prepared; and</li> <li>i. specify other requirements as required and allowed for under the Act.</li> </ul>		
1.2	Licence authorisations		
1.2.1	<p>Subject to any terms and conditions, areas and circumstances specified in this Licence, this Licence authorises Water NSW to undertake the following listed functions within its Area of Operations:</p> <ul style="list-style-type: none"> <li>a. to capture and store water and to release water: <ul style="list-style-type: none"> <li>i. to persons entitled to take the water, including release to regional towns; and</li> <li>ii. for any other lawful purpose, including the release of environmental water;</li> </ul> </li> <li>b. to supply water to Sydney Water;</li> <li>c. to supply water to water supply authorities and to local councils or county councils prescribed by the Regulation;</li> <li>d. to supply water to persons referred to in section 7(1)(d) of the Act;</li> <li>e. to supply water to other persons and bodies, but under terms and conditions that prevent the person or body concerned from supplying the water for consumption by others within the State unless the person or body is authorised to do so by or under an Act;</li> <li>f. to construct, maintain and operate Water Management Works (including providing or constructing systems or services for supplying water);</li> <li>g. to protect and enhance the quality and quantity of water in Declared Catchment Areas;</li> <li>h. to manage and protect Declared Catchment Areas and Water Management Works vested in or under the control of Water NSW that are used within or for the purposes of such areas;</li> <li>i. to undertake research on catchments generally, and in particular on the health of Declared Catchment Areas;</li> <li>j. to undertake an educative role within the community; and</li> <li>k. to undertake flood mitigation and management in all areas of New South Wales, except for the Sydney catchment area as defined by the Act.</li> </ul>	NR	Authorisation clause – does not require audit

Licence clause	Operating Licence obligation	2023 audit requirement	Comments/guidance for the auditor
1.2.2	Subject to any terms and conditions, areas and circumstances specified in this Licence, this Licence authorises Water NSW, within its Area of Operations to: <ul style="list-style-type: none"> <li>a. provide facilities or services that are necessary, ancillary or incidental to its Listed Functions; and</li> <li>b. conduct any business or activity (whether or not related to its Listed Functions) that it considers will further its objectives.</li> </ul>	NR	Authorisation clause – does not require audit
1.2.3	Subject to any terms and conditions, areas and circumstances specified in this Licence, this Licence authorises Water NSW, within its Area of Operations, to undertake the Conferred Functions specified in Schedule A.	NR	Authorisation clause – does not require audit
1.2.4	Subject to any terms and conditions, areas and circumstances specified in this Licence and to the maximum extent permissible by law, this Licence authorises Water NSW pursuant to section 15(4)(b) of the Act to exercise any function of a type referred to in section 15(2) of the Act, but only with the agreement of the Relevant Body.	NR	Information clause – does not require audit
1.2.5	Subject to any terms and conditions, areas and circumstances specified in this Licence, and to the maximum extent permissible by law, this Licence authorises Water NSW pursuant to section 31(1) of the Act, to exercise the functions set out in section 31(1) within its Area of Operations.	NR	Information clause – does not require audit
1.2.6	Despite anything in this clause 1.2, but subject to any terms and conditions, areas and circumstances specified elsewhere in this Licence, and to the maximum extent permissible by law, this Licence authorises Water NSW, pursuant to section 15(4)(a) of the Act, to carry out any of its functions outside of the State.	NR	Information clause – does not require audit
1.2.7	For the avoidance of any doubt, where this clause 1.2 authorises a function of Water NSW, that authorisation is intended to apply in respect of the Fish River Water Supply Scheme, to the maximum extent permissible by law.	NR	Information clause – does not require audit
1.3	Term of this licence		
1.3.1	The term of this Licence is 2 years from the Commencement Daet.	NR	Information clause – does not require audit
1.4	Non-exclusive Licence		
1.4.1	This Licence does not prohibit another person from providing services in the Area of Operations that are the same as, or similar to, the services provided by Water NSW, if the person is lawfully entitled to do so.	NR	Information clause – does not require audit
1.5	Making copies of this Licence available		
1.5.1	Water NSW must make this Licence available free of charge on its website.	Internal IPART Check	
1.6	End of Term Review		
1.6.1	It is anticipated that a review of this Licence will commence in the first quarter of 2023 to investigate: <ul style="list-style-type: none"> <li>a. whether this Licence is fulfilling its objectives; and</li> </ul>	NR	Information clause – does not require audit



Licence clause	Operating Licence obligation	2023 audit requirement	Comments/guidance for the auditor
	<ul style="list-style-type: none"> <li>b. any issues which have arisen during the term of this Licence, which may reduce the effectiveness of this Licence.</li> </ul> (End of Term Review)		
16.2	Water NSW must provide to the person undertaking the End of Term Review such information as is reasonably required to enable the person to complete the End of Term Review. Water NSW must provide that person with such information within a reasonable time period of receiving a request for that information from that person.	Internal IPART Check	
1.7	Notices		
1.7.1	Any notice or other communication given under this Licence must be: a. in writing addressed to the intended recipient; and b. delivered or sent to one of the addresses (electronic and/or postal) specified in the Reporting Manual.	NR	Information clause – does not require audit
Part 2	Water Source protection and conservation		
2.1	Water Quality Management System		
2.1.1	With respect to Declared Catchment Areas, Water NSW must maintain a Water Quality Management System that is consistent with either: <ul style="list-style-type: none"> <li>a. the Australian Drinking Water Guidelines; or</li> <li>b. if NSW Health were to specify any amendment or addition to the Australian Drinking Water Guidelines that applies to Water NSW, the Australian Drinking Water Guidelines as amended or added to by NSW Health; or</li> <li>c. any other requirements specified or approved by NSW Health or IPART.</li> </ul>	Audit	Recommendation 2022-01 applies to this clause.
2.1.2	With respect to Non-Declared Catchment Areas from which Water NSW Supplies water, Water NSW must maintain Water Quality Management Systems that are consistent with: <ul style="list-style-type: none"> <li>a. in the case of water with the final end use as Drinking Water:               <ul style="list-style-type: none"> <li>i. a relevant quality assurance program under section 25 of the Public Health Act 2010 (NSW);</li> <li>ii. the Australian Drinking Water Guidelines; or</li> <li>iii. any other requirements as specified or approved by NSW Health or IPART,</li> </ul> </li> <li>b. in the case of water that does not have a final end use as Drinking Water and that is not to be managed according to a Water Quality Management System that satisfies clause 2.1.2(a):               <ul style="list-style-type: none"> <li>i. the Australian Guidelines for Water Recycling; or</li> <li>ii. any other requirements as specified or approved by NSW Health or IPART.</li> </ul> </li> </ul>	Audit	Recommendation 2022-02 applies to this clause.

Licence clause	Operating Licence obligation	2023 audit requirement	Comments/guidance for the auditor
2.13	Water NSW must ensure that the relevant Water Quality Management Systems are fully implemented and that all relevant activities are carried out in accordance with the relevant Water Quality Management System and to the satisfaction of NSW Health.	Audit	Recommendation 2022-03 applies to this clause  We will contact NSW Health to comment on WaterNSW's performance against this clause.
2.14	Water NSW must notify IPART and NSW Health, in accordance with the Reporting Manual, of any significant changes that it proposes to make to a Water Quality Management System.	SC	We will contact NSW Health to comment on WaterNSW's performance against this clause.
2.2	Catchment management		
2.2.1	Water NSW must manage and protect the Declared Catchment Areas in a manner that is consistent with its objectives and functions under the Act, the Water Quality Management System required under clause 2.1 of this Licence, the Asset Management System required under clause 5.1 of this Licence, and the Environmental Management System required under clause 5.2 of this Licence.	SC	
2.3	Information on the Declared Catchment Areas		
2.3.1	Water NSW must: <ul style="list-style-type: none"> <li>a. reasonably cooperate with the Appointed Auditor;</li> <li>b. publish information collected by WaterNSW on water quality relevant to Declared Catchment Areas in accordance with the Reporting Manual;</li> <li>c. provide data in relation to the Catchment Health Indicators to the Appointed Auditor, in accordance with the Reporting Manual;</li> <li>d. monitor, record and compile data on the Environment Indicators relevant to Declared Catchment Areas; and</li> <li>e. report on the Environment Indicators in accordance with the Reporting Manual</li> </ul>	Internal IPART Check	We will contact the Minister's department (DPE) to determine if the Minister appointed an auditor to undertake a catchment audit during the audit period, and comment on WaterNSW's performance against this clause.
2.4	Catchment Infrastructure Works management		
2.4.1	Water NSW must ensure that, in Declared Catchment Areas, the Catchment Infrastructure Works are operated and managed consistently with the Design Criteria and the Asset Management System referred to in clause 5.1.	Audit	
2.4.2	Water NSW must, in accordance with the Reporting Manual make the Design Criteria referred to in clause 2.4.1 available to the public free of charge on its website.	SC	
2.5	Calculating System Yield		
2.5.1	Water NSW must recalculate the System Yield in respect of a Declared Catchment Area on the occurrence of any one or more of the following events: <ul style="list-style-type: none"> <li>a. the conclusion of any drought event affecting the Declared Catchment Area;</li> </ul>	Audit	WaterNSW updated the Design Criteria in January 2023.

Licence clause	Operating Licence obligation	2023 audit requirement	Comments/guidance for the auditor
	<ul style="list-style-type: none"> <li>b. the commencement of any modification or augmentation to the Catchment Infrastructure Works or Customers' infrastructure, that will have a significant impact on Water NSW's Supply of water in respect of the Declared Catchment Area;</li> <li>c. any material change to the operating rules of the Catchment Infrastructure Works in respect of the Declared Catchment Area; or</li> <li>d. any material change to the Design Criteria in respect of the Declared Catchment Area.</li> </ul>		
2.5.2	<p>In accordance with the Reporting Manual, Water NSW must advise the Minister:</p> <ul style="list-style-type: none"> <li>a. of any changes to the System Yield relative to the previous System Yield (including reasons for change) following a re-calculation under clause 2.5.1; or</li> <li>b. if Water NSW considers that future demand for Bulk Water may exceed the System Yield and when this exceedance might occur.</li> </ul>	Audit	WaterNSW updated the Design Criteria in January 2023.
2.6	Water conservation		
2.6.1	Water NSW must maintain its Water Conservation Strategy.	SC	
2.6.2	Water NSW must maintain and implement its Water Conservation Work Program in relation to its operations under this Licence.	SC	
2.6.3	Water NSW must review, update and report on its Water Conservation Work Program referred to in clause 2.6.2.	SC	
2.7	Research on catchments		
2.7.1	<p>Water NSW must maintain a program of research for each Declared Catchment Area which:</p> <ul style="list-style-type: none"> <li>a. relates to catchments within that Declared Catchment Area generally and in particular their health;</li> <li>b. is consistent with its objectives under section 6 of the Act; and</li> <li>c. assists Water NSW to discharge its functions under sections 7(1)(g) and 7(1)(h) of the Act.</li> </ul>	SC	
2.7.2	Water NSW must report on its research programs referred to in clause 2.7.1 in accordance with the Reporting Manual.	SC	
2.8	Water planning		
2.8.1	By 1 June 2023 (or another date approved by the Minister in writing), Water NSW must develop a long-term capital and operational plan jointly with Sydney Water and submit the plan to the Minister.	Internal IPART Check	We will contact the Minister's department (DPE) and Sydney Water to comment on WaterNSW's performance against this clause.

Licence clause	Operating Licence obligation	2023 audit requirement	Comments/guidance for the auditor
2.8.2	If the Minister specifies in writing a date by which the long-term capital and operational plan must be reviewed and updated, Water NSW must, jointly with Sydney Water, review and update the plan by the date so specified.	SC	We will contact the Minister's department (DPE) and Sydney Water to comment on WaterNSW's performance against this clause.
2.8.3	The long-term capital and operational plan referred to in clause 2.8.1 must address any written guidance that the Minister provides to Water NSW.	NR	Information clause - does not require audit
2.8.4	Water NSW must maintain jointly with Sydney Water, and deliver on actions specified in, the Greater Sydney Drought Response Plan.	Audit	We will contact Sydney Water to comment on WaterNSW's performance against this clause.
2.8.5	Water NSW must jointly with Sydney Water review and update the Greater Sydney Drought Response Plan annually by 31 December each year, or another date approved by the Minister in writing.	SC	We will contact Sydney Water to comment on WaterNSW's performance against this clause.
2.8.6	Water NSW must implement any action that: <ul style="list-style-type: none"> <li>a. WaterNSW is responsible for implementing under the Greater Sydney Water Strategy; or</li> <li>b. the Minister directs, in writing, Water NSW to implement.</li> </ul>	Audit	We will contact the Minister's department (DPE) to comment on WaterNSW's performance against this clause.
2.8.7	Water NSW must participate in any review of the Greater Sydney Water Strategy and use its best endeavours to do so in cooperation with all parties.	SC	We will contact the Minister's department (DPE) to comment on WaterNSW's performance against this clause.
2.8.8	WaterNSW must: <ul style="list-style-type: none"> <li>a. use its best endeavours to maintain a data sharing agreement with DPE to assist in the development and review of the Greater Sydney Water Strategy (GSWS Data Sharing Agreement); and</li> <li>b. comply with the GSWS Data Sharing Agreement referred to in clause 2.8.8(a).</li> </ul>	Audit	We will contact DPE to comment on WaterNSW's performance against this clause.  We added this clause to the audit scope in response to WaterNSW's self-reported non-compliance against this clause.
2.8.9	In addition to any other matters agreed by Water NSW and DPE, the GSWS Data Sharing Agreement must: <ul style="list-style-type: none"> <li>a. set out the roles and responsibilities of Water NSW and DPE under the GSWS Data Sharing Agreement;</li> </ul>	Audit	

Licence clause	Operating Licence obligation	2023 audit requirement	Comments/guidance for the auditor
	<ul style="list-style-type: none"> <li>b. set out the types of data that are covered by the GSWS Data Sharing Agreement;</li> <li>c. set out the purposes for the sharing of data and information;</li> <li>d. set out the requirements that shared data and information must meet;</li> <li>e. identify agreed timelines and the format for sharing data and information; and</li> <li>f. identify procedures for resolving matters of conflict in providing data and information.</li> </ul>		
2.8.10	<p>Water NSW must provide any data or information requested by the Minister in writing:</p> <ul style="list-style-type: none"> <li>a. by the date specified by the Minister; and</li> <li>b. to the Minister or, if the Minister so directs, to DPE.</li> </ul>	SC	We will contact DPE to comment on WaterNSW's performance against this clause.
<b>Part 3</b>	<b>Bulk Water storage and transmission</b>		
3.1	Construct, maintain and operate Water Management Works		
3.1.1	Water NSW must construct, maintain and operate its Water Management Works in accordance with its Asset Management System referred to in clause 5.1.	Audit	
3.2	Water supply		
3.2.1	Water NSW must ensure that any water Supplied to Customers is Supplied in accordance with a relevant Water Quality Management System, any relevant Customer Supply Agreement, and any relevant arrangements with Sydney Water established under section 25 of the Act.	SC	We will contact Sydney Water and a sample of LWU customers to comment on WaterNSW's performance against this clause.
3.3	CSR Water		
3.3.1	<p>For CSR Water, Water NSW must take all reasonable steps to:</p> <ul style="list-style-type: none"> <li>a. process all Water Orders promptly and efficiently; and</li> <li>b. manage Water Orders to ensure water is Delivered to its Customers in a timely manner.</li> </ul>	SC	
3.4	Bulk Water released to Local Water Utilities for Drinking Water purposes		
3.4.1	<p>Water NSW must maintain a register of all Local Water Utilities:</p> <ul style="list-style-type: none"> <li>a. for which Water NSW maintains a Water Allocation Account; and</li> <li>b. to which Water NSW releases water that will be used for the purposes of Drinking Water (Local Water Utility Customers), (LWU Register).</li> </ul>	SC	
3.4.2	The LWU Register must include contact details for each Local Water Utility Customer, and the Water Source and approximate location from which the Local Water Utility Customer Extracts water.	SC	

Licence clause	Operating Licence obligation	2023 audit requirement	Comments/guidance for the auditor
3.4.3	Water NSW must maintain and implement a procedure for providing information to Local Water Utilities (LWU Information Request Procedure). Water NSW must follow the LWU Information Request Procedure when any Local Water Utility requests information to inform that utility's Drinking Water quality assurance program. Water NSW must maintain the LWU Information Request Procedure during the term of this Licence.	SC	
3.4.4	Water NSW's LWU Information Request Procedure must: <ul style="list-style-type: none"> <li>a. describe how a Local Water Utility is to request information;</li> <li>b. describe how Water NSW will respond to the request in a timely manner; and</li> <li>c. define any fees and charges that may be charged by Water NSW to recover reasonable costs incurred for responding to an information request, how these will be calculated, and how they are to be paid.</li> </ul>	SC	
3.4.5	Water NSW must make details of the LWU Information Request Procedure referred to in clause 3.4.3 available free of charge on its website.	SC	
<b>Part 4</b>	<b>Performance Standards</b>		
4.1	Requirement to meet Performance Standards		
4.1.1	Water NSW is required to ensure that its systems and services meet the Performance Standards specified in this chapter.	SC	
4.2	Water Supplied Performance Standards		
4.2.1	The Performance Standards set out in paragraphs 4.2.2 and 4.2.3 apply in respect of the Supply of water by Water NSW.	NR	Information clause - does not require audit
4.2.2	Water NSW must manage the quality of water Supplied to its Customers in accordance with the relevant Water Quality Management System required under clause 2.1.1 or 2.1.2 (Supply Water Quality Performance Standard).	SC	
4.2.3	Water NSW must manage service interruptions in accordance with the Asset Management System required under clause 5.1.1 (Supply Service Interruption Performance Standard).	SC	
4.3	CSR Water Performance Standards		
4.3.1	The Performance Standards set out in clause 4.3.2-4.3.8 apply to Water NSW with respect to CSR Water.	NR	Information clause - does not require audit
4.3.2	Water NSW must ensure that in each financial year no more than 5 Customers who place a Non-Complying Water Order are contacted more than one working day after Water NSW receives that order to rectify that order.	SC	
4.3.3	Water NSW must ensure that in each financial year: <ul style="list-style-type: none"> <li>a. 99% of Water Orders are Delivered within one day of the scheduled day of Delivery; and</li> <li>b. this is calculated as a percentage of all complying Water Orders placed in the financial year.</li> </ul>	SC	

Licence clause	Operating Licence obligation	2023 audit requirement	Comments/guidance for the auditor
4.3.4	The Performance Standard referred to in clause 4.3.3 does not apply where Water NSW is subject to a direction or order given under any law that requires Water NSW to reduce or cease the Supply of water in a manner that prevents Water NSW from Delivering a Water Order within the timeframe required by clause 4.2.3	NR	Information clause - does not require audit
4.3.5	Water NSW must ensure that: <ul style="list-style-type: none"> <li>a. 100% of Water Orders rescheduled, are rescheduled in consultation with an affected Customer within one working day of an expected water shortage, or other delivery delay; and</li> <li>b. this is calculated as a percentage of all Water Orders rescheduled in the financial year due to an expected shortage or Delivery delay.</li> </ul>	SC	
4.3.6	Water NSW must ensure that no less than 90% of complying Temporary Trades within the State in the financial year are processed within five working days of Water NSW's receipt of a correct application and fee.	SC	
4.3.7	Water NSW must ensure that no less than 90% of Interstate Temporary Trades (except to South Australia) in the financial year are processed within 10 working days of Water NSW's receipt of a correct application and fee.	SC	
4.3.8	Water NSW must ensure that no less than 90% of Interstate Temporary Trades to South Australia in the financial year are processed within 20 working days of Water NSW's receipt of a correct application and fee.	SC	
<b>Part 5</b>	<b>Organisation management systems</b>		
5.1	Asset Management System		
5.1.1	Water NSW must at all times maintain a Management System in relation to Water NSW's assets that is consistent with the Australian Standard AS ISO 55001:2014 Asset Management – Management systems – Requirements or other standard approved by IPART on request by Water NSW (Asset Management System).	Audit	The findings from the audit may impact our recommendations for the WaterNSW licence review.
5.1.2	Water NSW must fully implement the Asset Management System and carry out all relevant activities in accordance with the Asset Management System.	Audit	
5.2	Environmental Management System		
5.2.1	Water NSW must at all times maintain a Management System for managing its environmental responsibilities and the environmental impacts of its services and activities that is consistent with the Australian/New Zealand Standard AS/NZS ISO 14001:2016: Environmental management systems – Requirements with guidance for use or other standard approved by IPART, on request by Water NSW (Environmental Management System).	Audit	
5.2.2	Water NSW must fully implement the Environmental Management System and carry out all relevant activities in accordance with the Environmental Management System.	Audit	
<b>Part 6</b>	<b>Customer and stakeholder relations</b>		

Licence clause	Operating Licence obligation	2023 audit requirement	Comments/guidance for the auditor
6.1	Customer Supply Agreements – Customers other than Sydney Water		
6.1.1	Water NSW must establish and maintain agreements with each of its Customers to whom it Supplies water (except Sydney Water) that set out the terms and conditions for the Supply of water (Customer Supply Agreements).	Audit	
6.1.2	Water NSW must only Supply water to these Customers in accordance with the terms and conditions of these Customer Supply Agreements.	Audit	
6.1.3	The terms and conditions of the Customer Supply Agreements must, at a minimum, include provisions addressing: <ul style="list-style-type: none"> <li>a. the standard of water quality Supplied by Water NSW;</li> <li>b. the continuity of the water Supplied by Water NSW (that is, provisions relating to interruptions, disconnections and reconnections to Supply);</li> <li>c. any metering arrangements;</li> <li>d. the fees and charges to be paid by the Customers for the Supply of water to them;</li> <li>e. dispute resolution and Complaints handling procedures; and</li> <li>f. in the case of a Customer Supply Agreement with a Customer referred to in clause 1.2.1(e), terms and conditions preventing the Customer concerned from supplying the water for consumption by others within the State unless the Customer is authorised to do so by or under an Act.</li> </ul>	Audit	
6.2	Accounting for water		
6.2.1	Water NSW must maintain a Water Allocation Account for each Customer that holds a Water Licence.	SC	
6.3	Water metering and monitoring		
6.3.1	Water NSW must 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.	SC	
6.3.2	Prior to Water NSW operating, replacing, repairing, maintaining, removing, connecting, disconnecting or otherwise modifying Metering Equipment it does not own, it must obtain the agreement of the owner of that equipment. For the avoidance of doubt, this does not extend to the exercise of powers under section 32 of the Water NSW Act 2014.	SC	
6.4	Advance notification of changes to flow release patterns		
6.4.1	Water NSW must maintain an effective system to provide advance notification of any significant changes to flow release patterns from its Water Management Works to Customers and other stakeholders that have registered to be notified of such changes.	SC	
6.5	Customer advisory groups		



Licence clause	Operating Licence obligation	2023 audit requirement	Comments/guidance for the auditor
6.5.1	Water NSW must establish and maintain advisory groups for Customers in different regions of its Area of Operations that include representation from a broad cross-section of its Customers for each region (Customer Advisory Groups). Water NSW has discretion to determine those regions, provided collectively the regions encompass all of its Area of Operations.	SC	
6.5.2	Water NSW must regularly consult with the region-based Customer Advisory Groups to enable Customer involvement in issues relevant to the performance of Water NSW's obligations to Customers under this Licence or the Customer Service Charter, obtain advice on the interests of Water NSW's Customers and such other key issues relating to Water NSW's planning and operations as Water NSW may determine consistent with the Customer Advisory Group Charter(s).	SC	
6.5.3	For each Customer Advisory Group, Water NSW must ensure that, at all times, the membership of the Customer Advisory Group is appointed and determined by Water NSW in accordance with the Customer Advisory Group Charter.	SC	
6.5.4	For each Customer Advisory Group, Water NSW must use its best endeavours to ensure that membership is representative of the Customers in that region and include at least one Customer representing each of the following categories (where there are Customers in this category for the region associated with the Customer Advisory Group): <ul style="list-style-type: none"> <li>a. stock and domestic water users;</li> <li>b. Regulated River water users;</li> <li>c. Unregulated River water users;</li> <li>d. groundwater users;</li> <li>e. environmental water users;</li> <li>f. industrial and commercial water users;</li> <li>g. Local Water Utilities;</li> <li>h. Major Utilities;</li> <li>i. small water users based on their Water Licence volume;</li> <li>j. medium water users based on their Water Licence volume;</li> <li>k. large water users based on their Water Licence volume; and</li> <li>l. Aboriginal cultural heritage water users.</li> </ul>	SC	
6.5.5	Water NSW must provide the Customer Advisory Groups with adequate information within its possession or under its control necessary to enable the Customer Advisory Groups to discharge the tasks assigned to them other than information or documents that are confidential.	SC	
6.6	Customer Advisory Group Charter		

Licence clause	Operating Licence obligation	2023 audit requirement	Comments/guidance for the auditor
6.6.1	Water NSW, in consultation with Customers representing all of the categories in clause 6.5.4, must for the term of this Licence, establish and maintain a Customer advisory group charter in accordance with this clause 6.6 (Customer Advisory Group Charter). Water NSW may have one or more Customer Advisory Group Charters, for different Customer Advisory Groups, as it deems appropriate.	SC	
6.6.2	The Customer Advisory Group Charter must address all of the following issues: <ul style="list-style-type: none"> <li>a. the role of the Customer Advisory Group;</li> <li>b. how members and the chair of the Customer Advisory Group will be appointed;</li> <li>c. the term for which members are appointed;</li> <li>d. information on how the Customer Advisory Group will operate;</li> <li>e. a description of the type of matters that will be referred to the Customer Advisory Group and how those matters will be referred;</li> <li>f. procedures for communicating the outcomes of the Customer Advisory Groups' work to the public;</li> <li>g. procedures for monitoring issues raised at meetings of the Customer Advisory Groups and ensuring appropriate follow-up of those issues;</li> <li>h. procedures for amending the charter; and</li> <li>i. funding and resourcing of the Customer Advisory Groups by Water NSW.</li> </ul>	SC	
6.6.3	Water NSW or any member of the Customer Advisory Groups may propose any amendments to the Customer Advisory Group Charter(s). However, such amendments will not be effective until they have been approved by the relevant Customer Advisory Group.	NR	Information clause - does not require audit
6.6.4	Water NSW must make all Customer Advisory Group Charters referred to in clause 6.6.1 available free of charge on its website.	Internal IPART Check	
6.7	Customer Service Charter		
6.7.1	Water NSW must, in consultation with relevant Customers and/or Customer Advisory Groups, establish and maintain a Customer service charter (Customer Service Charter) in accordance with this clause 6.7. Water NSW may have one or more Customer Service Charters, for different categories of Customers, as it deems appropriate. Where Water NSW has established a Customer Supply Agreement with a Customer (or category of Customers), or where Water NSW has entered into an arrangement with Sydney Water under section 25 of the Act, a Customer Service Charter covering that Customer or category of Customers is not required.	SC	
6.7.2	The Customer Service Charter(s) must set out the mutual responsibilities of Water NSW and its Customers consistently with this Licence, the Act, the Water Management Act, the Water Act and any other applicable law.	SC	

Licence clause	Operating Licence obligation	2023 audit requirement	Comments/guidance for the auditor
6.7.3	Water NSW must make all Customer Service Charters referred to in clause 6.7.1 available free of charge on its website.	Internal IPART Check	
6.8	Code of Practice on Payment Difficulties		
6.8.1	Water NSW must maintain and fully implement a code of practice that assists Customers experiencing financial hardship to better manage their current and future Bills (Code of Practice on Payment Difficulties) in accordance with this clause 6.8.	SC	
6.8.2	The Code of Practice on Payment Difficulties must: <ul style="list-style-type: none"> <li>a. provide for a payment plan for Customers who are responsible for paying their Bills and who are, in Water NSW's reasonable opinion, experiencing financial hardship;</li> <li>b. include procedures for identifying the circumstances under which Water NSW may restrict the provision of services to a customer (including in respect of CSR Water and Supply water);</li> <li>c. include procedures for identifying the circumstances under which Water NSW may suspend water access licences when a Customer has not paid its Bill and an overview of the process that must be followed prior to suspension; and</li> <li>d. include procedures for self-identification, identification by community welfare organisations and identification by Water NSW of Customers experiencing financial hardship.</li> </ul>	SC	
6.8.3	Water NSW must set out details of the Code of Practice on Payment Difficulties in the Customer Service Charter, or, where a Customer Supply Agreement is established in respect of a Customer, in that Customer Supply Agreement.	SC	
6.8.4	Water NSW must provide, free of charge, information on the Code of Practice on Payment Difficulties: <ul style="list-style-type: none"> <li>a. to Customers, except Sydney Water, at least once annually with their Bills; and</li> <li>b. to Customers whom Water NSW identifies as experiencing financial hardship on the date that Water NSW first identifies that the Customer is experiencing financial hardship; and</li> <li>c. on its website.</li> </ul>	SC	
6.9	Internal Complaints Handling Procedure		
6.9.1	Water NSW must maintain a procedure for receiving, responding to and resolving Complaints, which is consistent with the Australian Standard AS/NZS 10002:2014 Guidelines for complaints management in organizations or other standard approved by IPART (Internal Complaints Handling Procedure).	SC	
6.9.2	Water NSW must ensure that the Internal Complaints Handling Procedure is fully implemented and that all relevant activities are carried out in accordance with the Internal Complaints Handling Procedure.	SC	

Licence clause	Operating Licence obligation	2023 audit requirement	Comments/guidance for the auditor
6.9.3	Water NSW must provide to Customers, at least annually with their Bills, information concerning internal Complaints handling, which explains how to make a Complaint and how Water NSW will receive, respond to and resolve Complaints.	SC	
6.9.4	Water NSW must make the information concerning internal Complaints handling referred to in clause 6.9.3 available free of charge on its website.	Internal IPART Check	
6.10	External dispute resolution scheme		
6.10.1	Water NSW must be a member of the Energy and Water Ombudsman of NSW to facilitate the resolution, by a dispute resolution body, of disputes between Water NSW and its Customers.	SC	
6.10.2	WaterNSW must: <ul style="list-style-type: none"> <li>a. prepare information that explains the dispute resolution service provided by the Energy and Water Ombudsman of NSW, including any right to have a Complaint or dispute referred to the Energy and Water Ombudsman of NSW and how such a Complaint or dispute can be assessed;</li> <li>b. provide the information prepared under clause 6.10.2(a), free of charge to Customers at least once a year with their Bills; and</li> <li>c. make the information prepared under clause 6.10.2(a) available free of charge on its website.</li> </ul>	SC	
6.11	Educative role		
6.11.1	Water NSW must undertake an educative role in the community on its activities and functions in Declared Catchment Areas consistent with its objectives under section 6(1)(c) of the Act, and report on its educative activities in accordance with the Reporting Manual.	SC	
6.12	Code of Conduct with WIC Act Licensees		
6.12.1	Water NSW must use reasonable endeavours to cooperate with any WIC Act Licensee that seeks to establish with Water NSW a code of conduct required under a licence under the WIC Act.	SC	
6.12.2	Where the Minister administering the WIC Act has established a code of conduct under clause 46 of the WIC Regulation, Water NSW will be taken to have satisfied its obligation under clause 6.12.1 by applying the water industry code of conduct established by the Minister to the relevant WIC Act Licensee.	NR	Information clause - does not require audit
6.13	Memorandum of understanding with NSW Health		
6.13.1	Water NSW must: <ul style="list-style-type: none"> <li>a. maintain a memorandum of understanding with the Secretary of the Ministry of Health entered into under section 21(1) of the Act; and</li> <li>b. comply with the memorandum of understanding maintained under clause 6.13.1(a).</li> </ul>	SC	We will contact NSW Health to comment on WaterNSW's performance against this clause.

Licence clause	Operating Licence obligation	2023 audit requirement	Comments/guidance for the auditor
6.13.2	The purpose of the memorandum of understanding referred to in clause 6.13.1 is to form the basis for cooperative relationships between the parties to the memorandum of understanding and particularly to recognise the role of NSW Health in providing advice to the NSW Government in relation to water quality standards and public health, with respect to CSR Water and the Supply of water by Water NSW.	NR	Information clause - does not require audit
6.13.3	The memorandum of understanding referred to in clause 6.13.1 must include arrangements for Water NSW to report to NSW Health information on any events, in relation to Water NSW's systems or service that might impact on public health.	SC	We will contact NSW Health to comment on WaterNSW's performance against this clause.
6.13.4	Water NSW must publish on its website, the memorandum of understanding maintained with NSW Health under clause 6.13.1(a).	Internal IPART Check	
6.14	Memorandum of understanding with Environment Protection Authority		
6.14.1	Water NSW must: <ul style="list-style-type: none"> <li>a. maintain the memorandum of understanding with the Environment Protection Authority entered into under section 21(1) of the Act; and</li> <li>b. comply with the memorandum of understanding maintained under clause 6.14.1(a).</li> </ul>	SC	We will contact EPA to comment on WaterNSW's performance against this clause.
6.14.2	The purpose of the memorandum of understanding referred to in clause 6.14.1(a) is to form the basis for cooperative relationships between the parties to the memorandum of understanding and particularly to recognise the role of the Environment Protection Authority as the environment regulator of New South Wales.	NR	Information clause - does not require audit
6.14.3	Water NSW must publish on its website, the memorandum of understanding maintained with the Environment Protection Authority under clause 6.14.1(a).	Internal IPART Check	
6.15	Roles and responsibilities with Department of Planning and Environment		
6.15.1	Water NSW must: <ul style="list-style-type: none"> <li>a. agree in writing with DPE the roles and responsibilities regarding the conduct of Conferred Functions specified in Schedule A of this Licence; and</li> <li>b. comply with the agreement established under clause 6.15.1(a).</li> </ul>	Audit	We will contact DPE to comment on WaterNSW's performance against this clause.
6.15.2	Water NSW must publish a statement setting out the roles and responsibilities required under clause 6.15.1(a) on its website.	Audit	
6.16	Memorandum of understanding with Natural Resources Access Regulator		
6.16.1	Water NSW must: <ul style="list-style-type: none"> <li>a. use its best endeavours to maintain a memorandum of understanding with the NRAR; and</li> </ul>	Audit	We will contact NRAR to comment on WaterNSW's performance against this clause.

Licence clause	Operating Licence obligation	2023 audit requirement	Comments/guidance for the auditor
	b. comply with the memorandum of understanding maintained under clause 6.16.1(a).		
6.16.2	The purpose of the memorandum of understanding referred to in clause 6.16.1 is to form the basis for an ongoing cooperative relationship between the parties to the memorandum to assist in meeting their joint responsibilities and principal objectives of water supply and compliance and enforcement.	NR	Information clause - does not require audit
6.17	Online portal for lodgement of documents relating to metering equipment		
6.17.1	Water NSW must operate and maintain an online portal to allow for the electronic lodgement of the following: <ul style="list-style-type: none"> <li>a. a certificate provided under clause 237(1) or (2) of the Water Management Regulation, as required by clause 238(2) of that regulation,</li> <li>b. a certificate provided under clause 237(3) of the Water Management Regulation,</li> <li>c. a report by a person who intends to rely on clause 8 of Schedule 8 of the Water Management Regulation setting out the steps taken in relation to the metering equipment, as required by clause 8(3) of Schedule 8 of that regulation,</li> <li>d. written certification as to the matter set out in clause 9(2)(b) of Schedule 8 of the Water Management Regulation,</li> <li>e. a report from a person who intends to rely on clause 9 of Schedule 8 of the Water Management Regulation, setting out the steps taken in relation to the metering equipment, as required by clause 9(5) of Schedule 8 of that regulation.</li> </ul>	Audit	We will contact DPE and NRAR to comment on WaterNSW's performance against this clause.
6.17.2	By 31 August 2023, Water NSW must: <ul style="list-style-type: none"> <li>a. develop, in consultation with NRAR and DPE, and maintain a data retention protocol to ensure that data, certificates, reports and other documents lodged in the portal are retained for the period required by the State Records Act 1998 (NSW) and any other applicable law; and</li> <li>b. implement and comply with the data retention protocol maintained under clause 6.17.2(a).</li> </ul>	SC	We will contact NRAR to comment on WaterNSW's performance against this clause.
6.17.3	Until the data retention protocol developed under clause 6.17.2(a) is implemented, Water NSW must ensure that all data, certificates, reports and other documents lodged in the portal are retained for the period required by the State Records Act 1998 (NSW) and any other applicable law.	SC	
6.17.4	Water NSW must ensure that all holders of a current authority and all duly qualified persons have access to the portal. In this subclause, "authority" has the same meaning as in Part 10 of the Water Management Regulation and "duly qualified person" has the same meaning as in the Water Management Act.	Audit	We will contact DPE and NRAR to comment on WaterNSW's performance against this clause.

Licence clause	Operating Licence obligation	2023 audit requirement	Comments/guidance for the auditor
6.17.5	Water NSW must provide DPE and NRAR with access to the portal and data and systems within the portal that are relevant to DPE and the NRAR's functions.	Audit	We will contact DPE and NRAR to comment on WaterNSW's performance against this clause.
6.18	Downloading of data from certain metering equipment		
6.18.1	This clause applies to any metering equipment used in connection with the works described in clause 6(2) of Schedule 8 of the Water Management Regulation.	NR	Information clause - does not require audit
6.18.2	Water NSW must, at least once a year, download all data from the metering equipment to which this clause 6.18 applies.	Audit	
6.18.3	All such data must be entered into Water NSW's data systems and retained in accordance with the data retention protocol maintained under clause 6.17.2(a).	SC	We removed this clause from the scope of the audit as it does not apply in the audit period.
6.18.4	Water NSW must use its best endeavours to maintain protocols with DPE and NRAR for requests for data to which this clause 6.18 applies.	Audit	We will contact DPE and NRAR to comment on WaterNSW's performance against this clause.
6.18.5	All such data must be made available to DPE and NRAR on request, provided such requests are made in accordance with the protocols agreed between Water NSW, DPE and NRAR.	Audit	We will contact DPE and NRAR to comment on WaterNSW's performance against this clause.
6.19	Data Sharing Agreements with DPE and NRAR – NSW non-urban water metering framework		
6.19.1	Water NSW must: <ul style="list-style-type: none"> <li>a. use its best endeavours to maintain a data sharing agreement with DPE (Data Sharing Agreement with DPE);</li> <li>b. comply with: <ul style="list-style-type: none"> <li>i. the Data Sharing Agreement with DPE maintained under clause 6.19.1(a); and</li> <li>ii. any cure plan that applies to Water NSW under the Data Sharing Agreement with DPE.</li> </ul> </li> </ul>	Audit	We will contact DPE to comment on WaterNSW's performance against this clause.
6.19.2	Water NSW must: <ul style="list-style-type: none"> <li>a. use its best endeavours to maintain a data sharing agreement with the NRAR (Data Sharing Agreement with NRAR);</li> <li>b. comply with: <ul style="list-style-type: none"> <li>i. the Data Sharing Agreement with NRAR maintained under clause 6.19.1(a); and</li> <li>ii. any cure plan that applies to Water NSW under that the Data Sharing Agreement with the NRAR.</li> </ul> </li> </ul>	Audit	We will contact NRAR to comment on WaterNSW's performance against this clause.

Licence clause	Operating Licence obligation	2023 audit requirement	Comments/guidance for the auditor
6.19.3	The Data Sharing Agreement with NRAR and Data Sharing Agreement with DPE (Data Sharing Agreements) are to record the terms and conditions on which Water NSW will provide access to the data and services relating to the NSW non-urban water metering framework to DPE and to the NRAR.	Audit	We will contact NRAR to comment on WaterNSW's performance against this clause.
6.19.4	By 1 September 2023, Water NSW must use its best endeavours to agree with DPE and the NRAR amendments to the Data Sharing Agreements maintained under clause 6.19.1(a) and 6.19.2(a) to specify: <ul style="list-style-type: none"> <li>a. standards and metrics for data accuracy, quality, continuity and timeliness of data provision;</li> <li>b. information technology and system access, where this is not already addressed under other arrangements between the parties;</li> <li>c. frequency of performance reviews of the Data Sharing Agreements; and</li> <li>d. terms for initiating review of, or amendment to, the Data Sharing Agreements.</li> </ul>	Audit	We will contact NRAR to comment on WaterNSW's performance against this clause.
<b>Part 7 Performance monitoring and reporting</b>			
7.1	Operational Audits		
7.1.1	IPART may annually, or from time to time as occasion requires, undertake, or may appoint an Auditor to undertake, an audit on Water NSW's compliance with: <ul style="list-style-type: none"> <li>a. this Licence;</li> <li>b. the Reporting Manual; or</li> <li>c. any other matters required by the Minister.</li> </ul> (Operational Audit).	NR	Information clause - does not require audit
7.1.2	Water NSW must provide to IPART or the Auditor all information in Water NSW's possession, or under Water NSW's custody or control, which is necessary or convenient for the conduct of the Operational Audit.	Internal IPART Check	
7.1.3	Without limiting clause 7.1.2, Water NSW must provide to IPART or the Auditor any information necessary or convenient for the conduct of the Operational Audit which IPART or the Auditor requests in writing, within any reasonable period of time specified by IPART or the Auditor in writing.	Internal IPART Check	
7.1.4	For the purpose of any Operational Audit or verifying a report on an Operational Audit, Water NSW must, within a reasonable period of time from receiving a request from IPART or the Auditor, permit IPART or the Auditor to: <ul style="list-style-type: none"> <li>a. access any Works, premises or offices occupied by Water NSW;</li> <li>b. carry out inspections, measurements and tests on, or in relation to, any such Works, premises or offices;</li> <li>c. take on to any such premises, Works or offices any person or equipment necessary for the purpose of performing the Operational Audit or verifying any report on the Operational Audit;</li> </ul>	Internal IPART Check	



Licence clause	Operating Licence obligation	2023 audit requirement	Comments/guidance for the auditor
	<ul style="list-style-type: none"> <li>d. inspect and make copies of, and take extracts from, any books and records of Water NSW that are maintained in relation to the performance of Water NSW's obligations under this Licence (including the Reporting Manual); and</li> <li>e. discuss matters relevant to the Operational Audit or any report on the Operational Audit with Water NSW, including Water NSW's officers and employees.</li> </ul>		
7.2	Reporting in accordance with this Licence and the Reporting Manual		
7.2.1	<p>Water NSW must comply with its reporting obligations set out in this Licence and in the Reporting Manual, including in relation to:</p> <ul style="list-style-type: none"> <li>a. water source protection and conservation;</li> <li>b. Bulk Water storage and transmission;</li> <li>c. Performance Standards;</li> <li>d. organisational systems management;</li> <li>e. Customer and stakeholder relations; and</li> <li>f. performance monitoring and reporting including: <ul style="list-style-type: none"> <li>i. IPART performance indicators; and</li> <li>ii. the National Performance Report Indicators.</li> </ul> </li> </ul>	Internal IPART Check	
7.2.2	Water NSW must maintain sufficient record systems that enable it to report accurately in accordance with clause 7.2.1.	Internal IPART Check	
7.2.3	In the case of any ambiguity in the interpretation or application of any requirements in the Reporting Manual, IPART's interpretation or assessment will prevail.	NR	Information clause - does not require audit
7.3	Provision of information to IPART and Auditor		
7.3.1	Water NSW must provide IPART or an Auditor with information relating to the performance of any of Water NSW's obligations under clause 7.2 (including providing IPART with physical and electronic access to the records required to be kept under clause 7.2) within a reasonable period of time from Water NSW receiving a request from IPART for that information.	Internal IPART Check	
7.3.2	Water NSW must provide IPART or an Auditor with such information as is reasonably required to enable IPART or an Auditor to conduct any review or investigation of Water NSW's obligations under this Licence within a reasonable period of time from Water NSW receiving a request from IPART for that information.	Internal IPART Check	
7.3.3	If Water NSW contracts out any of its activities to any person (including a subsidiary), it must take all reasonable steps to ensure that, if required by IPART, or any Auditor, any such persons provide information and do the things specified in this clause 7.3 as if that person were Water NSW.	Internal IPART Check	
7.3.4	<p>Where this Licence requires Water NSW to provide information to IPART or an Auditor that is information to which:</p> <ul style="list-style-type: none"> <li>a. section 24FF of the IPART Act applies; or</li> </ul>	Internal IPART Check	

Licence clause	Operating Licence obligation	2023 audit requirement	Comments/guidance for the auditor
	b. section 24FF of the IPART Act does not apply but IPART or the Auditor has agreed to treat the information as though section 24FF of the IPART Act applies to that information, Water NSW must, to the maximum extent permitted by the law, provide that information even if it is confidential.		

Table 3 Recommendations / outstanding items from previous audits

Recommendation number	Operational issue (licence reference where applicable)	IPART's recommendation to the Minister	Audit findings (Status will be reported by WaterNSW in audit recommendations update on 30 April <sup>a</sup> )	Guidance for 2023 audit
2022-01	Water source protection and conservation clause 2.1.1	By 30 June 2023, WaterNSW should revise the Conduct Catchment to Customer (C2C) Risk Assessment Procedure to include the step-by-step process for undertaking a water quality risk assessment. This should include the risk assessment matrix and definitions, and the process for identifying hazards, hazardous events, consequence, and likelihood. It should also state what is an appropriate control and may state how these should be implemented (relates to Element 2 of the Australian Drinking Water Guidelines (ADWG))	New recommendation from the 2022 operational audit.	Auditor to check for completion.
2022-02	Water source protection and conservation clause 2.1.2	By 30 June 2023, WaterNSW should revise the scope of the Water Quality Policy to clarify its application to the non-declared catchment areas. The coverage is dependent on the definition of the word "Supply" in each Licence. It should be clear to readers of the policy what the scope of its application is, without seeking clarification (relates to Element 1 of the ADWG).	New recommendation from the 2022 operational audit.	Auditor to check for completion.
2022-03	Water source protection and conservation clause 2.1.3	By 30 June 2023, WaterNSW should review its flow diagrams to ensure that all steps and processes from source to handover point, such as destratification systems, are included in the scheme flow diagrams (relates to Element 2 of the ADWG).	New recommendation from the 2022 operational audit.	Auditor to check for completion.

<sup>a</sup> WaterNSW is required to provide a report on progress by 30 April 2023 [https://www.waternsw.com.au/\\_data/assets/pdf\\_file/0014/221135/WaterNSW-Operating-Licence-2022-2024-Reporting-Manual-October-2022.PDF](https://www.waternsw.com.au/_data/assets/pdf_file/0014/221135/WaterNSW-Operating-Licence-2022-2024-Reporting-Manual-October-2022.PDF).

**Note:** Licence references are to the WaterNSW Operating Licence 2022-2024 unless otherwise stated.

**Source:** IPART, WaterNSW Operational Audit 2022 – Report to the Minister, March 2023.

Table 4 Previous field verification locations for Water NSW

Audit year	Location	Facility
2022 (planned) <sup>a</sup>	Cordeaux and Avon Catchment Areas (Cancelled)	Declared catchment area
	Nepean Dam (Cancelled)	Dam
2021	Prospect Reservoir	Pump station Handover point Water entry valves
	Fish River	Duckmaloi water treatment plant Lithgow handover point into Wallerawang reservoir Wallerawang dosing pump station
2020 <sup>b</sup>	Warragamba Dam	Warragamba Dam and W5 fire trail to the north of the dam
	Duckmaloi	Water treatment plant
2019 <sup>c</sup>	Farrer Memorial Agricultural High School, Calala	Metering site
	Chaffey Dam	Dam
2018	Burrawang	Pump station
	Nepean	Dam
	Corrimal No. 3 shaft and associated transformer yard	Declared catchment area
<b>Water NSW (State Water Corporation) Operating Licence 2013-2018</b>		
2017	Griffith - Murrumbidgee, Beavers Creek, Tombullen Creek	Weirs, Outlet
2016	Burrinjuck Dam	Infrastructure
2015	Fish River	Water Supply
2014	Warren	Marebone Weir fishway
	Dubbo	Burrundong Dam floating curtain
Previous Licence		
2013	Dubbo	Burrundong Dam
	Macquarie River near Dubbo	Metering sites
2012	Fish River	Water Supply
	Duckmaloi	Water Treatment Plant
Water NSW (Sydney Catchment Authority) Operating Licence 2012-2017		
2017	Nepean	Catchment Areas
2016	Brayton	Catchment Areas
	Goulburn	Bradley Street Sewage Pumping Station
2015	Leura Falls	Catchment works
2014	Cataract Dam	Chemical dosing facility
		Outlet works
	Broughton's Pass	Weir
	Prospect Reservoir	Warragamba Pipeline Outlet Works
		Prospect RWPS (WP0903)

Audit year	Location	Facility
2013	Broughton's Pass to Prospect Reservoir	Upper Canal
	Prospect Reservoir	Prospect Reservoir

- a In 2022 the site verification visit was cancelled due to the catchments being closed due to heavy rainfall. A briefing session/presentation in respect of catchment management and related activities was provided at the Parramatta offices instead; this session also included a planned presentation in respect hazard reduction burns in the Cataract Catchment.
- b In 2020, audit interviews were conducted remotely using online video conferencing, and site visits were made to 2 facilities.
- c In 2019, we planned visits to Woronora Dam and Lake Woronora catchments. We cancelled these due to heavy rainfall and closure of the catchment. Water NSW provided a briefing in its offices instead.

**Errata in relation to Appendix D, 2023 audit scope:**

1. Licence clause 1.3.1 contains a spelling error in the "Operating Licence obligation" column. The final word should be "Date".
2. Table note (a) to table 4 is missing the word "to" between the words "respect" and "hazard".

## E Audit findings for IPART checked conditions

Table E.1 Audit findings for IPART checked conditions

Licence clause	Operating licence obligation	Compliance grade
1.5.1	Water NSW must make this Licence available free of charge on its website	
1.6.2	Water NSW must provide to the person undertaking the End of Term Review such information as is reasonably required to enable the person to complete the End of Term Review. Water NSW must provide that person with such information within a reasonable time period of receiving a request for that information from that person.	
2.3.1	Water NSW must: <ul style="list-style-type: none"> <li>a. reasonably cooperate with the Appointed Auditor;</li> <li>b. publish information collected by WaterNSW on water quality relevant to Declared Catchment Areas in accordance with the Reporting Manual;</li> <li>c. provide data in relation to the Catchment Health Indicators to the Appointed Auditor, in accordance with the Reporting Manual;</li> <li>d. monitor, record and compile data on the Environment Indicators relevant to Declared Catchment Areas; and</li> <li>e. report on the Environment Indicators in accordance with the Reporting Manual</li> </ul>	
2.8.1	By 1 June 2023 (or another date approved by the Minister in writing), Water NSW must develop a long-term capital and operational plan jointly with Sydney Water and submit the plan to the Minister.	
6.6.4	Water NSW must make all Customer Advisory Group Charters referred to in clause 6.6.1 available free of charge on its website.	
6.7.3	Water NSW must make all Customer Service Charters referred to in clause 6.7.1 available free of charge on its website.	
6.9.4	Water NSW must make the information concerning internal Complaints handling referred to in clause 6.9.3 available free of charge on its website.	
6.13.4	Water NSW must publish on its website, the memorandum of understanding maintained with NSW Health under clause 6.13.1(a).	
6.14.3	Water NSW must publish on its website, the memorandum of understanding maintained with the Environment Protection Authority under clause 6.14.1(a).	
7.1.2	Water NSW must provide to IPART or the Auditor all information in Water NSW's possession, or under Water NSW's custody or control, which is necessary or convenient for the conduct of the Operational Audit.	
7.1.3	Without limiting clause 7.1.2, Water NSW must provide to IPART or the Auditor any information necessary or convenient for the conduct of the Operational Audit which IPART or the Auditor requests in writing, within any reasonable period of time specified by IPART or the Auditor in writing.	
7.1.4	For the purpose of any Operational Audit or verifying a report on an Operational Audit, Water NSW must, within a reasonable period of time from receiving a request from IPART or the Auditor, permit IPART or the Auditor to: <ul style="list-style-type: none"> <li>a. access any Works, premises or offices occupied by Water NSW;</li> <li>b. carry out inspections, measurements and tests on, or in relation to, any such Works, premises or offices;</li> </ul>	

Licence clause	Operating licence obligation	Compliance grade
	<ul style="list-style-type: none"> <li>c. take on to any such premises, Works or offices any person or equipment necessary for the purpose of performing the Operational Audit or verifying any report on the Operational Audit;</li> <li>d. inspect and make copies of, and take extracts from, any books and records of Water NSW that are maintained in relation to the performance of Water NSW's obligations under this Licence (including the Reporting Manual); and</li> <li>e. discuss matters relevant to the Operational Audit or any report on the Operational Audit with Water NSW, including Water NSW's officers and employees.</li> </ul>	
7.2.1	<p>Water NSW must comply with its reporting obligations set out in this Licence and in the Reporting Manual, including in relation to:</p> <ul style="list-style-type: none"> <li>a. water source protection and conservation;</li> <li>b. Bulk Water storage and transmission;</li> <li>c. Performance Standards;</li> <li>d. organisational systems management;</li> <li>e. Customer and stakeholder relations; and</li> <li>f. performance monitoring and reporting including:                             <ul style="list-style-type: none"> <li>i. IPART performance indicators; and</li> <li>ii. the National Performance Report Indicators.</li> </ul> </li> </ul>	
7.2.2	Water NSW must maintain sufficient record systems that enable it to report accurately in accordance with clause 7.2.1.	
7.3.1	Water NSW must provide IPART or an Auditor with information relating to the performance of any of Water NSW's obligations under clause 7.2 (including providing IPART with physical and electronic access to the records required to be kept under clause 7.2) within a reasonable period of time from Water NSW receiving a request from IPART for that information.	
7.3.2	Water NSW must provide IPART or an Auditor with such information as is reasonably required to enable IPART or an Auditor to conduct any review or investigation of Water NSW's obligations under this Licence within a reasonable period of time from Water NSW receiving a request from IPART for that information.	
7.3.3	If Water NSW contracts out any of its activities to any person (including a subsidiary), it must take all reasonable steps to ensure that, if required by IPART, or any Auditor, any such persons provide information and do the things specified in this clause 7.3 as if that person were Water NSW.	
7.3.4	<p>Where this Licence requires Water NSW to provide information to IPART or an Auditor that is information to which:</p> <ul style="list-style-type: none"> <li>a. section 24FF of the IPART Act applies; or</li> <li>b. section 24FF of the IPART Act does not apply but IPART or the Auditor has agreed to treat the information as though section 24FF of the IPART Act applies to that information,</li> </ul> <p>Water NSW must, to the maximum extent permitted by the law, provide that information even if it is confidential.</p>	



## F Auditor's report

# Operational audit of WaterNSW

## Audit report

PREPARED FOR Independent Pricing and Regulatory Tribunal | February  
2024

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We design with community in mind



# Revision schedule

Rev no.	Date	Description	Prepared by	Reviewed by	Approved by
A	9/01/2024	Draft for IPART review	Aneurin Hughes (Stantec) Ella Hingston (Stantec) Annalisa Contos (Atom Consulting) Patrick Schnelle (Atom Consulting)	Aneurin Hughes (Stantec)	Aneurin Hughes (Stantec)
B	16/01/2024	Revised draft for IPART and WaterNSW review	Aneurin Hughes (Stantec) Ella Hingston (Stantec) Annalisa Contos (Atom Consulting) Patrick Schnelle (Atom Consulting)	Aneurin Hughes (Stantec)	Aneurin Hughes (Stantec)
C	20/02/2024	Final report	Aneurin Hughes (Stantec) Ella Hingston (Stantec) Annalisa Contos (Atom Consulting) Patrick Schnelle (Atom Consulting)	Aneurin Hughes (Stantec)	Aneurin Hughes (Stantec)



# Executive summary

## Auditor's declaration

This report presents the findings of the audit of the operations of WaterNSW against the WaterNSW Operating Licence 2022-2024 for the period from 1 September 2022 to 30 June 2023, consistent with the audit requirements set out in the Public Water Utility Audit Guideline (July 2023) published by the Independent Pricing and Regulatory Tribunal (IPART).


The auditors confirm that:

- We have seen sufficient evidence on which to base our conclusions
- Our audit findings accurately reflect the professional opinions of the auditors
- We have conducted the audit, determined our audit findings and prepared the report consistent with the audit requirements set out in IPART's Public Water Utility Audit Guideline (July 2023) and Request for Quote
- Our audit findings have not been unduly influenced by the utility and/or any of its associates.






## Major findings






A summary of our major audit findings for the 2022/23 audit period is shown below. Additional context for these findings is provided in Section 3.

### Summary of audit findings against audited licence obligations










Section	Clause	Sub-clause	Audit grade	Summary of audit findings where less than fully compliant
2 Water source protection and conservation	2.1 Water quality management system	2.1.1	Non-compliant (non-material) 	WaterNSW uses Modelpedia to document its WQMS. WaterNSW has documented activities for each action within the Australian Drinking Water Guidelines (ADWG). However, in our sampling during this audit, we found the WQMS did not fully address the requirements of the ADWG for the Declared Catchment. Due to this deficiency, we have graded this clause as non-compliant non-material as this deficiency did not adversely impact the ability of the utility to achieve defined objectives or assure controlled processes, products or outcomes in the audit period.
		2.1.2	Non-compliant (non-material)	WaterNSW uses Modelpedia to document its WQMS. WaterNSW has documented activities for each action within the Australian Drinking Water Guidelines (ADWG). However, in our sampling during this audit, we found the WQMS did not fully address the requirements of the ADWG for the non-Declared Catchment. Due to this deficiency,











Section	Clause	Sub-clause	Audit grade	Summary of audit findings where less than fully compliant
				we have graded this clause as non-compliant non-material as this deficiency did not adversely impact the ability of the utility to achieve defined objectives or assure controlled processes, products or outcomes in the audit period.
		2.1.3	Non-compliant (non-material) 	<p>We found that the WQMS had not been fully implemented. Notably, formal debriefs had not been conducted within the required timeframe, and not all improvements that should have been tracked through the Water Quality Improvement Plan were being tracked there. We found that assurance activities planned at the beginning of the year were substituted with other activities and we did not see evidence that senior management and the board were aware of the substitution.</p> <p>Due to this deficiency, we have graded this clause as non-compliant non-material as this deficiency did not adversely impact the ability of the utility to achieve defined objectives or assure controlled processes, products or outcomes in the audit period.</p>
	2.4 Catchment infrastructure works management	2.4.1	Compliant 	N/A
	2.5 Calculating system yield	2.5.1	Compliant 	N/A
		2.5.2	Non-compliant (non-material) 	<p>WaterNSW considered that it was not responsible for advising the Minister in accordance with 2.5.2(b) due to accountability for the Greater Sydney water supply augmentation planning function being transferred from WaterNSW to Sydney Water on 31 January 2021. However, neither the Ministerial direction to WaterNSW regarding the transfer of that accountability, nor the Memorandum of Understanding that was entered into between WaterNSW and Sydney Water to meet the requirements of the Ministerial direction, vary WaterNSW's obligations under its operating licence. Therefore, WaterNSW did not comply with 2.5.2(b).</p> <p>This is a deficiency and not a shortcoming as it is a breach of the licence requirement. If uncontrolled, a breach of the licence requirement leads to a risk that the Minister is not aware of adverse impacts on the ability of the bulk water supply system to meet future demand. However, we consider that the residual (controlled) risk is minimal and that this deficiency is non-material. Our conclusion is made on the basis of the significant interagency collaboration that has occurred, and continues to occur, in regard to water supply augmentation planning for Greater Sydney. These collaborative working relationships have been formalised through the governance structure for the implementation of the Greater Sydney Water Strategy as well as instruments such as the aforementioned Memorandum of Understanding. The need for supply augmentation and options to respond to that need are key elements of the Greater Sydney Water Strategy.</p>

Section	Clause	Sub-clause	Audit grade	Summary of audit findings where less than fully compliant
	2.8 Water planning	2.8.4	Compliant 	N/A
		2.8.6	Compliant 	N/A
		2.8.8	Non-compliant (non-material) 	<p>One deficiency against part (b) of this clause was self-identified by WaterNSW in its Statement of Compliance submitted to IPART on 1 September 2023 for 2022/23. This deficiency relates to WaterNSW's compliance with Item 8 of Schedule A to the Memorandum of Understanding for Information Sharing between WaterNSW and the former Department of Planning, Industry and Environment.</p> <p>This is a deficiency and not a shortcoming as it is a breach of the licence requirement. If uncontrolled, a breach of the licence requirement leads to a risk that the Department will not have the data and information required to implement and review the effectiveness of the Greater Sydney Water Strategy. However, we consider that the residual (controlled) risk is minimal and that this deficiency is non-material. Our conclusion is made on the basis of e-mail correspondence from the Department to WaterNSW on 19 August 2023, where the Department stated that it was "satisfied that WaterNSW [had] responded to all data/information requests that [it had] needed, and [had] acted fully in the spirit of the MOU [Memorandum of Understanding] and DSA [Data Sharing Agreement]". The Department's position regarding WaterNSW's fulfilment of the intent of the Memorandum of Understanding was confirmed in our interview with the Department on 22 September 2023.</p> <p><i>Note: Effective from 1 January 2024 (i.e., after the audit period), the functions relevant to this audit that were previously undertaken by the Department of Planning and Environment are now undertaken by the Department of Climate Change, Energy, the Environment and Water. All references in this audit report to the "Department of Planning and Environment" are taken to refer to the "Department of Climate Change, Energy, the Environment and Water".</i></p>
		2.8.9	Compliant 	N/A
3 Bulk water storage and transmission	3.1 Construct, maintain and operate water management works	3.1.1	Compliant 	N/A
	5.1 Asset management system	5.1.1	Compliant	N/A



Section	Clause	Sub-clause	Audit grade	Summary of audit findings where less than fully compliant
5 Organisation management systems				
		5.1.2	Compliant (minor shortcomings) 	We consider that having two separate processes to manage continual improvement opportunities in the Asset Management System is inefficient with the likelihood of some improvement opportunities not being captured. As WaterNSW has systems in place to record preventive and corrective actions it is therefore considered to be compliant with the requirements of Clause 5.1.2. However, current weaknesses arising from duplication of systems are considered to be a minor shortcoming. WaterNSW have already identified improvements in this area and are in the process of developing an Integrated Asset Management System Improvement Plan.
	5.2 Environmental management system	5.2.1	Compliant 	N/A
		5.2.2	Compliant (minor shortcomings) 	A minor shortcoming was noted regarding incident investigation. Three of 11 Level 1 incidents were closed without any incident forms attached.
6 Customer and stakeholder relations	6.1 Customer supply agreements – customers other than Sydney Water	6.1.1	Compliant 	N/A
		6.1.2	Compliant 	N/A
		6.1.3	Compliant 	N/A
	6.15 Roles and responsibilities with Department of Planning and Environment (DPE)	6.15.1	Compliant 	N/A
		6.15.2	Compliant 	N/A

Section	Clause	Sub-clause	Audit grade	Summary of audit findings where less than fully compliant
	6.16 Memorandum of understanding with Natural Resources Access Regulator (NRAR)	6.16.1	Compliant (minor shortcomings) 	<p>A minor shortcoming was noted regarding compliance with the requirement of Area 3 of Annexure A, i.e., WaterNSW and NRAR are required to notify each other of any serious field safety issues that the respective parties become aware of as soon as practicable after becoming aware of the safety issue. This shortcoming relates to the excessive length of time taken to notify NRAR about a safety issue that arose in the WaterNSW Parramatta office which was recorded in the Unsafe Site Register.</p> <p>We initially considered that this shortcoming was bordering on being a non-compliance since the time for notification was considered to be too long. However, on further consideration, we accept WaterNSW's contention that the incident was not in the field and the situation was diffused such that it would not continue into a field situation at some point in the future, neither at the Parramatta Office nor at the customer's property.</p>
	6.17 Online portal for lodgement of documents relating to metering equipment	6.17.1	Compliant 	N/A
6.17.4		Compliant 	N/A	
6.17.5		Compliant 	N/A	
	6.18 Downloading of data from certain metering equipment	6.18.2	Compliant 	N/A
6.18.4		Compliant 	N/A	
6.18.5		Compliant 	N/A	
	6.19 Data sharing agreements with DPE and NRAR – New	6.19.1	Compliant 	N/A

Section	Clause	Sub-clause	Audit grade	Summary of audit findings where less than fully compliant
	South Wales non-urban water metering framework	6.19.2	Compliant 	N/A
		6.19.3	Compliant 	N/A
		6.19.4	Compliant 	N/A



## 2022/23 operational audit recommendations and risks of non-compliance

Section	Clause	Sub-clause	Risk of material non-compliance (where a recommendation has been made)	Recommendation(s)
2 Water source protection and conservation	2.1 Water quality management system	2.1.1	Without an appropriately maintained Water Quality Management System, the risk posed to public health from material non-compliance could be significant.	<p>Recommendation 2023/2.1.1 – 1: By 30 June 2024, WaterNSW should undertake a gap analysis and develop a project plan including resourcing and timelines to update the WQMS to meet all aspects of the actions in the ADWG Framework.</p> <p>Recommendation 2023/2.1.1 – 2: By 30 June 2025, the project plan should be implemented and the WQMS updated to meet all aspects of the actions in the ADWG Framework. The update should include (but is not limited to):</p> <ul style="list-style-type: none"> <li>a) Ensuring that responsibilities for meeting water quality regulatory and formal obligations are understood and assigned in sufficient detail to ensure these obligations are understood and met</li> <li>b) Confirming there are processes for ensuring staff are trained, competent and understand their delegations to implement the aspects of the WQMS relevant to their roles</li> <li>c) Documenting WaterNSW’s approach to operational water quality risk assessments and how uncertainty is evaluated in water quality risk assessments</li> <li>d) Formalising processes that consolidate improvement actions e.g. from C2C risk assessments, internal and tripartite incident debriefs, Health Checks, operational risk assessments and ensure accountability, timelines and reporting are documented</li> <li>e) Reviewing the <i>Water Quality Data Review and Reporting Procedure</i> (CD2012/130) to ensure it provides assurance that all the monitoring in the <i>Water Monitoring Program Manual</i> (CD2011/179) is undertaken and the context sections of the <i>Water Quality Monitoring Program</i> (CD2011/170) are current.</li> <li>f) Review the processes recorded under the short-term evaluation of results to confirm if they are relevant to this action or if they should be recorded as processes elsewhere in the WQMS.</li> </ul> <p>Recommendation 2023/2.1.1 – 3: By 30 June 2024, WaterNSW should formalise processes and record keeping</p>



Section	Clause	Sub-clause	Risk of material non-compliance (where a recommendation has been made)	Recommendation(s)
				<p>associated with changing CCP instrument locations and SCADA alarm values including the return to documented values following incidents.</p> <p>Recommendation 2023/2.1.1 – 4: By 30 June 2024, WaterNSW should finalise the O&amp;M Manual for the Upper Canal to ensure it meets the requirements of Element 4 of the ADWG Framework.</p>
		2.1.2	Without an appropriately maintained Water Quality Management System, the risk posed to public health from material non-compliance could be significant.	<p>Recommendation 2023/2.1.2 – 1: By 31 December 2024, WaterNSW should confirm that the FRWSS annual review adequately meets the ADWG requirements for long term evaluation of results.</p> <p>See also Recommendation 2023/2.1.1 – 2. In particular, as part of the update to the WQMS, the <i>Water Quality Data Review and Reporting Procedure</i> (CD2012/130) should be reviewed to ensure it provides assurance that all the monitoring in the <i>Water Monitoring Program Manual</i> (CD2011/179) is undertaken</p>
		2.1.3	Without an appropriately implemented Water Quality Management System, the risk posed to public health from material non-compliance could be significant.	<p>Recommendation 2013/2.1.3 – 1: By 30 June 2024, WaterNSW should update the C2C risk assessment procedure to define WaterNSW's role in C2C risk assessments for customers other than Sydney Water.</p> <p>Recommendation 2023/2.1.3 – 2: By 30 June 2024, WaterNSW should conduct its own formal incident debriefs within the two-week standdown timeframe as recorded in the incident management procedure, independent of customer incident status. These debriefs should include an improvement action plan that assigns responsibilities and due dates for actions.</p> <p>Recommendation 2023/2.1.3 – 3: By 30 June 2024, WaterNSW should review and update its processes to ensure exceedances are appropriately recorded in RACS. This recommendation addresses the findings of lead exceedance in FRWSS, SCADA exceedance not recorded in RACS and consequence descriptors not matching CCP hazards.</p> <p>Recommendation 2023/2.1.3 – 4: By 30 June 2024, WaterNSW should review industry practice and assess options for replacing lead seals for mains pipeline connections during repairs and maintenance. If an alternative process that meets AS4020:2018 cannot be implemented, WaterNSW should update their WQMS with a process for allowing</p>

Section	Clause	Sub-clause	Risk of material non-compliance (where a recommendation has been made)	Recommendation(s)
				<p>products that do not comply with AS4020:2018 to be assessed for water quality safety and document the repair procedure following this assessment processes.</p> <p>Recommendation 2023/2.1.3 – 5: By 31 December 2024, WaterNSW should review and update the WQMS assurance reporting processes and associated delegations to ensure that board reporting is accurate and changes to metrics and targets are being undertaken by those with appropriate delegations.</p>
	2.4 Catchment infrastructure works management	2.4.1	N/A	No recommendations made.
	2.5 Calculating system yield	2.5.1	N/A	No recommendations made.
		2.5.2	This requirement represents a moderate short-term, but potentially high long-term risk. Whilst changes to the System Yield may not affect effective operation of the water supply system in the short term, it is essential that the Minister is aware of any changes that may adversely impact the future availability of water.	<p>Recommendation 2023/2.5.2 – 1: By 30 June 2024, WaterNSW should develop and implement a process for advising the Minister if it considers that future demand for Bulk Water may exceed System Yield and when this exceedance might occur. The effective implementation of this process will require Sydney Water to provide WaterNSW with information on future demand for Bulk Water.</p> <p>Note: In making this recommendation, it is assumed that the requirements of this clause will be unchanged in WaterNSW's new operating licence, which is anticipated to come into effect on 1 July 2024.</p>
	2.8 Water planning	2.8.4	N/A	No recommendations made.
		2.8.6	N/A	No recommendations made.
		2.8.8	Failure to use its best endeavours to maintain a Greater Sydney Water Strategy Data Sharing Agreement with the Department of Planning and Environment, and comply with that agreement, presents a moderate risk that the Department will not have the data necessary to successfully implement and review the effectiveness of the Greater Sydney Water Strategy.	<p>Recommendation 2023/2.8.8 – 1: By 31 December 2024, WaterNSW should agree with the Department of Planning and Environment the preferred agreement arrangement for the ongoing sharing of data and/or information. This is to take into account the requirements of WaterNSW's new operating licence, anticipated to come into effect on 1 July 2024.</p> <p>Options for the preferred agreement may include, but are not limited to, cessation of existing agreements (such as the Memorandum of Understanding for Information Sharing), variation and expansion of existing agreements (such as the Data Sharing Agreement), or the creation of new agreements.</p>

Section	Clause	Sub-clause	Risk of material non-compliance (where a recommendation has been made)	Recommendation(s)
				The preferred arrangement must not lead to a breach of licence.
		2.8.9	N/A	No recommendations made.
3 Bulk water storage and transmission	3.1 Construct, maintain and operate water management works	3.1.1	N/A	No recommendations made.
5 Organisation management systems	5.1 Asset management system	5.1.1	N/A	No recommendations made.
		5.1.2	Failure to implement the Asset Management System presents a high risk of reduced levels of service, higher operating risk and costs not minimised across their lifecycle. WaterNSW's assets include assets with a high consequence of failure such as dams and asset vital to water quality. Therefore, non-compliance with this clause presents a high risk.	Recommendation 2023/5.1.2 – 1: By 30 June 2024, WaterNSW should develop its first Integrated Asset Management System Improvement Plan.
	5.2 Environmental management system	5.2.1	N/A	No recommendations made.
		5.2.2	If the Environmental Management System is not implemented fully there is a risk that WaterNSW will have a negative impact on the environment.	Recommendation 2023/5.2.2 – 1: By 30 June 2024, WaterNSW should review and update business processes to ensure that all reported environmental incidents and hazards are investigated, and preventive as well as corrective actions are identified prior to closure of the incident.
6 Customer and stakeholder relations	6.1 Customer supply agreements – customers other than Sydney Water	6.1.1	N/A	No recommendations made.
		6.1.2	N/A	No recommendations made.
		6.1.3	N/A	No recommendations made.
	6.15 Roles and responsibilities with Department of Planning and Environment (DPE)	6.15.1	N/A	No recommendations made.
		6.15.2	N/A	No recommendations made.
	6.16 Memorandum of understanding with Natural Resources Access Regulator (NRAR)	6.16.1	Not having used best endeavours to establish, maintain and comply with the memorandum of understanding (MoU) could impact on the efficiency and effectiveness of NRAR's regulatory function and safety of its staff in the field.	Recommendation 2023/6.16.1 – 1: By 30 June 2024, WaterNSW should agree with NRAR (and DPE) on a clearer definition of a 'serious field safety issue' and reasonable expectations on notification periods.
	6.17 Online portal for lodgement of documents	6.17.1	N/A	No recommendations made.
		6.17.4	N/A	No recommendations made.



Section	Clause	Sub-clause	Risk of material non-compliance (where a recommendation has been made)	Recommendation(s)
	relating to metering equipment	6.17.5	N/A	No recommendations made.
	6.18 Downloading of data from certain metering equipment	6.18.2	N/A	No recommendations made.
		6.18.4	N/A	No recommendations made.
		6.18.5	N/A	No recommendations made.
	6.19 Data sharing agreements with DPE and NRAR – New South Wales non-urban water metering framework	6.19.1	N/A	No recommendations made.
		6.19.2	N/A	No recommendations made.
		6.19.3	N/A	No recommendations made.
		6.19.4	N/A	No recommendations made.

#### 2022/23 operational audit opportunities for improvement

Section	Clause	Sub-clause	Opportunity(s) for improvement
2 Water source protection and conservation	2.1 Water quality management system	2.1.1	OFI 2023/2.1.1 – 1: WaterNSW, Sydney Water and NSW Health should consider reviewing the appropriateness of existing raw water CCPs based on experiences from the recent extreme events. OFI 2023/2.1.1 – 2: WaterNSW should consider reviewing how investigative programs outside the water quality or science program are managed and document this in Modelpedia. OFI 2023/2.1.1 – 3: WaterNSW should consider reviewing and updating the minimum standard for maintaining the Upper Canal both for clarity and to ensure it aligns with a preventive approach to drinking water quality management.
		2.1.2	OFI 2023/2.1.2 – 1: WaterNSW should consider reviewing the water quality management system against the NSW Guideline for Review and Audit of Drinking Water Management Systems. OFI 2023/2.1.2 – 2: WaterNSW should consider sampling for soluble manganese in the raw and treated water to understand the water quality and the effectiveness of the (proposed) potassium permanganate dosing.
		2.1.3	OFI 2023/2.1.3 – 1: WaterNSW should consider reviewing water quality data from recent incidents to review and update risks and risk scores, incorporate changes, reduce uncertainty, and prevent against future similar incidents.
	2.4 Catchment infrastructure works management	2.4.1	OFI 2023/2.4.1 – 1: Consideration could be given to undertaking a comprehensive catchment wide risk assessment, similar to the approach adopted for Warragamba Dam, to assess the likely impacts (water





Section	Clause	Sub-clause	Opportunity(s) for improvement
			availability/ quality) and potential mitigation actions available in the event of asset or source supply failure.
	2.5 Calculating system yield	2.5.1	No opportunities for improvement identified.
		2.5.2	No opportunities for improvement identified.
	2.8 Water planning	2.8.4	No opportunities for improvement identified.
		2.8.6	No opportunities for improvement identified.
		2.8.8	No opportunities for improvement identified.
		2.8.9	No opportunities for improvement identified.
3 Bulk water storage and transmission	3.1 Construct, maintain and operate water management works	3.1.1	OFI 2023/3.1.1 – 1: WaterNSW should consider further developing a long-term strategic infrastructure plan for the Fish River Scheme to meet customer needs over the next 50 years. The outcomes of this study will guide the optimal pipeline sizing and renewal strategy. OFI 2023/3.1.1 – 2: WaterNSW should consider investigating potential mains cleaning options to reduce the likelihood of major water discolouration events arising from continuing water main failures.
5 Organisation management systems	5.1 Asset management system	5.1.1	OFI 2023/5.1.1 – 1: Future Strategic Asset Management Plan (SAMP) updates could include a full review of the document to ensure consistency of updated information within the document.
		5.1.2	OFI 2023/5.1.2 – 1: When WaterNSW next reviews its criticality rating process it should consider whether lower criticality assets (e.g. relatively small urban water supply infrastructure) are currently given sufficient importance or whether further enhancements to the criticality rating system is warranted. OFI 2023/5.1.2 – 2: WaterNSW should consider entering dam instrumentation condition ratings, collected as part of annual intermediate surveillance, into EAMS to create a single source of truth for asset condition data and enable this data to be efficiently incorporated into renewals planning.
	5.2 Environmental management system	5.2.1	OFI 2023/5.2.1 – 1: WaterNSW should consider including the Environmental Services Team as a stakeholder as business process documents are reviewed and ensure that operational aspects (including abnormal situations) of the EMS are well integrated into these documents and processes.
		5.2.2	No opportunities for improvement identified.
6 Customer and stakeholder relations	6.1 Customer supply agreements – customers other than Sydney Water relations	6.1.1	OFI 2023/6.1.1 – 1: Consideration should be given to incorporating service performance criteria such as maximum pipeline failures per annum on customer supply lines, average response and restoration times, in future upgrades of the Agreements.
		6.1.2	OFI 2023/6.1.2 – 1: It would be useful if a monthly service performance dashboard for Fish River was presented to management, customers and the Board. This could cover the number of planned and unplanned interruptions impacting on each customer, along with the average time to respond and

Section	Clause	Sub-clause	Opportunity(s) for improvement
			restore service. The issue of asset failures and reliability will become more critical as pipelines approach the end of their useful lives.
		6.1.3	No opportunities for improvement identified.
	6.15 Roles and responsibilities with Department of Planning and Environment (DPE)	6.15.1	No opportunities for improvement identified.
		6.15.2	No opportunities for improvement identified.
	6.16 Memorandum of understanding with Natural Resources Access Regulator (NRAR)	6.16.1	No opportunities for improvement identified.
	6.17 Online portal for lodgement of documents relating to metering equipment	6.17.1	No opportunities for improvement identified.
		6.17.4	No opportunities for improvement identified.
		6.17.5	No opportunities for improvement identified.
	6.18 Downloading of data from certain metering equipment	6.18.2	No opportunities for improvement identified.
		6.18.4	No opportunities for improvement identified.
		6.18.5	No opportunities for improvement identified.
	6.19 Data sharing agreements with DPE and NRAR – New South Wales non-urban water metering framework	6.19.1	No opportunities for improvement identified.
		6.19.2	No opportunities for improvement identified.
		6.19.3	No opportunities for improvement identified.
		6.19.4	No opportunities for improvement identified.



# Contents

Executive summary .....	i
Auditor's declaration .....	i
Major findings .....	i
Acronyms and abbreviations .....	1
1 Introduction .....	4
1.1 Objectives .....	4
1.2 Audit method .....	4
1.3 Regulatory regime .....	7
1.4 Quality assurance process .....	8
2 Site visit report .....	9
2.1 Keepit Dam .....	9
2.2 Mollee Weir .....	10
3 Audit of individual clauses .....	11
Clause 2.1 – Water quality management system .....	11
Clause 2.4 – Catchment infrastructure works management .....	55
Clause 2.5 – Calculating system yield .....	59
Clause 2.8 – Water planning .....	63
Clause 3.1 – Construct, maintain and operate water management works .....	75
Clause 5.1 – Asset management system .....	80
Clause 5.2 – Environmental management system .....	90
Clause 6.1 – Customer supply agreements - Customers other than Sydney Water .....	94
Clause 6.15 – Roles and responsibilities with Department of Planning and Environment .....	99
Clause 6.16 – Memorandum of understanding with Natural Resources Access Regulator .....	102
Clause 6.17 – Online portal for lodgement of documents relating to metering equipment .....	105
Clause 6.18 – Downloading of data from certain metering equipment .....	111
Clause 6.19 – Data sharing agreements with DPE and NRAR – NSW non-urban water metering framework .....	118
4 Previous recommendations .....	126
4.1 Recommendation 2022-01 (Clause 2.1.1) .....	126
4.2 Recommendation 2022-02 (Clause 2.1.2) .....	126
4.3 Recommendation 2022-03 (Clause 2.1.3) .....	127
<b>Appendix A Evidence sighted .....</b>	<b>128</b>





# Acronyms and abbreviations

Item	Detail
ACR	Asset Change Request
ADWG	NHMRC, NRMMC (2011) <i>Australian Drinking Water Guidelines Paper 6 National Water Quality Management Strategy</i> . National Health and Medical Research Council, National Resource Management Ministerial Council, Commonwealth of Australia, Canberra. ISBN Online: 1864965118
AIIMS	Australian Inter-Service Incident Management System 2017
AMS	Asset Management System
AS	Australian Standard
ASAE 3100	Standard on Assurance Engagements ASAE 3100 Compliance Engagements
AS ISO 19600:2015	Compliance management systems – Guidelines
AS/NZS 10002:2014	Guidelines for complaint management in organizations
AS/NZ ISO 9001:2016	Quality Management Systems – Requirements (the Quality Management System)
AS/NZS 4020:2018	Australian and New Zealand Standards for testing of products for use in contact with drinking water
ARK	Records Management System
ALARP	As low as reasonably practical
ATS	Approval to Spend
BOM	Bureau of Meteorology
C2C	Catchment to Consumer
CAG	Customer Advisory Group
CALOSS	Water Delivery Capability Loss
CCP	Critical control point
CEO	Chief Executive Officer
CIMS	Consolidated information management system
CMT	Crisis Management Team
CSR	Capture Store Release
CWT	Clear Water Tank
DAS	Data Acquisition Service
DPI	NSW Department of Primary Industries
DPE	NSW Department of Planning and Environment. <i>Note: Effective from 1 January 2024 (i.e., after the audit period), the functions relevant to this audit that were previously undertaken by the Department of Planning and Environment are now undertaken by the Department of Climate Change, Energy, the Environment and Water. All references in this audit report to the “Department of Planning and Environment” are taken to refer to the “Department of Climate Change, Energy, the Environment and Water”.</i>
DQP	Duly Qualified Person
DSA	Data Sharing Agreement
EAMS	Enterprise Asset Management System



Item	Detail
Element	Elements of the ADWG Framework for the Management of Drinking Water Quality
EMS	Environmental Management System
EWN	Early Warning Network
Framework	Framework for Management of Drinking Water Quality
FRWSS	Fish River Water Supply Scheme
GL/a	Gigalitres per annum
GSWS	Greater Sydney Water Strategy
IAL	Irrigation Australia
IBMS	Integrated Business Management System
ICT	Information and communications technology
INSF	Integrated Management System Framework
IMT	Incident Management Team
IPART	Independent Pricing and Regulatory Tribunal of NSW
ISO	International Standards Organisation
ISO 14001:2015	Environmental management systems – Requirements with guidance for use
ISO 19011:2018	Guidelines for auditing management systems
ISO 17021:2015	Conformity Assessment – Requirements for bodies providing audit and certification of management systems
ISO 3100:2018	Risk management
ISO 55001:2014	Asset management – Management systems – Requirements
JAICT	Joint Agency ICT Steering Committee
JOG	Joint Operations Group
LTCOP	Long Term Capital and Operational Plan
MCP	Maintain Capability Program
MoU	Memorandum of Understanding
NOCTSO	Notification of Change to System Operation
NRAR	Natural Resource Access Regulator
NSW	New South Wales
NSW Health	NSW Ministry of Health
O&M	Operation and Maintenance
OFI	Opportunity for Improvement
ORA	Operational Risk Assessment
RACS	Risk Assurance and Compliance System
RFS	Rural Fire Service
RRA	Roles and Responsibilities Agreement
SAMP	Strategic Asset Management Plan
SCADA	Supervisory Control and Data Acquisition
SCARMS	WaterNSW (previously Sydney Catchment Authority/SCA) Reservoir Management System
SLG	Strategic Liaison Group



Item	Detail
SPAL	Special Purpose Access Licence
SWC	Sydney Water Corporation
SWIRL	Sydney Water Incident Recording and Learning System
ToR	Terms of Reference
WAMS	Water Administration Ministerial Corporation
WAS	Water Accounting System
<i>WATHNET</i>	Systems model
WFP	Water Filtration Plant
WHS	Workplace Health and Safety
WLS	Water Licensing System
WTP	Water Treatment Plant
WQMS	Water Quality Management System



# 1 Introduction

## 1.1 Objectives

Stantec, in association with Atom Consulting, has been engaged by the Independent Pricing and Regulatory Tribunal (IPART) to conduct an operational audit of WaterNSW.

The objective of this engagement is to conduct an audit of WaterNSW's performance against the terms and conditions (as defined in the audit scope) of its operating licence and any other Ministerially-imposed requirements for the period from 1 September 2022 to 30 June 2023, including consideration of:

- WaterNSW's Operating Licence 2022-2024
- WaterNSW's Reporting Manual 2022-2024
- IPART's Public Water Utility Audit Guideline (July 2023)
- IPART's WaterNSW 2022 Operational Audit – Report to the Minister (March 2023).

The audit team has also audited recommendations outstanding from previous audits and expressed an opinion on the progress to completing these recommendations.

## 1.2 Audit method

### 1.2.1 Audit scope

The scope of the audit comprises:

- The operating licence clauses listed in Table 1-1. These clauses have been selected by IPART on a risk basis.
- The following recommendations:
  - Recommendation 2022-01
  - Recommendation 2022-02
  - Recommendation 2022-03.

The operational audit covers the period from 1 September 2022 to 30 June 2023.

**Table 1-1 Licence sections within the 2022/23 audit scope**

Section	Clause	Sub-clause
2 Water source protection and conservation	2.1 Water quality management system	2.1.1
		2.1.2
		2.1.3
	2.4 Catchment infrastructure works management	2.4.1
	2.5 Calculating system yield	2.5.1
		2.5.2
	2.8 Water planning	2.8.4
		2.8.6
		2.8.8
		2.8.9



Section	Clause	Sub-clause
3 Bulk water storage and transmission	3.1 Construct, maintain and operate water management works	3.1.1
5 Organisation management systems	5.1 Asset management system	5.1.1
		5.1.2
	5.2 Environmental management system	5.2.1
		5.2.2
6 Customer and stakeholder relations	6.1 Customer supply agreements – customers other than Sydney Water	6.1.1
		6.1.2
		6.1.3
	6.15 Roles and responsibilities with Department of Planning and Environment (DPE) <i>Note: Effective from 1 January 2024 (i.e., after the audit period), the functions relevant to this audit that were previously undertaken by the Department of Planning and Environment are now undertaken by the Department of Climate Change, Energy, the Environment and Water. All references in this audit report to the “Department of Planning and Environment” are taken to refer to the “Department of Climate Change, Energy, the Environment and Water”.</i>	6.15.1
		6.15.2
	6.16 Memorandum of understanding with Natural Resources Access Regulator (NRAR)	6.16.1
	6.17 Online portal for lodgement of documents relating to metering equipment	6.17.1
		6.17.4
		6.17.5
	6.18 Downloading of data from certain metering equipment	6.18.2
		6.18.4
		6.18.5
	6.19 Data sharing agreements with DPE and NRAR – New South Wales non-urban water metering framework	6.19.1
		6.19.2
6.19.3		
6.19.4		

## 1.2.2 Audit standard

In conducting the audit, the auditors have followed IPART’s Public Water Utility Audit Guideline (July 2023).

Regard has also been given to the following standards and codes, especially where these provide specific detail appropriate to the audit:

- ASAE 3100 (2017) Compliance Engagements, issued by the Auditing and Assurance Standards Board
- ISO 19011:2018 Guidelines for auditing management systems
- AS/NZS ISO 9001:2016 Quality management systems – Requirements
- ISO 17021:2015 Conformity assessment – Requirements for bodies providing audit and certification of management systems (contains principles and requirements for the competence, consistency and impartiality of the audit and certification of management systems of all types)
- ISO 31000:2018 Risk management.



### 1.2.3 Audit steps

The audit process has been conducted as described in IPART's Public Water Utility Audit Guideline (July 2023).

### 1.2.4 Audit team

The audit team and audit qualifications are provided in Table 1-2.




**Table 1-2 Audit team members and their qualifications**

Team member	Details
Aneurin Hughes, Stantec Lead Auditor	Aneurin Hughes (BSc (Hons), Grad Dip Bus, MIEAust) holds the following auditor qualifications: <ul style="list-style-type: none"> <li>World Partners in Asset Management Certified Asset Management Assessor No. 57 (<a href="http://www.wpiam.com">www.wpiam.com</a>). This accreditation demonstrates compliance with ISO 17021-5 Competence requirements for auditing and certification of asset management systems.</li> <li>A registered Exemplar Global lead auditor:               <ul style="list-style-type: none"> <li>Exemplar Global TL-AU (Lead Auditor) (No. 201103859)</li> <li>Exemplar Global-DW (Drinking Water) (No. 638036)</li> </ul> </li> </ul>
Dr Annalisa Contos, Atom Consulting Auditor	Dr Annalisa Contos (BE (Chemical), PhD, CPEng, FIEAust) holds the following auditor qualifications: <ul style="list-style-type: none"> <li>Exemplar Global Lead Water Quality Management System Auditor (Drinking and Recycled Water)</li> </ul>
Patrick Schnelle, Atom Consulting Auditor	Patrick Schnelle (BE (Chemical), BSc (Environmental)) holds the following auditor qualifications: <ul style="list-style-type: none"> <li>Exemplar Global Lead Water Quality Management System Auditor (Drinking and Recycled Water)</li> </ul>
Ella Hingston, Stantec Auditor	Ella Hingston (BE (Civil) (Hons)) holds the following qualifications: <ul style="list-style-type: none"> <li>CPEng (Asset Management)</li> <li>RPEQ (Civil Engineering)</li> </ul>



### 1.2.5 Audit grades

The audit grade definitions used in assessing the auditee's performance against the requirements are set out in Table 1-3.

**Table 1-3 Audit grades**

Audit grade	Description
Compliant 	Sufficient evidence is available to confirm that the requirements have been met.
Compliant (minor shortcomings) 	Sufficient evidence is available to confirm that the requirements have been met apart from minor shortcomings which to date have not compromised the ability of the utility to achieve defined objectives or assure controlled processes, products or outcomes
Non-compliant (non-material) 	Sufficient evidence is not available to confirm that the requirements have been met and the deficiency does not adversely impact the ability of the utility to achieve defined objectives or assure controlled processes, products or outcomes
Non-compliant (material)	Sufficient evidence is not available to confirm the requirements have been met and the deficiency does adversely impact the ability of the utility to achieve defined objectives or assure controlled processes, products or outcomes.



Audit grade	Description
	
No requirement 	There is no requirement for the utility to meet this criterion within the audit period

### 1.3 Regulatory regime

WaterNSW operates largely in a New South Wales context but must also have regard to matters outside of that jurisdiction, where those matters may affect how it does business. A summary of the key legal and regulatory instruments for WaterNSW is provided in Table 1-4. It should be noted that this listing is intended to be illustrative, and not exhaustive, for the purposes of this report.

**Table 1-4 Key legal and regulatory instruments relevant to WaterNSW's operating licence<sup>1</sup>**

Instrument	Relevance
Competition and Consumer Act 2010 (Cth)	An Act for the promotion of competition and fair trading and provision for consumer protection. Could apply to the 'fitness for purpose' of any product or service supplied.
Current version of the Australian Drinking Water Guidelines	These guidelines are called up under WaterNSW's Operating Licence obligations.
Government Information (Public Access) Act 2009 (NSW)	Information may be requested from WaterNSW, which relates to aspects of the licence.
Water NSW Act 2014 (NSW)	An Act which establishes Water NSW, defining the functions and objectives of Water NSW.
WaterNSW Operating Licence 2022-2024	A licence issued by the Governor under section 11 of the Water NSW Act, which enables WaterNSW to provide relevant services within its area of operations. This licence also gives effect to the operational audits (this audit) to which WaterNSW is subject.
Independent Pricing and Regulatory Tribunal Act 1992 (NSW)	Allows for the regulation of utilities such as WaterNSW including the administration and auditing of licences and pricing functions.
Memorandum of Understanding with NSW Health 2016	Sets out the working relationship between NSW Health and WaterNSW.
Memorandum of Understanding with Environment Protection Authority 2016	Sets out the working relationship between the Environment Protection Authority and WaterNSW.
Memorandum of Understanding with	Sets out the working relationship between the Department of Planning and Environment and WaterNSW.

<sup>1</sup> Where legislation is identified in this table, a reference to that legislation should be taken to include any Regulation/s made pursuant to it

Instrument	Relevance
Department of Planning and Environment	
Memorandum of Understanding with the Natural Resources Access Regulator	Sets out the working relationship between the Natural Resources Access Regulator and WaterNSW.
Roles and Responsibilities Agreement	Sets out the roles, responsibilities, functions and activities of WaterNSW, Department of Planning and Environment, Natural Resources Access Regulator and the Water Administration Ministerial Corporation in relation to NSW water legislation
Public Health Act 2010 (NSW)	The objectives of this Act are to protect and promote public health, control risks to public health, promote the control and prevent the spread of infectious diseases and recognise the role of local governments in protecting public health. Supporting Regulations are intended to support the smooth operation of the Act. WaterNSW has obligations under this Act including notifying the Minister of any situation that is likely to be a risk to public health.

## 1.4 Quality assurance process

Checks of information received have been conducted, including aspects such as dates for audit scope compliance, veracity of information, coverage of the subject area being audited, and depth of implementation. Professional scepticism (as per ASAE 3100) has been applied as part of the document review and on-site audit. Auditors have liaised frequently with each other. Support auditors have been used for clauses where the audit load was heavy.

The audit report has been proof-read and cross-checked by the audit team members. An overall quality assurance review has been conducted by the audit team leader.

## 2 Site visit report

### 2.1 Keepit Dam

A site visit to Keepit Dam was undertaken on 20 October 2023. Access to Keepit Dam is controlled through a combination of access gates, signage and an alarm system. Perimeter access gates are locked between 4 pm and 7:30 am daily, while the dam wall access gate is permanently locked to the public. An overview of the site security measures in place is documented in the Keepit Dam Operations and Maintenance Manual (CD2021 78[v2]) (last approved on 11 May 2023). During our site visit, we confirmed that we were able to access the current version of the operations and maintenance manual for Keepit Dam through WaterNSW's document management system, ARK.

As a declared dam, Keepit Dam is subject to the requirements of the dam safety regulator in NSW (Dams Safety NSW) as well as WaterNSW's dam safety management system, which includes a detailed surveillance and risk assessment regime. The surveillance and risk assessment regime for Keepit Dam comprises 15-year portfolio risk assessments, 5-yearly comprehensive surveillance, annual intermediate surveillance, and daily surveillance.

As evidence of implementation of this regime, we were provided with WaterNSW's dam surveillance program tracking spreadsheet (D2017 57522), along with the most recent comprehensive surveillance report (5 Yearly Surveillance Report, dated July 2017, D2017 91359) and annual intermediate surveillance report (Intermediate Surveillance Report, dated November 2021, D2022 11867) for Keepit Dam. Annual intermediate surveillance was not undertaken in 2022 due to comprehensive surveillance being scheduled for that year. At the time of our site visit, WaterNSW advised that it was in the process of reporting on the 2022 comprehensive surveillance inspection. WaterNSW also advised that it had undertaken the 2023 annual intermediate surveillance inspection, with a report underway. We confirmed that WaterNSW's advice correlated with the planned and completed surveillance dates recorded for Keepit Dam in its dam surveillance program tracking spreadsheet.

Daily surveillance is scheduled and recorded through a mobile "DamGuard" app in Microsoft PowerApps, with site staff responsible for undertaking these inspections. The data collected and route taken as part of daily surveillance is dependent on the storage level at the time. Data validation features are built into the mobile app to prevent site staff from entering disallowed values and to warn them if the value they have entered is outside of the expected range. The mobile app is complemented by a PowerBI dashboard that enables WaterNSW's dam engineers to review and analyse the collected data, including seepage readings.

WaterNSW advised that an alarm is sent to its dam engineers when seepage outside of the expected parameters is observed. However, WaterNSW advised that its site staff do not rely on system alarms alone to identify material changes in critical parameters, as they have significant experience in operating and maintaining Keepit Dam and have developed an intrinsic knowledge of the typical operating parameters. WaterNSW also advised that, across its dam portfolio more broadly, it is investigating the use of drones, high-resolution photography and artificial intelligence to identify changes in the dam structure. Overall, the site staff and other interviewees present at our site visit demonstrated a good understanding of the surveillance regime prescribed and implemented at Keepit Dam along with their roles in implementation.

The site staff and other interviewees present at our site visit also demonstrated a good knowledge of flood operations at Keepit Dam – specifically, the roles of WaterNSW's teams and how they interact to operate the dam during flood events, as well as the impact of those events on surveillance needs. As an example, WaterNSW advised that, during the October – November 2022 floods, the frequency of routine surveillance was increased from daily to around every four hours. We reviewed the DamGuard PowerBI dashboard for 22 October 2022 and 23 October 2022 and confirmed that increased surveillance had been undertaken.

As mentioned earlier, WaterNSW has in place an operations and maintenance manual for Keepit Dam. WaterNSW's Enterprise Asset Management System (EAMS) is used to schedule and record asset maintenance activities. EAMS is also used to schedule other routine site-specific activities such as the annual update of operations and maintenance manuals and the regular testing of emergency and evacuation responses. Additionally, EAMS is used to record asset attribute, condition and criticality data.

To test the implementation of EAMS at Keepit Dam, we opened the "Hollow-jet valve no. 1" asset record in EAMS, confirmed that a criticality rating had been entered, and reviewed a completed work order (work



order no. WO00189774) for a six-monthly inspection undertaken in the audit period. The “expected”, “scheduled” and “actual” start dates for the work order were 1 January 2023, 11 January 2023 and 5 January 2023, respectively – indicating that the work order was completed within a reasonable variance from the originally planned date. We sighted the inspection checklist completed as part of the work order, as well as multiple condition ratings that had been entered against the asset at or around the time of work order completion. Overall, the site staff and other interviewees present at our site visit demonstrated a sound working knowledge of asset maintenance at Keepit Dam, and the sample of assets viewed as part of our site walkaround generally appeared to be in fair to good visual condition.

In reviewing the example annual intermediate surveillance report received, we identified an opportunity for improvement in the interface between dam surveillance, asset health monitoring and asset planning. We observed that instrumentation condition ratings had been collected as part of the instrumentation health report appended to the surveillance report. We consider that there is an opportunity for WaterNSW to enter this data into EAMS to create a single source of truth for asset condition data and enable this data to be efficiently incorporated into renewals planning. We have included this improvement opportunity under clause 5.1.2 (OFI 2023/5.1.2 – 2).

Staff at Keepit Dam showed an awareness of Keepit Dam Environmental Considerations (D2020/94259). They were able to describe how their maintenance activities met the requirements of the requirements of the Environmental Standard Operating Procedure (ESOP) (CD2019/113[v2]). We verified that the fuel and chemical storage requirements in Table 5 of the ESOP were implemented at Keepit Dam.

## 2.2 Mollee Weir

A site visit to Mollee Weir was undertaken on 20 October 2023. Although Mollee Weir is not a declared dam, some of the systems and processes implemented at declared dams, such as Keepit Dam, are also utilised at Mollee Weir. As an example, WaterNSW advised that routine surveillance at Mollee Weir is undertaken monthly by a regional staff member and recorded in the mobile DamGuard app. Due to poor reception at the site, surveillance data is entered offline and then synchronised when the staff member is in an area with better reception.

The monthly surveillance frequency advised by WaterNSW correlates with the monitoring frequency specified in WaterNSW’s Weir Asset Class Strategy (CD2021 99 WNSW-WER-AS-002) (last endorsed on 7 May 2021) for weirs with a criticality rating of 4 (“major”). The Asset Class Strategy assigns a criticality rating of 4 to Mollee Weir, under the criticality scoring framework outlined in section 3.2 of the strategy (“Asset Criticality”) and WaterNSW’s Asset Criticality Assessment Procedure. Section 6.2.1 of the strategy (“Asset Monitoring and Preventative Maintenance”) specifies a routine visual frequency of monthly to 12-monthly.

In a similar manner to Keepit Dam, EAMS is used to schedule and record asset maintenance activities at Mollee Weir. We were provided with example screenshots from EAMS showing a list of condition assessments completed on the main weir structure since 2019 (nine work orders between 2019 and the end of the audit period), and a list of preventative and corrective maintenance work orders completed on the concrete fishway structure since 2019 (eight work orders between 2019 and the end of the audit period). All but one preventative maintenance work order related to a minor inspection, with the remaining preventative maintenance work order relating to a major inspection. The corrective maintenance work order related to silt cleaning at the bottom of the fishway. Overall, the site staff and other interviewees present at our site visit demonstrated a sound working knowledge of asset maintenance at Mollee Weir, and the sample of assets viewed as part of our site walkaround appeared to be in fair to good visual condition.

Staff at Mollee Weir were able to describe how their maintenance activities met the requirements of the Environmental Standard Operating Procedure (ESOP) (CD2019/113[v2]).




# 3 Audit of individual clauses

## Clause 2.1 – Water quality management system

### Clause 2.1.1

Table 3-1 Clause 2.1.1 compliance grade

Subclause	Requirement	Compliance grade
2.1.1	With respect to Declared Catchment Areas, Water NSW must maintain a Water Quality Management System that is consistent with either: <ul style="list-style-type: none"> <li>a. the Australian Drinking Water Guidelines; or</li> <li>b. if NSW Health were to specify any amendment or addition to the Australian Drinking Water Guidelines that applies to Water NSW, the Australian Drinking Water Guidelines as amended or added to by NSW Health; or</li> <li>c. any other requirements specified or approved by NSW Health or IPART.</li> </ul>	Non-compliant (non-material) 
<b>Risk</b>	Without a Water Quality Management System, the risk posed to public health from material non-compliance with this clause could be significant.	<b>Target for full compliance</b> Evidence that a Water Quality Management System is maintained and kept up to date for the Declared Catchment Areas, that it is consistent with the ADWG, or as specified by NSW Health or IPART.

#### Summary of reasons for grade

WaterNSW has developed an on-line Water Quality Management System (WQMS) in Modelpedia, which is accessible to WaterNSW staff via The Source (intranet). Modelpedia has the WQMS for both declared and non-declared catchments. Actions are categorised as common (to both the declared and non-declared catchment), Greater Sydney (Declared Catchment) and Fish River (Non-Declared Catchment). The intranet version includes links to relevant documentation in the ARK records management system. WaterNSW migrated to Modelpedia in August 2021. Modelpedia was a step change improvement from the MS Word based document used previously to record the WQMS.

WaterNSW has documented activities for each action within the Australian Drinking Water Guidelines (ADWG). However, in our sampling during this audit, we found the WQMS did not address all the aspects of each action in the requirements of the ADWG Framework from Drinking Water Quality (The Framework) for the Declared Catchment. We found a number of issues with documentation which are discussed in Element 10. Other specific examples are noted in Table 3-2.

Due to this deficiency, we have graded this clause as non-compliant non-material as this deficiency did not adversely impact the ability of the utility to achieve defined objectives or assure controlled processes, products or outcomes in the audit period.

Table 3-2 Specific examples of WQMS findings for the Declared Catchment

Element	Finding
1	While the Legal and Other Requirements Register identifies relevant Acts, it does not capture the detail on how the legal requirements apply to WaterNSW. Modelpedia does not document how responsibilities for regulatory and formal requirements are understood and communicated to staff.
2	The approach and methodology for hazard identification and risk assessment for the operational risk assessments is not documented in Modelpedia.
3	There is no documented change management process to ensure that CCP alarms are reset to their original set points after the alarm limits have been raised above the critical limit to avoid nuisance alarms.





Element	Finding
	<p>There is no formal process to document a change in CCP instrument location. The Pheasants Nest CCP instrument was unavailable for some of the audit period. An instrument in an alternative location was used. The CCP table (CD2021/182[v2]) was not updated.</p> <p>The CCP tables call for the Incident Management Team (IMT) to be stood up when a CCP is exceeded, which is different to the actions outlined in the water quality incident response protocol.</p>
4	<p>There is no controlled operations and maintenance (O&amp;M) manual for the Upper Canal. No specific procedures for the Upper Canal are identified in Modelpedia. Other procedures for Upper Canal are not compiled into an O&amp;M manual, nor clearly linked to Modelpedia, or the C2C risk register.</p>
12	<p>The process for evaluating preventative measures (e.g. those identified in Health Checks) before adding them to the water quality improvement plan is unclear and not documented in Modelpedia</p> <p>Modelpedia does not document how all improvement items are tracked and monitored for effectiveness – Modelpedia only references the water quality improvement plan. Evidence was provided that actions are held in multiple systems (e.g. Joint Operational Group (JOG) minutes).</p>

**Recommendations 2023/2.1.1 – 1 and 2023/2.1.1 – 2** are overarching recommendations to address this non-conformance.

### Discussion and notes

Modelpedia and supporting WQMS documents are aligned with the 12 elements of the Australian Drinking Water Guidelines (ADWG) Framework for Management of Drinking Water Quality. The WQMS is supported by documents and processes that apply across the organisation as well as processes that may be specific to the Declared or Non-Declared Catchment. Modelpedia contains links to many of the supporting documents and processes. The auditors were provided external access to Modelpedia, which did not have access to the linked documentation. We were provided access to a file sharing platform shared with external agencies that had some supporting documents. WaterNSW demonstrated the links during the audit interviews, and other documents were provided as evidence.

The audit scope was Elements 1 to 12 of the ADWG Framework.

### Element 1 Commitment to drinking water quality management

#### *Drinking water quality policy*

WaterNSW has provided sufficient evidence to demonstrate it has met the ADWG requirements to formulate a drinking water quality policy, endorsed by senior executive, to be implemented throughout the organisation and ensure that the policy is visible and is communicated, understood and implemented by employees.

WaterNSW had a water quality policy that was current throughout the period. The policy was updated on 27 June 2023 (CD2014/5, v7) in response to a recommendation from the previous audit (see Recommendation 2022-02), ahead of the documented two-yearly review cycle. The policy sets out the scope, actions and accountability for water quality. The next review date for the policy was accurately recorded in the footer of the policy.

Modelpedia documents that the policy is on display in WaterNSW offices, available on intranet and is described in the mandatory Water Quality Awareness training (which is to be completed by all new staff and repeated every two years).

#### *Regulatory and formal requirements*

WaterNSW has provided evidence to demonstrate it has processes to maintain the ADWG requirements to identify and document relevant regulatory and formal requirements and review requirements periodically to reflect any changes. Modelpedia does not document how WaterNSW ensures the responsibilities are understood and communicated to employees.

Modelpedia documents that WaterNSW maintains a *Compliance Management Procedure* (CD2018/121) to provide a defined structure to ensure that WaterNSW is able to meet its externally imposed regulatory compliance obligations.

The business also maintains a *Legal and Other Requirements Register* which is updated yearly to ensure ongoing compliance and to capture any new requirements. In Clause 2.1.3 we found that the processes were not being implemented in sufficient detail to capture regulatory requirements and ensure these are understood by all staff.



While the register documents:

- Team
- Accountable Position
- Responsible Position (Subject Matter Expert),

Modelpedia did not record how WaterNSW ensured all relevant regulatory and formal requirements, and their associated responsibilities, were understood and communicated to employees.

WaterNSW should consider whether additional processes are required to ensure regulatory obligations are understood in sufficient detail by staff or whether current processes can be implemented more thoroughly to provide this level of detail as part of **Recommendation 2023/2.1.1 – 1**.

The *Water Quality Monitoring Program* (CD2011/170) Section 1.2 *Water Quality Guidelines* and Section 2.1 *Applicable Guidelines* documents legislation, guidelines and other obligations relevant to water quality monitoring. Having these sections in the document provides context for the monitoring program and is good practice. These sections should be reviewed and updated as part of the next review as some information was out of date. For example, the document notes *the ADWG (2011) and NSW Health states that E. coli and total coliforms should not be detected in drinking water. If detected, the NSW Health protocol for the management of microbiological quality of drinking water is followed.*

The ADWG Total Coliform factsheet states that *No guideline value has been set for total coliforms in drinking water. If used as an indicator, numbers should be established on a system-specific basis. Increased concentrations should be investigated.* The NSW Health Protocol has been updated and is now titled *Managing pathogen risks in drinking water: response protocol for water utilities and public health units.*

### **Engaging stakeholders**

WaterNSW has provided sufficient evidence to demonstrate it has processes to meet the ADWG requirements to identify all stakeholders who could affect, or be affected by, decisions or activities of the drinking water supplier, develop appropriate mechanisms and documentation for stakeholder commitment and involvement, and regularly update the list of relevant agencies.

Stakeholders and their contact information are recorded in the WaterNSW Water Quality Contact List (D2013/94543). Evidence was provided in a screenshot of the ARK notes of the February update and an email showing that the February 2023 contact list was distributed to NSW Health and Sydney Water (D202374558). The next review date is recorded in the footer as documented in Modelpedia.

WaterNSW has a Memorandum of Understanding (MoU) with NSW Health (which is required under the *Water NSW Act* s21(2) and Operating Licence clause 6.13). The MoU is current and located on the WaterNSW website.

WaterNSW has established the following forums to engage with their stakeholders:

- Strategic Liaison Group (SLG) with NSW Health and Sydney Water
- Joint Operational Group (JOG) with NSW Health and Sydney Water
- Operational Forums with Major Greater Sydney Customers.

## **Element 2 Assessment of the drinking water supply system**

### **Water supply system analysis**

While WaterNSW has provided evidence for the C2C risk assessment to demonstrate it has met the ADWG requirements to maintain a system to assemble a team with appropriate knowledge and expertise, construct a flow diagram of the water supply system from catchment to consumer, assemble pertinent information and document key characteristics of the water supply system to be considered and periodically review the water supply system analysis. However, the approach and methodology for hazard identification and risk assessment for the operational risk assessments is not documented in Modelpedia.

The *How to Guide – Developing Water Supply System Schematics in Holecentric 2023* (D2023/117503) is consistent with the ADWG requirements, including that the diagram should outline all steps and processes; summarise the basic characteristics of each component; make explicit any characteristics that are unique to the system; and be verified by field audits.



The *Conduct Catchment-to-Customer (C2C) Risk Assessment* (CD2021/92[v2]) identifies risk review workshop members, including that NSW Health (Water Unit or relevant Local Health Department) must be invited to participate in any water quality risk assessment. This is consistent with ADWG requirements.

Modelpedia does not define the pertinent information and characteristics to be considered for operational risk assessments, noting *if the scope is restricted to a targeted issue, risk or incident, not all of the materials and data may be required*. This finding contributes to the deficiency discussed further in Element 2 hazard identification and risk assessment of this clause.

### **Assessment of water quality data**

WaterNSW has provided evidence to demonstrate it has met the ADWG requirements to maintain a system to assemble historical data, list and examine exceedances, and assess data using tools such as control charts and trends analysis to identify trends and potential problems.

The *Water Quality Data Analysis and Reporting Procedure* (CD2012/130[v7]) outlines the process for reviewing, analysing and reporting on raw and treated water quality data. The *Water Quality Incident Response Protocol* (CD2004/183) documents that exceedances are logged in the Risk Assurance and Compliance System (RACS). Modelpedia outlines that quarterly water quality performance and trend analysis reports are prepared including review of CCP performance and any incidents.

### **Hazard identification and risk assessment**

WaterNSW provided evidence that it had maintained a system that aligned with the ADWG requirements to:

- Define the approach and methodology to be used for hazard identification and risk assessment
- Identify and document hazards, sources and hazardous events for each component of the water supply system
- Estimate the level of risk for each identified hazard or hazardous event
- Determine significant risks and document priorities for risk management
- Periodically review and update the hazard identification and risk assessment to incorporate any changes.

Modelpedia and the supporting processes did not document how The Framework action to *Evaluate the major sources of uncertainty associated with each hazard and hazardous event and consider actions to reduce uncertainty* was met. The *Conduct Catchment-to-Customer (C2C) Risk Assessment* (CD2021/92[v2]) outlines the procedure to conduct, review and finalise catchment-to-customer risk assessments. Uncertainty ratings aren't defined in CD2021/92 and there isn't a methodology for evaluating the major sources of uncertainty for each hazard. The ADWG states that "*Characterising the major sources and types of uncertainty can provide a better understanding of the limitations of the hazard identification and risk assessment and how these limitations can be reduced. Investigative studies and research monitoring can often provide further information for the risk assessment process and help to reduce uncertainty.*"

We found that the scope of the customers covered by the *Conduct Catchment-to-Customer (C2C) Risk Assessment* (CD2021/92[v2]) is unclear, as is the process and responsibility for scheduling hazard identification and risk assessment reviews. This is discussed further in Element 2 in Clause 2.1.3.

WaterNSW undertakes operational risk assessments that embody the ADWG requirement to review and update the hazard identification and risk assessment to incorporate any changes. The approach and methodology for hazard identification and risk assessment for the operational risk assessments, for both Sydney Water and other customers, are not documented in Modelpedia. WaterNSW advised that Sydney Water lead the operational risk assessment reviews, including discussions with subject matter experts (SMEs) in the meetings. WaterNSW advised that the C2C working group is currently reviewing and revising the terms of reference for C2C risk assessments including addressing the potential overlap with operational risk assessments.

## **Element 3 Preventative measures for drinking water quality management**

### **Preventive measures and multiple barriers**

WaterNSW has provided evidence to demonstrate it has maintained systems to meet the ADWG requirements to identify existing preventive measures from catchment to consumer for each significant hazard or hazardous event and estimate the residual risk, evaluate alternative or additional preventive



measures where improvement is required, and document the preventive measures and strategies into a plan addressing each significant risk.

Modelpedia documents common activities for this component:

- Identify existing preventive measures by maintaining the list of current controls in the C2C risk assessment spreadsheets
- Evaluate alternative preventative measures (supported by the Conduct Catchment-to-Customer (C2C) Risk Assessment process mapped in Modelpedia)
- A procedure for adding recommendations to the water quality improvement plan (CD2021/95) and the plan itself (D2019/53719). We discuss the process to evaluate and document improvement measures to address risks in Element 12 of this clause.
- The Pollution Source Assessment tool is listed as a common item (although it may apply only to the declared catchment).

Specific measures documented for the Declared Catchment are the Source Water Protection Strategy and employing the Neutral or Beneficial Effects Test.

### **Critical control points**

WaterNSW has provided evidence to demonstrate it has maintained systems that meet the ADWG requirements to assess preventive measures from catchment to consumer to identify CCPs, establish mechanisms for operational control, and document the CCPs, critical limits and target criteria except for:

- Documented change management process to ensure that CCP alarms are reset to their original set points
- Formal process to document a change in CCP instrument location
- Maintaining CCP documentation for the Pheasants Nest CCP.

We found that the following:

- WaterNSW has assessed the preventive measures in the raw water supply to identify CCPs. CCPs are documented in Critical Control Points for Raw Water Supply to WFPs (CD2021/128[v2]). The document includes justification for targets and critical limits and operator's actions for exceeding the target criteria and critical limits.
- WaterNSW have a SCADA Configuration and Change Management Procedure (D2016/67172) which outlines the CCP alarm modification approval requirements. There is no documented change management process to ensure that CCP alarms are reset to their original set points after the alarm limits have been raised above the critical limit to avoid nuisance alarms. There is also no formal process to document a change in CCP instrument location. We could not establish that WaterNSW had a process to formalise (including communication of) a change in CCP instrument location or alternative monitoring process when a CCP instrument is not available.
- The Pheasants Nest CCP instrument was unavailable for some of the audit period due to the Pheasants Nest landslide which occurred in March 2022. This landslide damaged the head gear building and surrounding assets, including the water quality CCP instrument. An instrument in an alternative location is being temporarily used (and is alarmed in the supervisory control and data acquisition (SCADA) system). The Pheasants Nest CCP table (CD2021/182[v2]) was not updated. In response to our preliminary finding, WaterNSW advised that they could consider noting the alternate instrument as part of the formal CCP table (CD2021/182[v2]) document review in January 2024.
- The CCP tables (CD2021/182[v2]) call for the Incident Management Team (IMT) to be activated when a critical limit is exceeded. This is different to the actions outlined in the Water Quality Incident Response Protocol (CD2004/183) which only calls for the IMT to be activated if required.

WaterNSW should address these findings as part of **Recommendations 2023/2.1.1 – 1** and **2023/2.1.1 – 2**.



## Element 4 Operational procedures and process control

### Operational procedures

WaterNSW has provided sufficient evidence to demonstrate it has met the ADWG requirements to identify procedures required for processes and activities from catchment to consumer and document all procedures and compile them into an operations manual, with the exception of the Upper Canal.

No specific procedures for the Upper Canal are identified in Modelpedia. There is a draft O&M Manual for the Upper Canal. This document is a legacy document from the Sydney Catchment Authority and is dated 2018. WaterNSW advised this document was being used. We do not consider a draft document that is over four years old to be sufficient to meet the requirements of this Framework action. Other procedures for Upper Canal are not compiled into an O&M manual, nor clearly linked to Modelpedia. Modelpedia records that key processes are noted as controls for each hazardous event in Catchment to Customer Risk spreadsheets. "Raw water delivery management" is listed as a control in the C2C risk assessment for Upper Canal in the C2C Risk Assessment (D2023/73033); however, we could not determine how WaterNSW linked this control with specific procedures or processes. There are O&M manuals for Broughton Pass Weir (CD2021/136) and Kangaroo Pipeline Control Structure (CD2002/13[v3]). **Recommendations 2023/2.1.1 – 1, 2.1.1 – 2 and 2.1.1 – 4** address these findings.

WaterNSW advised that the *guiding procedures for management of water quality in the Upper Canal are Sydney Water and WaterNSW Raw Water Supply Operating Protocols and Water Quality Incident Response Protocol*. WaterNSW also advised that the Asset Class Strategy for the Upper Canal provides strategic direction for the Upper Canal lifecycle through Objective #3 Maintain Quality of Water. The strategy made recommendations that were minimum standards, but from the evidence we were provided, we could not determine if the strategy recommendation had been implemented.

The Asset Class Strategy recommends as a minimum standard for maintaining the canal: *Do not seal cracks and joints in the canal unless there is a demonstrated water quality or significant canal leakage issue*.

With the current wording it is unclear whether sealing the cracks prior to a demonstrated water quality issue is below or above the minimum standard.

Of greater concern is how Objective #3 Maintain Quality of Water can be aligned with the recommendation not to repair the canal until there is a demonstrated water quality issue.

This minimum standard recommendation should be reviewed, both for clarity and to ensure it aligns with a preventive approach to drinking water quality management (**OFI 2023/2.1.1 – 3**).

The risk of not having documented procedures that clearly link to water quality risk management is that activities that manage water quality are reduced or discontinued without understanding how this degrades the barriers. We have observed this in other organisations.

WaterNSW has a consistent structure for the dam site O&M manuals. Section 2 has the Water Planning & Delivery Operations. Modelpedia has links to the O&M Manuals for the dams and some control structures:

- Avon Dam – CD2001/112
- Bendeela Pondage – CD2002/12
- Broughton Pass Weir – CD2021/136
- Cataract Dam – CD2001/113
- Cordeaux Dam – CD2001/114
- Fitzroy Falls Dam – CD2002/11
- Glenquarry Cut Control Structure – CD2002/10
- Greaves Creek Dam – CD2002/6
- Kangaroo Pipeline Control Structure – CD2002/13
- Lake Medlow Dam – CD2021/60
- Lower Cascade Dam (No. 2) – CD2006/83
- Middle Cascade Dam (No. 1) – CD2002/7



- Nepean Dam – CD2001/116
- Pheasants Nest Weir – CD2021/149
- Prospect Dam – CD2001/115
- Upper Cascade Dam (No. 3) – CD2002/8
- Upper Cordeaux 2 Dam – CD2021/118
- Warragamba Dam – CD2004/126
- Wingecarribee Dam – CD2002/9
- Woronora Dam – CD2001/118

Water Quality is a specific section (Section 2.8) in the dam site O&M manuals. WaterNSW has a process for updating O&M manuals (CD2021/119[v2]).

To negotiate and record operational changes, WaterNSW uses a Notification of Change to System Operations (NOCTSO) process. This process describes the proposed change, reason, and water quality implications. These documents satisfy the requirements of this component.

### **Operational monitoring**

WaterNSW has provided evidence that demonstrates it has met the ADWG requirements to develop monitoring protocols for operational performance of the water supply system, including the selection of operational parameters and criteria and the routine analysis of results, and to document monitoring protocols into an operational monitoring plan.

WaterNSW's *Water Monitoring Program Manual* (CD2011/179 [v7]) includes a section on operational monitoring (Section 2.3 and 2.4). The *Water Quality Data Review and Reporting Procedure* (CD2012/130) sets out the process for undertaking the daily data review and preparing customer reports, which include the prognosis and recommended actions.

Critical control point monitoring was considered under Element 3.

### **Corrective action**

WaterNSW has provided sufficient evidence to demonstrate it has met the ADWG requirements to establish and document procedures for corrective action to control excursions in operational parameters and establish rapid communication systems to deal with unexpected events.

WaterNSW has documented corrective actions in tables for each critical and operational control point (D2021/128) and in the *Water Quality Incident Response Protocol* (CD2004/183). The *Water Quality Incident Response Protocol* sets out thresholds for notification. The *Water Quality Contacts List* (D2013/94543) contains contact details for key personnel involved in water quality from WaterNSW and relevant agencies across Greater Sydney including Sydney Water, direct contacts for their contractors operating the filtration plants, Councils who are raw water customers, and NSW Health.

The NOCTSO can be utilised as a corrective action.

We observed inconsistencies in documentation for the corrective actions associated with CCP exceedances. The CCP tables call for the Incident Management Team (IMT) to be stood up when a CCP is exceeded. This is different to the actions outlined in the water quality incident response protocol in which the IMT/Crisis Management Team (CMT) is only activated if required. This finding contributes to the deficiency discussed under Element 10.

### **Equipment capability and maintenance**

WaterNSW has provided evidence to demonstrate it has met the ADWG requirements to establish programs for regular inspection and maintenance of equipment including monitoring equipment in relation to the water monitoring equipment.

Modelpedia records that WaterNSW:

- Maintains a Strategic Asset Management Plan
- Uses Asset Class Standards to defines requirements, risks and criticalities for different categories of assets



- Establishes that maintenance frequencies for all asset types are based on asset object criticality ratings
- Schedules maintenance activities at the specified frequencies using the Enterprise Asset Management System (EAMS) which enables tracking of preventive and corrective maintenance orders.

Screenshots (D2023/79664) were provided of the EAMS Hierarchy and work checklist for the CCP turbidity analysers at:

- Upper Canal at Liverpool Dam (Metro.WS0062Q01.Canal.WQM01.Turbidity Level)
- Upper Nepean.WD0029 BROUGHTONS PASS WEIR.Penstock.Weir.WQM02.Turbidity Level Broughton

We were also provided with screenshots of the preventative maintenance schedule (which was one month).

Our findings on the asset management system are discussed in Clause 5.1.

### **Materials and chemicals**

WaterNSW has provided sufficient evidence to demonstrate it has a process that met the ADWG requirements to ensure that only approved materials and chemicals are used and has established documented procedures for evaluating chemicals, materials and suppliers.

Modelpedia has common items for this action. It records that WaterNSW conducts risk assessments for any projects or activities that may involve work in contact with drinking water or raw water to be supplied for treatment as drinking water. *The Materials and Chemicals in Contact with Drinking Water Procedure* (CD2019/36) was reviewed in the 2021 audit. The WaterNSW Procurement Framework requires any high-risk procurement activities to be referred to the Water Quality Services team for review. A training module has also been developed to provide guidance to staff in this procedure. This module is reviewed under Element 7.

Modelpedia requires records are maintained of stored chemicals including Safety Data Sheets, application and usage instructions, quantities stored on site, storage method, and life and supplier details.

WaterNSW has a procedure in place for the purchase of sodium hypochlorite solution or calcium hypochlorite tablets for supplementary dosing in accordance (*Purchasing Procedure for Manual Chlorination Facilities* – CD2015/38).

## **Element 5 Verification of drinking water quality**

### **Drinking water quality monitoring**

WaterNSW has provided sufficient evidence to demonstrate it has maintained systems that meet the ADWG requirements to determine the characteristics to be monitored in the distribution system and in water as supplied to the consumer, establish and document a sampling plan for each characteristic, including the location and frequency of sampling, and ensure monitoring data are representative and reliable.

The water sampling program for the Declared Catchments is documented in the *Water Monitoring Program Manual* (CD2011/179, [v7]). The program documents the characteristics to be monitored, the monitoring location and the monitoring frequency. The program includes parameters important for short term decisions and understanding long term changes in the catchment.

The *Water Quality Data Review and Reporting Procedure* (CD2012/130) outlines the process for reviewing, analysing and reporting on water quality data. This procedure outlines the appropriate steps to prepare routine water quality reports.

The *Water Quality Incident Response Protocol* (CD2004/183, v4) meets the requirements for the corrective actions (See Element 6).

### **Customer satisfaction**

WaterNSW has provided sufficient evidence to demonstrate it has maintained systems that meet the ADWG requirements to establish a consumer complaint and response program, including appropriate training of employees.

In the declared catchments, WaterNSW uses the raw water supply agreements with customers and the Raw Water Supply Protocols with Sydney Water (CD2007/2) to meet the requirements of this action:

- Raw Water Supply Agreement – Sydney Water – D2013/101721



- Raw Water Supply Agreement Protocol – Shoalhaven City Council – CD2013/17
- Raw Water Supply Agreement – Wingecarribee Shire Council – D2020/80599
- Goulburn Mulwaree Supply Agreement – D2021/22294

### **Short-term evaluation of results**

WaterNSW has provided evidence to demonstrate it has maintained systems that meet the ADWG requirements to establish procedures for the daily review of drinking water quality monitoring data and consumer satisfaction and develop reporting mechanisms internally, and externally, where required.

Modelpedia records that daily water quality monitoring and monthly dashboard reports to the Executive and Board Committee meet this requirement, supported by the *Water Quality Data Review and Reporting Procedure* (CD2012/130, v7).

Additional processes are recorded under this item in Modelpedia that are not relevant to short term evaluation of results:

- Publish Annual Water Quality Monitoring Reports
- Review catchment protection works and prepare reports
- Prepare Maintain Joint Operational Group with Health Department and Sydney Water
- Prepare the Annual Catchment Management Report

As part of **Recommendation 2023/2.1.1 – 1**, these items should be reviewed and recorded under other relevant elements e.g. Prepare the Annual Catchment Management Report may be relevant to Elements 10 and 11 but is not listed there.

### **Corrective action**

WaterNSW has provided sufficient evidence to demonstrate it has maintained systems that meet the ADWG requirements to establish and document procedures for corrective action in response to non-conformance or consumer feedback and establish rapid communication systems to deal with unexpected events.

Corrective actions are noted in CCP documents, and the *Water Quality Incident Response Protocol* (CD2004/183) provides guidance on required corrective actions and investigations. Additional mechanisms for corrective actions were discussed in Element 4.

## **Element 6 Management of incidents and emergencies**

### **Communication**

WaterNSW has provided sufficient evidence to demonstrate it has maintained systems that meet the ADWG requirements to define communication protocols with the involvement of relevant agencies, prepare a contact list of key people, agencies and businesses, and develop a public and media communications strategy.

WaterNSW has established communication protocols, documented in Section 4.2 of the *Water Quality Incident Response Protocol* (CD2004/183[v4]).

Communication protocols and guidelines are jointly developed by WaterNSW, Sydney Water and NSW Health to ensure consistent messaging during incidents (D2019/26963). The protocols include agreed messaging, responsibilities for issue of communications and sign off.

WaterNSW maintains a Water Quality Contact List (see Element 1).

### **Incident and emergency response protocols**

WaterNSW has provided evidence to demonstrate it has maintained systems that meet the ADWG requirements to define potential incidents and emergencies and document procedures and response plans with the involvement of relevant agencies; train employees and regularly test emergency response plans; and investigate any incidents or emergencies and revise protocols as necessary.

To meet the requirements of this component, WaterNSW has an overarching *Incident Management Procedure* (CD2022/72) which determines levels of incidents based on the capacity and resources required to respond. Subject specific procedures (in the case of water quality, the *Water Quality Incident Response Protocol*) contain details on notifications and responses.





WaterNSW has an updated Incident Management Procedure (CD2022/72) that replaced CD2017/18. This new procedure is based on the five fundamental principles of the Australian Inter-Service Incident Management System (AIIMS) 2017:

- Flexibility
- Management by objectives
- Functional management
- Unit of command
- Span of control.

The AIIMS approach is an appropriate framework for an incident management procedure. The procedure sets out the incident impacts:

- Level 1 (incident)
- Level 2 (serious incident including the establishment of an incident management team)
- Level 3 Crisis (IMT and CMT established).

Modelpedia documents that WaterNSW holds hot debriefs at the end of an incident and prior to standing down incident teams to capture immediate learnings. These are supplemented by formal debriefs after the end of major incidents, and learnings are captured in debrief reports. Incidents records in RACS are closed once the incident has closed.

Modelpedia records the following processes to support the requirements of this action:

- Incident Management – 2022 – Incident Debrief Report (CD2022/80)
- RACS – Reporting an Incident – How to Guide (CD2019/136)
- Incident Investigation Form – Level 1 (CD2017/73)
- Incident Investigation Form – Level 2 ICAM (CD2017/74).

These processes and timings are appropriate to meet the requirements of this component. We could not establish the process for evaluating the learnings from incidents and progressing actions.

## **Element 7 Employee awareness and training**

### ***Employee awareness and involvement***

WaterNSW has provided sufficient evidence to demonstrate it has maintained systems that meet the ADWG requirements to develop mechanisms and communication procedures to increase employees' awareness of and participation in drinking water quality management.

Water quality awareness training is mandatory for all WaterNSW staff with refreshers to be conducted every two years. Modelpedia notes that the training module includes a description of the water quality policy, along with its application, responsibilities and where to find it. The training material meets these obligations (2023/42323). This process is consistent with the ADWG guidelines.

Modelpedia records that *Monthly staff communications kits are presented to the Level 3 leadership team for cascading of information to all employees. The standard communications kit includes a section on water quality. Communications kits are also available through the WaterNSW intranet.* When we requested evidence of this during the interviews, we were advised these were no longer undertaken. We have considered the materiality of this as part of the requirement under Element 10 to periodically review documentation and revise as necessary.

### ***Employee training***

WaterNSW has provided evidence to demonstrate it has maintained systems that generally meet the ADWG requirements to ensure that employees, including contractors, maintain the appropriate experience and qualifications, identify training needs and ensure resources are available to support training programs and document training, and maintain records of all employee training. We provide commentary on training and competency gaps in Element 10.



Modelpedia documents mandatory training in *Water Quality Incident Response* and *Materials and Chemicals in Contact with Drinking Water* for identified roles.

WaterNSW maintains a mandatory skills training matrix which identifies required training for each role, current competency and date when retraining is required.

The *Material and Chemicals in Contact with Drinking Water* eLearning module (D2019/48488) was reviewed. The scope of the training covers *Wherever WaterNSW directly supplies drinking water, or water intended for drinking, that product should meet the appropriate quality guidelines or standards to minimise risks to public health, as reviewed. We were satisfied with this training module.*

The *Water Quality Incident Response* eLearning module (D2018/77988) was reviewed. We are satisfied with this training module. We observed that the module contains an image of the previous version of the water quality policy.

Modelpedia notes the myLearning system tracks currency of training competencies and issues reminders of any training due.

We requested evidence that WaterNSW had implemented processes to ensure that third party contractors met the requirement for this element. We were advised this was covered by the *Rapid Induct Training Module*. We requested access to this module and completed the training. This training met the requirements for this action.

## Element 8 Community involvement and awareness

### Community consultation

WaterNSW has provided sufficient evidence to demonstrate it has maintained systems that meet the ADWG requirements to assess requirements for effective community involvement and develop a comprehensive strategy for community consultation.

Modelpedia records the following activities that are common to both the declared and non-declared catchment:

- Deliver Education Program including school excursions
- Operate Warragamba Dam Visitor Centre
- Maintain Website and social media
- Conduct targeted community consultation (for major projects). This is supported by long (D2018/78477) and short form (2019/29701) planning templates.

### Communication

WaterNSW has provided evidence that demonstrates it has maintained systems that meet the ADWG requirements to develop an active two-way communication program to inform consumers and promote awareness of drinking water quality issues.

Modelpedia records the following processes that are common for the declared and non-declared catchment (Table 3-3).

**Table 3-3 WaterNSW communication programs**

Aspect	Modelpedia description
Maintain website and social media	Customer newsletters are issued on the WaterNSW website. Recent newsletters are available on the website link. Regular updates are provided on social media channels – see the <a href="#">Facebook</a> link as an example.
Monitor customer feedback	Complaints are recorded, investigated and resolved or escalated in accordance with the Customer Complaints and Compliments Handling Procedure. Customer help desk staff are trained in categorising and investigating complaints. Any complaints relating to water quality are referred to the Water Quality Services team.  The document references are: <ul style="list-style-type: none"> <li>• Customer Strategy (D2016/133508)</li> </ul>

Aspect	Modelpedia description
	<ul style="list-style-type: none"> <li>Complaints and Compliments Handling Procedure (CD2007/13)</li> </ul>
Hold customer interface meetings	Meetings are held with all major customers.
Host Customer Advisory Groups	Customer Advisory Group meetings are held to provide a forum for customer consultation on water delivery mechanisms, asset management, pricing and levels of service. WaterNSW has a Customer Advisory Groups Charter (CD2015/281).

We could not find evidence that the customer newsletters were issued, or on the website, and the weblink in Modelpedia returned a 404 Page not found error. We have considered this as part of maintaining the documentation and records in Element 10.

## Element 9 Research and development

### *Investigative studies and research monitoring*

WaterNSW has provided sufficient evidence to demonstrate it has maintained systems that meet the ADWG requirements to establish programs to increase understanding of the water supply system and use information to improve management of the water supply system.

Modelpedia states investigative monitoring is undertaken to obtain more information about an incident or anomalous water quality, or to investigate an identified emerging risk (Section 2.3.3 of the *Water Monitoring Program Manual* CD2011/179 [v7]). The Science Program also addresses this action and includes projects to address objectives under the two themes of Catchment Resilience and Integrated Water Management.

Modelpedia is silent on how a program outside the water quality or science program would be managed (OFI 2023/2.1.1 – 2).

### *Validation of processes*

WaterNSW has provided sufficient evidence to demonstrate it has maintained systems that meet the ADWG requirements to validate processes and procedures to ensure that they are effective in controlling hazards and revalidate processes periodically or when variations in conditions occur.

The Modelpedia WQMS states that criteria utilised by WaterNSW for validation of key process steps are described under WaterNSW CCP tables (Validation of Critical Control Points table). We confirmed this table was in the document (CD2021/128).

### *Design of equipment*

WaterNSW has provided sufficient evidence to demonstrate it has maintained systems that meet the ADWG requirements to validate the selection and design of new equipment and infrastructure to ensure continuing reliability.

The Modelpedia WQMS states WaterNSW has established an “Approval to Spend” process to ensure the business makes prudent, efficient and justifiable purchasing decisions (Business Case Framework CD2015/591). Design of new equipment or infrastructure involves consultation to identify and manage risks. The Asset Change Management Procedure requires project managers to demonstrate consultation to determine the impacts of any proposed changes. The “Spend Wise” procurement portal provides guidance on selecting approved suppliers and will direct any procurement proposals involving contact with drinking water to the Water Quality Services team for review. WaterNSW has an Asset Change Request (ACR) procedure which ensures any proposed changes are adequately consulted and risks assessed prior to implementation. The Approval to Spend (ATS) procedure also ensures that risks are assessed prior to purchasing new technology.

The Modelpedia WQMS includes the requirements to perform studies, tests and proving trials as part of assessments of the suitability of new equipment and infrastructure, as well as consultation with NSW Health during the commissioning phase prior to using new equipment or infrastructure which may impact on water quality.

## Element 10 Documentation and reporting

### *Management of documentation and records*

We found deficiencies in the following aspects for this action:



- Document information pertinent to all aspects of drinking water quality management
- Periodically review documentation and revise as necessary.
- Develop process to train employees to fill out records

The discrepancies we found are discussed throughout this report. We have listed a sample of findings in Table 3-4. As it is not the role of the audit to conduct a gap analysis of the WQMS, in completing **Recommendation 2023/2.1.1 – 1**, WaterNSW should not focus only on this table.

**Table 3-4 Sample of findings for documentation and records**

Document	Aspect	Finding
Modelpedia	Element 1 Action 1.2.1 records <i>The business also maintains a Legal and Other Requirements Register which is updated every six months to ensure ongoing compliance and to capture any new requirements</i>	The review period is now yearly.
	Element 1 Action 1.2.2 records <i>The WaterNSW Risk and Compliance Network is being re-constituted as a Risk and Compliance Community of Practice and is one of the forums that will be used to communicate regulatory and formal requirements to employees</i>	There is no WaterNSW Risk and Compliance Community of Practice. Modelpedia should be updated to reflect this.
	Element 7 Action 7.1.1 refers to monthly staff communication kits	These are no longer undertaken. Modelpedia should be updated to reflect this.
	NSW Health MoU link: The link ( <a href="https://www.waternsw.com.au/_data/assets/pdf_file/0003/122835/Memorandum-of-Understanding-between-WaterNSW-and-NSW-Health.pdf">https://www.waternsw.com.au/_data/assets/pdf_file/0003/122835/Memorandum-of-Understanding-between-WaterNSW-and-NSW-Health.pdf</a> ) included in Modelpedia to the WaterNSW website is not current	The link to the MoU is not correct (404 error). The MoU could be located by searching the website.
	Element 5 link to the Annual Catchment Management Report on the WaterNSW website	The link does not lead to the report. We could not locate the report on the website.
	Element 12 link to the IPART Reporting Manual in Modelpedia	The link ( <a href="https://www.waternsw.com.au/_data/assets/pdf_file/0014/221135/Reporting-Manual-WaterNSW-operating-licence-July-2022.PDF">https://www.waternsw.com.au/_data/assets/pdf_file/0014/221135/Reporting-Manual-WaterNSW-operating-licence-July-2022.PDF</a> ) returns a 404 error.
	Element 8 Customer newsletters	We could not locate customer newsletters when searching the website. The link ( <a href="https://www.waternsw.com.au/customer-service/news">https://www.waternsw.com.au/customer-service/news</a> ) included in Modelpedia to the WaterNSW website returns a 404 error.
Element 12 Review and continual improvement	The text in Modelpedia has references to an outdated board subcommittee. The timing of reporting should also be checked.	
CCP		There are inconsistencies between the CCP Tables and the water quality incident protocol as to whether the IMT must be established
Operational meeting minutes	Element 2 Hazard identification and risk assessment	WaterNSW participated in a C2C risk assessment organised by Shoalhaven Water in 2019, however WaterNSW's December 2022 operational meeting minutes with Shoalhaven Water (D2022/167080) state that the most recent C2C risk assessment was undertaken in 2017.

Based on the evidence reviewed, WaterNSW has:

- Developed a document control system to ensure current versions are in use



- Established a records management system.

Modelpedia records that all document updates are controlled by the *Controlled Documents Framework* (CD2019/123). This sets the minimum review frequency based on risk ranking. A list of controlled documents overdue for review is reported to the Executive each three months. The status of controlled documents can be viewed through the dashboard on the intranet.

WaterNSW utilises ARK as its Records Management System (HP Trim). Currency of documentation is discussed throughout clause 2.1.1 and 2.1.2.

Modelpedia is silent on the training for completion of records. In Clause 2.1.3, we report on a number of instances where records and reports had not been completed or had been completed inaccurately. As part of **Recommendations 2023/2.1.1 – 1** and **2023/2.1.1 – 2**, WaterNSW should consider role-specific training and competency requirements for record keeping and reporting as part of Element 7.

### Reporting

WaterNSW has provided evidence to demonstrate that it has maintained systems to establish procedures for effective external reporting and produce an annual report to be made available to consumers and regulatory authorities. We found that not all the reporting requirements were documented under this component but were referred to elsewhere in Modelpedia.

Modelpedia records some of the reporting undertaken as part of the WQMS. Common reporting items are:

- Report to customers and stakeholders according to the Water Quality Data Review and Reporting Procedure (CD2012/130). This procedure details the report contents for:
  - Routine Water Quality Reports
  - Fish River Drinking Water Quality Report
- Produce event reports in case of heavy rainfall or inflows and provide updates for incidents under investigation (referenced in CD2012/130)
- Provide reports on catchment *Cryptosporidium* hazard status to inform consideration of public health risks during wet weather incidents (as per the Weekly Catchment Cryptosporidium Hazard Assessment D2016/117391)

Modelpedia also records that the Annual Water Quality Monitoring report is produced as an action for Greater Sydney.

There are other reports and reporting requirements that are not documented under this component. These include:

- Executive, Board subcommittee and Board Reporting
- Annual Catchment Management Report.

A single point of truth for reporting requirements reduces potential for some reporting requirements being missed, posing reputational or regulatory risk to WaterNSW.

## Element 11 Evaluation and audit

### Long term evaluation of results

WaterNSW has provided sufficient evidence to demonstrate it has met the ADWG requirements to collect and evaluate long-term data to assess performance, identify problems, and document and report results.

To meet this action, WaterNSW has documented the following activities:

- the Catchment to Customer risk assessment
- quarterly data reports
- a review of the previous 10 years' water quality data every second year in the annual report.

We consider these processes for long term data review meet the requirements of this component.



### **Audit of drinking water quality management**

WaterNSW has provided sufficient evidence to demonstrate it has met the ADWG requirements to establish processes for internal and external audits and document and communicate audit results.

Modelpedia documents the following common process to meet the ADWG requirements:

- Conduct process health checks (WQMS Audit Program D2017/87415)
- Prepare Annual System Effectiveness and Health Check Report
- Report on recommendations from audits and health checks in Quarterly Performance and Trend Analysis reports.

Modelpedia records briefing the Public Health Strategic Liaison Group (SLG) on the outcomes of the annual Operational Audit as a common item (when the SLG only applies to Greater Sydney).

We viewed the proposed *2022-23 Assurance program in the Water Quality Management System Process Health Check Schedule* (D2017/87415). Twelve assurance activities were proposed. Eight of these health checks were common and three were specific to the Declared Catchment (see Clause 2.1.3 for the full list of planned checks). This demonstrates there are processes established for internal auditing.

### **Element 12 Review and continual improvement**

#### **Review by senior executive**

WaterNSW has provided evidence to demonstrate it has underlying processes in place to meet the ADWG requirements to have a senior executive review of the effectiveness of the management system and evaluate the need for change. We found the description of the process in Modelpedia required updating to reflect current practice.

Modelpedia records there are quarterly meetings of the Board Committee on Health, Water Quality and Catchment Protection during which the *Quarterly Water Quality Management System Trend Analysis reports* are reviewed, which considers the effectiveness of the Water Quality Management System. The Board Committee also considers the *Annual System Health Check*, which includes review of targets and outcomes and proposed targets and outcomes for the following year. The Board Committee is supported by a management committee comprising relevant management staff to review materials submitted to the Board Committee. We observe that Modelpedia has not been updated to reflect the change in Board Committee name to the Board Committee on Sustainability and Service Delivery.

Modelpedia also records that *The full Board receives monthly Water Quality Dashboard reports and the Executive review all reports to be provided to the Board*. We did not see evidence that confirmed this reporting occurs monthly.

*Water Quality Management System Annual Review and Continuous Improvement Cycle* (D2017/50060) provides a one-page overview of the steps and timings for updating the WQMS.

The above processes meet the requirements for this action. The obsolete references contribute to our findings under Element 10.

#### **Drinking water quality management improvement plan**

The documentation in Modelpedia meets the ADWG requirements to develop a drinking water quality management improvement plan and ensure that the plan is communicated and implemented. Modelpedia is silent on how improvement actions are monitored for effectiveness.

Modelpedia documents that:

- WaterNSW maintains a Water Quality Improvement Plan and reports progress on actions in the plan to the Executive and Board via quarterly trend analysis reports. Actions are allocated to staff via the Risk Assurance and Compliance System (RACS), which allows action recipients to annotate progressive action status and completion.
- Action 12.2.1 in Modelpedia is to Update the Water Quality Improvement Plan based on risk assessment findings, water quality non-conformance, critical limit exceedance, incident and emergency reports, and audit outcomes. There is a process documented in Modelpedia to Add Recommendations to Water Quality Improvement Plan. This is a step-by step process for how information is entered and tracked to meet this component.



Modelpedia does not describe the decision-making process for including or excluding actions identified from the activities above (i.e. risk assessment findings, water quality non-conformances, etc.). In the interview, we tested how actions from Health Checks were added to the Improvement Plan. We were advised that if the manager agreed with the findings, they were added to the register.

Action 12.2.2 states *WaterNSW has a process for communicating, reviewing, recording and reporting (to all employees) progress against the identified responsibilities for the actions identified within its drinking water quality management improvement plan including liaising with stakeholders where responsibilities for action lie outside the agency.*

The two activities listed under this action are:

- Report on Water Quality Improvement Plan actions in Quarterly Water Quality Performance and Trend Analysis report
- Report to IPART on status of water quality improvement plan actions for each financial year via Annual Water Quality Management System report (as per the format in the Reporting Manual for the Operating Licence).

Modelpedia is silent on the methods for this communication and does not document how all improvement items are monitored for effectiveness.

In Clause 2.1.3 we discuss evidence that Modelpedia only references the water quality improvement plan, however we examined evidence that actions are held in multiple systems (e.g. JOG minutes).

## Recommendations

Recommendation 2023/2.1.1 – 1: By 30 June 2024, WaterNSW should undertake a gap analysis and develop a project plan including resourcing and timelines to update the WQMS to meet all aspects of the actions in the ADWG Framework.

Recommendation 2023/2.1.1 – 2: By 30 June 2025, the project plan should be implemented and the WQMS updated to meet all aspects of the actions in the ADWG Framework. The update should include (but is not limited to):

- a) Ensuring that responsibilities for meeting water quality regulatory and formal obligations are understood and assigned in sufficient detail to ensure these obligations are understood and met
- b) Confirming there are processes for ensuring staff are trained, competent and understand their delegations to implement the aspects of the WQMS relevant to their roles
- c) Documenting WaterNSW's approach to operational water quality risk assessments and how uncertainty is evaluated in water quality risk assessments.
- d) Formalising processes that consolidate improvement actions e.g. from C2C risk assessments, internal and tripartite incident debriefs, Health Checks, operational risk assessments and ensure accountability, timelines and reporting are documented.
- e) Reviewing the *Water Quality Data Review and Reporting Procedure* (CD2012/130) to ensure it provides assurance that all the monitoring in the Water Monitoring Program Manual (CD2011/179) is undertaken and the context sections of the *Water Quality Monitoring Program* (CD2011/170) are current.
- f) Review the processes recorded under the short-term evaluation of results to confirm if they are relevant to this action or if they should be recorded as processes elsewhere in the WQMS.

Recommendation 2023/2.1.1 – 3: By 30 June 2024, WaterNSW should formalise processes and record keeping associated with changing CCP instrument locations and SCADA alarm values including the return to documented values following incidents.

Recommendation 2023/2.1.1 – 4: By 30 June 2024, WaterNSW should finalise the O&M Manual for the Upper Canal to ensure it meets the requirements of Element 4 of the ADWG Framework.

## Opportunities for improvement

OFI 2023/2.1.1 – 1: WaterNSW, Sydney Water and NSW Health should review the appropriateness of existing raw water CCPs based on experiences from the recent extreme events.




OFI 2023/2.1.1 – 2: WaterNSW should consider reviewing how investigative programs outside the water quality or science program are managed and document this in Modelpedia.

OFI 2023/2.1.1 – 3: WaterNSW should consider reviewing and updating the minimum standard for maintaining the Upper Canal both for clarity and to ensure it aligns with a preventive approach to drinking water quality management.



## Clause 2.1.2

**Table 3-5 Clause 2.1.2 compliance grade**

Subclause	Requirement	Compliance grade
2.1.2	<p>With respect to Non-Declared Catchment Areas from which Water NSW Supplies water, Water NSW must maintain Water Quality Management Systems that are consistent with:</p> <p>a. in the case of water with the final end use as Drinking Water:</p> <p>i. a relevant quality assurance program under section 25 of the Public Health Act 2010 (NSW);</p> <p>ii. the Australian Drinking Water Guidelines; or</p> <p>iii. any other requirements as specified or approved by NSW Health or IPART,</p> <p>b. in the case of water that does not have a final end use as Drinking Water and that is not to be managed according to a Water Quality Management System that satisfies clause 2.1.2(a):</p> <p>i. the Australian Guidelines for Water Recycling; or</p> <p>ii. any other requirements as specified or approved by NSW Health or IPART.</p>	<p>Non-compliant (non-material)</p> 
<p><b>Risk</b></p> <p>Without a Water Quality Management System, the risk posed to public health from material non-compliance with this clause could be significant</p>		<p><b>Target for full compliance</b></p> <p>Evidence that a Water Quality Management System is maintained and kept up to date for the Non-Declared Catchment Areas, that it is consistent with the ADWG, or as specified by NSW Health or IPART.</p>

### Summary of reasons for grade

As discussed in Clause 2.1.1 WaterNSW utilises Modelpedia for its WQMS. In auditing clause 2.1.2, we considered the common items and those for the Fish River Water Supply Scheme (FRWSS). WaterNSW has documented activities for each action within the Australian Drinking Water Guidelines (ADWG). However, in our sampling during this audit, we found the WQMS did not fully address the requirements of the ADWG Framework from Drinking Water Quality (The Framework) for the Non-Declared Catchment. We found a number of issues with documentation which are discussed in Element 10. Other specific examples are noted in Table 3-6.

We have graded this clause as non-compliant non-material as this deficiency did not adversely impact the ability of the utility to achieve defined objectives or assure controlled processes, products or outcomes in the audit period.

**Table 3-6 Specific examples of WQMS findings for the Non-Declared Catchment**

Element	Finding
1	<p>The Legal and Other Requirements Register does not capture the detail on how the legal requirements apply to WaterNSW.</p> <p>Modelpedia does not document how responsibilities for regulatory and formal requirements are understood and communicated to staff.</p>
3	<p>There is no documented change management process to ensure that CCP alarms are reset to their original set points after the alarm limits have been raised above the critical limit to avoid nuisance alarms.</p> <p>There is no formal process to document a change in CCP instrument location.</p>
4	<p>The CCP tables call for the Incident Management Team (IMT) to be stood up when a CCP is exceeded, which is different to the actions outlined in the water quality incident response protocol.</p>
7	<p>We do not have evidence that WaterNSW has a process to ensure that third party contractors have appropriate qualifications and experience as required under the ADWG employee training component.</p>
9	<p>We have been unable to establish the documented process for research and development programs to increase understanding of the FRWSS and where evidence of any programs are held.</p>



Element	Finding
12	The process for evaluating preventative measures (e.g. those identified in Health Checks) before adding them to the water quality improvement plan is unclear and not documented in Modelpedia Modelpedia does not document how all improvement items are tracked and monitored for effectiveness – Modelpedia only references the water quality improvement plan. Evidence was provided that actions are held in multiple systems (such as RACs and JOG minutes).

## Discussion and notes

### Element 1 Commitment to drinking water quality management

#### *Drinking water quality policy*

WaterNSW has provided sufficient evidence to demonstrate it has met the ADWG requirements to formulate a drinking water quality policy, endorsed by senior executive, to be implemented throughout the organisation and ensure that the policy is visible and is communicated, understood and implemented by employees.

Modelpedia records common items for this action. See the discussion in Clause 2.1.1 for the evidence we considered to make this finding.

#### *Regulatory and formal requirements*

WaterNSW has provided evidence to demonstrate it has processes to maintain the ADWG requirements to identify and document relevant regulatory and formal requirements and review requirements periodically to reflect any changes. Modelpedia does not document how WaterNSW ensures the responsibilities are understood and communicated to employees.

Modelpedia records common items for this action. See the discussion in Clause 2.1.1 for the evidence we considered to make this finding.

#### *Engaging stakeholders*

WaterNSW has provided sufficient evidence to demonstrate it has processes to meet the ADWG requirements to identify all stakeholders who could affect, or be affected by, decisions or activities of the drinking water supplier, develop appropriate mechanisms and documentation for stakeholder commitment and involvement, and regularly update the list of relevant agencies.

Stakeholders and their contact information are recorded in the WaterNSW Water Quality Contact List (D2013/94543). Evidence was provided in a screenshot of the ARK notes of the February update and an email showing that the February 2023 contact list was distributed to NSW Health.

The contact list includes relevant stakeholders for the FRWSS. As well as internal stakeholders, external stakeholders included individuals from:

- Lithgow City Council
- Oberon City Council
- Nepean Blue Mountains Public Health Unit.

We verified the next review date was recorded in the footer as is documented in Modelpedia.

WaterNSW has an MoU with NSW Health (which is required under the *Water NSW Act* s21(2) and Operating Licence clause 6.13). The MoU is current and located on the WaterNSW website.

WaterNSW has established the following forums to engage with their stakeholders:

- A Joint Operational Group with the Nepean Blue Mountains Local Health Department, Oberon City Council and Lithgow City Council to discuss water quality performance updates, water quality improvement projects, and C2C Risk. Modelpedia records these are usually held bi-monthly.
- FRWSS Operational Forum with WaterNSW stakeholders, Oberon City Council and Lithgow City Council to discuss water quality, operations, outages, asset projects, maintenance and feedback from councils. Modelpedia records these are scheduled monthly.

## Element 2 Assessment of the drinking water supply system

### *Water supply system analysis*

WaterNSW has provided evidence that it has maintained a system that meets the ADWG requirements to maintain a system to assemble a team with appropriate knowledge and expertise, construct a flow diagram of the water supply system from catchment to consumer, assemble pertinent information and document key characteristics of the water supply system to be considered, and periodically review the water supply system analysis.

Modelpedia maps common processes:

- Conduct Catchment-to-Customer (C2C) Risk Assessment
- Approve Catchment-to-Customer (C2C) Risk Assessment

Modelpedia also calls up the Catchment to Customer Risk Assessment Process (D2019/30124)

These activities meet the requirements for this component.

### *Assessment of water quality data*

WaterNSW has provided sufficient evidence to demonstrate it has met the ADWG requirements to maintain a system to assemble historical data, list and examine exceedances, and assess data using tools such as control charts and trends analysis to identify trends and potential problems.

The *Water Quality Data Analysis and Reporting Procedure* (CD2012/130[v7]) outlines the process for reviewing, analysing and reporting on raw and treated water quality data. The *Water Quality Incident Response Protocol* (CD2004/183) documents that exceedances are logged in the Risk Assurance and Compliance System (RACS). Modelpedia outlines that quarterly water quality performance and trend analysis reports are prepared, including review of CCP performance and any incidents, and reported in the Annual Drinking Water Quality Report.

### *Hazard identification and risk assessment*

WaterNSW provided evidence that it had maintained a system that aligned with the ADWG requirements to:

- Define the approach and methodology to be used for hazard identification and risk assessment
- Identify and document hazards, sources and hazardous events for each component of the water supply system
- Estimate the level of risk for each identified hazard or hazardous event
- Determine significant risks and document priorities for risk management
- Periodically review and update the hazard identification and risk assessment to incorporate any changes.

The system was silent on the process to evaluate the major sources of uncertainty associated with each hazard and hazardous event and consider actions to reduce uncertainty.

The *Conduct Catchment-to-Customer (C2C) Risk Assessment* (CD2021/92[v2]) outlines the procedure to conduct, review and finalise catchment-to-customer risk assessments. Uncertainty ratings aren't defined in CD2021/92 and there isn't a methodology for evaluating the major sources of uncertainty for each hazard.

The scope of the customers covered by the *Conduct Catchment-to-Customer (C2C) Risk Assessment* (CD2021/92[v2]) is unclear, as is the process and responsibility for scheduling hazard identification and risk assessment reviews.

## Element 3 Preventative measures for drinking water quality management

### *Preventive measures and multiple barriers*

WaterNSW has provided evidence to demonstrate it has maintained systems to meet the ADWG requirements to identify existing preventive measures from catchment to consumer for each significant hazard or hazardous event and estimate the residual risk, evaluate alternative or additional preventive measures where improvement is required and document the preventive measures and strategies into a plan addressing each significant risk.



The common activities for the component are discussed in Clause 2.1.1. There are no specific activities for the FRWSS documented.

### **Critical control points**

WaterNSW has provided sufficient evidence to demonstrate it has maintained systems that meet the ADWG requirements to assess preventive measures from catchment to consumer to identify CCPs, establish mechanisms for operational control and document the CCPs, critical limits and target criteria with the exception of:

- Documented change management process to ensure that CCP alarms are reset to their original set points
- Formal process to document a change in CCP instrument location

Critical control points for the FRWSS are documented in tables in the *Critical and Operational Control Points for Fish River Water Supply System* (CD2021/127). The identified critical control points for the scheme are:

- CCP 7: Oberon Valve Tower (selective abstraction to avoid Cyanobacterial toxins)
- CCP 8: Membrane filtration at Duckmaloi
- CCP 9: Primary disinfection at Duckmaloi WFP Clear Water Tank
- CCP 10: Fluoridation at Duckmaloi Clear Water Tank
- CCP 11: Reservoir Integrity (of the Clear Water Tank at Duckmaloi WFP, Rydal, Cullen Bullen, Glen Davis Balancing Reservoirs).

These points are appropriate for the scheme. The CCP tables list activities associated with the operational target, adjustment range and exceedance of the critical limit.

WaterNSW have a *SCADA Configuration and Change Management Procedure* (D2016/67172) which outlines the CCP alarm modification approval requirements. There is no documented change management process to ensure that CCP alarms are reset to their original set points after the alarm limits have been raised above the critical limit to avoid nuisance alarms. There is also no formal process to document a change in CCP instrument location.

## **Element 4 Operational procedures and process control**

### **Operational procedures**

WaterNSW has provided sufficient evidence to demonstrate it has met the ADWG requirements to identify procedures required for processes and activities from catchment to consumer and document all procedures and compile them into an operations manual.

Modelpedia refers to three Operations and Maintenance Manuals for the FRWSS:

- Operations and Maintenance Manual – Duckmaloi Water Treatment Plant (CD2021/107)
- Operations and Maintenance Manual – Oberon Dam (CD2021/151)
- Operations and Maintenance Manual – Rydal Dam (CD2021/114)

The Duckmaloi WFP Operations and Maintenance Manual was last updated in August 2022. The Manual included information for the fluoridation system, which has been installed but was not operational during the audit period.

The appendix contained a list of Standard Operating procedures for the Plant which mainly covered chemical measurement activities. Modelpedia (4.2.2) also references the document *Duckmaloi WTP Operations – Daily Tasks* (D2022/70008) which is also evidence under this action.

### **Operational monitoring**

WaterNSW has provided evidence to demonstrate it has met the ADWG requirements to develop monitoring protocols for operational performance of the water supply system, including the selection of operational parameters and criteria and to document monitoring protocols into an operational monitoring plan. While WaterNSW has a process to report on the routine analysis of results (*Water Quality Data Review and Reporting Procedure* (CD2012/130)), the processes in this document do not provide assurance that the



monitoring program has been carried out. Under Element 5 in Clause 2.1.3, we discuss monitoring and reporting records that were missing parameters.

Modelpedia records that the monitoring schedule for fluoride bench tests, and bacterial and chemical analyses is entered by into EAMS by the Maintenance Team to create work orders.

Modelpedia records that online monitoring via SCADA is documented in the *Operations and Maintenance Manual for Duckmaloi Water Treatment Plant* (CD2021/107). We reviewed the manual and verified this was included.

WaterNSW's *Water Monitoring Program Manual* (CD2011/179) includes a section on operational monitoring for the FRWSS. This section includes both online monitoring (Table 3-7) and daily operator grab samples.

**Table 3-7 Real time monitoring of Operational and Critical Control Points in the FRWSS**

Site/Measure	SCADA Point	CCP/OCP
Filtered water turbidity post membrane at Duckmaloi WFP	ATU3004	CCP 8
Chlorine residual in the clear water tank	ARC3001	CCP 9
Transmembrane pressure at Duckmaloi WFP	DPT1	OCP 8a

The grab sample monitoring documented to be undertaken by the operators are:

- Daily for turbidity, pH, free chlorine residual, true colour (340 nm) and total manganese at the WFP
- Six days per week for turbidity, temperature, pH, free chlorine residual, total manganese and true colour (340nm) at Wallerawang
- Weekly for turbidity, temperature, pH, free chlorine residual, total manganese and true colour (340nm) at the other handover sites (Rydal Reservoir, Wallerawang Meter, Cullen Bullen Reservoir, Lidsdale, Glen Davis, Lithgow, Portland).

The program also notes that weekly fluoride sampling is to be undertaken once dosing commences. The planned sampling is consistent with the requirements of the *Fluoridation Code of Practice*.

WaterNSW could consider sampling for soluble manganese in the raw and treated water to understand the water quality and the effectiveness of the (proposed) potassium permanganate dosing (**OFI 2023/2.1.2 – 2**).

### **Corrective action**

WaterNSW has provided sufficient evidence to demonstrate it has met the ADWG requirements to establish and document procedures for corrective action to control excursions in operational parameters and establish rapid communication systems to deal with unexpected events.

There are specific operating protocols (CD2017/173) and a NOCTSO Template (D2017/84625) for the FRWSS.

The *Water Quality Contacts List* D2013/94543 contains contact details for key personnel involved in water quality from WaterNSW and agencies relevant to the FRWSS including Lithgow City and Oberon Council, the Nepean Blue Mountains Public Health Unit.

Modelpedia records common items for this action. See the discussion in Clause 2.1.1 for additional evidence we considered to make this finding.

### **Equipment capability and maintenance**

WaterNSW has provided sufficient evidence to demonstrate it has met the ADWG requirements to establish programs for regular inspection and maintenance of all equipment including monitoring equipment in relation to the water monitoring equipment.

Other evidence is common Modelpedia records common items for this action. See the discussion in Clause 2.1.1 for the evidence we considered to make this finding.



## Materials and chemicals

WaterNSW has provided sufficient evidence to demonstrate it has process that met the ADWG requirements to ensure that only approved materials and chemicals are used and has establish documented procedures for evaluating chemicals, materials and suppliers.

These activities are common items with those discussed in Clause 2.1.1 and the discussion under Element 4 in that clause is the basis of our findings.

## Element 5 Verification of drinking water quality

### Drinking water quality monitoring

WaterNSW has provided evidence to demonstrate it has maintained systems that meet the ADWG requirements to determine the characteristics to be monitored in the distribution system and in water as supplied to the consumer, establish and document a sampling plan for each characteristic, including the location and frequency of sampling and ensure monitoring data are representative and reliable.

The verification sampling program for the FRWSS is documented in the *Water Monitoring Program Manual* (CD2011/179, [v7]). The program documents the characteristics to be monitored, the monitoring location and the monitoring frequency. There are weekly, monthly and annual testing suites.

As discussed under Element 4 of this clause, there are gaps in the *Water Quality Data Review and Reporting Procedure* (CD2012/130) and it does not provide assurance that required monitoring in the FRWSS has been undertaken, reviewed and reported.

### Consumer satisfaction

WaterNSW has provided sufficient evidence to demonstrate it has maintained systems that meet the ADWG requirements to establish a consumer complaint and response program, including appropriate training of employees.

The website lists call options for the customer call centre:

- #1 Licensing
- #2 Metering
- #3 Temporary water trading and allocation
- #4 Billing and account enquiries
- #5 Order water or check account balance
- #6 Algal alerts and dam information
- #7 General enquiries

While WaterNSW has established processes such as the call centre that allows customers to contact WaterNSW to lodge a complaint, the WaterNSW website contains little information to support FRWSS customers with water quality complaints. The website states that the call centre is open between 8am and 5pm, Monday to Friday and closed on the Christmas, Boxing Day and New Year's Day public holidays. When we contacted the call centre on the weekend, there was an option to report an incident. There is a risk that customers with a water quality issue would look at the website and not bother to ring because they thought the call centre was closed, increasing the time to respond to the incident (and potential public health impacts).

For issues or triggers involving Lithgow City Council the details of communication pathways for varying issues or triggers are detailed in the *Operating Protocols with Lithgow City Council* (CD2017/173). Issues and complaints are also discussed at the Fish River JOG meetings.

### Short-term evaluation of results

WaterNSW has provided sufficient evidence to demonstrate it has maintained systems that meet the ADWG requirements to establish procedures for the daily review of drinking water quality monitoring data and consumer satisfaction and develop reporting mechanisms internally, and externally, where required. A shortcoming is noted in relation the *Water Quality Data Review and Reporting Procedure* (CD2012/130) discussed under Element 2.



The *Water Quality Data Review and Reporting Procedure* (CD2012/130, v7) outlines the process for reviewing, analysing and reporting on water quality data. This procedure outlines the appropriate steps to prepare routine water quality reports. Evidence was provided that the document was updated during the audit period. As discussed in Element 4 the procedure was insufficient to identify that monitoring and reporting for some parameters was not being undertaken for the FRWSS.

### **Corrective action**

WaterNSW has provided sufficient evidence to demonstrate it has maintained systems that meet the ADWG requirements to establish and document procedures for corrective action in response to non-conformance or consumer feedback and establish rapid communication systems to deal with unexpected events.

Corrective actions are noted in CCP documents, and the *Water Quality Incident Response Protocol* (CD2004/183) provides guidance on required corrective actions and investigations. Additional mechanisms for corrective actions were discussed in Element 4.

## **Element 6 Management of incidents and emergencies**

### **Communication**

WaterNSW has provided sufficient evidence to demonstrate it has maintained systems that meet the ADWG requirements to define communication protocols with the involvement of relevant agencies and prepare a contact list of key people, agencies and businesses and develop a public and media communications strategy.

WaterNSW has established communication protocols, documented in Section 4.2 of the *Water Quality Incident Response Protocol* (CD2004/183[v4]).

WaterNSW maintains a contact list (see Element 1).

### **Incident and emergency response protocols**

WaterNSW has provided evidence to demonstrate it has maintained systems that meet the ADWG requirements to define potential incidents and emergencies and document procedures and response plans with the involvement of relevant agencies; train employees and regularly test emergency response plans and investigate any incidents or emergencies and revise protocols as necessary.

Minor changes were made to version 4 to the *Water Quality Incident Response Protocol* on 21 January 2022 (CD2004/183[V4]). Triggers for Duckmaloi WFP supply to Lithgow area were updated as part of the general revision.

Modelpedia documents that the *Fish River Incident Management Plan* (CD2021/83) and *Site Incident Response Handbook* (CD2019/180) for the Fish River Water Supply are updated annually.

Modelpedia documents that WaterNSW holds Hot Debriefs at the end of an incident and prior to standing down incident teams to capture immediate learnings. These are supplemented by formal debriefs after the end of major incidents, and learnings are captured in debrief reports. Incidents records in RACS are closed once the incident has closed.

Modelpedia record the following processes support the requirements of this action:

- Incident Management -2022 – Incident Debrief Report (CD2022/80)
- RACS – Reporting an Incident – How to Guide (CD2019/136)
- Incident Investigation Form – Level 1 (CD2017/73)
- Incident Investigation Form – Level 2 ICAM (CD2017/74).

These processes and timings are appropriate to meet the requirements of this component. We could not establish the process for evaluating the learnings from incidents and progressing actions.

## **Element 7 Employee awareness and training**

### **Employee awareness and involvement**

WaterNSW has provided sufficient evidence to demonstrate it has maintained systems that meet the ADWG requirements to develop mechanisms and communication procedures to increase employees' awareness of and participation in drinking water quality management.



Modelpedia records common items for this action. See the discussion in Clause 2.1.1 for the evidence we considered to make this finding.

### **Employee training**

WaterNSW has provided sufficient evidence to demonstrate it has maintained systems that meet the ADWG requirements to ensure that employees, including contractors, maintain the appropriate experience and qualifications, identify training needs, ensure resources are available to support training programs, document training, and maintain records of all employee training, with the exception of third-party contractors.

Modelpedia records that water quality awareness information is also included in the Asset Maintenance Awareness module for contractors. We requested evidence that WaterNSW had implemented processes to ensure that third party contractors met the requirement for this element (both awareness and training). We were advised this was covered by the Rapid Induct Training Module. We requested access to this module and completed the training, but the training covered only the Declared Catchment so did not meet the requirements under Clause 2.1.2. We did not see evidence that this training was conducted by contractors working in the Non-Declared Catchment.

In addition to the common training items recorded in Modelpedia (discussed under Element 7 in Clause 2.1.1), staff members in roles involved in operating the Duckmaloi Water Treatment Plant are required to attain Water Treatment Operator certification provided by the NSW Department of Planning, Industry and Environment (now by NSW Department of Planning and Environment) and the Fluoride Operators Certificate issued by NSW Health. These requirements are loaded into the mandatory training matrix for each relevant role.

## **Element 8 Community involvement and awareness**

### **Community consultation**

WaterNSW has provided sufficient evidence to demonstrate it has maintained systems that meet the ADWG requirements to assess requirements for effective community involvement and develop a comprehensive strategy for community consultation.

Modelpedia records common items for this component. See the discussion in Clause 2.1.1.

### **Communication**

WaterNSW has provided evidence that it has maintained systems that meet the ADWG requirements to develop an active two-way communication program to inform consumers and promote awareness of drinking water quality issues.

Items that are recorded as common with the declared catchment are discussed under clause 2.1.1.

We tested how WaterNSW promoted awareness of drinking water quality issues for FRWSS customers. WaterNSW advised:

*FRWS customers receive newsletters with their bi-annual bills, which include drinking water quality information and updates on projects affecting the Fish River pipeline.*

*The key method Fish River customers are informed is via the Fish River customer webpage. (<https://www.waternsw.com.au/customer-services/your-account/fish-river-customers>)*

*The Fish River Water Quality Solutions Advisory group ensures any drinking water quality issues are addressed ASAP and when needed, letters are sent to impacted customers by email or post (if no email is on file).*

*The Fish River Project Manager also keeps key external stakeholders, i.e. Lithgow and Oberon Councils and Energy Australia, apprised of any works in advance which may affect drinking water.*

*The Fish River communication approach and supporting materials is further evidenced by viewing D2023/79982, D2023/79981, D2023/79980, D2023/79979, D2023/79977, D2023/79976.*

If implemented, the aspects discussed under this element would meet the requirements. As discussed in Clause 2.1.3, we found these had not been effectively implemented.



## Element 9 Research and development

### *Investigative studies and research monitoring*

A deficiency was identified in the requirement to maintain a system that meets the ADWG requirements to establish programs to increase understanding of the water supply system and use information to improve management of the water supply system. Modelpedia is silent on how investigative programs for the FRWSS are developed and implemented.

Modelpedia records common items (discussed in Clause 2.1.1) for this action including:

- Investigative monitoring through the *Water Monitoring Program Manual* (CD2011/179) which can then be used to improve the scheme management e.g. predicting the turnover of Lake Oberon.
- Maintaining the Science Program.

Modelpedia notes that outcomes of investigative research for FRWSS are reported in the annual drinking water quality management system report and recommendations are added to the Water Quality Improvement Plan.

Modelpedia does not document how investigative programs for the FRWSS are developed and implemented.

In addition to the licence requirements to meet this element, WaterNSW has an obligation under the Public Health Regulation 2022 (NSW) to include information in their WQMS regarding research and development carried out in relation to maintaining or improving the quality of the drinking water, including a list of previous water quality studies and plans for future studies. See also our commentary under Element 1 of Clause 2.1.3 regarding the understanding of regulatory obligations.

### *Validation of processes*

WaterNSW has provided sufficient evidence to demonstrate it has maintained systems that meet the ADWG requirements to validate processes and procedures to ensure that they are effective in controlling hazards and revalidate processes periodically or when variations in conditions occur.

Modelpedia states (9.2.1) that criteria utilised by WaterNSW for validation of key process steps are described under WaterNSW CCP tables (Validation of Critical Control Points table). The validation tables are present in the *Critical and Operational Control Points for Fish River Water Supply System* (CD2021/127).

### *Design of equipment*

The requirements under this component are common with that described in Clause 2.1.1, which we found was adequate. When we tested the implementation of this clause for the FRWSS potassium permanganate dosing we were advised that these processes would not have applied to this project.

During the audit, we were unable to establish whether there were other processes for equipment design that should be included in Modelpedia. If so, **Recommendations 2023/2.1.1 – 1** and **2023/2.1.1 – 2** will address this finding.

## Element 10 Documentation and reporting

### *Management of documentation and records*

We found deficiencies in the following aspects for this component:

- Document information pertinent to all aspects of drinking water quality management.
- Periodically review documentation and revise as necessary.
- Develop a process to train employees to fill out records.

Based on the evidence reviewed, WaterNSW has:

- Developed a document control system to ensure current versions are in use
- Established a records management system.

Common aspects are discussed in Clause 2.1.1. Specific discrepancies in documentation are listed in Table 3-8.



**Table 3-8 Noted documentation discrepancies specific to FRWSS**

Document	Aspect	Finding
FRWSS C2C	Emergency response plan	It is not clear what this preventive measure refers to.
Modelpedia	Element 8 engagement requirements regarding drinking water quality	Modelpedia is silent on how these requirements are met.
	Element 12 reporting of audit results	Modelpedia is silent on how audit findings are reported to the Public Health Unit (PHU)

### Reporting

WaterNSW has provided evidence to demonstrate that it has maintained systems to establish procedures for effective external reporting and produce an annual report to be made available to consumers and regulatory authorities.

As well as the common reporting items discussed in Clause 2.1.1, Modelpedia records the requirement to *Produce Annual Review of the Drinking Water Quality Management System* and *Record daily operational data on Sharepoint site*.

We discussed under Clause 2.1.1 that other reports including regulatory reports are recorded under other elements in Modelpedia.

### Element 11 Evaluation and audit

#### Long term evaluation of results

WaterNSW has provided sufficient evidence to demonstrate it has met the ADWG requirements to collect and evaluate long-term data to assess performance, identify problems, and document and report results.

Modelpedia reports common processes for this component. Modelpedia also records that water quality trends are reported in the *Fish River Water Supply Annual Review of the Drinking Water Quality Management System*. In this audit, we did not test that the annual review met this requirement. WaterNSW should confirm that the FRWSS annual review adequately meets the requirements of this component as part of **Recommendation 2023/2.1.2 – 1**.

#### Audit of drinking water quality management

WaterNSW has provided evidence to demonstrate it has broadly met the ADWG requirements to establish processes for internal and external audits and the documentation and communication of audit results. Modelpedia reports common processes for this component. These processes are discussed in Clause 2.1.1. Modelpedia does not record the reporting of audit outcomes to the relevant PHU for the FRWSS under this action, although it does record it for Element 12.

WaterNSW should consider reviewing the FRWSS WQMS against the *NSW Guideline for Review and Audit of Drinking Water Management Systems (OFI 2023/2.1.2 – 1)*.

### Element 12 Review and continual improvement

#### Review by senior executive

WaterNSW has provided evidence to demonstrate it has met the ADWG requirements to have senior executive review of the effectiveness of the management system and evaluate the need for change. Common items are discussed under Clause 2.1.1. Modelpedia records that an *Annual Review of the Drinking Water Quality Management System* is undertaken for the FRWSS and the report is provided to the Nepean Blue Mountains Local Health District.

#### Drinking water quality management improvement plan

The documentation in Modelpedia meets the ADWG requirements to develop a drinking water quality management improvement plan and ensure that the plan is communicated and implemented. Modelpedia is silent on how improvement actions are monitored for effectiveness.

Processes recorded in Modelpedia are common for the declared and non-declared catchment. See the discussion under Element 12 in Clause 2.1.1 for more information on the basis of our finding.



## Recommendations

Recommendation 2023/2.1.2 – 1: By 31 December 2024, WaterNSW should confirm that the FRWSS annual review adequately meets the ADWG requirements for long term evaluation of results.

See **Recommendation 2023/2.1.1 – 2**. In particular, as part of the update to the WQMS, the Water Quality Data Review and Reporting Procedure (CD2012/130) should be reviewed to ensure it provides assurance that all the monitoring in the *Water Monitoring Program Manual* (CD2011/179) is undertaken.


## Opportunities for improvement

OFI 2023/2.1.2 – 1: WaterNSW should consider reviewing the water quality management system against the *NSW Guideline for Review and Audit of Drinking Water Management Systems*.

OFI 2023/2.1.2 – 2: WaterNSW should consider sampling for soluble manganese in the raw and treated water to understand the water quality and the effectiveness of the (proposed) potassium permanganate dosing.

## Clause 2.1.3

Table 3-9 Clause 2.1.3 compliance grade

Subclause	Requirement	Compliance grade
2.1.3	Water NSW must ensure that the relevant Water Quality Management Systems are fully implemented and that all relevant activities are carried out in accordance with the relevant Water Quality Management System and to the satisfaction of NSW Health.	Non-compliant (non-material) 
<b>Risk</b> If the Water Quality Management System is not fully implemented, the risk posed to public health from material non-compliance with this clause could be significant		<b>Target for full compliance</b> WaterNSW must provide evidence that it fully implemented its WQMS throughout the audit period and that all relevant activities were carried out in accordance with its WQMS and NSW Health was satisfied with the implementation of the WQMS during the audit period.

### Summary of reasons for grade

We found that the WQMS had not been fully implemented. Notably, formal debriefs had not been conducted within the required timeframe, and not all improvements that should have been tracked through the Water Quality Improvement Plan were being tracked there. We found that assurance activities planned at the beginning of the year were substituted with other activities and we did not see evidence that senior management and the board were aware of the substitution.

Due to this deficiency, we have graded this clause as non-compliant non-material as this deficiency did not adversely impact the ability of the utility to achieve defined objectives or assure controlled processes, products or outcomes in the audit period.

- Element 1 – we have been unable to establish that WaterNSW fully understands and implements the NSW Public Health Regulation 2022 s46, s47 and s48 requirements as they apply to FRWSS.
- Element 2 – field-based SMEs were used to review the schematics updated during the audit period; however, we do not have evidence that all the schematics updated in the audit period were field verified.
- Element 2 – we do not have evidence all recommendations from C2C risk assessments were assessed or added to the water quality improvement plan.
- Element 2 – we do not have evidence that barrier effectiveness was assessed for all controls and that WaterNSW has assurance that third party controls listed in the FRWS C2C register are effective (e.g. backflow prevention program).
- Element 2 – we do not have evidence that WaterNSW invited NSW Health to the C2C risk assessment with Goulburn Mulwaree Council and Wingecarribee Shire Council as required under Action 2.1.1 in Modelpedia.
- Element 3 – a list of Major and Minor incidents from RACS was provided (D2023/67224). In the record sampled, the consequence descriptor did not match the CCP table hazards. For example, record number 2307 lists the turbidity exceedance as an aesthetic rather than a public health consequence.
- Element 4 – preventative measures documented in the risk assessment do not clearly link to activities documented in Element 4 (for example “raw water delivery management” is listed as a control in the C2C risk assessment for Upper Canal D2023/73033 however it is unclear what documented activities this refers to).
- Element 4 – we do not have evidence that the lead joint used for pipe repairs in FRWSS complies with AS4020, nor evidence that hemp and lead were assessed as suitable materials for these works.
- Element 5 – the *Water Monitoring Program Manual* (CD2011/179) sets out requirements for monitoring across the WaterNSW systems. There was no record of manganese sampling by the operators in the FRWSS network, either in the spreadsheet or the Fish River Drinking Water Quality Report (February, March or June 2023).



- Element 6 – the Incident Management Procedure requires that a formal incident debrief is conducted within two weeks of the IMT being declared closed. We do not have evidence that a formal incident debrief was conducted within two weeks of the IMT being declared closed in September 2022, nor an assessment of why conducting the debrief was not possible.
- Element 10 – we have identified non-material deficiencies in record keeping and reporting.
- Element 11 – we found misalignments between summary reports to the Board (or associated subcommittees) and the activities undertaken.
- Element 12 – we have been unable to obtain clarity on what happens to all identified actions and how they are tracked and reported to the Board. Where items are tracked through the JOG, we have not seen evidence that the actions are assigned and tracked for implementation (for example, assigned to specific roles with timeframes) as required by the ADWG framework. We received evidence that some actions had been progressed to closure but for FRWSS only one action tracked through the JOG had been closed during the year with limited reporting as to why the other actions had not progressed.

## Discussion and notes

### Element 1 Commitment to drinking water quality management

#### *Drinking water quality policy*

WaterNSW has provided sufficient evidence of implementation of the drinking water quality policy throughout the organisation and that the policy was visible and communicated, understood and implemented by employees.

We tested the WQMS requirements that the Policy is on display in WaterNSW offices and is described in the mandatory *Water Quality Awareness* training. A photograph of the updated policy on display at Wallerawang office was provided as evidence. A copy of the updated Water Quality policy was in the Water Quality Awareness eLearning module (D2023/42323). The Fish River Good Practice Health Check (D2022/15687) had a photograph of the Water Quality Policy at Duckmaloi Water Treatment Plant. We observed that the Water Quality Policy was displayed at the Keepit Dam site. See Element 7 for a discussion on the water quality training which included making employees aware of the policy.

#### *Regulatory and formal requirements*

A shortcoming was identified against the requirement to demonstrate full implementation against the requirements of the WaterNSW WQMS to identify and document all relevant regulatory and formal requirements, ensure responsibilities are understood and communicated to employees, and review requirements periodically to reflect any changes.

While the legal and other requirements register identifies relevant Acts and their associated regulations, we did not consider this register had sufficient detail to meet the ADWG requirements. Examples of areas for which we could not establish this were:

- *Water Management Act 2000* (NSW) Section 292
- Public Health Regulation 2022 (NSW) Division 2 Clauses 45-48.

In WaterNSW's response (D2023/163369) to the *Summary of Reason for Grade Report* they stated *The NSW Public Health Regulation requirements are met by the WQMS. The WQMS is consistent with the ADWG framework for drinking water.* There are specific requirements in the regulation that are not detailed in the ADWG Framework, for example record keeping obligations of research and development programs – see further discussion under Clause 2.1.2 Element 9, which relates to Division 2 Clause 46(b).

We also found that references to legislation and other formal requirements within supporting documents were not kept up to date. Examples included:

- The *Water Quality Monitoring Program* (CD2011/170) referred to out-of-date advice on Total Coliforms
- The *Critical and Operational Control Points for Fish River Water Supply System* (2021/127) had not been updated to refer to the 2022 Public Health Regulation.

Modelpedia does not document how WaterNSW ensures responsibilities are understood and communicated to employees so we could not make a finding against the implementation of this aspect.



## Engaging stakeholders

WaterNSW has provided sufficient evidence to demonstrate it has implemented the requirements of its WQMS to identify all stakeholders who could affect, or be affected by, decisions or activities of the drinking water supplier, and develop appropriate mechanisms and documentation for stakeholder commitment and involvement.

We requested minutes of the meetings of the FRWSS operational forum for September, October, February and April in the audit period. These were provided as part of the evidence (D2022/112840, D2022/122309, D2023/11932, D2023/33404). The date for the September meeting was recorded incorrectly (as 21 June 2022). The minutes showed the discussions aligned with Modelpedia.

We requested all the meeting minutes from the bi-monthly FRWSS JOG Fish River Joint Operations Group. We were provided with the minutes for:

- 17/08/2022 (D2022/100623)
- 21/11/2022 (D2022/161113)
- 7/02/2023 (D2023/11006)
- 24/05/2023 (D2023/41685)

These minutes included updates on the water quality improvements projects. These minutes provide evidence of implementation of stakeholder engagement.

## Element 2 Assessment of the drinking water supply system

### Water supply system analysis

We identified inadequacies in WaterNSW's implementation of the requirements of its WQMS to assemble a team with appropriate knowledge and expertise, construct a flow diagram of the water supply system from catchment to consumer, assemble pertinent information and document key characteristics of the water supply system to be considered, and periodically review the water supply system analysis.

WaterNSW maintains generalised flow diagrams of the water supply systems, and reviewed the existing water supply schematics in 2022-23:

- D2021/78521 Woronora Supply Schematic
- D2021/78518 Upper Nepean Supply Schematic
- D2021/78517 Shoalhaven Water Supply Schematic
- D2021/78516 Blue Mountains Supply Schematic
- D2021/87515 Warragamba to Prospect Supply Schematic
- D2021/52068 Fish River Supply and Duckmaloi Water Filtration Plant Schematic

The *How to Guide – Developing Water Supply System Schematics in Holecentric 2023* (D2023/117503) requires that schematics be *verified by those with specific knowledge of the system through a combination of correspondence and field audits*. WaterNSW used field-based SMEs to verify the schematics, however not all schematics developed in the audit period were field verified. WaterNSW advised that this is a continual improvement piece and that additional field audits will be conducted over time and scheduled in the WQMS assurance program.

WaterNSW undertakes C2C risk assessments with customers in the declared catchment other than Sydney Water.

The former Sydney Catchment Authority (now WaterNSW) had an obligation under its operating licence to have processes that meet the ADWG Framework requirements in the Declared Catchment since 2012 (possibly earlier). WaterNSW has been leading C2C risk assessments with councils that it supplies with raw water. In 2014, a similar obligation for Local Water Utilities (LWU's) came in force under the *Public Health Act NSW* (2010).

WaterNSW has not documented and defined their role in C2C risk assessments for the declared catchment where the customer is not Sydney Water. This supports our findings under Element 1 regulatory and formal requirements in Clause 2.3.1.



### Assessment of water quality data

WaterNSW has provided sufficient evidence to demonstrate it has implemented the requirements of its WQMS to maintain a system to assemble historical data, list and examine exceedances, and assess data using tools such as control charts and trends analysis to identify trends and potential problems. Issues with listing and examining exceedances are discussed under Element 3 of this clause. Issues with data presented in the monthly reports is discussed under Element 5 of this clause.

Tools such as SCADA trends and SCARMS plots are used for routine reports and frequently during incidents or under heightened risk conditions and prior to conducting risk assessments. We sampled the February to April 2023 Quarterly Water Quality Performance Dashboard Report (D2023/40068), and it met the requirements of Modelpedia.

Exceedances are logged in RACS and causes are investigated. A list of Major and Minor incidents from RACS was provided (D2023/67224). In the record sampled, the consequence descriptor did not match the CCP table hazards. For example, record number 2307 lists the turbidity exceedance as an aesthetic rather than a public health consequence. We have commented on this in Element 3 of this clause.

### Hazard identification and risk assessment

We identified inadequacies in WaterNSW's implementation of their WQMS requirements to meet this component.

WaterNSW organised a C2C risk assessment with Goulburn Mulwaree Council and Wingecarribee Shire Council in November 2022 and did not implement aspects of the C2C risk assessment process (D2019/30124) in place at the time of the workshop:

- WaterNSW did not invite NSW Health
- WaterNSW did not circulate the system schematic before the workshop
- WaterNSW did not include improvement actions allocated to the relevant agencies in the outcomes report (D2023/62078).

We observed that barrier effectiveness was not assessed for all controls and WaterNSW does not have assurance that third party controls listed in the FRWS C2C register (D2023/78140) are effective (e.g. backflow prevention program).

We have identified gaps in WaterNSW's implementation of the ADWG requirements to periodically review and update the risk assessment to incorporate any changes. WaterNSW examines water quality monitoring to assess the frequency of exceedances of the critical concentrations at the various water supplies, which is used to inform the likelihood scores. We did not see evidence that these scores had been updated to reflect the changes in water quality in Lake Burragorang as result of the 2019 bushfires and subsequent major rainfall events. WaterNSW advised that it is being revised in 2023 (D2019/140471). The rainfall events lead to periods of CCP exceedances and water quality incidents. If changes in the catchment conditions are not reviewed for the impact on hazardous event likelihood, then water quality risks may be underestimated and appropriate preventative actions may not be planned or implemented. If the risk is underestimated, it may remain below reporting thresholds to senior management and the Board.

**Recommendation 2023/2.1.3 – 1** and **OFI 2023/2.1.3 – 1** address these findings.

### Element 3 Preventative measures for drinking water quality management

#### Preventive measures and multiple barriers

We found that WaterNSW had generally implemented the requirements of their WQMS to meet this component.

We were provided the *C2C risk register* (D2023/73033) and confirmed that controls were identified for each significant risk and were appropriate. When we sampled the risk register, we identified that no existing catchment, storage and delivery controls were identified in the C2C register for the "heavy metals, petrochemicals and other organic chemicals" hazards for the Cascade, Illawarra, Macarthur, Nepean, Orchard Hills, Prospect, Warragamba and Woronora systems (rows, 23, 123, 223, 317, 424, 538, 690). We are aware of controls in place as discussed in Element 4 Materials and Chemicals of this clause. We did not pursue this aspect further as we had sufficient other evidence to support our grade.



### Critical control points

WaterNSW has provided sufficient evidence to demonstrate it has implemented the requirements of its WQMS to assess preventive measures from catchment to consumer to identify CCPs, establish mechanisms for operational control, and document the CCPs, critical limits and target criteria. However, we found there was a discrepancy in the alarm set-point for a critical limit during the audit period.

WaterNSW advised that they amended alarm set-points in response to elevated turbidity in Lake Burragorang and Prospect Reservoir to provide more meaningful alarms for staff rostered on duty (examples provided D2023/80032, D2023/80028, D2023/80026, D2023/80023, D2023/80021, D2023/80011, D2023/00009). WaterNSW advised us that *the critical limit was not changed at anytime. The values were adjusted well below to avoid nuisance alarms.* Upon our review of D2023/8009, we identified that the alarm for CCP1 was changed above the critical limit documented in CD2021/128. When we asked WaterNSW to clarify their response, they responded *we accept that the alarm was set higher than the critical limit for a period of time and this was notified to Sydney Water and NSW Health in the regular meetings held during this time.*

Water quality exceedances from RACS were provided (D2023/67224). In one of the records sampled (record number 2307), the consequence descriptor did not match the CCP table hazards (the turbidity exceedance was listed as an aesthetic rather than a public health consequence).

## Element 4 Operational procedures and process control

### Operational procedures

WaterNSW has provided evidence that demonstrates it has implemented the requirements of its WQMS in relation to procedures required for processes and activities from catchment to consumer and the operations manual.

During the interviews WaterNSW advised that they have been working to implement these in a planned manner. We were advised that during the audit period there was only 1 unplanned NOCTSO, which was required due to the decoupling of the Avon dam destratification line.

We were provided with an email chain between 9/06/2023 and 15/06/2023 regarding a NOCTSO for Warragamba pipeline 2 return to service on 19 June 2023 (D2023/71878).

We were also provided with NOCTSO for FRWSS (D2023/40138) requesting an extension of Lithgow City Council (LCC) backfeeding to reduce the potential for high manganese in the system.

These provide evidence of the implementation of key processes.

### Operational monitoring

WaterNSW has provided insufficient evidence to demonstrate it has implemented the requirements of its WQMS in relation to monitoring protocols for operational performance of the water supply system.

We cross referenced a sample of monthly water quality monitoring reports for the declared and non-declared catchments and identified a number of required parameters in the Water Quality Monitoring Program had not been reported.

For example, in the *Prospect Reservoir Water Quality Report April 2023* (D2023/78788) for sampling point RPR1, the following parameters were not reported:

- Suspended solids
- Filterable reactive phosphorus
- Total Kjeldahl Nitrogen
- Reactive silica
- Total hardness

We also noted underreporting for the following reports:

- Lake Oberon and Duckmaloi Weir Water Quality Report December 2022
- Prospect Reservoir Water Quality Report May 2023
- Blue Mountains Water Quality Report February 2023





- Fish River Drinking Water Quality Report June 2023

WaterNSW advised that the Water Monitoring Program (CD2011/179) was implemented as per program and contracts. They confirmed there were some minor exceptions of missed samples due to wet weather access and safety. They advised the routine water quality reports capture key analytes and were not intended to include all results and the report format had been previously agreed with customers, which includes parameters which may impact on treatment processes. There was insufficient time during the audit to test that results not in reports had been recorded in the water quality database. The obligation to test and report on these results is also covered through obligations to report in accordance with the reporting manual. IPART could consider including a cross-check of the sampling as part of next year's audit scope

In the Audit Questionnaire, we requested evidence that the Daily Operational Sampling Activities were conducted as per Water Monitoring Program for FRWSS and the Cascade system for December 2022 and April 2023

WaterNSW responded *Daily monitoring of the Fish River supply network is captured in a SharePoint document. The data from this document has been saved in ARK (D2023/79583, D2023/79589). Cascade system sampling is as per water monitoring program (no daily sampling) and uploaded to the water quality database.*

We reviewed these Excel files, which contained the results for the network of the FRWSS. Water samples had been taken at the sites according to the schedule. However, there was no column to record temperature or total manganese for Wallerawang and while there was space to record total manganese for the other handover sites, there were no results recorded. We have no evidence this sampling was conducted according to the sampling program.

We were not provided with evidence for the daily operational monitoring activities for the Duckmaloi WFP, so we have been unable to verify that operational monitoring at the WFP was undertaken.

### **Corrective action**

WaterNSW has provided evidence to demonstrate it has implemented the WQMS requirements in relation to procedures for corrective action to control excursions in operational parameters and rapid communication systems to deal with unexpected events.

Evidence of NOCTSOs were provided to avoid high manganese levels:

- In the FRWSS, requesting Lithgow City Council to continue backfeeding (D2023/40138).
- From Warragamba Dam by changing the outlet configuration to avoid manganese ingress (D2023/89872).

The minutes of operations meetings between WaterNSW, Sydney Water and NSW Health were provided as evidence of implementing the procedures for corrective actions and of communication systems. These minutes document updates on rainfall predictions, system configuration and water quality status (23/03/2023 (D2023/21954), 30/03/2023 (D2023/30992), 6/04/2023 (D2023/31428), 13/04/2023 (D2023/32392), 4/05/2023 (D2023/36715)). Examples include:

- D2023/78216 Email – Lake Burrarorang Update 6\_4\_23 – recommending a move to a position deeper in the water column.
- D2023/78215 Email – Lake Burrarorang Update 14\_4\_23 – recommending a change in screen.

### **Equipment capability and maintenance**

WaterNSW has provided sufficient evidence to demonstrate implementation of their WQMS processes to establish programs for regular inspection and maintenance of all equipment including monitoring equipment in relation to the water monitoring equipment.

We requested the inspection and maintenance program for the critical instruments and equipment associated with water quality at the Upper Canal. We were provided with EAMS data and screenshots (D2023/9664). This showed:

- The monthly scheduling of the water quality sampling for the Upper Canal at Broughtons Pass and Prospect WFP as well as the Upper Cascades Dam
- The monthly scheduling of the water quality sampling and cross-check of in-situ loggers for the Upper Canal at Liverpool Dam



The calibration for the turbidity meter at Prospect Pump Station (D2023/79585) was provided as evidence that it was calibrated within the audit period. We were provided with evidence for other meters, but these occurred either in August 2022 or August 2023, which, due to the shortened audit period, were outside the date scope.

- WNSW turbidity instrument at Broughton Pass (D2023/79671). The calibration was undertaken in August 2023 which is after the audit period
- WNSW turbidity instrument at Upper Canal Kenny Hill (D2023/79672)
- WNSW turbidity at Warragamba (D2023/79587 and D2023/79588)

We were provided with calibration records for electrical conductivity (EC), pH, turbidity and dissolved oxygen (DO) undertaken by WaterNSW for Liverpool Dam and Broughtons Pass HUC1 (D2023/80123-80126) as well as those maintained by ALS field services for Cascade in-situ, Upper Canal at Prospect and Kenny Hill.

During the audit interviews, we discussed the calibration of instruments within the Declared Catchment. WaterNSW advised that the instruments are rotated through the catchment. We were provided evidence that instruments had been calibrated within the audit period. We tried to test the calibration records for a specific location. The calibration records are connected to the instrument number. There was insufficient time during the audit to test that a specific site had been calibrated and this would not have affected the materiality of our finding.

### **Materials and chemicals**

WaterNSW has provided sufficient evidence to demonstrate it has implemented the requirements of its WQMS to ensure that only approved materials and chemicals are used and in relation to documented procedures for evaluating chemicals, materials and suppliers, with the exception of the evaluation of pipe repair materials used in the FRWSS.

WaterNSW conducted a *Materials & Chemicals in Contact with Water Health Check* on the Duckmaloi WFP and Wallerawang secondary chlorination point. The check contained a requirement: *Materials used should meet standards for contact with drinking water supplies. Do products conform to WaterMark or tested to AS4020:2018?*

The check recorded: *WaterNSW uses materials that comply with Standards and WaterMark. The distribution network is concrete pipe, when repairs are undertaken this is steel banded with a lead seal. Pipes in the WTP are made of PVC. Post Chlorinated Polyvinyl Chloride (CPVC) pipes are used for chemical delivery and water sampling pipes around the WTP. The check further noted WNSW monitoring program includes lead (weekly frequency), this may identify any issues with lead entering drinking water supply.*

This checklist item was graded as 100%.

During the audit interview we questioned the Health Check finding that the use of a lead seal met the requirements of AS4020.

WaterNSW stated in the summary of audit grade meeting (D2023/160920) that there is no contact with water during repairs – the lead is external, and the pipeline is de-watered. Following the repairs, the pipeline is flushed. WaterNSW was also of the opinion that the routine lead monitoring demonstrates that this risk is mitigated through flushings as well as other controls identified in the C2C risk assessment control actions.

The scope of AS4020 includes materials used in jointing and sealing applications. The C2C register notes the cause “Corrosion of assets/materials in contact with water (released from lead joints)”.

Our findings are:

- The Health Check recorded the use of a lead seal and scored it 100 (compliant) when there is no evidence that the materials used following this repair methodology comply with AS4020.
- The lead monitoring data provided (D2023/102613) records that 1 sample exceeded the ADWG Guideline. We could not see this exceedance in the RACS Summary provided (D2023/67224) to understand the context of the result. We also note that there are lead detections below the ADWG guideline (i.e., above the limit of reporting). The testing of lead in the distribution system is a verification activity and not a preventative measure.
- The Health Check made a “*Suggested improvement for noting*” rather than a “*Recommendation for inclusion in the Water Quality Improvement Plan*” to “*Continue to review options for replacing lead seals*”



for mains pipeline connections during repairs and maintenance". We acknowledge that WaterNSW did progress the improvement by trialling an epoxy resin repair after the audit period (which was not successful). Given both the public health and WHS implications of continuing to use this repair method we make **Recommendation 2023/2.1.3 – 4**.

- The C2C risk assessment had a proposed control to "Seek alternatives for lead seals" but we could not establish how this action was assigned and tracked (see discussion in Element 12)
- WaterNSW advised that due to the age of the pipework, there is no alternative available to lead in this network. While this method of repair was historically utilised by other water utilities, to our knowledge no other Australian water utility continues to use lead seals for pipe repair.

## Element 5 Verification of drinking water quality

### Drinking water quality monitoring

WaterNSW provided evidence that demonstrated it had generally implemented the requirements of its WQMS in relation to the implementation of a sampling plan for each characteristic in the distribution system and water as supplied to the customer (including the location and frequency of sampling) and to ensure monitoring data are representative and reliable.

We tested requirements documented in the *Water Monitoring Program Manual* (CD2011/179, v7) with those required for the FRWSS.

As discussed in Element 4 we found that sampling for manganese and temperature had not been undertaken for the FRWSS.

### Consumer satisfaction

WaterNSW has provided sufficient evidence to demonstrate it has implemented the requirements of its WQMS in relation to its consumer complaint and response program, including appropriate training of employees.

The weekly operations meeting meetings for the Declared Catchment discussed under Element 4 and the Operations Meetings with the FRWSS customers provide evidence of the implementation of this component.

### Short-term evaluation of results

WaterNSW has provided evidence to demonstrate it has maintained systems that meet the ADWG requirements to establish procedures for the daily review of drinking water quality monitoring data and consumer satisfaction and develop reporting mechanisms internally, and externally, where required.

The *Water Quality Data Review and Reporting Procedure* (CD2012/130, v6) outlines the process for reviewing, analysing and reporting on water quality data. This procedure outlines the appropriate steps to prepare routine water quality reports.

There was a lead result above the ADWG guideline value recorded in the *FRWS Lead Monitoring Spreadsheet* (D2023/102617). This exceedance was reported along with manganese exceedances and a high turbidity in the February 2023 *Fish River Drinking Water Quality Report* (D2023/18990) in accordance with the reporting procedure.

### Corrective action

WaterNSW has provided sufficient evidence to demonstrate it has maintained systems that meet the ADWG requirements to establish and document procedures for corrective action in response to non-conformance or consumer feedback and establish rapid communication systems to deal with unexpected events.

The *Water Quality Incident Response Protocol* (CD2004/183, v4) provides guidance on required corrective actions and investigations. Evidence relevant to this component is discussed under Element 4.

## Element 6 Management of incidents and emergencies

### Communication

WaterNSW has provided sufficient evidence to demonstrate it has implemented the ADWG requirements to define communication protocols with the involvement of relevant agencies, prepare a contact list of key people, agencies and businesses, and develop a public and media communications strategy.



WaterNSW's response to the extended July 2022 major rainfall event aligned with the *Joint Communications Protocols* (D2019/26923), demonstrated engagement, and aligned communications with the relevant agencies through weekly meetings with Sydney Water and NSW Health as part of the incident response. Evidence provided included the WaterNSW briefing with SWC and NSW Health 19-01-23 (D2023/3036) and WaterNSW briefing with SWC and NSW Health 25-01-23 (D2023/4591). The *Joint Operations Protocol* was reviewed during an incident exercise in May 2023 as discussed further below (D2023/92908).

WaterNSW uses the RACS system to maintain the incident records including notification to NSW Health, additional water quality sampling data and actions (D2023/67224).

### **Incident and emergency response protocols**

We found deficiencies in the implementation of the processes for incident investigation.

The *Incident Management Procedure* (CD2022/72) requires that a formal debrief is conducted within two weeks of the IMT being declared closed. We requested formal incident debriefs and evidence of progress on the actions identified from the debriefs for the following incidents:

- March/April 2022 major rainfall event impacting Lake Burragorang
- May 2022 debrief for the FRWSS
- July to September 2022 major rainfall event impacting Lake Burragorang

While the March/April 2022 major rainfall event and May 2022 debrief are both outside the audit period, we requested the debriefs to enable us to audit the progress of actions within the audit period. WaterNSW closed its IMT for the July 2022 major rainfall event in September 2022 (inside the audit period).

WaterNSW did not undertake their own formal incident debrief for any of those incidents and we did not sight evidence to explain why these were not undertaken.

WaterNSW undertook hot debriefs which identified some areas for improvement, however WaterNSW did not prioritise and assign the improvement actions. We discuss this further in Element 12 of this clause.

In our experience, learnings from hot debriefs, while valuable, do not address systemic issues in incident management, where formal debriefs such as root cause analysis do.

In response to our question about whether WaterNSW undertook root cause analysis for the July 2022 major rainfall event, WaterNSW advised that the cause of the incident was the rain so there was no point in undertaking a root cause analysis for the event. NSW Health noted that the high flows and loss of communications with automatic profilers in some dams limited water quality data available to inform decision making. A root cause analysis considering the unavailability of instruments would have been appropriate in this circumstance. Formal debriefs can also look at what worked well during incidents.

Although outside the audit period, we observed that WaterNSW participated in a joint incident debrief with Sydney Water and NSW Health in August 2023 (11 months after WaterNSW closed their IMT). The incident debrief report (D2023/92908) lists considerations for improvement, but does not assign priorities, timelines and responsibilities for actions identified. WaterNSW advised that actions are being tracked through the JOG. As discussed in Element 12 of this clause, we have not seen evidence that the actions are assigned within WaterNSW and tracked for implementation. While joint incident debriefs with affected customers and the regulatory agencies are valuable, WaterNSW should still implement its own *Incident Management Procedure* to hold a formal debrief within two weeks of the IMT being declared closed to meet the ADWG requirements to ensure the organisation learns as much as possible from the incident to improve preparedness and planning for future incidents and to amend existing protocols if necessary. These deficiencies are addressed by **Recommendation 2023/2.1.3 – 2**.

In response to our preliminary finding, WaterNSW stated that the *Incident Management Procedure* should be updated to reflect realistic timeframes. There is a balance in timing formal debriefs, to allow sufficient time for information to be collated against the delays where experiences are forgotten.

WaterNSW participated in an incident exercise in May 2023 with Sydney Water and NSW Health (Exercise "Wyuna" Report (D2023/92908)). Although outside the audit period, we observed that as of October 2023, the Exercise "Wyuna" Report had not been finalised. WaterNSW advised that they were waiting on Sydney Water to reach internal consensus on the draft report (D2023/108520). This supports our finding that WaterNSW should implement its WQMS and ensure that as an organisation it is meeting the ADWG

requirement to investigate any incidents or emergencies to learn as much as possible from the incident, to improve preparedness and planning for future incidents.

We also observed and commented on shortcomings in the implementation of incident investigation and reporting in clause 5.2.2.

## Element 7 Employee awareness and training

### Employee awareness and involvement

WaterNSW has provided evidence to demonstrate it has implemented the requirements of WaterNSW's WQMS to implement mechanisms and communication procedures to increase employees' awareness of and participation in drinking water quality management.

We were provided with evidence showing how water quality awareness was communicated across the organisation through a Yammer post that WaterNSW was presenting at Ozwater (an annual national water conference) and a link to the Water Quality Management System (D2023/102687).

WaterNSW staff participated in the Watermicro23 conference, an international conference focussing on health-related water microbiology and water safety planning. This satisfies both components of this element.

### Employee training

WaterNSW has provided evidence to demonstrate it has implemented the requirements of its WQMS to ensure that employees, including contractors, maintain the appropriate experience and qualifications, identify training needs, ensure resources are available to support training programs, document training, and maintain records of all employee training.

We were provided with the Water Quality Training Report (exported 1 May 2023) This report (D2023/35849) showed the target staff and currency of training for the three water quality related training courses:

- Water quality awareness
- Water quality incident response
- Materials and chemicals in contact with drinking water.

This report is used to calculate training performance. The organisational-wide percent compliance is shown in Table 3-10.

**Table 3-10 Compliance summary for water quality training**

Topic	Water quality awareness	Water quality incident response	Materials and chemicals in contact with drinking water
% compliance	88.71%	99.55%	97.83%

The Learning & Development team have an online learning completion reporting tool which is distributed monthly. We were provided with email evidence to managers with their training compliance report and the report for June 2023 (D2023/78516). The report listed the outstanding training courses for individual staff.

## Element 8 Community involvement and awareness

### Community consultation

WaterNSW has provided evidence to demonstrate it has generally implemented the requirements of its WQMS in relation to assessed requirements for effective community involvement and developed a comprehensive strategy for community consultation.

In our review of the WaterNSW website we could find no information that was specific to the FRWSS in relation to the education program or water quality more generally. There is a pop up on the website with the history of the FRWSS, but it contains no information on the water filtration plant. This can be accessed from the Water and History webpage and [www.waternsw.com.au/customer-services/your-account/fish-river-customers](http://www.waternsw.com.au/customer-services/your-account/fish-river-customers).

In Clause 2.1.2 WaterNSW advised that the key method FRWSS customers were informed was via the Fish River Customer webpage. This webpage contains no information promoting water quality awareness.



## Communication

WaterNSW has provided evidence to demonstrate it has implemented the requirements of its WQMS in the implementation of an active two-way communication program to inform consumers and promote awareness of drinking water quality issues.

The minutes of the JOG meeting provide evidence of active two-way communication with critical customers regarding water quality.

The minutes of the FRWSS Operations Forum Minutes were provided (21/6/2022, 18/10/2022, 20/12/2023, 18/4/2023).

The Annual Water Quality Monitoring Report is available on the website:

<https://www.waternsw.com.au/water-quality/quality/reports>

We could not locate the Annual Catchment Management Report on the WaterNSW website. The link for Modelpedia (<https://www.waternsw.com.au/about/general>) took us to the search function. Entering "Annual Catchment Management Report" returns the following link as the first item:

<https://www.waternsw.com.au/water-services/catchment-protection/management>

This page referred to the report: *At the end of every year, we also report on our progress in our Annual Catchment Management Report (available below)*, however there was no link to the page.

We saw evidence that FRWSS customers had been informed of project and maintenance works:

- A letter advising of the installation of the Potassium Permanganate Dosing Plant near the Oberon Pump Station site dated 8/2/2023 (D2023/79982).
- A series of letters on the progress of the valve replacement program for the pipeline (dated 29/11/2022 (D2023/79979), 1/03/2023 (D2023/79976) and 3/05/2023 (D2023/79980)).
- Two Customer Comms Alerts for the FRWSS valve replacement.

We were not provided a Customer Newsletter within the audit period. We searched the WaterNSW website for the Fish River Newsletter and it did not return relevant results so we could not determine whether these newsletters included water quality information in the audit period.

## Element 9 Research and development

### Investigative studies and research monitoring

WaterNSW has provided sufficient evidence to demonstrate it has implemented the requirements of its WQMS to establish programs that increase understanding of the water supply system and use this information to improve management of the water supply system.

WaterNSW provided evidence of the implementation of the investigative programs. This evidence included:

- A trial of blue green algal sensors on the vertical profilers in Lake Burragorang. Analysis was conducted comparing site specific chlorophyll-a grab sample results against sensor results to provide operational guidance on site specific calibration algorithms for more accurate prediction of chlorophyll-a concentration from sensor signals.
- A trial in Nepean for fluorescent dissolved organic matter (fDOM) sensors for dissolved organic carbon tracking which has been adopted into a monitoring program for optimising choice of depth for water supply from the lake and understanding spatial temporal dynamics during events (D2023/57018).
- A prototype method was developed for improved water quality trend analysis using Bayesian hierarchical models. Evidence was provided of a business case that had been developed and approved to extend this model to other lakes and catchment sites (D2023/54047).

WaterNSW tracks the science program project activity through Azure devOps. A monthly program progress review is reported via a PowerBI dashboard (D2023/66265). The annual review of the science program presented to the Board Committee on Water Quality, Health and Catchment Protection at the 23 November 2022 meeting was provided as evidence (D2022/15174).

The Board was presented with emerging trends in water management that discussed broad trends that may be of strategic nature to identify risks and opportunities for catchment management and water quality protection (D2022/151754).



Reports are available on projects to reduce disinfection by-products in the FRWSS. Reservoir mixers were installed in Cullen Bullen and Rydal Reservoirs to reduce trihalomethane (THM) formation. These were shown to be effective in lowering the overall THM concentration at these sites. An aeration trial was conducted at Duckmaloi Clear Water Tank (CWT). Review of this trial did not confirm any improvement in THM concentrations (D2023/79568).

### **Validation of processes**

WaterNSW has provided evidence to demonstrate it has implemented the requirements of its WQMS to validate processes and procedures to ensure that they are effective in controlling hazards and revalidate processes periodically or when variations in conditions occur.

The CCP tables hold the validation details for the critical control points.

### **Design of equipment**

We were unable to establish that the process to validate the selection and design of new equipment and infrastructure to ensure continuing reliability for the potassium permanganate dosing had been followed.

We requested evidence of how the potassium permanganate dosing design for the FRWSS was validated. We were provided with two consultant reports (D2023/102824, dated June 2022 and D2022/152651 dated 8/11/2022). These met the requirements for pilot testing and proving trials recorded in Modelpedia.

We tested the implementation of this clause for the FRWSS potassium permanganate dosing (which, as documented in Modelpedia, requires the Asset Change Request Process to be followed). We were advised that these processes would not have applied to this project. We could not determine if this was an issue with completing documentation and records (Element 10), that alternative processes were in place and followed (but not documented in the WQMS) or processes that should have been implemented were not followed.

## **Element 10 Documentation and reporting**

### **Management of documentation and reporting**

We found deficiencies in the implementation of WaterNSW's WQMS for this component. The ADWG requirements are to:

- Document information pertinent to all aspects of drinking water quality management.
- Develop a document control system to ensure current versions are in use.
- Establish a records management system and ensure that employees are trained to fill out records.
- Periodically review documentation and revise as necessary.

Elsewhere in the report we have discussed issues with documentation and records including:

- The O&M Manual for Upper Canal had not been updated in accordance with the Update Operations and Maintenance Manuals (CD2021/119[v2]) – discussed in Element 4 Clause 2.1.1
- Incomplete record keeping for routine monitoring of the FRWSS
- Missing and inaccurate records in RACS

We noted a lead and manganese exceedance in the FRWSS. The lead and manganese exceedances were reported to the Board as part of the *Quarterly Water Quality Performance Dashboard Report – February 2023 to April 2023* as required. However, these exceedances were not included in the RACS summary we were provided as evidence (D2023/67224) nor was the lead exceedance reported in the RACS download we were provided with the questionnaire.

The ADWG states *Records of all activities pertaining to the performance of drinking water quality management should be stored so that they can be easily accessed and reviewed.* We encountered significant delays in the provision of evidence such as debriefs, indicating socio-technical issues with the record management system.

### **Reporting**

In testing the implementation of Clause 2.1.3, we cross-checked that planned activities were completed. We found two instances where activities were not completed as planned and yet they were reported to the Board sub-committee as green. We did not see evidence that the change in metric or target was made by a



person with the delegation to do so. The Board relies on information accurately being rolled up into dashboards and summaries to set organisational priorities. “Watermelon reporting” (green on the outside, red in the middle) hinders effective governance of boards.

The *Annual System Health Check Report* (D2023/28976) to the Board Sub-committee reported that 11 Process Health Checks had been conducted as per schedule and 2 were in progress for completion in June 2023. We found that Health Checks were reported for items not on the schedule. We saw no evidence that the changes to the schedule had been approved by a someone with the appropriate delegation (see Element 11 in this Clause for more detail).

The Annual Report on the WQMS 2022-23 reports that the Culture and Competence target for “*Response Plan for potential Water Quality Events prepared and tested*” was met/on-track. The target was “2/year”, and the outcome was coloured green and reported as “1 exercise scheduled. Stakeholders agreed to address recommendations from previous exercises and incidents.” In addition to being unable to establish if the change in target was approved, Element 12 of this Clause discusses the difficulties we have had in establishing that recommendations from previous exercises were sufficiently progressed.

We considered the *Quarterly Water Quality Performance Dashboard Report* to the Board for February 2023 to April 2023 (D2023/40068) as evidence. This is not included in Modelpedia under Element 10 but is referenced in Element 2.

WaterNSW produces an *Annual Water Quality Monitoring Report* (D2022/111060[v2]). We observed discrepancies in the report, and it is unclear what the “guideline” values in the statistical summary appendices refer to. For example, in Table 5.2, Section 8.1.1 and Appendix C, true colour was reported as exceeding the Raw Water Supply Agreement site specific standards for Macarthur WFP (as defined in Table 4.2). However, Table A33 reports no samples for Macarthur WFP above the “guideline”.

## **Element 11 Evaluation and audit**

### **Long term evaluation of results**

WaterNSW has provided evidence to demonstrate it has implemented the requirements of its WQMS to collect and evaluate long-term data to assess performance, identify problems, and document and report results.

We were provided with the *Annual Water Quality Monitoring Report*, which meets the requirements of this component. The 10-year analysis was not due in the audit period.

### **Audit of drinking water quality management**

We were unable to establish that WaterNSW had fully implemented the requirements of its WQMS in relation to this component.

The Proposed Assurance Program 2022-23 in the Water Quality Management System Audit Program (D2017/87415) identified 12 activities (see Table 3-11).

WaterNSW confirmed in the questionnaire that the target for completed Health Checks in 2022-23 was 12, and a total of 13 were completed. We were provided with the following health checks as evidence:

- Materials and chemicals in contact with water
- Reporting as per the Operating Licence Reporting Manual
- Warragamba Dam outlet and screen change
- Fish River Good Practice Guide
- WQMS Accountability Framework

The questionnaire reported that additional health checks were:

- Water system schematic review – Greater Sydney
- Water system schematic review – Fish River
- Contact list reviews (six-monthly)
- Reportable to Health tool and trigger review
- Review of online training (Water Quality Awareness)





The *Annual System Health Check Report (D2023/28976)* to the Board Sub-committee reported that 11 Process Health Checks had been conducted as per schedule and 2 were in progress for completion in June 2023.

We did not have sufficient time during the audit to establish what the remaining health checks were, why the schedule had changed nor the process for approving the change. We did not see in the evidence provided that the changes in the program had been approved. A summary of our understanding of the proposed assurance program and what was completed is shown in Table 3-11.

**Table 3-11 Comparison of proposed assurance program with completed assurance activities**

Proposed Assurance Program # (D2017/87415)	Topic	Status
23-01	Review of online training material (ensure currency and scope is still adequate). Deep dive assurance activity.	Reported as completed in D2017/87415
23-02	Contact list review (from audit recommendation)	Reported as completed in D2017/87415
23-03	Currency of relevant documents for external access in Modelpedia	Reported as underway (70%) in D2017/87415
23-04	Reporting against Reporting Manual (from audit recommendation)	Provided as evidence
23-05	Fish River good practice guide – site visit elements. Yearly review.	Provided as evidence
23-06	Communications Protocols and Guidelines	Completion status unknown. Was listed in the deferred or cancelled list in D2017/87415.
23-07	Warragamba Dam – Outlet Stopboard and Screen Changes	Provided as evidence
23-08	Review of CCP reporting	Reportable to Health tool and trigger review
23-09	Materials and Chemicals in contact with Drinking Water Supplies – implementation and NSW Health list. Deep dive assurance activity.	Provided as evidence
23-10	Identify procedures required for processes and activities from catchment to consumer	Status unknown
23-11	Review Special Areas Strategic Plan of Management implementation	Status unknown
23-12	Source Water Protection Framework	Status unknown. Was listed as deferred for 23 FY in D2017/87415.
Not in program	Water system schematic review – Greater Sydney	Reported as completed in questionnaire
	Water system schematic review – Fish River	Reported as completed in questionnaire

## Element 12 Review and continual improvement

### *Review by senior executive*

WaterNSW has provided evidence to demonstrate it has implemented the requirements of its WQMS to have senior executive review of the effectiveness of the management system and evaluate the need for change. We asked for evidence that senior management had acted on any findings, but we did not receive this evidence.



We were provided as evidence:

- Report to the Board:
  - Quarterly (February to April 2023) Dashboard Report (D2023/40068) – May 2023 Board Meeting
- Reports to the Board Committee for Sustainability and Service Delivery:
  - *Annual System Health Check Report Water Quality* provided to the 14 June 2023 meeting of the Board Committee for Sustainability and Service Delivery (D2023/48976). This report provided background on the WQMS and reported on the Water Quality Management System Targets and Outcomes.
  - Water Quality Awareness Training Agenda Item 7.3 for the 14 June 2023 meeting.
- WaterNSW Executive Team Monthly Performance Management Meetings:
  - May 2023 – Monthly Water Quality Performance Dashboard (D2023/48644)
  - November 2022 – Quarterly (August to October) Water Quality Performance Dashboard (D2022/157951)

This evidence demonstrates implementation of the WQMS. In the audit questionnaire, we had asked for evidence that senior management had acted on findings from the review, but we did not receive this evidence. We had sufficient other evidence to support our grade, so we did not pursue this aspect.

### **Drinking water quality management improvement plan**

WaterNSW has a Water Quality Improvement Plan and we saw evidence that actions had been added to the plan and actions were completed during the audit period. However, we found it is unclear what happens to all identified actions and how they are tracked and reported to the Board. Where items are tracked through the JOG, we have not seen evidence that the actions are assigned and tracked for implementation (for example, assigned to specific roles with timeframes) as required by the ADWG Framework. WaterNSW provided the minutes of the Q1 2023 and Q3 2023 JOG meetings as evidence, but these did not assign the actions to specific people (or roles) within specific timeframes.

We found (Clause 2.1.1 Element 12) that the WQMS does not document how all improvement items are monitored for effectiveness and we did not see evidence that this was undertaken in practice.

### **Observation**

The *Procurement Framework* (CD2016/77[v4]) requires that a risk assessment is completed and endorsed by the Water Quality Services Team if *the procurement project include purchase of materials or chemicals which may come into contact with drinking water or the project or activity on or near drinking water supplies or assets*. The Nepean Tunnel was offline for the March 2022 rain event prior to the landslide and remained offline for the November 2022 repair works (including removal of debris, the stoney gate and covert to prevent entry to the shaft). WaterNSW advised that no materials and chemicals were used, so the Water Quality Services Team did not need to approve a risk control plan (as required by the *Materials and Chemicals in Contact with Drinking Water Procedure* (CD2019/36 [v4])). While we accept that no materials and chemicals were used, the works were a project or activity near drinking water supplies or assets, which requires a risk control plan endorsed by the Water Quality Services Team as outlined in the *Procurement Framework*. WaterNSW did not have a risk control plan endorsed by the Water Quality Services Team for the Nepean Tunnel repair works.

### **Recommendations**

Recommendation 2013/2.1.3 – 1: By 30 June 2024, WaterNSW should update the C2C risk assessment procedure to define WaterNSW's role in C2C risk assessments for customers other than Sydney Water.

Recommendation 2023/2.1.3 – 2: By 30 June 2024, WaterNSW should conduct its own formal incident debriefs within the two-week standdown timeframe as recorded in the incident management procedure independent of customer incident status. These debriefs should include an improvement action plan that assigns responsibilities and due dates for actions.

Recommendation 2023/2.1.3 – 3: By 30 June 2024, WaterNSW should review and update its processes to ensure exceedances are appropriately recorded in RACS. This recommendation addresses the findings of



lead exceedance in FRWSS, SCADA exceedance not recorded in RACS and consequence descriptors not matching CCP hazards.

Recommendation 2023/2.1.3 – 4: By 30 June 2024, WaterNSW should review industry practice and assess options for replacing lead seals for mains pipeline connections during repairs and maintenance. If an alternative process that meets AS4020:2018 cannot be implemented, WaterNSW should update their WQMS with a process for allowing products that do not comply with AS4020:2018 to be assessed for water quality safety and document the repair procedure following this assessment processes.

Recommendation 2023/2.1.3 – 5: By 31 December 2024, WaterNSW should review and update the WQMS assurance reporting processes and associated delegations to ensure that board reporting is accurate and changes to metrics and targets are being undertaken by those with appropriate delegations.


### **Opportunities for improvement**

OFI 2023/2.1.3 – 1: WaterNSW should consider reviewing water quality data from recent incidents to review and update risks and risk scores, incorporate changes, reduce uncertainty, and prevent against future similar incidents.

## Clause 2.4 – Catchment infrastructure works management

### Clause 2.4.1

Table 3-12 Clause 2.4.1 compliance grade

Subclause	Requirement	Compliance grade
2.4.1	Water NSW must ensure that, in Declared Catchment Areas, the Catchment Infrastructure Works are operated and managed consistently with the Design Criteria and the Asset Management System referred to in clause 5.1.	Compliant 
<b>Risk</b> This requirement represents a high operational risk. Operation and management of the Catchment Infrastructure in accordance with the Design Criteria is essential to ensuring the continuity of water supply. Under an asset management system approach, this requires documented understanding of stakeholder requirements and defined objectives to guide planning and asset management activities.		<b>Target for full compliance</b> Demonstration that the Catchment Infrastructure was operated and managed consistent with the Design Criteria and the Asset Management System during the audit period.

#### Summary of reasons for grade

WaterNSW demonstrated that it had operated and managed the Catchment Infrastructure Works consistently with the Design Criteria and in accordance with the Asset Management System during the audit period. Under clause 2.4.1, WaterNSW must also manage the Catchment Infrastructure Works in accordance with the Asset Management System. WaterNSW has demonstrated the alignment between its corporate and asset management objectives and how this allows its Catchment Infrastructure Works to be operated and managed consistently in accordance with its Asset Management System.

WaterNSW has recently delivered an operational risk assessment (ORA) of Warragamba Dam. The scope and depth of this assessment is comprehensive and considered to be leading practice. WaterNSW should be commended for this initiative. WaterNSW advised that this risk assessment is being developed into a standardised procedure, to be progressively rolled out across its dams portfolio. Consideration should be given to undertaking a comprehensive catchment wide risk assessment, similar to the approach adopted for Warragamba Dam, to assess the likely impacts (water availability/ quality) and potential mitigation actions available in the event of asset or source supply failure (**OFI 2023/2.4.1 – 1**).

The severe floods experienced during the audit period tested the resilience of WaterNSW's asset management processes and were found to be quite robust.

NSW Health, in its feedback to IPART on WaterNSW's performance during the audit period, provided the following response:

*Extreme weather and complex events involving close collaboration between WaterNSW and Sydney Water highlighted the strong and effective operational relationships between the two organisations. Consequences of events were minimised or avoided due to knowledgeable staff working under challenging conditions to ensure the protection of public health.*

This clause is graded Compliant.

#### Discussion and notes

Asset Management Objective 8 states that the *System is operated and managed in accordance with Design Criteria*. The Design Criteria mean the levels of service for security, robustness and reliability of water available for Supply to Customers (other than Small Customers) in or from the Declared Catchment Area, as published by WaterNSW on its website from time to time.

During the audit period the design criteria were changed as a result of the completion of the Greater Sydney Water Strategy (GSWS). DPE informed WaterNSW by letter on 26 September 2022 advising their proposed revisions to the levels of service for operating Greater Sydney's water supply system. This included a change in the 'reliability' criterion from the previous 3% to 5%.

Following the change, the design criteria in place are:

- Security – storages should not approach emptiness (defined as 5% of water in the storage) more often than 0.001% of the time, or one chance in 100,000 in any one month
- Robustness – imposed water restrictions should not occur more often than once in every ten years on average
- Reliability – imposed water restrictions should not last longer than 5% of the time on average, or 5 months in 100 months.

System operating rules, based on recalculation of system yield due to publication of the Greater Sydney Water Strategy, are incorporated into the WATHNET yield model. To ensure the system is managed following the hierarchy of objectives used to determine yield, these operating rules are integrated into WaterNSW's operational tools such as the Master Schedule.

We were provided with a copy of the Master Schedule (D2023 74115) which is a complex spreadsheet that is used to guide decision making about:

- Storage balancing to ensure a similar level of security at each node
- Water quality balancing used to deliver water that meets the required quality targets
- Environmental flows
- Optimising water sourcing in the event of major maintenance activities.

We discussed the risks associated with the use of spreadsheets for such critical tasks. WaterNSW are planning the development of a long-term decision support system based on its CARMS (Computer Aided River Management System). This will be a five-year project which provide a product that will overcome the limitations of a spreadsheet.

We were provided with a copy of the Greater Sydney Water Supply Operating Plan, October 2022. The Operating Plan details how the WaterNSW and Sydney Water Operations teams intend to manage short to medium terms risks within the storage, supply, treatment, and network distribution of drinking water.

The aim is to:

- Identify key risks and system constraints in maintaining supply of treated water to Sydney Water customers over the next three to six months
- Detail contingency measures where applicable.

The objective is to manage the raw water supply to facilitate the production of safe drinking water at adequate rates by Sydney Water. The current (next four weeks) and medium term (next three months) water supply strategy, risks and controls to each of the water filtration plants (WFPs) are documented in the Operating Plan.

WaterNSW meets with Sydney Water on a weekly basis to refine the approach for system operation and address potential constraints (e.g., planned/ unplanned shutdowns). Regular meetings are held by the Strategic Liaison Group (CEO level) and Joint Operations Group (General Manager level).

The catchment infrastructure is inter-linked, and a key element of its operation is the management of outages. We were provided with a copy of the Major Outage Program for 2023 (D2023 31442). Major outages are planned and implemented in consultation with Sydney Water to ensure water supply availability at the desired quality.

Asset Management Objective 6 states that *Work management processes are consistently delivered and monitored*. Under clause 2.4.1, WaterNSW is to manage the Catchment Infrastructure Works in accordance with the Asset Management System. The requirement for this system is specified under clause 5.1.1 of this licence and discussion on this obligation is included under the section of this report relating to clause 5.1.1.



WaterNSW has recently delivered an operational risk assessment (ORA) of Warragamba Dam (D2023 97710), which applies an 'all hazards' approach. The scope and depth of this assessment is comprehensive. The report authors claim that:

*... in an overall sense, development of the WaterNSW ORA framework and its pilot application to Warragamba Dam has positioned WaterNSW as an industry leader in risk informed decision making for dam systems. This level and method of operational risk assessment is unparalleled in the Australian dam's [sic] industry in terms of approach and depth and breadth of scope.*

WaterNSW should be commended for this initiative.

WaterNSW advised that this risk assessment is being developed into a standardised procedure, to be progressively rolled out across its dams portfolio.

Consideration should be given to undertaking a comprehensive catchment wide risk assessment, similar to the approach adopted for Warragamba Dam, to assess the likely impacts (water availability/ quality) and potential mitigation actions available in the event of asset or source supply failure (**OFI 2023/2.4.1 – 1**).

### **2022 flood events**

The catchments experienced a number of flood events during the audit period, the most notable being the July 2022 and November 2022 events. We queried WaterNSW on how the Catchment Infrastructure Works were operated and managed during extreme weather events in the audit period. WaterNSW responded that during the floods the main focus was to safely pass the flood waters and minimise water quality impacts to treatment plants. This involved setting up an Incident Management Team to centralise decision making and communications and working closely with Sydney Water and NSW Health. Processes were guided by Flood Manuals, the Incident Management Procedure and Water Quality Incident Response Protocol, and Raw Water Supply Operating Protocols.

For the July 2022 event, short term configurations were required to provide optimum water quality to water treatment plants (e.g., supplying more water to Prospect WFP from the Upper Nepean dams and supplying Macarthur WFP from Nepean Dam to improve treatability. For some time, the Nepean Tunnel was out of service due to landslide hence Cataract Dam was drawn down.

The Warragamba pipelines were put in Orchard Hill contingency configuration to preserve good quality water for the Warragamba and Orchard Hill WFPs while Prospect WFP was supplied from Prospect Reservoir and the Upper Canal. This contingency had been used in previous floods and was well documented and understood by maintenance and operations teams. We were provided with a copy of the Notification of Change to System Operation – Raw Water for the supply from the Warragamba pipelines dated 2 July 2022.

For the November event, configuration changes were required. WaterNSW reported that they were able to operate the Warragamba Dam crest gates as per the operating protocol and provide continuous supply to Sydney Water with no impact to consumers.

WaterNSW reported that they had managed catchment assets in the following ways to meet asset management objectives during flood events:

- Site teams conducted pre-flood operational checks
- 24-hour site attendance occurred during flood operations
- Gated dams were operated in accordance with documented protocols
- Ungated dams were monitored
- There was an increased frequency of dam surveillance inspections
- Regular inflow forecasts were provided by the Water System Operations team
- Maintenance engineers and Dams Safety engineers were available to respond to any technical matters.

The severe floods experienced during the audit period tested the resilience of WaterNSW's asset management processes, which were found to be quite robust.

NSW Health, in its feedback to IPART on WaterNSW's performance during the audit period, provided the following response:

*Extreme weather and complex events involving close collaboration between WaterNSW and Sydney Water highlighted the strong and effective operational relationships between the two organisations. Consequences of events were minimised or avoided due to knowledgeable staff working under challenging conditions to ensure the protection of public health.*

From a review of the information provided and WaterNSW's audit responses we are satisfied that WaterNSW are compliant with the requirements of this clause.

### **Recommendations**

No recommendations were identified.


### **Opportunities for improvement**

OFI 2023/2.4.1 – 1: Consideration should be given to undertaking a comprehensive catchment wide risk assessment, similar to the approach adopted for Warragamba Dam, to assess the likely impacts (water availability/ quality) and potential mitigation actions available in the event of asset or source supply failure.

## Clause 2.5 – Calculating system yield

### Clause 2.5.1

Table 3-13 Clause 2.5.1 compliance grade

Subclause	Requirement	Compliance grade
2.5.1	Water NSW must recalculate the System Yield in respect of a Declared Catchment Area on the occurrence of any one or more of the following events: <ol style="list-style-type: none"> <li>the conclusion of any drought event affecting the Declared Catchment Area;</li> <li>the commencement of any modification or augmentation to the Catchment Infrastructure Works or Customers' infrastructure, that will have a significant impact on Water NSW's Supply of water in respect of the Declared Catchment Area;</li> <li>any material change to the operating rules of the Catchment Infrastructure Works in respect of the Declared Catchment Area; or</li> <li>any material change to the Design Criteria in respect of the Declared Catchment Area.</li> </ol>	Compliant 
<b>Risk</b> This requirement represents a high operational risk. Any of the nominated events may, singularly or collectively, have a significant impact on the System Yield, which may in turn require a change to system operations.		<b>Target for full compliance</b> Evidence that WaterNSW re-calculated the System Yield if any of the nominated events occurred.

#### Summary of reasons for grade

We are satisfied that WaterNSW has recalculated System Yield as required by this clause. The recalculation of System Yield was triggered by material changes, in the audit period, to the Design Criteria for the Greater Sydney water supply system and the operating rules of the water supply infrastructure. The results of the recalculated System Yield were documented in the Update of Greater Sydney's Water Supply System Yield report (D2022 165325) prepared by WaterNSW in December 2022.

This clause is graded as Compliant.

#### Discussion and notes

This clause requires that WaterNSW recalculates the System Yield in respect of a Declared Catchment Area on the occurrence of any one or more of the following events:

- The conclusion of any drought event affecting the Declared Catchment Area
- The commencement of any modification or augmentation to the Catchment Infrastructure Works or Customers' infrastructure, that will have a significant impact on Water NSW's Supply of water in respect of the Declared Catchment Area
- Any material change to the operating rules of the Catchment Infrastructure Works in respect of the Declared Catchment Area
- Any material change to the Design Criteria in respect of the Declared Catchment Area.

The Declared Catchment Area is the declared Sydney catchment area and is defined in Clause 17 of Schedule 2 of the *Water NSW Act 2014*.

As mentioned under Clause 2.4.1, in a letter to WaterNSW dated 26 September 2022 (D2023 41622), the Department of Planning and Environment stated their intention to revise the levels of service for operating Greater Sydney's water supply system. The levels of service are the Design Criteria for the water supply system. The Design Criteria were published on WaterNSW's website in January 2023 ([https://www.waternsw.com.au/\\_data/assets/pdf\\_file/0017/233405/D2022-175597-Greater-Sydney-Water-Supply-System-Design-Criteria-and-Supply-configuration.pdf](https://www.waternsw.com.au/_data/assets/pdf_file/0017/233405/D2022-175597-Greater-Sydney-Water-Supply-System-Design-Criteria-and-Supply-configuration.pdf)). The reliability criterion was materially changed from restrictions not lasting longer than 3% of the time on average, to restrictions not lasting longer



than 5% of the time on average. The Design Criteria were revised as a result of the commencement of the Greater Sydney Water Strategy.

Alongside revisions to the Design Criteria, and as a result of the commencement of the Greater Sydney Water Strategy, the Department proposed the following material changes to operating rules and other factors impacting on System Yield:

- Changes to the assumed system water storage trigger levels for the commencement and discontinuance of water restrictions, and the reductions in water demand to be assumed from each level of water restrictions
- A change in operation of the Sydney Desalination Plant from drought-only operation to continuous, flexible operation
- The inclusion of installed water supply capacity only in the calculation of System Yield. Consequently, water supply assumed to be provided by the expansion of the Sydney Desalination Plant is not to be included.

Therefore, in the audit period, there were material changes to the Design Criteria for the Greater Sydney water supply system and the operating rules of the water supply infrastructure. A recalculation of System Yield was consequently triggered under this clause.

To meet the requirements of this clause, WaterNSW recalculated System Yield by incorporating the changes described above in its water supply system model, which utilises the WATHNET software package, and re-running the calculation of System Yield. The results of the recalculated System Yield were documented in the Update of Greater Sydney's Water Supply System Yield report (D2022 165325) prepared by WaterNSW in December 2022. The recalculated System Yield (run 40 of the model) was determined to be 540 gigalitres (GL)/annum.

### **Recommendations**


No recommendations were identified.

### **Opportunities for improvement**

No opportunities for improvement were identified.

## Clause 2.5.2

Table 3-14 Clause 2.5.2 compliance grade

Subclause	Requirement	Compliance grade
2.5.2	In accordance with the Reporting Manual, Water NSW must advise the Minister: a. of any changes to the System Yield relative to the previous System Yield (including reasons for change) following a re-calculation under clause 2.5.1; or b. if Water NSW considers that future demand for Bulk Water may exceed the System Yield and when this exceedance might occur.	Non-compliant (non-material) 
<b>Risk</b> This requirement represents a moderate short-term, but potentially high long-term risk. Whilst changes to the System Yield may not affect effective operation of the water supply system in the short term, it is essential that the Minister is aware of any changes that may adversely impact the future availability of water.		<b>Target for full compliance</b> Evidence that the Minister was advised of any changes to the System Yield or if WaterNSW considered that demand may exceed the System Yield.

### Summary of reasons for grade

One deficiency against part (b) of this clause was identified at audit. WaterNSW considered that it was not responsible for advising the Minister in accordance with 2.5.2(b) due to accountability for the Greater Sydney water supply augmentation planning function being transferred from WaterNSW to Sydney Water on 31 January 2021. However, neither the Ministerial direction to WaterNSW regarding the transfer of that accountability, nor the Memorandum of Understanding (D2023 66417) that was entered into between WaterNSW and Sydney Water to meet the requirements of the Ministerial direction, vary WaterNSW's obligations under its operating licence. Therefore, WaterNSW did not comply with 2.5.2(b).

This is a deficiency and not a shortcoming as it is a breach of the licence requirement. If uncontrolled, a breach of the licence requirement leads to a risk that the Minister is not aware of adverse impacts on the ability of the bulk water supply system to meet future demand. However, we consider that the residual (controlled) risk is minimal and that this deficiency is non-material. Our conclusion is made on the basis of the significant interagency collaboration that has occurred, and continues to occur, in regard to water supply augmentation planning for Greater Sydney. These collaborative working relationships have been formalised through the governance structure for the implementation of the Greater Sydney Water Strategy as well as instruments such as the aforementioned Memorandum of Understanding. The need for supply augmentation and options to respond to that need are key elements of the Greater Sydney Water Strategy.

As part of the licence requirement was breached, this clause is graded as Non-compliant (non-material).

### Discussion and notes

Part (a) of this clause requires that WaterNSW advise the Minister of any changes to the System Yield relative to the previous System Yield (including reasons for change) following a re-calculation under Clause 2.5.1.

Under Clause 2.5.1, WaterNSW must recalculate System Yield when certain triggers have occurred. System Yield was recalculated in the audit period due to material changes to the Design Criteria for the Greater Sydney water supply system and the operating rules of the water supply infrastructure. The results of the recalculated System Yield were documented in the Update of Greater Sydney's Water Supply System Yield report (D2022 165325) prepared by WaterNSW in December 2022. The recalculated System Yield was determined to be 540 GL/annum, compared with the previously reported yield of 520 GL/annum in 2021.

WaterNSW subsequently advised the Minister of the change to System Yield, relative to the previous yield, including the reasons for the change. As evidence of this advice, we were provided with a briefing note (D2023 1474) from WaterNSW to the Minister that was endorsed by WaterNSW's executive management in December 2022. The briefing note was noted by the Minister's Chief of Staff on 10 January 2023. Therefore, we are satisfied that WaterNSW met the requirements of part (a) of this clause.



Part (b) of this clause requires that WaterNSW advise the Minister if it considers that future demand for Bulk Water may exceed the System Yield and when this exceedance might occur. WaterNSW considered that it was not responsible for advising the Minister in accordance with part (b) of this clause due to accountability for the Greater Sydney water supply augmentation planning function being transferred from WaterNSW to Sydney Water on 31 January 2021. We reviewed the following documents to test WaterNSW's position regarding accountability for part (b) of this clause:

- The Ministerial direction to WaterNSW regarding the transfer of accountability for the Greater Sydney water supply augmentation planning function
- The corresponding Ministerial direction to Sydney Water
- The Memorandum of Understanding (D2023 66417) entered into between WaterNSW and Sydney Water to meet the requirements of the Ministerial directions.

We consider that none of the above documents vary WaterNSW's obligations under its operating licence. Therefore, we consider that WaterNSW did not meet the requirements of part (b) of this clause (**Recommendation 2023/2.5.2 – 1**). However, significant interagency collaboration has occurred, and continues to occur, in regard to water supply augmentation planning for Greater Sydney. These collaborative working relationships have been formalised through the governance structure for the implementation of the Greater Sydney Water Strategy, as well as instruments such as the aforementioned Memorandum of Understanding. The need for supply augmentation and options to respond to that need are key elements of the Greater Sydney Water Strategy.

The effectiveness of those relationships in practice is supported by the stakeholder submission from the Department of Planning and Environment (dated 19 July 2023), where the Department considered that it had collaborated closely with WaterNSW and Sydney Water in the development of the Greater Sydney Water Strategy and supporting Greater Sydney Drought Response Plan. The Department also considered that WaterNSW and Sydney Water had collaborated closely in the development of their respective Long Term Capital and Operational Plans (LTCOPs), of which yield, demand and the need for supply augmentation were key inputs. Based on the maintenance of effective interagency relationships, as well as the governance in place for the implementation of the Greater Sydney Water Strategy, we consider that this non-compliance is non-material.

### **Recommendations**

Recommendation 2023/2.5.2 – 1: By 30 June 2024, WaterNSW is to develop and implement a process for advising the Minister if it considers that future demand for Bulk Water may exceed System Yield and when this exceedance might occur. The effective implementation of this process will require Sydney Water to provide WaterNSW with information on future demand for Bulk Water.

In making this recommendation, it is assumed that the requirements of this clause will be unchanged in WaterNSW's new operating licence, which is anticipated to come into effect on 1 July 2024.

### **Opportunities for improvement**


No opportunities for improvement were identified.



## Clause 2.8 – Water planning

### Clause 2.8.4

Table 3-15 Clause 2.8.4 compliance grade

Subclause	Requirement	Compliance grade
2.8.4	Water NSW must maintain jointly with Sydney Water, and deliver on actions specified in, the Greater Sydney Drought Response Plan.	Compliant 
<b>Risk</b> Failure to jointly maintain with Sydney Water, and deliver on actions specified in, the Greater Sydney Drought Response Plan presents a high risk that drought stages are not clearly defined and understood between the primary agencies responsible for drought management in Greater Sydney. Furthermore, it presents a high risk that the preparation, mitigation, response and recovery actions necessary at each stage have not been identified, with roles and responsibilities clearly assigned.		<b>Target for full compliance</b> Evidence that the Greater Sydney Drought Response Plan was maintained jointly with Sydney Water in the audit period. Evidence that WaterNSW made appropriate progress in the audit period against its actions in the Plan.

#### Summary of reasons for grade

We consider that WaterNSW has jointly maintained the Greater Sydney Drought Response Plan with Sydney Water and made appropriate progress in the audit period against its actions in the Plan. Our conclusion is based on the following:

- The Greater Sydney Drought Response Plan being reviewed and updated annually in accordance with the Greater Sydney Water Strategy Implementation Plan 2022 – 2025, including the publication of a summary
- The establishment and implementation of internal and inter-agency governance, monitoring and reporting arrangements
- Appropriate progress being made against WaterNSW's actions in the Plan, such as the development of a monthly drought indicators monitoring dashboard
- Stakeholder submissions from the Department and Sydney Water confirming close collaboration between all three parties to develop, review and update the Plan.

This clause is graded as Compliant.

#### Discussion and notes

This clause requires that WaterNSW maintain jointly with Sydney Water, and deliver on actions specified in, the Greater Sydney Drought Response Plan. The Greater Sydney Drought Response Plan complements the Greater Sydney Water Strategy and *provides guidance on how the [State-Owned Corporations] should respond to drought* by defining the key actions to be taken in each stage of drought. The stages of drought defined by the Plan are:

- Normal operations
- Preparing and responding to drought
- Extreme drought
- Transitioning out of drought.

The most recent version of the Plan (the Greater Sydney Drought Response Plan 2.0 [D2023 3712]) was reviewed and updated in December 2022, following its initial completion and delivery to the Minister in December 2021 (the Interim Greater Sydney Drought Response Plan [D2021 124395]). We were provided with the December 2021 and December 2022 versions of the Plan.



In its stakeholder submission to IPART (dated 19 July 2023) to inform the 2023 Public Water Utility operational audits, the Department of Planning and Environment confirmed that it had received the updated Greater Sydney Drought Response Plan. The Department also considered that it had collaborated closely with WaterNSW and Sydney Water to develop the initial Plan and its subsequent revision.

In addition to reviewing the Department's submission, we contacted Sydney Water to seek its opinion on WaterNSW's performance against its obligations under this clause. In its response (dated 17 August 2023), Sydney Water considered that it had maintained an effective and collaborative working relationship with WaterNSW to maintain and deliver the Greater Sydney Drought Response Plan, remarking that WaterNSW had been *very responsive, proactive, transparent and outcome driven in their approach*.

The overall maintenance of the Greater Sydney Drought Response Plan is included as an action under Priority 2 (*Our water systems are sustainable for the long term and resilient to extreme events*) of the Greater Sydney Water Strategy Implementation Plan 2022 – 2025, with a summary required to be published by July 2023. This action also includes *implementing the necessary governance, monitoring and reporting arrangements as well as undertaking an annual review and update as required*. As noted earlier, the Greater Sydney Drought Response Plan has been reviewed and updated annually. We also note that a Greater Sydney Drought Response Plan Overview (August 2022) has been published online ([https://water.dpie.nsw.gov.au/data/assets/pdf\\_file/0011/528860/greater-sydney-drought-response-plan-summary.pdf](https://water.dpie.nsw.gov.au/data/assets/pdf_file/0011/528860/greater-sydney-drought-response-plan-summary.pdf)). We discuss the governance, monitoring and reporting arrangements for the Plan in the paragraphs below.

The delivery of the Greater Sydney Water Strategy and the supporting Implementation Plan is monitored, evaluated and reported through a Monitoring, Evaluation and Reporting Framework (D2023 79288) (May 2023). As part of the Framework, an Implementation Working Group is responsible for coordinating the regular monitoring and review of the actions in the Greater Sydney Drought Response Plan and for providing updates to the Implementation Oversight Committee on the progress of these actions. As evidence of discussion of Greater Sydney Drought Response Plan actions, we were provided with the minutes of the Implementation Working Group meetings held on 13 February 2023 and 13 March 2023 (D2023 79396).

On behalf of both WaterNSW and Sydney Water, WaterNSW provided a progress update to the Department on 23 December 2022 regarding the actions in the Greater Sydney Drought Response Plan. The reporting period was considered by WaterNSW and Sydney Water to be within the "normal operations" drought stage and, as such, only progress against these actions was reported. As part of the progress update, the actions in the Plan were extracted into a tracking spreadsheet along with the responsible organisations, and the status of each action was reported.

At audit, we requested an update on progress made as at the end of the audit period (i.e., 30 June 2023). WaterNSW provided an updated tracking spreadsheet in response. We reviewed the updated tracking spreadsheet and observed that the following progress had been made since the December 2022 update:

- Initiation of a project to restore sensors and instruments at Broughton Pass to enable remote operations and increased efficiency of water delivery
- Completion of water hammer modelling and incorporation into the long-term strategy for the Fish River Water Supply scheme
- Development of a monthly drought indicators monitoring dashboard.

As evidence of the latter, WaterNSW provided the drought indicators monitoring dashboard that was developed for June 2023. The dashboard summarises the drought rating, recommended actions, and primary and secondary indicators for the Warragamba and Illawarra nodes in the reporting period.

The inter-agency progress reporting provided by WaterNSW is supported by the progress reporting it undertakes internally. In this regard, WaterNSW provides a quarterly update to its Board regarding the progress it has made against its actions in the Greater Sydney Drought Response Plan. We were provided with the November 2022, February 2023 and May 2023 progress updates as evidence.

The overall maintenance of the Greater Sydney Drought Response Plan is also reported by the Department to the Implementation Working Group and Implementation Oversight Committee through broader implementation reporting for the Greater Sydney Water Strategy. As evidence, we were provided with an action tracker (D2023 79505) that was updated by the Department on 28 June 2023. We reviewed the action tracker and confirmed that the maintenance actions relating to the Plan were reported as being completed on time during the audit period.



Overall, we consider that WaterNSW has jointly maintained the Greater Sydney Drought Response Plan with Sydney Water and made appropriate progress in the audit period against its actions in the Plan. Our conclusion is based on the following:

- The Greater Sydney Drought Response Plan being reviewed and updated annually in accordance with the Greater Sydney Water Strategy Implementation Plan 2022 – 2025, including the publication of a summary
- The establishment and implementation of internal and inter-agency governance, monitoring and reporting arrangements
- Appropriate progress being made against WaterNSW's actions in the Plan, such as the development of a monthly drought indicators monitoring dashboard
- Stakeholder submissions from the Department and Sydney Water confirming close collaboration between all three parties to develop, review and update the Plan.

### **Recommendations**


No recommendations were identified.

### **Opportunities for improvement**

No opportunities for improvement were identified.

## Clause 2.8.6

Table 3-16 Clause 2.8.6 compliance grade

Subclause	Requirement	Compliance grade
2.8.6	Water NSW must implement any action that: a. WaterNSW is responsible for implementing under the Greater Sydney Water Strategy; or b. the Minister directs, in writing, Water NSW to implement.	Compliant 
<b>Risk</b> Failure to implement the actions it is responsible for implementing under the Greater Sydney Water Strategy, or that the Minister directs it in writing to implement, presents a high risk that the long-term risks to the sustainability and resilience of Greater Sydney's water supply are not managed to within acceptable levels.		<b>Target for full compliance</b> Evidence that WaterNSW made appropriate progress in the audit period against its actions under the Greater Sydney Water Strategy or that the Minister directs it in writing to implement.

### Summary of reasons for grade

We consider that WaterNSW has implemented the actions it is responsible for leading under the Greater Sydney Water Strategy, where these actions are due in or shortly after the audit period. Where WaterNSW has primary responsibility for, but not responsibility for leading, an action that is due in or shortly after the audit period, we consider that WaterNSW has provided appropriate input to the lead agency in the audit period.

Our conclusion is based on our review of:

- The Greater Sydney Water Strategy Implementation Plan 2022 – 2025 (which sets out the actions, primary responsible agencies, and timeframes required to deliver the Strategy over the short term)
- The action tracker (D2023 79505) updated by the Department of Planning and Environment (which identifies the lead agency for each action)
- Evidence to demonstrate WaterNSW's progress against the actions it is responsible for leading or supporting.

This clause is graded as Compliant.

### Discussion and notes

This clause requires that WaterNSW implement any action that it is responsible for implementing under the Greater Sydney Water Strategy or that the Minister directs, in writing, WaterNSW to implement. The Greater Sydney Water Strategy was published by the Department of Planning and Environment in August 2022. It *charts a direction for delivering sustainable and resilient water services to Greater Sydney for the next 20 to 40 years*.

The Strategy is supported by an Implementation Plan (the Greater Sydney Water Strategy Implementation Plan 2022 – 2025), which sets out the actions required to deliver the Strategy over the short term. The horizon of the Implementation Plan is aligned with the price determination period set by IPART. Within the Implementation Plan, each action has an assigned primary responsibility and due date. An action may have more than one primary responsibility assigned.

Of those actions in the Implementation Plan that were due in or shortly after the audit period (i.e., those actions requiring significant progress to be made during the audit period), WaterNSW has been assigned joint primary responsibility for the actions listed in Table 3-17. We have discussed WaterNSW's delivery of each of these actions in the same table.

As mentioned under Clause 2.8.4, implementation reporting for the Greater Sydney Water Strategy includes the update of an action tracker (D2023 79505) by the Department. The action tracker is subsequently submitted to the Implementation Working Group and Implementation Oversight Committee. We reviewed the action tracker that was updated on 28 June 2023 to inform our understanding of the delivery of each action. The action tracker also identifies the lead agency for each action.



**Table 3-17 WaterNSW's actions under the Greater Sydney Water Strategy**

Ref.	Action	Primary responsibility(s)	Delivery of action in audit period
1.2(a)	Publish information on the latest climate change modelling and consider how this modelling and data might be used to consider future supply and demand projections and inform future infrastructure planning by July 2023	<ul style="list-style-type: none"> <li>Department of Planning and Environment</li> <li>Sydney Water</li> <li>WaterNSW</li> </ul>	The Department is the lead for this action. To inform future infrastructure planning, WaterNSW prepared a Climate Change Impact Assessment for Long-term Capital and Operational Plan for Greater Sydney Water Supply System Using NARCLiM1.5 Data (D2023 79458) (December 2022). This assessment modelled the impact of climate change on future temperature, rainfall, evapotranspiration, storage inflows and yield in the catchments supplying Greater Sydney.
2.3(a)	Complete planning for portfolios of rainfall-independent supply augmentation, system resilience and water security options. This will include how to manage system risks associated with resilience and climate change by July 2023.	<ul style="list-style-type: none"> <li>Sydney Water</li> <li>WaterNSW</li> </ul>	<p>Sydney Water is the lead for this action. This reflects the decision made by the Minister, effective from 31 January 2021, to transfer the supply augmentation planning function from WaterNSW to Sydney Water. As evidence of this decision, we were provided with a letter from the Minister to Sydney Water dated 22 January 2021. We note that under the terms of the decision, WaterNSW is required to provide information, resources and support to Sydney Water to enable it to meet and satisfy the accountability it has been assigned for the supply augmentation planning function.</p> <p>WaterNSW advised that it had provided modelling services and strategic support to Sydney Water to inform its supply augmentation strategic business case as well as its Long-term Capital and Operational Plan. As evidence, we were provided with a report on the strategic options business case modelling work performed by WaterNSW for Sydney Water (D2023 79496). Based on the action tracker, the strategic options business case was reviewed by Infrastructure New South Wales in May 2023.</p>
2.4(a)	Maintain a Greater Sydney Drought Response Plan, including implementing the necessary governance, monitoring and reporting arrangements as well as undertaking an annual review and update as required. Publish a summary by July 2023.	<ul style="list-style-type: none"> <li>Sydney Water</li> <li>WaterNSW</li> </ul>	WaterNSW and Sydney Water are the joint leads for this action. We have discussed delivery of this action under Clause 2.8.4.
2.5(a)	Complete long-term capital and operating plan detailing 20-year investment needs to meet growth, renewals, service standards, and Greater Sydney Water Strategy outcomes adopting an integrated water cycle management approach, by July 2023	<ul style="list-style-type: none"> <li>Sydney Water</li> <li>WaterNSW</li> </ul>	WaterNSW and Sydney Water are the joint leads for this action. WaterNSW submitted its Long-term Capital and Operational Plan to the Minister on 1 June 2023. As evidence of submission, we were provided with an e-mail from WaterNSW to the Minister dated 1 June 2023 (D2023 43337), along with the Plan itself (D2023 15422). The Long-term Capital and Operational Plans developed by WaterNSW and Sydney Water, together with the Greater Sydney Drought Response Plan, <i>outline how the Greater Sydney Water Strategy will be 'operationalised'</i> .



Ref.	Action	Primary responsibility(s)	Delivery of action in audit period
			<p>WaterNSW's Long-term Capital and Operational Plan sets out the capital and operating expenditure requirements over the next 20 years. With Sydney Water being responsible for supply augmentation planning, the focus of WaterNSW's Long-term Capital and Operational Plan is largely around maintaining, renewing and upgrading assets and enabling systems to <i>ensure these assets continue to provide reliable and efficient services</i>.</p> <p>WaterNSW's Long-term Capital and Operational Plan recognises the importance of an integrated water management approach through identifying system integration and contribution to integrated water management as one of the 10 goals of the Plan. The Plan demonstrates an integrated approach to water management through being developed collaboratively with Sydney Water and in consultation with the Department and projecting investment in not only the infrastructure required to capture, store and release water but also the health of the catchments providing these inflows.</p> <p>In its stakeholder submission to IPART (dated 19 July 2023) to inform the 2023 Public Water Utility operational audits, the Department considered that the scope and content of WaterNSW's and Sydney Water's Long-term Capital and Operational Plans <i>generally align[ed] with the Department's expectations for these deliverables</i>.</p>

Based on the above, we consider that WaterNSW has implemented the actions it is responsible for leading under the Greater Sydney Water Strategy, where these actions are due in or shortly after the audit period. Where WaterNSW has primary responsibility for, but not responsibility for leading, an action that is due in or shortly after the audit period, we consider that WaterNSW has provided appropriate input to the lead agency in the audit period.

**Recommendations**

No recommendations were identified.


**Opportunities for improvement**

No opportunities for improvement were identified.



## Clause 2.8.8

Table 3-18 Clause 2.8.8 compliance grade

Subclause	Requirement	Compliance grade
2.8.8	WaterNSW must: a. use its best endeavours to maintain a data sharing agreement with DPE to assist in the development and review of the Greater Sydney Water Strategy (GSWS Data Sharing Agreement); and b. comply with the GSWS Data Sharing Agreement referred to in clause 2.8.8(a).	Non-compliant (non-material) 
<b>Risk</b> Failure to use its best endeavours to maintain a Greater Sydney Water Strategy Data Sharing Agreement with the Department of Planning and Environment and comply with that agreement presents a moderate risk that the Department will not have the data necessary to successfully implement and review the effectiveness of the Greater Sydney Water Strategy.		<b>Target for full compliance</b> Evidence that the Greater Sydney Water Strategy Data Sharing Agreement was maintained with the Department to WaterNSW's best endeavours in the audit period. Evidence that WaterNSW complied with all its obligations under the Agreement for the entirety of the audit period.

### Summary of reasons for grade

One deficiency against part (b) of this clause was self-identified by WaterNSW in its Statement of Compliance submitted to IPART on 1 September 2023 for 2022/23. This deficiency relates to WaterNSW's compliance with Item 8 of Schedule A to the Memorandum of Understanding for Information Sharing between WaterNSW and the former Department of Planning, Industry and Environment. The Memorandum of Understanding was entered into on 8 October 2020 and is one of two primary agreements that govern the sharing of data and information between WaterNSW and the Department of Planning and Environment.

Item 8 requires WaterNSW to provide specified monthly extracts to the Department as well as specified reports upon changes to the baseline status of the matters covered in those reports. WaterNSW understands that it ceased to share this information with the Department once the work required to develop the Greater Sydney Water Strategy was completed. The Greater Sydney Water Strategy was published on 29 August 2022. Therefore, WaterNSW considered itself to be non-compliant from 30 August 2022 onwards (i.e., including the audit period).

This is a deficiency and not a shortcoming as it is a breach of the licence requirement. If uncontrolled, a breach of the licence requirement leads to a risk that the Department will not have the data and information required to implement and review the effectiveness of the Greater Sydney Water Strategy. However, we consider that the residual (controlled) risk is minimal and that this deficiency is non-material. Our conclusion is made on the basis of e-mail correspondence from the Department to WaterNSW on 19 August 2023 (D2023 96366), where the Department stated that it was *satisfied that WaterNSW [had] responded to all data/information requests that [it had] needed, and [had] acted fully in the spirit of the MOU [Memorandum of Understanding] and DSA [Data Sharing Agreement]*. The Department's position regarding WaterNSW's fulfilment of the intent of the Memorandum of Understanding was confirmed in our interview with the Department on 22 September 2023.

As the licence requirement was breached, this clause is graded as Non-compliant (non-material).

### Discussion and notes

This clause requires that WaterNSW comply with, and use its best endeavours to maintain, a data sharing agreement with the Department of Planning and Environment to assist in the development and review of the Greater Sydney Water Strategy. On 8 October 2020, WaterNSW and the former Department of Planning, Industry and Environment entered into a Memorandum of Understanding for Information Sharing for the purpose of informing bulk water infrastructure planning and water strategies. The Memorandum of Understanding is effective for a period of five years (i.e., to 2025).



In its Statement of Compliance submitted to IPART on 1 September 2023 for the 2022/23 financial year, WaterNSW self-identified a non-compliance with the Memorandum of Understanding and, hence, its obligations under this clause. Under Item 8 of Schedule A to the Memorandum of Understanding, WaterNSW is required to provide the following information to the Department:

*Monthly extracts run as close to the 1<sup>st</sup> of every month as practical for Water NSW, for items 1 – 7 in the list below for daily/weekly/monthly/quarterly data as applicable.*

1. *Inflow data*
2. *Storage levels*
3. *Water transfer data*
4. *Bulk consumption data*
5. *Environmental flows – releases, requirements*

*Report on the following items as there are any changes to the baseline*

6. *Storage capacity & operational capacity (including minimum operating storage level)*
7. *Pumping capacity & operational regimes*

WaterNSW understands that it ceased to share the above information with the Department once the work required to develop the Greater Sydney Water Strategy was completed. The Greater Sydney Water Strategy was published on 29 August 2022. Therefore, WaterNSW considered itself to be non-compliant from 30 August 2022 onwards (i.e., including the audit period).

We interviewed the Department on 22 September 2023 to seek its opinion on WaterNSW's performance against its obligations under this clause. In the interview, the Department considered that WaterNSW had met the Department's information needs in regard to the development of the Greater Sydney Water Strategy. The Department also noted the information that continued to be shared by WaterNSW with the Department to support the implementation of the Strategy, such as the monthly drought indicators monitoring dashboard discussed under clause 2.8.4. Overall, the Department considered that WaterNSW and the Department had *continued to work in a collaborative environment*. This position was echoed in an e-mail from the Department to WaterNSW (dated 19 August 2023), where the Department stated that it was *satisfied that WaterNSW [had] responded to all data/information requests that [it had] needed, and [had] acted fully in the spirit of the MOU [Memorandum of Understanding] and DSA [Data Sharing Agreement]*.

On 5 July 2021, WaterNSW and the former Department of Planning, Industry and Environment entered into a separate Data Sharing Agreement (hereon referred to in this audit report as the "Data Sharing Agreement"). The Data Sharing Agreement was initially formed for the purpose of supporting the Department to administer and discharge its obligations under the *Water Management Act 2000 (NSW)* as they relate to the *NSW Non-urban Metering Framework* and the *NSW Floodplain harvesting measurement policy*. However, WaterNSW advised that it and the Department are seeking to establish the Data Sharing Agreement as the master agreement moving forward for the sharing of data between the two organisations. To this end, WaterNSW has issued to the Department a draft Letter of Agreement to vary the Data Sharing Agreement (D2023 58471) (dated 31 August 2023). The variation letter also documents a summary of the review meetings held between WaterNSW's and the Department's Authorised Representatives in July and August 2023 to assess the performance of the Data Sharing Agreement and the Memorandum of Understanding. At the time of responding to our audit questionnaire, WaterNSW advised that the Department was in the process of reviewing the variation letter, with a view to completing execution in October 2023.

We consider that WaterNSW did not comply with the Memorandum of Understanding (i.e., the Greater Sydney Water Strategy Data Sharing Agreement) in the audit period (**Recommendation 2023/2.8.8 – 1**). However, given that WaterNSW has continued to collaborate with the Department in the spirit of the Memorandum of Understanding, we consider that this non-compliance is non-material. We also note the inter-agency governance mechanisms in place for the implementation of the Greater Sydney Water Strategy, as discussed under clauses 2.8.4 and 2.8.6.

We note an area of good practice in that the success of data and information sharing between WaterNSW and the Department ultimately relies on the quality of the working relationship between these parties, with data sharing agreements acting as a tool to formalise that relationship. WaterNSW and the Department



appear to have maintained a collaborative and supportive relationship, without needing to resort to referring to the agreements to reiterate the expectations of that relationship.

### **Recommendations**

Recommendation 2023/2.8.8 – 1: By 31 December 2024, WaterNSW is to agree with the Department of Planning and Environment the preferred agreement arrangement for the ongoing sharing of data and/or information. This is to take into account the requirements of WaterNSW's new operating licence, anticipated to come into effect on 1 July 2024.


Options for the preferred agreement may include, but not be limited to, cessation of existing agreements (such as the Memorandum of Understanding for Information Sharing), variation and expansion of existing agreements (such as the Data Sharing Agreement), or the creation of new agreements. The preferred arrangement must not lead to a breach of either the current or upcoming operating licence.

### **Opportunities for improvement**

No opportunities for improvement were identified.

## Clause 2.8.9

Table 3-19 Clause 2.8.9 compliance grade

Subclause	Requirement	Compliance grade
2.8.9	In addition to any other matters agreed by Water NSW and DPE, the GSWS Data Sharing Agreement must: <ol style="list-style-type: none"> <li>set out the roles and responsibilities of Water NSW and DPE under the GSWS Data Sharing Agreement;</li> <li>set out the types of data that are covered by the GSWS Data Sharing Agreement;</li> <li>set out the purposes for the sharing of data and information;</li> <li>set out the requirements that shared data and information must meet;</li> <li>identify agreed timelines and the format for sharing data and information; and</li> <li>identify procedures for resolving matters of conflict in providing data and information.</li> </ol>	Compliant 
<b>Risk</b> Failure to maintain a Greater Sydney Water Strategy Data Sharing Agreement that addresses the matters specified under this clause presents a moderate risk that the data and information required for the successful implementation of the Strategy is not shared in a manner that enables timely, informed and reliable decision-making.		<b>Target for full compliance</b> Evidence that the Greater Sydney Water Strategy Data Sharing Agreement addresses the matters specified under this clause.

### Summary of reasons for grade

We consider that the Greater Sydney Water Strategy Data Sharing Agreement addresses the matters specified under this clause. Our conclusion is based on our review of the Memorandum of Understanding for Information Sharing between WaterNSW and the Department of Planning and Environment against the matters specified under this clause.

This clause is graded as Compliant.

### Discussion and notes

This clause requires that, in addition to any other matters agreed by WaterNSW and the Department of Planning and Environment, the Greater Sydney Water Strategy Data Sharing Agreement must address the matters specified under the clause.

As mentioned under Clause 2.8.8, WaterNSW and the former Department of Planning, Industry and Environment entered into a Memorandum of Understanding for Information Sharing for the purpose of informing bulk water infrastructure planning and water strategies. The Memorandum of Understanding was entered into on 8 October 2020 and is effective for a period of five years (i.e., to 2025).

In Table 3-20, we have mapped each of the matters specified under this clause to the relevant clause(s) of the Memorandum of Understanding. We have also described how the relevant clause(s) of the Memorandum of Understanding address the operating licence requirements.

**Table 3-20 Mapping between clause 2.8.9 and the Memorandum of Understanding**

Matter set out in clause 2.8.9	Relevant clause(s) of the Memorandum of Understanding	How the clause(s) address the operating licence requirement
<p>a. set out the roles and responsibilities of Water NSW and DPE under the GSWS Data Sharing Agreement</p>	<ul style="list-style-type: none"> <li>• Clause 2 (Background)</li> <li>• Clause 4 (Agreement to Share Information)</li> <li>• Clauses 5 to 15: <ul style="list-style-type: none"> <li>○ Licence</li> <li>○ Use of Shared Information</li> <li>○ Quality and responsibility for the Shared Information</li> <li>○ User Support</li> <li>○ Information and records management arrangements</li> <li>○ Security arrangements</li> <li>○ Compliance with laws and policy</li> <li>○ Confidentiality</li> <li>○ Privacy</li> <li>○ Authorised Representatives</li> <li>○ Review</li> </ul> </li> <li>• Items 2 and 3 of Annexures A to C (Information Sharing Schedules)</li> </ul>	<ul style="list-style-type: none"> <li>• Clause 2 identifies the parties to the Memorandum of Understanding and their interests</li> <li>• Clause 4 sets out the overall agreement between the parties for sharing information</li> <li>• Clauses 5 to 15 define the responsibilities of both parties</li> <li>• Items 2 and 3 of Annexures A to C define the originating party and recipient party for each set of information described in the annexures</li> </ul>
<p>b. set out the types of data that are covered by the GSWS Data Sharing Agreement</p>	<ul style="list-style-type: none"> <li>• Item 4 of Annexures A to C (Information Sharing Schedules)</li> </ul>	<ul style="list-style-type: none"> <li>• Item 4 of Annexures A to C describes the information to be shared</li> </ul>
<p>c. set out the purposes for the sharing of data and information</p>	<ul style="list-style-type: none"> <li>• Clause 2 (Background)</li> <li>• Clause 4 (Agreement to Share Information)</li> <li>• Item 1 of Schedule 1</li> <li>• Item 11 of Annexures A to C (Information Sharing Schedules)</li> </ul>	<ul style="list-style-type: none"> <li>• Clause 2 sets out the overall intent of the Memorandum of Understanding</li> <li>• Clause 4 sets out the overall mutual intention of the parties to identify opportunities to share data and information in a manner that aligns with their business objectives and with the approved purposes</li> <li>• Item 1 of Schedule 1 defines the overall approved purposes of data and information shared under the Memorandum of Understanding</li> <li>• Item 11 of Annexures A to C describes the specific approved purpose for the information shared under that annexure</li> </ul>
<p>d. set out the requirements that shared data and information must meet</p>	<ul style="list-style-type: none"> <li>• Clause 7 (Quality and responsibility for the Shared Information)</li> <li>• Clauses 9 to 13:</li> </ul>	<ul style="list-style-type: none"> <li>• Clause 7 defines the overall quality requirements that shared data and information must meet, including the responsibilities of the receiving party</li> <li>• Clauses 9 to 13 define the requirements for information and records management,</li> </ul>

Matter set out in clause 2.8.9	Relevant clause(s) of the Memorandum of Understanding	How the clause(s) address the operating licence requirement
	<ul style="list-style-type: none"> <li>○ Information and records management arrangements</li> <li>○ Security arrangements</li> <li>○ Compliance with laws and policy</li> <li>○ Confidentiality</li> <li>○ Privacy</li> <li>• Items 5 and 16 of Annexures A to C (Information Sharing Schedules)</li> </ul>	<p>security, compliance, confidentiality and privacy</p> <ul style="list-style-type: none"> <li>• Item 5 of Annexures A to C defines the specific quality requirements that information shared under that annexure must meet</li> <li>• Item 16 of Annexures A to C defines any special conditions on the use and disclosure by the recipient party of the information shared under that annexure</li> </ul>
e. identify agreed timelines and the format for sharing data and information	<ul style="list-style-type: none"> <li>• Items 8, 9 and 14 of Annexures A to C (Information Sharing Schedules)</li> </ul>	<ul style="list-style-type: none"> <li>• Item 8 of Annexures A to C defines the frequency of provision of the information shared under that annexure</li> <li>• Items 9 and 14 of Annexures A to C define the format and means of transfer of that information</li> </ul>
f. identify procedures for resolving matters of conflict in providing data and information	<ul style="list-style-type: none"> <li>• Clause 4 (Agreement to Share Information)</li> <li>• Clause 14 (Authorised Representatives)</li> <li>• Clause 15 (Review)</li> </ul>	<ul style="list-style-type: none"> <li>• Clause 4 requires that, to alter the approved purposes of data and information shared under the Memorandum of Understanding, the receiving party must consult the originating party and obtain their agreement</li> <li>• Clause 14 requires that both parties nominate an authorised representative to be the key contact person responsible for monitoring compliance with the Memorandum of Understanding. The clause further recommends that any notice required to be given by one party to the other is directed to the authorised representative.</li> <li>• Clause 15 requires that the authorised representatives meet at least annually to assess the operation of the Memorandum of Understanding</li> <li>• Therefore, the Memorandum of Understanding provides for monitoring compliance with the Memorandum of Understanding, varying the approved purposes data and information shared under the Memorandum of Understanding by agreement only, and mechanisms for the directing of notices and assessment of operation of the Memorandum of Understanding</li> </ul>

Based on the above, we consider that the Greater Sydney Water Strategy Data Sharing Agreement addresses the matters specified under this clause.

### Recommendations

No recommendations were identified.

### Opportunities for improvement


No opportunities for improvement were identified.



## Clause 3.1 – Construct, maintain and operate water management works

### Clause 3.1.1

Table 3-21 Clause 3.1.1 compliance grade

Subclause	Requirement	Compliance grade
3.1.1	Water NSW must construct, maintain and operate its Water Management Works in accordance with its Asset Management System referred to in clause 5.1.	Compliant 
<b>Risk</b>	This clause represents a high risk. Effective management of Water Management Works throughout their lifecycle is required to maintain service, minimise lifecycle costs and manage risk to an acceptable level.	<b>Target for full compliance</b> Evidence that the Water Management Works are effectively managed throughout their lifecycle under the asset management system.

#### Summary of reasons for grade

Based on the evidence provided, we are satisfied that WaterNSW constructed, maintained and operated its Water Management Works in accordance with its Asset Management System during the audit period.

The Fish River Water Scheme and its ageing infrastructure is a growing area of concern. We have proposed that WaterNSW further develop a long-term strategic infrastructure plan for the Fish River Scheme to meet customer needs over the next 50 years. The outcomes of this study will guide the optimal pipeline sizing and renewal strategy (**OFI 2023/3.1.1 – 1**).

The presentation from the WaterNSW team provided a clear picture of the magnitude of the flood events and challenges that the organisation and staff faced in minimising impacts on assets and the community. WaterNSW should be commended on its response to these extreme state-wide events.

This clause is graded as Compliant.

#### Discussion and notes

The requirement for WaterNSW to have in place a management system for asset management is specified under clause 5.1.1 of the operating licence, and the primary discussion on this obligation is included under the section of this report relating to clause 5.1.1. The framework for WaterNSW's asset management system (AMS) is shown in Figure 1 of the Strategic Asset Management Plan (SAMP). As a system, the interrelated parts are intended to work together to achieve the system objectives. Each of the framework elements are described in the Strategic Asset Management Plan. This includes outlining the arrangements for the construction, maintenance and operation of its assets at an overall strategic level.

Within the Strategic Asset Management Plan (CD2015/436[v10]), WaterNSW has defined the scope of the AMS. The scope has been refined over time to include:

- Bulk water supply infrastructure including dams and weirs, pumping stations, pipelines and canals, water treatment plants, and WaterNSW-owned metering
- Declared Catchment land including Special Area land and controlled land
- Support infrastructure including supervisory control and data acquisition (SCADA) systems, workshops and equipment, and other assets utilised by WaterNSW to deliver the services
- Assets used to support the monitoring and management of water quality including lake diagnostic systems, thermistor chains/vertical profilers, hydrometric apparatus, destratification systems (aerators/mixers), water treatment facilities and chlorination facilities as referenced in the Water Quality Management System



- Fleet assets including light vehicles and mobile equipment
- Digital systems
- Property, buildings, and associated services
- Recreation areas.

Water Management Works fall within this scope, primarily as bulk water infrastructure items such as storage and supply infrastructure. The Strategic Asset Management Plan sets out WaterNSW's asset management objectives. These objectives, which are aligned to its overall corporate objectives, also define the planning, construction, operation and maintenance activities that WaterNSW undertakes to achieve the objectives, as well as the measures used to record and report on performance. More detailed information relating to construction, operation and maintenance of WaterNSW's assets is provided in the portfolio of Asset Class Strategies that have been developed.

WaterNSW demonstrated in its presentation and associated discussion how its Asset Management System contributes to the achievement of its asset management objectives.

### **Infrastructure planning and delivery**

Asset management objective 4 *Provide raw water supply infrastructure solution options to address identified risks and opportunities for current and future demands* is delivered in accordance with the Project Delivery Framework which is currently being revised. The Project Delivery Framework seeks to ensure that every project undertaken will deliver outcomes that are consistent with approved objectives through a standard, scalable guidance framework focused on the development, execution and hand-over project lifecycle. We were provided with a copy of the Project Delivery Framework (CD2016/151 v2.4) in operation during the audit period. We were advised that Water Infrastructure NSW only have a role in project delivery when a project is directly funded from the NSW Government.

We were advised that no major new infrastructure (new dams, weirs or water conveyance structures) were delivered over the audit period. A significant program of work exists in undertaking asset renewal across the business. These projects are in varying stages of delivery.

Projects are planned and prioritised as outlined in the Asset Planning Manual. We were provided with a copy of the Asset Planning Manual (CD2016/59[v4]) which sets out roles and responsibilities, the asset planning process at portfolio and project level, and investment prioritisation utilising probability and consequence criteria using the asset planning tool (PowerPlan).

A key planning document for regional water strategies is the 20 Year Infrastructure Options Study (2016/122302) to provide clarity for the long-term operation and development of bulk water supply infrastructure across NSW.

Monitoring is undertaken through a range of groups and committees. For instance, the Assets Advisory Group meets monthly and reviews the entire portfolio of projects in the asset management area across both the greater Sydney and regional areas. It consists of members with specialist asset delivery and asset management skills. We were provided with the Assets Advisory Group Charter which was approved by the WaterNSW CEO in June 2022 and a copy of the minutes of Meeting 13 held on 2 August 2023. The meeting discussed a range of projects and issues at a strategic level. The action list included actions raised during the audit period.

The Board (Asset and Investment Committee) reviews business cases. Independent third-party reviews are required on certain reviews under dam safety regulations which are embedded into the Dam Safety Management System.

During the audit we discussed the Fishways Asset Class Strategy document and developments in fishway design which was still an evolving area of knowledge. Over recent years WaterNSW has increased its knowledge of fishway design and operation. We were informed that WaterNSW was collaborating with the Department of Primary Industries (DPI) Fisheries and other fisheries experts early in the design development phase with the aim of improving the effectiveness of fishways. WaterNSW provided evidence, including correspondence and meeting minutes which showed DPI Fisheries' involvement in the Mollee Weir fishway rectification works. Project Change Requests (PCR) for the rectification works project were also provided to demonstrate project justification and control processes. The Mollee Weir was inspected as part of audit, and it was noted that fishway rectification works are continuing. Further details are provided in Section 2.



## Work management

Asset management objective 6 *Work management processes are consistently delivered and monitored* is delivered through:

- Enterprise Asset Management System (EAMS)
- Maintain Capability Capex Renewals program
- Capital expenditure programs for New and Augmented Asset Capability.

EAMS contains the asset register and work order management processes and is a critical tool for the management of the maintenance process. Its data is a critical input into renewal planning, which will shortly be undertaken through PowerPlan. PowerPlan is further discussed under clause 5.1.2. The site visits to Keepit Dam and Mollee Weir provided the opportunity to view the application of EAMS in the field. Further information is provided in Section 2.

A specialist in-house team develops operation and maintenance (O&M) manuals for declared dams. These documents are required to meet dam safety regulations and are developed to a high standard. The manuals are reviewed annually. We were advised that WaterNSW recently commenced a program of developing regional, valley-based O&M manuals. We were provided with a copy of the O&M Manual – Review and Update Schedule (D2021/117883) which listed the development status of regional O&M manuals.

## Fish River water supply

The Fish River Water Supply, managed by WaterNSW, supplies water to one (previously two) power stations, to Oberon and Lithgow councils for domestic and industry use, and to about 230 properties along its route. It also supplements town supplies in the upper Blue Mountains. Stage 1, which supplies drinking water, is over 70 years old with Stage 2 being over 60 years old. During the audits, various discussions were held under the water quality, asset management and customer agreement related clauses.

The Fish River system contains ageing infrastructure, with mains subject to high pressure that are approaching the end of their useful lives. The WaterNSW Annual Asset Performance and Health Report, October 2022 (D2022 070247) stated that the Fish River Water Supply pipeline experienced the highest number of CALOSS events, but that this is considered to be acceptable in light of the present ALARP risk levels and considerable cost of renewals. At the Clause 5.1.2 meeting we discussed the limitations of a risk-based prioritisation process where relatively lower criticality assets have limited opportunities for prioritised investment and a related OFI has been noted for the clause.

NSW Health has previously expressed concern about asset failures and water quality on the water supply to Lithgow. The pipelines in the system (e.g., prestressed concrete) can fail catastrophically and generate significant velocity increases in the main causing biofilm sloughing and resulting in customer water discolouration problems. This was the case in the period 4-14 February 2023. WaterNSW stated that pipeline renewals are currently being undertaken opportunistically as corrective maintenance and repairs are required, rather than being rolled out as a typical planned renewal activity. When an event triggers repair on the pipeline, the team look for opportunities to remediate the adjacent section of pipeline at the same time, not just limiting themselves to that repair in isolation. The performance of this opportunistic work was discussed and shared with stakeholders during Steering Committee meetings.

WaterNSW were conscious of the continuing need to establish the right stakeholder relationships and communication around asset deterioration and failures. WaterNSW provided a copy of the Fish River Water Supply System Review and Improvement Dashboard Report, May 2023 (D2023/148186). This report included a Review and Improvement Plan that listed a range of projects including *Pipeline – asset condition and plans* and *long term system options*.

The WaterNSW 20 Year Infrastructure Strategy already includes some preliminary planning in relation to the Fish River scheme and as mentioned in the previous paragraph a Long-term System Options project is currently in progress. While we are not aware of all the details relating to the management of the Fish River mains, we suggest that WaterNSW could further develop a long-term strategic infrastructure plan for the Fish River Scheme to meet customer needs over the next 50 years (**OFI 2023/3.1.1 – 1**). The customer base for which the scheme was originally designed for has changed significantly over the past 50 years and will change further in the future. This strategic plan will determine the infrastructure capacity and scope required in the future, which will then guide decision making on infrastructure renewals (e.g., optimal pipe sizing and timing).



WaterNSW should consider investigating potential mains cleaning options to reduce the likelihood of major water discolouration events arising from continuing water main failures (**OFI 2023/3.1.1 – 2**).

## 2022 flood events

Asset management objective 7 *Water Service to customer is delivered in accordance with their requirements* is achieved through daily operations in accordance with customer supply agreements and Operating Protocols in consultation and communication with customers. It requires compliance with Work Approvals, Water Sharing Plans and Raw Water Supply Agreements with supply authorities and other individual users

We consider that flood management could be considered as being aligned to asset management objective 1 *Health & safety implications are considered in asset management activities*. A key consideration during this audit was WaterNSW's response to the September to November 2022 flood events.

WaterNSW's flood operation manuals determine the operation of WaterNSW's major dams during extreme rain and flooding. These include pre-flood preparations, operating decisions during the event and post-flood recovery. Storages are operated during floods under flood incident management protocols. Depending on the magnitude of the event, this relies on standing up an incident management team (IMT), which was required on many occasions during the 2022 flood events. Lessons learnt sessions were held following each flood to review what went well and where there were opportunities for improvement. As part of this process, hot debriefs and formal debriefs are required. The following example Regional IMT hot debriefs were provided:

- Northern (Keepit, Copeton), Central (Wyangala, Burrendong) and Southern (Blowering and Burrinjuck) 18/10/2022 (D2023/149197)
- Regional IMT 22/11/2022 Hot Debrief Discussion (D2022/199)
- Menindee IMT Debrief Meeting Notes 21/02/2023 (D2023/149220).

Incidents were declared during several major flooding events in the period. Following the Australasian Inter-Service Incident Management System (AIIMS) structure, Incident Management Teams were stood up to centrally manage operations. We were provided with a copy of the Incident Management Procedure (CD2022/72) which guided the approach taken in declaration, operation and management of during the flooding events.

During the audit, WaterNSW outlined many of the challenges faced during these severe events including record floods, gauging challenges, access constraints, resource constraints, prioritisation of activities, data availability/ reliability, staff fatigue, staff office and home impacts, isolation, and post-flood recovery impacts including sediment transport and asset impacts. Managing community sensitivities and ensuring safe workplace health were of key importance during the period. WaterNSW also highlighted some innovations developed out of the need to respond to events (e.g., use of helicopters, remotely controlled boats, drones, etc).

WaterNSW outlined that significant effort had been made in post-flood recovery, assessing damage, compiling insurance claims and programming/ prioritising remediation using a risk-based approach which had required the re-prioritisation of some planned maintenance work.

WaterNSW reported that its dams and river assets performed well during the floods which provides some assurance that asset management practices are contributing to a resilient asset portfolio. WaterNSW is currently reviewing its Flood Manuals in response to the recent floods. We were provided with a copy of the All in One Business Case – Flood Operations Manuals Update – Gated Storages (D2022/174099) dated 17/12/2022.

Since the floods, WaterNSW has made efforts to improve the resilience of vulnerable assets. An example provided was that additional funds were made available during the repair or replacement of gauging station instrumentation that was damaged during the floods, to move the replacement units above the high water level. Another example was the redesign of gauge poles. Many gauge poles installed at river gauging stations were damaged by the flood flows. The design of the (originally rigid) poles was reviewed, and a solution was developed to have poles that could be knocked down flat during flood surcharge events and return to a normal position after the flood. Two types of knock down brackets were developed – flat ones intended to be attached to a concrete base, and round ones intended to bolt to an 80mm pipe driven into the ground. Photographs were provided as evidence.



The presentation from the WaterNSW team provided a clear picture of the magnitude of the events and challenges that the organisation and staff faced in minimising impacts on assets and the community. WaterNSW should be commended on its response to these extreme state-wide events.

### **Recommendations**

No recommendations were identified.

### **Opportunities for improvement**


OFI 2023/3.1.1 – 1: WaterNSW should consider further developing a long-term strategic infrastructure plan for the Fish River Scheme to meet customer needs over the next 50 years. The outcomes of this study will guide the optimal pipeline sizing and renewal strategy.

OFI 2023/3.1.1 – 2: WaterNSW should consider investigating potential mains cleaning options to reduce the likelihood of major water discolouration events arising from continuing water main failures

## Clause 5.1 – Asset management system

### Clause 5.1.1

Table 3-22 Clause 5.1.1 compliance grade

Subclause	Requirement	Compliance grade
5.1.1	Water NSW must at all times maintain a Management System in relation to Water NSW's assets that is consistent with the Australian Standard AS ISO 55001:2014 <i>Asset Management – Management systems – Requirements</i> or other standard approved by IPART on request by Water NSW ( <b>Asset Management System</b> ).	Compliant 
<b>Risk</b> Failure to have an Asset Management System in place could result in a high risk of reduced levels of service, higher operating risk and costs not minimised across their lifecycle. WaterNSW's assets include assets with a high consequence of failure such as dams and assets vital to water supply and quality. Therefore, non-compliance with this clause presents a high risk.		<b>Target for full compliance</b> Evidence that WaterNSW has in place an Asset Management System for its licence functions and is consistent with ISO 55001:2014.

#### Summary of reasons for grade

WaterNSW continued to maintain an Asset Management System consistent with ISO 55001 during the audit period. A recertification audit was undertaken in October 2022 with no new non-conformities identified during the audit and three improvement opportunities noted. WaterNSW's Asset Management System was recertified against the standard ISO 55001:2014 Asset management – Management systems – Requirements on the 12 January 2023. WaterNSW continues to align its asset management objectives with changing corporate strategic priorities and is in the process of transforming the SAMP into the Modelpedia format to align with the other management systems. Overall, we consider that WaterNSW has demonstrated that the Asset Management System has been maintained during the audit period.

This clause is graded as Compliant.

#### Discussion and notes

This clause requires that WaterNSW must, at all times, maintain a Management System for carrying out its functions authorised under this Licence that is consistent with the Australian Standard AS ISO 55001:2014 Asset Management – Management systems – Requirements or other standard approved by IPART.

WaterNSW has in place a management system for asset management that was most recently recertified against the standard ISO 55001:2014 Asset management – Management systems – Requirements on the 12 January 2023. The certification is valid until 9 January 2026.

A recertification audit was conducted for WaterNSW for the Asset Management System (AMS) in accordance with the requirements of ISO 55001:2014 from 17/10/2022 to 19/10/2022. The audit report noted the following:

*WaterNSW has demonstrated its diligence and commitment with the requirements of the standard and its continual improvement. WaterNSW staff interviewed during the audit have demonstrated a very high level of awareness and fervour toward the AMS. With a proactive approach to achieve the strategic objectives in line with the SAMP (Strategic Asset Management Plan) and ultimately meet needs and expectations from relevant interested parties and stakeholders. Strengths of the management systems include (but not limited to):*

- *Development and implementation of the Asset Class Strategy framework*
- *Development and implementation of Modelpedia*
- *Continuing development of EAMS – Enterprise Asset Management System Software*



No new nonconformities were identified during the audit. Three opportunities for improvement were noted.

The scope of the WaterNSW's Asset Management System includes all physical assets owned by WaterNSW, used to manage and provide water supply to regional towns, irrigators, Sydney Water and other licensed authorities, retail suppliers and local governments. These functions are listed in section 1.2 of the Operating Licence 2022-24.

The Asset Management System is aligned with WaterNSW's Integrated Business Management System (IBMS) (also termed Integrated Management System Framework (IMSF)) to enable its effective implementation and sustainment. The IBMS supports all management systems in WaterNSW, covering common management system elements in an integrated, consistent, and common approach. These systems include:

- Water Quality Management System (aligned to the Australian Drinking Water Guidelines (ADWG))
- Quality Management System to ISO 9001
- Environment Management System to ISO 14001
- Work Health and Safety Management System to ISO 14001
- Information Security Management System to ISO 27001

WaterNSW has an Asset Management Policy which is reviewed every three years with the most recent version approved by the Board in November 2022. This overarching Asset Management Policy specifies a commitment that WaterNSW provides effective asset management in order to achieve its legislated and strategic business objectives and also states that WaterNSW will apply the Asset Management System to all physical assets.

WaterNSW continues to maintain its Strategic Asset Management Plan (SAMP). WaterNSW's SAMP defines the management system, stating that the scope of the Asset Management System is *physical assets utilised by the organisation to deliver its services including infrastructure, water quality management, catchment protection and internal support* and specifically includes the functions under the WaterNSW Operating Licence. The SAMP essentially acts as a system manual in that its structure is consistent with the requirements of the ISO 55001:2014 standard and, therefore, it provides a good reference source for how the elements of the standard are addressed.

We were provided with the most recent version, November 2022 (CD2015/436 [v10]) of the SAMP with a revision history provided in the first page. The latest version includes an update to align with WaterNSW's five strategic priorities as listed in its Corporate Strategic Plan 2021-25. We noted that Appendix D – ISO55001 Line of Sight table had been updated but found that Section 2.3.1 Alignment with Corporate Objectives continued to list the previous Corporate Strategic Priorities. WaterNSW acknowledged in our discussions that the most recent update had been of a 'light' nature. Future SAMP updates could include a full review of the document to ensure consistency of updated information within the document (**OFI 2023/5.1.1 – 1**). WaterNSW is in the process of transforming the SAMP into the Modelpedia format to align with the other management systems.

The Asset Management System Framework is shown in Appendix B of the SAMP. Through our review of documents submitted, audit meetings and site inspections we were able to verify that the framework diagram reflected asset management practices within Water NSW.

The Asset Management System exists within a controlled document framework with a hierarchy of controlled documents shown in Figure 9 of the SAMP. A risk assessment is performed on the documents which defines the review frequency. At a minimum, WaterNSW aims to review documents every three years. High-risk documents (e.g., dam safety) may be reviewed annually.

Leadership in asset management is evidenced by WaterNSW progressing the development and implementation of the ISO 55001:2014 accredited Asset Management System and formally in the Asset Management Policy which forms part of the system.

Asset management leadership has been enhanced as a result of a recent organisational re-structure. All asset lifecycle functions have been consolidated under the Executive Manager Operations who, as part of the Executive Leadership team, reports directly to the Chief Operating Officer. The Executive Manager Operations actively contributed to the Asset Management System related audit interviews. The Assets team sits within the Asset Planning and Delivery Group and includes a dedicated Asset Management Specialist. We were provided with the Organisational Chart, and we were able to verify the information provided.



Relevant managers and supervisors at all levels are required to demonstrate active and visible leadership in the application of the Asset Management System. Each manager responsible for the asset management of specific classes of assets is required to observe the requirements of the Asset Management System and its implementation. Roles, responsibilities and authorities are defined in the SAMP.

WaterNSW provides services to, and is impacted by, a wide range of stakeholders. The SAMP outlines in broad terms the importance of stakeholder management to its asset management system. We were provided with a copy of WaterNSW; Internal and External Interested Stakeholders FY 2022-23. This spreadsheet is comprehensive which covers the following:

- Role in relation to WaterNSW
- Applicable compliance/ stakeholder requirements
- Needs and expectations of stakeholders
- Communication strategy
- Risk if requirements have not been implemented
- Opportunities/ existing risk controls
- Management system
- Responsible L3 manager

WaterNSW advised in its Compliance and Performance Report Asset Management System 2022-23 that it has continued to engage with customers and ensure they are abreast of current Asset Management activities through Customer Advisory Group meetings. The Customer Advisory Group meetings also provide customers with an opportunity to provide input into WaterNSW's future asset management strategy, plan and projects.

### **Recommendations**


No recommendations were identified.

### **Opportunities for improvement**

OFI 2023/5.1.1 – 1: Future SAMP updates could include a full review of the document to ensure consistency of updated information within the document.

## Clause 5.1.2

Table 3-23 Clause 5.1.2 compliance grade

Subclause	Requirement	Compliance grade
5.1.2	Water NSW must fully implement the Asset Management System and carry out all relevant activities in accordance with the Asset Management System.	Compliant (minor shortcomings) 
<b>Risk</b> Failure to implement the Asset Management System presents a high risk of reduced levels of service, higher operating risk and costs not minimised across their lifecycle. WaterNSW's assets include assets with a high consequence of failure such as dams and asset vital to water quality. Therefore, non-compliance with this clause presents a high risk.		<b>Target for full compliance</b> Evidence that WaterNSW carries out all relevant activities in accordance with the Asset Management System

### Summary of reasons for grade

Based on observations during the field verification visits and the discussion presented in respect of this obligation and clauses 2.4.1 and 3.1.1, WaterNSW demonstrated that it had continued to implement and carry out its activities in accordance with its Asset Management System during the audit period.

We consider that having two separate processes to manage continual improvement opportunities in the Asset Management System is inefficient with the likelihood of some improvement opportunities not being captured. As WaterNSW has systems in place to record preventive and corrective actions it is therefore considered to be compliant with the requirements of Clause 5.1.2. However, current weaknesses arising from duplication of systems are considered to be a minor shortcoming. WaterNSW has already identified improvements in this area and is in the process of developing an Integrated Asset Management System Improvement Plan. It is recommended that WaterNSW complete development of its proposed Integrated Asset Management System Improvement Plan by 30 June 2024 (**Recommendation 2023/5.1.2 – 1**).

At audit we discussed the limitations of a risk-based prioritisation process where relatively lower criticality assets have limited opportunities for prioritised investment. This conversation was triggered by the following statement in the WaterNSW Annual Asset Performance and Health Report, October 2022 (D2022 070247):

*Fish River system - CALOSS events, although highest in number, are within acceptable limits due to their low impacts. The number of incidents attributed to aging assets on the Fish River pipeline are considered to be acceptable in light of the present ALARP risk levels and considerable cost of renewals.*

WaterNSW has many high criticality assets competing for limited financial resources and we understand the context in which this statement was made. However, the problem of ageing assets is only going to increase over time, with a 'run to failure' strategy eventually being applied to these lower criticality assets. We suggest that when WaterNSW next reviews its criticality rating process it should consider whether lower criticality assets (e.g., relatively small urban water supply infrastructure) are currently given sufficient importance or whether further enhancements to the criticality rating system are warranted (**OFI 2023/5.1.2 – 1**).

This clause is graded as Compliant (minor shortcomings).

### Discussion and notes

In addition to the comments included in this section against clause 5.1.2, we have also discussed the maintenance of an Asset Management System under clause 5.1.1 and the implementation of the system under clause 2.4.1 (Catchment Infrastructure Works management) and clause 3.1.1 (Construct, maintain and operate Water Management Works).





As noted under clause 5.1.1, WaterNSW was recertified against the standard ISO 55001:2014 Asset management – Management systems – Requirements on 12 January 2023. Certification is valid until 9 January 2026. WaterNSW undertakes annual third-party surveillance audits to ensure compliance with the standard and that activities are being carried out in accordance with the Asset Management System.

WaterNSW's SAMP provides the alignment between the Asset Management Objectives, Corporate Objectives and the Asset Management Policy.

## Planning

A total of eleven asset management objectives have been defined in the SAMP to support the corporate objectives and to guide the asset management policy principles. Each of WaterNSW's asset management objectives has specific asset management measures that support achieving the objectives. Version 10 of the Strategic Asset Management Plan was in place during the audit period.

The asset class strategies provide strategic direction for each asset class for how the assets within a class should be managed throughout their lifecycle to optimise risk, performance and cost. Through the process of determining the risk, performance and cost trade-offs for each asset class, the asset class strategies then provide important input into WaterNSW's expenditure proposals, assisting prudent and efficient proposals to be developed.

For this year's audit we were provided with a copy of the following Asset Class Strategies:

- Weirs (CD 2021/99) 7/5/2021
- Cranes and Lifting Assets (CD2022/70)
- Gates, Stoplogs, Baulks and Bulkheads (CD2021/1)
- Valves (Isolation, Non-Return, Relief and In Line Control) (CD2020/110)
- Roads (CD2020/51)
- Fishways CD2015/224).

To facilitate consistency in document structure and content, WaterNSW has developed an Asset Class Procedure. This structure typically includes:

- Introduction
- Asset Class Level of Service and Functional Objectives
- Asset Class Performance Assessment
- Asset Class Profile and Condition
- Asset Risk
- Asset Criticality
- Whole of Life Asset Class Strategy
- Appendices with more detailed information where appropriate.

WaterNSW has now developed 20 asset class strategies. It approached the development of the documents on a prioritised basis, starting with the most critical classes and those for the predominant assets in the overall portfolio. During the audit we discussed how the improvement strategies were converted into actions. WaterNSW provided a flowchart based on Appendix B of the SAMP to show how this was achieved within the Asset Management System.

In response to our query on document sign-off, Water NSW provided evidence on the process for managing document status (e.g., approval). The Approve and Publish Procedure (CD2011/173), and associated screen shots provided, adequately satisfied our query.

We consider the Asset Class Strategies to be of a high standard. WaterNSW further informed us that all Asset Class Strategies are currently under review by a third-party consultancy with the project being led by the Asset Engineering team. This initiative further demonstrates WaterNSW's commitment to continual improvement.



WaterNSW applies a risk-based approach to its asset management decision-making. An asset criticality rating is assigned to all new assets and recorded in EAMS. We were provided with a copy of the Asset Criticality Rating Procedure (CD2015/331 (v3)) which is aligned with the corporate risk framework and provides a consistent framework for applying a criticality rating to an asset. The calculation of asset criticality involves determining the maximum potential consequence of failure across different categories including safety, capability/service delivery, environment, compliance, financial and reputation. WaterNSW is looking at potentially enhancing this system in the future (e.g., calculating criticality based on a weighted average). Criticality is recorded in EAMS at either the asset object or site level depending on the asset class (e.g., several monitoring assets in one cluster are assigned at the site rather than asset level). Asset criticality informs the resource/ investment prioritisation. WaterNSW advised that there were known gaps in criticality information and application, and an improvement plan is in place.

We discussed the limitations of a risk-based prioritisation process where relatively lower criticality assets have limited opportunities for prioritised investment. This conversation was triggered by the following statement in the Water NSW Annual Asset Performance and Health Report, October 2022 (D2022 070247):

*Fish River system - CALOSS events, although highest in number, are within acceptable limits due to their low impacts. The number of incidents attributed to aging assets on the Fish River pipeline are considered to be acceptable in light of the present ALARP risk levels and considerable cost of renewals.*

WaterNSW has many high criticality assets competing for limited financial resources and we understand the context in which this statement was made. However, the problem of ageing assets is only going to increase over time, with a 'run to failure' strategy eventually being applied to these lower criticality assets. We suggest that when WaterNSW next reviews its criticality rating process it should consider whether lower criticality assets (e.g., relatively small urban water supply infrastructure) are currently given sufficient importance or whether further enhancements to the criticality rating system are warranted (**OFI 2023/5.1.2 – 1**).

WaterNSW monitors the condition and performance of its asset portfolio, and this is discussed later in this section.

WaterNSW is currently testing and implementing PowerPlan which will allow WaterNSW to bring in EAMS data (condition, criticality, useful life and replacement cost) to develop a prioritised renewal program. Renewals programs are currently developed and prioritised using a spreadsheet. It is envisaged that implementation of PowerPlan will provide greater opportunities for scenario planning and optimisation. Initially, the approach will involve internal stakeholder review/ refinement of the outputs to ensure that the results are aligned to reliability and maintenance staff knowledge. The Asset Planning team is the product owner of PowerPlan who are working closely with the reliability engineers.

### **Operations and maintenance management**

Services are delivered through North, South and Sydney (North/ South) teams. Operations and maintenance practices are guided by a range of procedures, manuals and works instructions which sit under the Asset Management System policy framework within a hierarchy of controlled documents, as illustrated in Figure 9 of the SAMP. The site visit to Keepit Dam and Mollee Weir provided the audit team an opportunity to view implementation of these documents/ processes in practice. Further details are provided in Section 2.

We were provided with Operation and Maintenance (O&M) Manuals for Keepit Dam (CD2021/78 V2) and Mollee Weir (DOC 14/36047). The Keepit Dam O&M Manual was comprehensive while the Mollee Weir O&M Manual was prepared by a contractor, in draft form and quite basic with catalogue extracts. WaterNSW explained that the dam O&M manuals were prepared by an internal group. WaterNSW had recently set up an internal team to develop a suite of regional O&M manuals. We were provided with the schedules of manual development and review (D2021/1179833).

We were provided with a copy of the Asset Reliability and Maintenance Manual (CD2007 27[v10]) which defines asset reliability and maintenance activities and provides guidance regarding their conduct and relationship with other AMS functions/activities. The Asset Reliability and Maintenance process includes the activities necessary to ensure that assets perform their intended function(s) over their life cycle which is critical to WaterNSW capability and service delivery. The Asset Reliability and Maintenance process includes a number of key activities, including:

- Asset Class Strategy development



- Reliability Centred Maintenance Review
- Maintenance Planning
- Acceptance Testing and Commissioning
- Maintenance Work Management
- Asset Condition and Capability Audit
- Root Cause Analysis
- Asset Change Management.

The implementation of a Mobility function to EAMS has enabled real-time capture of data and is minimising staff administration workload. The Mobility solution has been implemented for all Asset Maintenance and Services sites and is currently being piloted in several locations for Water Monitoring Teams.

As part of the EAMS digital uplift the fieldwork on metropolitan sites are undertaken using tablet computers. For some regional sites work orders are downloaded onto a tablet computer then uploaded back in the office. For some sites with poor connectivity work orders are printed out. WaterNSW has a program of works to transition water monitoring sites to 4G since 3G is being switched off in mid-2024.

WaterNSW stated that 80% of its maintenance activities were preventive maintenance. To support this claim, they provided a PowerBI screen shot of WaterNSW's maintenance performance from October 2022 to September 2023. This dashboard showed the number and percentage of work orders by maintenance type and completion status, which confirmed WaterNSW's statement.

### **Asset condition assessment**

WaterNSW applies a two-level approach to condition assessment. The first approach involves maintenance staff opportunistically recording asset condition as they undertake maintenance. Where appropriate, this assessment is supplemented by more detailed risk-based engineering/ reliability assessments. The approach is guided by WaterNSW's Condition Assessment Manual (CD2015-335[v2]) where methodologies applied in industry-based manuals are applied at an appropriate level. The overall asset condition grading is based on rating six individual condition attributes.

As evidence, we were provided with screenshots showing work orders for the condition assessment of the Mollee Weir and the EAMS field mobility application showing field capture steps for condition assessment.

We were provided with a copy of WaterNSW's Asset Condition and Capability Audit Procedure (CD2016/15 v4) which is a further approach to condition assessment. This involves a third-party review of selected assets on a two-year cycle. WaterNSW advised that no third-party condition and capability audits had been undertaken in the audit period as efforts had been prioritised towards more fundamental asset data requirements, including populating the asset register, reviewing the asset hierarchy in EAMS and assigning criticality ratings for assets (where found missing). Any engineering assessments undertaken on assets were focused on known deficiencies and risks.

A comprehensive dam safety surveillance program is in place to meet the dam safety regulations on WaterNSW's declared dam assets. We were provided with a copy of the Dam Surveillance Program Tracking spreadsheet (D201757522) which covered inspections from FY18 to planned inspections in FY24. We were also provided with the Keepit Dam Intermediate Surveillance Report (D2022/1867) as evidence. Keepit Dam was visited as part of the site inspection part of the audit and the findings are discussed in Section 2 (**OFI 2023/5.1.2 – 2**).

### **Resilience**

Asset resilience was a key theme of this year's audit since WaterNSW was exposed to major flood events across the state in November 2022 and is likely to move into a period of severe drought over the next few years. WaterNSW's approach is discussed in detail under clauses 2.4.1 and 3.1.1. The following paragraphs provide a high level-overview.

WaterNSW advised that it has a range of detailed plans in place. Flood operation manuals determine the operation of WaterNSW's major dams during extreme rain and flooding. These include pre-flood preparations, operating decisions during the event and post flood recovery. Dam Safety Emergency Plans (DSEPs) have been prepared for all WaterNSW's major dams. These guide WaterNSW's decisions surrounding potential dam safety incidents, typically triggered by extreme events such as floods. Once



triggered, these determine the monitoring, surveillance and operating decisions. We were advised that several of WaterNSW's dams went into white alert status during the November flooding. The Keepit Dam DSEP (CD 2016 173(v4)) was provided as evidence.

Incident management is guided by the Incident Management Procedure which is influenced by the Australasian Inter-service Incident Management System (AIIMS). We were provided with a copy of the Incident Management Procedure (CD2022 72) which forms a guidance framework used to support the Incident Management Team (IMT) response to a major disruptive event. This procedure is a flexible tool to assist in managing an actual or potential incident, irrespective of the type of incident.

Incidents were declared during several major flooding events in 2022, notably the November 2022 floods. WaterNSW advised that Incident Management Teams were stood up (following the AIIMS structure) to centrally manage operations. The response followed the WaterNSW Incident Management Procedure and its supporting documents. Lessons learnt sessions were held following significant floods to review what went well and where there were opportunities for improvement.

From our review under clauses 2.4.1 and 3.1.1, we are satisfied that WaterNSW has the systems and processes in place, or under further development, to minimise the impacts of extreme weather events and climate change.

During audit of the relevant sub clauses under clauses 6.18 and 6.19, WaterNSW highlighted the importance they placed on resilience against cybersecurity threats.

### **Information management**

WaterNSW utilises a range of systems to manage its assets with the primary system being EAMS which is the repository of the asset register and the work management system. WaterNSW is fully aware of the critical nature of reliable data to facilitate evidence-based asset management decision making. The immediate focus is to improve the asset hierarchy and address data gaps and reliability, with the aim of EAMS becoming the single source of truth. WaterNSW informed us that it was in the process of engaging a third party to validate its assets. Data improvement will support investment decisions/ optimisation when PowerPlan becomes fully operational. Further system changes are also planned for the field mobility application. During the audit we were provided with screenshots of various assets and work orders in EAMS, and we were able to view its application during the field inspection (refer to Section 2) and subsequent meeting on 30 October 2023.

### **Asset management awareness and competence**

All eligible staff are required to undertake a mandatory eLearning Asset Management System Awareness module. Training is tied to positions/ roles within the asset management system. We were provided with a copy of the training matrix (D2023/107939) and a copy of the eLearning Module content (D2021/35936). We were advised that 1,600 staff (including the CEO and executive managers) and contractors had completed the awareness training.

We were also informed that an asset change management awareness e-learning module had been developed for all eligible WaterNSW staff via myLearning and that over 210 staff completed the training last financial year.

WaterNSW has a dam safety surveillance accreditation program in place with all new site staff that undertake dam safety inspections required to be accredited. WaterNSW noted that 50 accreditations (including initial and refresher training) were awarded over the last financial year. We were provided with a copy of the procedure (CD2021/123[v2]).

WaterNSW considers that its internal auditing program also provides an opportunity to provide awareness and understanding of the Asset Management System and an individual's role within it.

### **Performance evaluation and continual improvement**

WaterNSW has a range of systems for the monitoring and analysis of the performance of its assets with the main data source being EAMS. The analysis is summarised into an Asset Performance and Health Report.

WaterNSW uses a three lines of defence model in its performance review and auditing approach:

- Level 1 – internal process auditing
- Level 2 – internal system auditing



- Level 3 – external independent system auditing (e.g., certification surveillance audit with BSI).

WaterNSW currently has two processes for recording improvement opportunities:

- Improvement opportunities and non-conformances including those identified through internal audits are registered in the corporate RACS (Risk and Compliance System) for tracking and management visibility. As evidence of internal audits, we were provided with an Assurance Activity Report (D2023 15598) dated 1 March 2023 on the Learning and Development Team in relation to ISO 55001 which identified three OFIs including RACS reference numbers.
- The AMS continuous improvement register, currently a spreadsheet (D2017/58363), only holds actions from external 'system level' audit findings (either in the form of IPART audits, ISO certification audits, or benchmarking projects).

WaterNSW has already identified improvements in this area and is in the process of developing a consolidated asset management continuous improvement register (proposed to be termed the Integrated Asset Management System Improvement Plan) across the business. It is proposed that this plan brings together improvement opportunities identified by all business units across WaterNSW and seeks to have a shared approach to continuous improvement. We were advised that this system will include actions arising from internal auditing, and process improvements being delivered through other asset management stakeholders within WaterNSW (e.g., the improvements that are being rolled out in EAMS, updating of PowerPlan, etc.). The renewed focus of this improvement plan is looking to increase the overall system maturity level, rather than the ISO compliance focus used in the past. The first draft of this Integrated AMS Improvement Plan is planned for December 2023.

We consider that having two processes to manage continual improvement opportunities in the Asset Management System is inefficient with the likelihood of some improvement opportunities not being captured. As WaterNSW has systems in place to record preventive and corrective actions it is therefore considered to be compliant with the requirements of Clause 5.1.2. However, current weaknesses arising from duplication of processes are considered to be a minor shortcoming. It is recommended that, by 30 June 2024, WaterNSW should develop its first Integrated Asset Management System Improvement Plan (**Recommendation 2023/5.1.2 – 1**).

Ongoing asset management activities are included in regular management and Board reports. Reports are presented annually to the Board on asset performance and system health which assist in ensuring that the Board commits resources to the continual improvement of the asset management system. The Asset and Investment Committee reviews asset performance and system health and provides a summary of key issues to the Board.

We were provided with a copy of the Annual System Health Check: Asset Management System November 2022 (D2022/115973) and the Board's response that the document had been noted. This paper provides summary information on the Asset Management System, its effectiveness in discharging its function, and the health of the implemented processes that constitute the system to enable the Board to form the view that the system and processes are adequate.

We were provided with a copy of the WaterNSW Annual Asset Performance and Health Report, October 2022 (D2022 070247) which covers FY22 and provides a heat map of the state of the assets by asset class with improvement/ decline trends, key asset failures, water delivery capability loss (CALOSS), root causes and rectifications. The report concluded that portfolio wide, asset health across most valleys remained Good to Fair overall. We requested a copy of the October 2023 report which would be more relevant to the audit period but were advised that the report was still in draft and undergoing management review. Nevertheless, the October 2022 report provides a good indication of asset condition and performance. We consider that this document is highly informative and provides WaterNSW management with a clear overview of the performance and condition of its asset portfolio.

The WaterNSW Annual Asset Performance and Health Report highlighted a range of issues. Two matters were discussed at audit:

- The highest number of CALOSS events were recorded in the Fish River System. This is already discussed in relation to investment prioritisation earlier in this section with an OFI assigned.
- One third of the events, or 22 out of 61, were caused by issues with the Control System. We queried WaterNSW who responded that the failure rate had reduced from 22 to 5 in FY23 and were continuing to investigate the reason for the improvement.



## **Recommendations**

Recommendation 2023/5.1.2 – 1: By 30 June 2024, WaterNSW should develop its first Integrated Asset Management System Improvement Plan.

## **Opportunities for improvement**


OFI 2023/5.1.2 – 1: When WaterNSW next reviews its criticality rating process it should consider whether lower criticality assets (e.g., relatively small urban water supply infrastructure) are currently given sufficient importance or whether further enhancements to the criticality rating system are warranted.

OFI 2023/5.1.2 – 2: WaterNSW should consider entering dam instrumentation condition ratings, collected as part of annual intermediate surveillance, into EAMS to create a single source of truth for asset condition data and enable this data to be efficiently incorporated into renewals planning.

## Clause 5.2 – Environmental management system

### Clause 5.2.1

Table 3-24 Clause 5.2.1 compliance grade

Subclause	Requirement	Compliance grade
5.2.1	Water NSW must at all times maintain a Management System for managing its environmental responsibilities and the environmental impacts of its services and activities that is consistent with the Australian/New Zealand Standard AS/NZS ISO 14001:2016: Environmental management systems – Requirements with guidance for use or other standard approved by IPART, on request by Water NSW (Environmental Management System).	Compliant 
<b>Risk</b>	Without adequate Environmental Management Systems there is a risk that WaterNSW will have a negative impact on the environment.	<b>Target for full compliance</b> Evidence that the Environmental Management System covers all authorised functions of WaterNSW and is maintained.

#### Summary of reasons for grade

WaterNSW demonstrated that the environmental management system (EMS) has been maintained for all authorised functions and is consistent with the Australian Standard 14001:2016.

WaterNSW maintained external certification of their EMS through the audit period as demonstrated by their Certificate of Registration EMS ISO 14001 2015 (C2021/30800).

This clause is graded as Compliant. One opportunity for improvement was identified.

#### Discussion and notes

One version of the *Environmental Management System Manual (EMS)* (CD2015/445, v6) was in use during the audit period. Supporting documents adequately cover the authorised functions listed in Section 7(1) of the *Water NSW Act* (2014) and the Water NSW Operating Licence (2022-2024).

WaterNSW maintained external certification of their EMS through the audit period as demonstrated by the *Certificate of Registration* (D2023/4970) and the previous certificate of registration that we viewed on the screen during the interview. The external certification is for the ISO 14001:2015 standard, which is an identical adoption of the Australian/New Zealand Standard AS/NZS ISO 14001:2016 required by this clause. The *Re-certification Audit Report* (D2023/2769) noted that the two actions from the previous certification audit reports were closed.

The responsibility for maintaining the content of the *EMS Manual* is allocated to the Health Safety and Environment (HSE) team in Section 2 Leadership of the *EMS Manual* (CD2015/445, v6). WaterNSW maintains a register (D2019/75884) used to log changes needed to the EMS between review dates.

Based on the evidence reviewed, WaterNSW has integrated the EMS into its business through the Mandatory Training Framework and the Risk Management Framework in the *Corporate Risk Management Plan* (D2021/102414).

We observed that operational aspects of the EMS are not currently well integrated into broader business processes. For example:

- The *Project Delivery Framework* (CD2016/151) does not explicitly reference the EMS Manual. Aspects of the EMS were referenced in the Project Delivery Framework such as the need to obtain environmental approvals in consultation with the Environmental Services Team. The Project Delivery Framework was due for review by May 2020 in the footer. WaterNSW advised during the interview that an updated version had been completed, however it had not yet been finalised or endorsed.
- The *Procurement Framework* (CD2016/77[v4]) did not explicitly reference the EMS Manual, including in the relevant documents section. Aspects of the EMS were referenced in the Procurement Framework



such as the need for the Environmental Services Team to be informed of the scope where the procurement project includes construction, alteration or addition at a heritage listed asset.

- There was a lack of clarity in the application of the environmental approval framework during abnormal water quality conditions which involved contingency water quality response considerations at Prospect Reservoir (D2022/24595). The statutory planning framework, responsibilities of WaterNSW and Sydney Water and the likely approval pathway for the project were not defined clearly and in a way that would have allowed a timely go/no-go decision for the contingency project if the abnormal water quality conditions deteriorated further.

### **Recommendations**

No recommendations were identified.


### **Opportunities for improvement**

OFI 2023/5.2.1 – 1: WaterNSW should consider including the Environmental Services Team as a stakeholder as business process documents are reviewed and ensure that operational aspects (including abnormal situations) of the EMS are well integrated into these documents and processes.



## Clause 5.2.2

Table 3-25 Clause 5.2.2 compliance grade

Subclause	Requirement	Compliance grade
5.2.2	Water NSW must fully implement the Environmental Management System and carry out all relevant activities in accordance with the Environmental Management System.	Compliant (minor shortcomings) 
<b>Risk</b> If the Environmental Management System is not implemented fully there is a risk that WaterNSW will have a negative impact on the environment.		<b>Target for full compliance</b> Evidence that all activities in the Environmental Management System are being fully implemented.

### Summary of reasons for grade

WaterNSW demonstrated that the EMS has been implemented for all authorised functions, with the exception of communicating the Environmental Policy and investigating incidents.

This clause is graded as Compliant (minor shortcomings). One recommendation was identified.

### Discussion and notes

The *EMS Manual* (Section 2) states that the *Environmental Policy* (CD2015/593) *is made available to the public on the WaterNSW internet site and employees via the WaterNSW intranet and is on display at all WaterNSW sites and offices.*

- The Environmental Policy was not on display in the Parramatta Office during the audit interview
- During the site visit we observed the Environmental Policy on display at the Keepit Dam site, but not at the Mollee Weir site
- We searched the WaterNSW website and could not find the Environmental Policy. We sighted evidence from WaterNSW that the Environmental Policy was on the website until 6/12/2022, before it was removed during website maintenance and update.

The EMS Manual states that an *environment-specific training needs analysis is undertaken to determine the EMS-related skills and training required across the organisation.* WaterNSW advised that the three main training areas are:

- Environmental Essentials Module (delivered to all staff)
- Environmental Management training (delivered to operational staff with contractor management or physical works responsibilities)
- Heritage Management training (delivered to operational staff with contractor management or physical works responsibilities).

The *Environmental Training Monthly Report* (D2022/81524) to June 2023 recorded that the Environmental Essentials Module had been delivered to 89% of staff members, Environmental Management to 97% of relevant staff, and Heritage Management to 97% of relevant staff.

Staff at Keepit Dam showed an awareness of *Keepit Dam Environmental Considerations* (D2020/94259). Staff at Keepit Dam and Mollee Weir were able to describe how their maintenance activities met the requirements of the *Environmental Standard Operating Procedure (ESOP)* (CD2019/113[v2]). We verified that the fuel and chemical storage requirements in Table 5 of the ESOP were implemented at Keepit Dam.

WaterNSW completed an assurance activity to review incident closure in RACS from July 2022 to June 2023 (D2023/61073) against the Incident Reporting and Investigation Procedure (CD2015/460)

We sampled the Kangaroo Pipeline incident (record # 2284) and WaterNSW identified the root cause and corrective actions.



WaterNSW identified that three of the incidents classified as Level 1 were closed without any incident forms attached. WaterNSW has assigned a corrective action to the Environmental Services Team to follow up and ensure the forms are completed and attached.

Two incident investigations were completed with external reports (incidents 2494 and 2523) rather than the internal WaterNSW form, however the external reports still include root cause analysis and corrective actions. WaterNSW has identified a corrective action to allow external reports provided they still meet the root cause analysis and corrective action content requirements.

Three incidents were identified as being open for longer than three months, incidents not accepted nor incident level identified (record # 2286, 2290, 2518).

Where WaterNSW identified risks of deficiencies in EMS implementation for incident investigation, the assurance activities have mitigated potential risks and corrective actions have been raised, appropriately assigned and have due dates. The assurance activity shows the implementation of the “check” stage in the Plan, Do, Check, Act cycle. However, the Assurance Activity Report did not identify preventive actions that would limit the re-occurrence of the findings (such as training or routine processes to ensure incidents were not closed unless they met the reporting requirements).

We also observed and commented on shortcomings and deficiencies in the implementation of incident investigation and reporting in clause 2.1.3.

We encountered a narrow interpretation of our requests for evidence associated with the EMS. The response was largely focused on approvals. We had to explicitly ask for evidence associated with operational aspects of EMS implementation for Mollee Weir and Keepit Dam several times before WaterNSW provided evidence associated with operational aspects of the EMS in addition to the approvals evidence they had already provided.

The findings in this clause are addressed by **Recommendation 2023/5.2.2 – 1**.

### **Recommendations**

Recommendation 2023/5.2.2 – 1: By 30 June 2024, WaterNSW should review and update business processes to ensure that all reported environmental incidents and hazards are investigated, and preventive as well as corrective actions are identified prior to closure of the incident.


### **Opportunities for improvement**

No opportunities for improvement were identified.

# Clause 6.1 – Customer supply agreements - Customers other than Sydney Water

## Clause 6.1.1

Table 3-26 Clause 6.1.1 compliance grade

Subclause	Requirement	Compliance grade
6.1.1	Water NSW must establish and maintain agreements with each of its Customers to whom it Supplies water (except Sydney Water) that set out the terms and conditions for the Supply of water ( <b>Customer Supply Agreements</b> ).	Compliant 
<b>Risk</b>	Without having supply agreements, it will be difficult for WaterNSW and the customer to determine what their requirements are, and whether these requirements are being met.	<b>Target for full compliance</b> Agreements exist with all relevant customers and processes exist to maintain these agreements.

### Summary of reasons for grade

From our review of the evidence provided and discussions at audit we are satisfied that WaterNSW meets the requirements of this clause. Consideration should be given to incorporating service performance criteria, such as maximum pipeline failures per annum on customer supply lines and average response and restoration times, in future upgrades of the Agreements (**OFI 2023/6.1.1 – 1**). The issue of asset failures and reliability will become more critical as the pipelines approach the end of their useful lives.

This clause is graded as Compliant.

### Discussion and notes

Customer agreements do not apply to the majority of WaterNSW Customers with a Water Access Licence.

WaterNSW has Major Customer Supply Agreements with major customers (including Sydney Water) with terms ranging from 5 to 99 years. We were provided with a listing of these major customers (D2019 27567).

We were provided with a copy of the Customer Supply Agreement (CD2019/112) which provides guidance in the development and renewal of agreements, both major and minor. Terms and conditions for the major customer supply agreements are based on WaterNSW’s standard template (CD2020/29). WaterNSW explained that variations exist and are individually negotiated and tailored accordingly.

There were no new major agreements established during the audit period. A revised agreement was signed with Lithgow City Council on 5 October 2022 (D2023/50517). We were advised that the agreement with Shoalhaven Shire Council is under review and expected to be completed within the next audit period.

Minor Customer Agreements exist between WaterNSW and its retail customers in the Fish River Scheme, Warragamba Pipeline and Upper Canal who receive a water supply. WaterNSW advised that for the Fish River Scheme three new minor agreements were established in FY23 and nine were amended or had change of ownership for the connection in FY23. We confirmed that the Fish River supply agreement templates for raw and filtered water are available on WaterNSW’s website.

No new minor customer supply agreements were entered into during the audit period for the Warragamba Pipeline and Upper Canal. WaterNSW advised that the Broken Hill Pipeline offtake agreements are excluded as those customers hold Water Access Licences.

Consideration should be given to incorporating service performance criteria such as maximum pipeline failures per annum on customer supply lines, average response and restoration times, in future upgrades of the Agreements (**OFI 2023/6.1.1 – 1**). The issue of asset failures and reliability will become more critical as the pipelines approach the end of their useful lives.

### Recommendations

No recommendations were identified.




### **Opportunities for improvement**

OFI 2023/6.1.1 – 1: Consideration should be given to incorporating service performance criteria, such as maximum pipeline failures per annum on customer supply lines and average response and restoration times, in future upgrades of the Agreements.

## Clause 6.1.2

Table 3-27 Clause 6.1.2 compliance grade

Subclause	Requirement	Compliance grade
6.1.2	Water NSW must only Supply water to these Customers in accordance with the terms and conditions of these Customer Supply Agreements	Compliant 
<b>Risk</b>	If water is supplied outside the terms and conditions of Customer Supply Agreements, public health and supply risks will increase.	<b>Target for full compliance</b> Water is supplied to meet the terms and conditions of the Supply Agreements.

### Summary of reasons for grade

From our review of the evidence provided and discussions at audit we are satisfied that WaterNSW meets the requirements of this clause. It would be useful if a monthly service performance dashboard for Fish River was presented to management, customers and the Board (**OFI 2023/6.1.2 – 1**). This dashboard could cover the number of planned and unplanned interruptions impacting on each customer, along with the average time to respond and restore service. The issue of asset failures and reliability will become more critical as pipelines approach the end of their useful lives.

This clause is graded as Compliant.

### Discussion and notes

Performance against the customer supply agreements is reported monthly to the senior leadership team (D2023/48644) and quarterly to the Board Committee (D2023/40068) in dashboard reports.

Compliance is monitored via monthly compliance reports to major customers in line with relevant agreements and operating protocols.

Performance is reported and discussed with major customers and NSW Health on a quarterly basis. We were provided with copies of the Joint Operations Group (JOG) quarterly reports for 17 August 2022 (D2022/100623), 21 November 2022 (D2022/61113), 8 February 2023 (D2023/11006) and 24 May 2023 (D41685). These meetings discuss issues such as water quality performance and improvement projects.

Monthly Operations Forum meetings are held between representatives of WaterNSW and major customers to discuss issues such as operations, water quality, maintenance, projects, customer issues and outage planning. Under Clause 2.1.2 we were provided with meeting minutes for 22 September 2022 (D2022/112840), 18 October 2022 (D2022/122309), 21 February 2023 (D2023/11932) and 18 April 2023 (D2023/33404).

We were provided with a range of water quality reports. A copy of the Water Quality Performance Dashboard (February-April 2023) (D2023/40069) presented at a Board meeting was provided. Also provided was a Water Quality Performance Dashboard for May 2023. Both these dashboards included health related and water quality operational performance KPIs and explanatory notes. It would be useful if a monthly service performance dashboard for Fish River was presented to management, customers and the Board. This report could cover the number of planned and unplanned interruptions impacting on each customer, along with the average time to respond and restore service. The issue of asset failures and reliability will become more critical as pipelines approach the end of their useful lives (**OFI 2023/6.1.2 – 1**).

### Recommendations

No recommendations were identified.

### Opportunities for improvement

OFI 2023/6.1.2 – 1: It would be useful if a monthly service performance dashboard for Fish River was presented to management, customers and the Board. This could cover the number of planned and unplanned interruptions impacting on each customer, along with the average time to respond and restore




service. The issue of asset failures and reliability will become more critical as pipelines approach the end of their useful lives.



## Clause 6.1.3

Table 3-28 Clause 6.1.3 compliance grade

Subclause	Requirement	Compliance grade
6.1.3	<p>The terms and conditions of the Customer Supply Agreements must, at a minimum, include provisions addressing:</p> <ol style="list-style-type: none"> <li>the standard of water quality Supplied by Water NSW;</li> <li>the continuity of the water Supplied by Water NSW (that is, provisions relating to interruptions, disconnections and reconnections to Supply);</li> <li>any metering arrangements;</li> <li>the fees and charges to be paid by the Customers for the Supply of water to them;</li> <li>dispute resolution and Complaints handling procedures; and</li> <li>in the case of a Customer Supply Agreement with a Customer referred to in clause 1.2.1(e), terms and conditions preventing the Customer concerned from supplying the water for consumption by others within the State unless the Customer is authorised to do so by or under an Act.</li> </ol>	<p>Compliant</p> 
<p><b>Risk</b> If the terms and conditions listed are not included in the Customer Supply Agreements, it will make it more difficult to resolve contractual issues.</p>		<p><b>Target for full compliance</b> The terms and conditions listed are included in the Customer Supply Agreements.</p>

### Summary of reasons for grade

Our review of a sample of major and minor water supply agreements found that the required terms and conditions had been included.

This clause is graded as Compliant.

### Discussion and notes

WaterNSW, in its audit presentation (D2023/112316), provided a table listing where the terms and conditions specified were located in their major and minor Customer Supply Agreements. We inspected a sample of these Agreements (listed below) and confirmed that the required terms and conditions had been included:

- Lithgow City Council, Variation to Supply Agreement (D2023/50517)
- Water Supply Agreement, Wingecarribee Shire Council (D2020/80599)
- Fish River Minor Customers (Raw Water) from website
- Fish River Minor Customers (Filtered Water) from website
- Standard Template for Agreement for Supply of Water Major Customer – Bulk Water.

Item (f) was only applicable to the Fish River Customers in the agreements inspected.

### Recommendations

No recommendations were identified.

### Opportunities for improvement


No opportunities for improvement were identified.



## Clause 6.15 – Roles and responsibilities with Department of Planning and Environment

### Clause 6.15.1

Table 3-29 Clause 6.15.1 compliance grade

Subclause	Requirement	Compliance grade
6.15.1	Water NSW must: <ol style="list-style-type: none"> <li>a. agree in writing with DPE the roles and responsibilities regarding the conduct of Conferred Functions specified in Schedule A of this Licence; and</li> <li>b. comply with the agreement established under clause 6.15.1(a).</li> </ol>	Compliant 
<b>Risk</b> If interacting roles and responsibilities of agencies are not clearly defined and followed there is a risk that certain government functions may not be undertaken or duplicated leading to community confusion.		<b>Target for full compliance</b> Agreement has been reached on the roles and responsibilities regarding the conduct of Conferred Functions and the Agreement is being complied with.

#### Summary of reasons for grade

From the information presented by Water NSW and discussions at audit we are satisfied that WaterNSW met the requirements of this clause during the audit period.

This clause is graded as Compliant.

#### Discussion and notes

The Roles and Responsibilities Agreement (RRA) between DPE, the Natural Resources Access Regulator (NRAR), the Water Administration Ministerial Corporation (WAMC) and WaterNSW was signed on 30 June 2021. The Agreement sets out in detail each agency's role in relation to key water management functions and provides frameworks for resolving any interagency issues and monitoring the performance of agencies against their responsibilities. The Term of the RRA is five years, i.e., to 30 June 2026.

The role of WaterNSW against the conferred functions for each activity is listed in Schedule 1 of the Agreement. The Conferred Functions include:

1. Licensing assessment and approval functions
2. Water trading assessment and approval functions
3. Compliance functions
4. Metering functions
5. General administrative functions
6. Joint private works functions
7. Group licences functions.

The roles and responsibilities of each agency are regularly reviewed and updated. We were provided with the most recent version of Schedule 1 (version 1.2).

Arrangements to ensure compliance with the Agreement are covered under Clause 3 of the Agreement – Governance. The Chief Executive Group monitors the effectiveness of the RRA and discusses and resolves issues that cannot be resolved by the Steering Group. We were advised that no issues had been escalated from the Steering Group during the audit period.

The RRA Steering Group, chaired and administered by DPE, consists of representatives from WAMC, DPE, NRAR and WaterNSW. We were provided with a copy of the minutes of the November 2022, 27 February 2023 and 3 April 2023 Steering Group meetings to demonstrate the range of proposed amendments to the





RRA that were considered and the three streams of work that were proposed and worked on during the audit period as part of a continual improvement process.

**Recommendations**

No recommendations were identified.


**Opportunities for improvement**

No opportunities for improvement were identified



## Clause 6.15.2

Table 3-30 Clause 6.15.2 compliance grade

Subclause	Requirement	Compliance grade
6.15.2	Water NSW must publish a statement setting out the roles and responsibilities required under clause 6.13.1 (a)	Compliant 
<b>Risk</b> If internal and external stakeholders lack information on relevant roles and responsibilities it could lead to inefficiencies and frustration.	<b>Target for full compliance</b> Statement is readily accessible.	

### Summary of reasons for grade

We were able to access the Roles and Responsibilities Agreement via <https://water.dpie.nsw.gov.au/about-us/how-water-is-managed/roles-and-responsibilities-agreement>.

This clause is graded as Compliant.

### Discussion and notes

The Roles and Responsibilities Agreement entered into on 30 June 2021 can be accessed and downloaded via <https://water.dpie.nsw.gov.au/about-us/how-water-is-managed/roles-and-responsibilities-agreement>.

We were readily able to access the Roles and Responsibilities through the above link.

### Recommendations

No recommendations were identified.


### Opportunities for improvement

No opportunities for improvement were identified

# Clause 6.16 – Memorandum of understanding with Natural Resources Access Regulator

## Clause 6.16.1

Table 3-31 Clause 6.16.1 compliance grade

Subclause	Requirement	Compliance grade
6.16.1	Water NSW must: <ol style="list-style-type: none"> <li>use its best endeavours to maintain a memorandum of understanding with the NRAR; and</li> <li>comply with the memorandum of understanding maintained under clause 6.16.1(a).</li> </ol>	Compliant (minor shortcomings) 
<b>Risk</b> Not having used best endeavours to establish, maintain and comply with the memorandum of understanding (MoU) could impact on the efficiency and effectiveness of NRAR’s regulatory function and safety of its staff in the field.		<b>Target for full compliance</b> Evidence that the MOU has been complied with.

### Summary of reasons for grade

The audit discussions, evidence provided and NRAR feedback indicate that WaterNSW is making its best endeavours to maintain, and comply with, the memorandum of understanding with NRAR.

A minor shortcoming was noted regarding compliance with the requirement of Area 3 of Annexure A i.e., WaterNSW and NRAR are required to notify each other of any serious field safety issues that the respective parties become aware of as soon as practicable after becoming aware of the safety issue. This shortcoming relates to the excessive length of time taken to notify NRAR about a safety issue that arose in the WaterNSW Parramatta office which was recorded in the Unsafe Site Register.

We initially considered that this shortcoming was bordering on being a non-compliance since the time for notification was considered to be too long. However, on further consideration, we accept WaterNSW’s contention that the incident was not in the field and the situation was diffused such that it would not continue into a field situation at some point in the future, neither at the Parramatta Office nor at the customer’s property.

This clause is graded as Compliant (minor shortcomings).

### Discussion and notes

A Memorandum of Understanding (MoU) was entered into between WaterNSW and the Natural Resources Access Regulator (NRAR) on 24 January 2019. The MoU sets out the basis for an ongoing cooperative relationship between both organisations to assist them meeting their respective joint responsibilities in connection to water licensing and regulatory action for offences under natural resources management legislation. The MoU will be due for renewal in January 2024 as required by Section 3 of the document.

The purpose of the MoU is to establish and maintain processes for effective and efficient:

- Information and data exchange related to compliance and enforcement of the natural resources management legislation
- Support for compliance, investigation and prosecution activities
- IT system access and use related to the administration of the natural resources management legislation
- Evaluation and review processes to ensure the ongoing effective, efficient, transparent and accountable administration of natural resources management legislation.

Annexure A to the MoU – Table of Responsibilities lists functional activities and areas of engagement necessary. The scope of engagement and responsible officers from WaterNSW and NRAR are nominated



with the accountability to deliver on the requirements. Compliance with the MoU is delivered through the procedures listed in Annexure A and the consultation process (through the Strategic Group and Operational Group) and MoU. The procedures in Annexure A are organised into the following areas of engagement:

1. Legal, investigation and enforcement information
2. Breach notifications and licensing
3. Investigation outcomes
4. Information technology and information sharing.

We were provided with copies of the protocols for Areas 1 to 3. Protocols for Area 4 have been superseded by the Roles and Responsibilities Agreement.

Section 7 of the MOU requires consultation between the two parties delivered through the:

- Strategic Group, comprising of the Chief Executive Officer of WaterNSW and Chief Regulatory Officer of NRAR who are required to meet regularly. We were provided the Terms of Reference for the Steering Group along with agendas for Meeting 6 on 1 July 2022 and Meeting 8 on 30 June 2023 (within the audit period). We were advised that action items only were recorded from the meetings, rather than minutes. We were provided with action items arising from the 30 June 2023 meeting (D2023/157378,79,82,83).
- Operational Group. The frequency and timing of meetings is determined by the Strategic Group. We were provided with agendas and minutes for three meetings during the audit period – 5 October 2022 (D2022/98644), 8 March 2023 (D2023/98652) and 30 May 2023 (D2023/98707).

Section 5 requires WaterNSW and NRAR to develop the necessary guidelines or protocols to facilitate effective exchange of relevant information and records. During this audit period, WaterNSW worked with NRAR to develop a Data Currency and Remediation Plan (DRP) which includes a Dashboard and Project Plans. We were provided with a copy of the dashboard for February 2023 (D2023 98657) and advised that this is a living document, updated approximately monthly.

The Data Currency and Accuracy Remediation Plan was tabled at the Strategic Group meeting on 30 June 2023, agenda item 3 (D2023/98409). We were also provided with a follow up email and agenda for a WaterNSW/ NRAR Executive Meeting on the Data Remediation Plan dated 13 July 2023 (D2023/157379).

Under Area 3 Investigation Outcomes, WaterNSW and NRAR are required to notify each other of any serious field safety issues that the respective parties become aware of as soon as practicable after becoming aware of the safety issue. WaterNSW maintains an Unsafe Risk Register (Doc11/25426) which ensures WaterNSW and NRAR staff are aware of the requirement to notify serious safety field issues. When this document is updated, it is shared with staff. We were provided with a copy of a Safety Alert from DPE (D2023 98798) issued on 30 March 2023 regarding a safety threat to a NRAR Officer which is then workflowed for distribution within WaterNSW.

WaterNSW advised that there was one safety issue that required notification during the audit period which was recorded in the Unsafe Site Register (row 46) and in RACS (ID 2405). WaterNSW explained that the event occurred on 10 January 2023, was documented on 30 January 2023 and reported on 2 February 2023 to NRAR. The issue related to a Special Purpose Access Licence (SPAL), that included the customer and neighbour as holders. The upset customer wanted to remove his neighbour as a holder, which required the neighbour's permission, and the neighbour's permission was not forthcoming. The incident occurred in WaterNSW's Parramatta office, not the field, and involved an angry and frustrated elderly customer who initially threatened to kill a staff member but subsequently calmed down, profusely apologised, and was not deemed a threat. On further review, the incident was logged in the safety register and NRAR notified.

WaterNSW explained that other previous serious field safety issues have included landholders/customers threatening staff with firearms. The police have been involved in these incidents, which have resulted in firearms licences being cancelled.

We initially considered that this shortcoming was bordering on being a non-compliance since the time for notification was considered to be too long. However, on further consideration, we accept WaterNSW's contention that the incident was not in the field and the situation was diffused such that it would not continue into a field situation at some point in the future, neither at the Parramatta Office nor at the customer's property.



WaterNSW agreed that there were opportunities for improvement in this area and intended to undertake a comprehensive review of the MoU with NRAR after the new Operating Licence has been issued and would discuss options relating to better defining what constitutes a 'serious field safety issue' and reasonable expectations on notification periods. We consider that these discussions could be held earlier, and it is recommended that by 30 June 2024, WaterNSW is to agree with NRAR (and DPE) on a clearer definition of a 'serious field safety issue' and reasonable expectations on notification periods (**Recommendation 2023/6.16.1 – 1**).

WaterNSW informed NRAR of the suspension of four Water Access Licenses, all belonging to a single customer, within one business day of notifying the licence holder, in line with business process.

NRAR in its stakeholder feedback stated that *throughout the audit period Water NSW has worked with NRAR to implement the MoU, including conducting Operating and Strategic group meetings.*

### **Recommendations**

Recommendation 2023/6.16.1 – 1: By 30 June 2024, WaterNSW should agree with NRAR (and DPE) on a clearer definition of a 'serious field safety issue' and reasonable expectations on notification periods.


### **Opportunities for improvement**

No opportunities for improvement were identified.

## Clause 6.17 – Online portal for lodgement of documents relating to metering equipment

### Clause 6.17.1

Table 3-32 Clause 6.17.1 compliance grade

Subclause	Requirement	Compliance grade
6.17.1	<p>Water NSW must operate and maintain an online portal to allow for the electronic lodgement of the following:</p> <ol style="list-style-type: none"> <li>a certificate provided under clause 237(1) or (2) of the Water Management Regulation, as required by clause 238(2) of that regulation,</li> <li>a certificate provided under clause 237(3) of the Water Management Regulation,</li> <li>a report by a person who intends to rely on clause 8 of Schedule 8 of the Water Management Regulation setting out the steps taken in relation to the metering equipment, as required by clause 8(3) of Schedule 8 of that regulation,</li> <li>written certification as to the matter set out in clause 9(2)(b) of Schedule 8 of the Water Management Regulation,</li> <li>a report from a person who intends to rely on clause 9 of Schedule 8 of the Water Management Regulation, setting out the steps taken in relation to the metering equipment, as required by clause 9(5) of Schedule 8 of that regulation.</li> </ol>	<p>Compliant</p> 
<p><b>Risk</b></p> <p>Accurate and timely data collection, storage and retrieval is essential to properly monitor water use by licence holders. If data cannot be collected, securely stored or reliably retrieved total water take may be underestimated, overextraction may not be identified, action may not be able to be taken against non-compliant licence holders or compliant licence holders could be unjustly prosecuted, with consequent liability to government.</p>		<p><b>Target for full compliance</b></p> <p>Online portal is accessible by licence holders and duly qualified persons, and there is the capability to lodge the required certificates and reports.</p> <p>License holders and duly qualified persons have lodged material through the portal within the audit period.</p>

#### Summary of reasons for grade

From the evidence provided and discussions at audit we are satisfied that WaterNSW meets the requirements of this clause.

This clause is graded as Compliant.

#### Discussion and notes

WaterNSW has developed a DQP (Duly Qualified Person) Portal which is used by DQPs to register meters and LIDs (Local Intelligent Devices) on behalf of Authority Holders so that they can comply with Non-Urban Metering Regulations. The DQP Portal is a solution comprising forms to provide an information collection point for DQPs, PowerBI reporting, and a SharePoint Certificate repository. These individual components are integrated and as such make up the totality of what is referred to as the DQP portal. The Portal is still evolving, and we were advised that version 1.2 was released in August 2023, shortly after the audit period.

Certificates and reports are generated from information entered by a DQP through the DQP portal.

At audit we were shown a video that demonstrated how a certificate was lodged into the Portal and manually validated. We were provided with copies of the following certificates to demonstrate compliance with this clause:

- Certificate of Accuracy dated 12/12/2022



- Maintenance Validation Certificates dated 28/09/2022
- Meter Validation Certificate dated 8/06/2023
- Meter Design Certificate
- Meter Design Certificate for open channel metering equipment dated 10/07/2021
- Transitional Arrangements Report dated 5/06/2023.

We were also provided with a listing of all certificates (D2023/89763) and registrations (D2023/89764) entered into the DQP during the audit period.

### **Recommendations**


No recommendations were identified.

### **Opportunities for improvement**

No opportunities for improvement were identified.

## Clause 6.17.4

**Table 3-33 Clause 6.17.4 compliance grade**

Subclause	Requirement	Compliance grade
6.17.4	Water NSW must ensure that all holders of a current authority and all duly qualified persons have access to the portal. In this subclause, “authority” has the same meaning as in Part 10 of the Water Management Regulation and “duly qualified person” has the same meaning as in the Water Management Act	Compliant 
<b>Risk</b> If holders of a current authority or duly qualified persons cannot access the portal, proper regulation of those licenses is impacted. Total water take may be underestimated, overextraction may not be identified and action against non-compliant license holders may be delayed or prevented.		<b>Target for full compliance</b> Authority holders and DQPs are provided with access to the portal in a timely manner.

### Summary of reasons for grade

We are satisfied that the processes outlined by WaterNSW should ensure that all holders of a current authority and all duly qualified persons will have timely access to the portal.

This clause is graded as Compliant.

### Discussion and notes

WaterNSW provided a listing of all DQPs registered up until the end of the audit period (D2023/89821). Access is provided (within the DQP Portal) by an Authority Holder to consent to their nominated DQP to access their personal information/meter information, held in other WaterNSW systems. A copy of a consent letter template was provided (D2023/91751).

WaterNSW advised that during the audit period no Authority Holder had requested access to the portal. If a holder of a current authority requested access, WaterNSW would grant access as required. If the holder only requires access to a registration or certificate, WaterNSW shares the document by email or post, depending on the holder’s preference. The Authority Holder would need to send a request to the customer help desk.

Training is provided to all DQPs by Irrigation Australia (IAL). We were provided with a listing of all DQPs registered up to the end of the audit period (D2023/89821). On completion of their training, a DQP is given access to the Portal. The Portal gives DQPs access to every certificate and registration that needs to be completed and submitted to allow a customer to become compliant with Non-Urban Metering Regulations.

Access is granted via the WaterNSW Digital team (Front End Squad) – WaterNSW stated that the process for allowing access was as outlined below:

- User completes IAL certification
- IAL informs [dqp.enquiries@waternsw.com.au](mailto:dqp.enquiries@waternsw.com.au) of the new DQPs. This is done every Monday.
- DQP Portal administration staff add the user to the “Approved list” which then allows an account to be created in the DQP Portal
- If users need to be removed, IAL will inform [dqp.enquiries@waternsw.com.au](mailto:dqp.enquiries@waternsw.com.au).

WaterNSW provided a flowchart of the process (D2023/89769).

WaterNSW also works closely with DQPs through a wide range of engagement channels ranging from face to face to Teams. DQPs often make suggestions for improvement at these sessions which are analysed and prioritised.

Certificates are generated from information inputted to the portal by DQPs. DQPs, as part of their certification with IAL, are made aware of their obligation to enter valid data on behalf of the authorised





holder. It is the DQP's responsibility to ensure the data entered is correct as the portal has limited field-based validation.

**Recommendations**

No recommendations were identified.


**Opportunities for improvement**

No opportunities for improvement were identified.



## Clause 6.17.5

**Table 3-34 Clause 6.17.5 compliance grade**

Subclause	Requirement	Compliance grade
6.17.5	Water NSW must provide DPE and NRAR with access to the portal and data and systems within the portal that are relevant to DPE and the NRAR's functions	Compliant 
<b>Risk</b> If relevant staff from DPE and NRAR cannot access the portal and data and systems within the portal it will severely hinder or even prevent their assigned functions.		<b>Target for full compliance</b> DPE and NRAR staff are be provided with access to the portal in a timely manner.

### Summary of reasons for grade

From the evidence provided, discussions at audit and stakeholder feedback we are satisfied that WaterNSW meets the requirements of this clause. Improvement opportunities continue to exist in relation to this portal which WaterNSW is working closely with DPE and NRAR to address.

This clause is graded as Compliant.

### Discussion and notes

WaterNSW confirmed that it provides access to the system at the request of key staff in DPE and NRAR. All key stakeholders in DPE and NRAR have access to the PowerBI dashboard that gives the key data required by each agency.

We were provided with a copy of a request from a DPE officer to access the portal (D2023/89831). We were also provided with a listing of 143 NRAR officers with access to the portal (D2023/89772). WaterNSW provided DQP Portal NUMR Report Training (D2023 89846) as evidence on the type of support provided.

WaterNSW works closely with DPE and NRAR to enhance the portal.

WaterNSW interacts regularly with DPE and NRAR on portal issues at various forums. We were provided with a copy of the minutes of the 4 April 2023 meeting of the Customer Metering Coordination Group – Joint Agency ICT Steering Committee (JAICT) Working Group (D2023/80833) where portal issues were discussed.

WaterNSW provided a listing of stakeholder user stories (e.g., DPE and NRAR) that were compiled during the audit period. These user stories are improvement suggestions or deficiency items. As an example, user story 97575 was created in partnership with NRAR and DPE who identified the duplication of work for DQPs who had to enter the same data for a Validation Certificate that had already been entered when they completed their Telemetry Registration.

DPE in its stakeholder feedback provided the following response:

*WaterNSW provided the Department with access to the Duly Qualified Persons (DQP) Portal, however there are still some ongoing access limitations that are impacting customer service, which are being considered as part of the broader review of the WaterNSW Operating Licence.*

DPE clarified their stakeholder response in an email dated 15 September 2023 (D2023 91277) with the following statement:

*WaterNSW have given access to DPE to the information in the DQP Portal through a suite of PowerBI reports which meets the need identified in the current operating licence (6.17.5). However, as the data stored in the portal gets more voluminous I believe DPE and WaterNSW agree a different solution may be needed in the future, and it would be appropriate for WaterNSW and DPE to work on determining the updated need to inform the new Operating Licence*

NRAR in its stakeholder feedback provided the following response:



*Water NSW has been working closely with NRAR in line with clause 6.17 of the Operating Licence to operate and maintain a portal, known as the Duly Qualified Persons or DQP portal, to allow electronic lodgement of forms relating to metering equipment and enter and retain data from metering equipment and provide access to these data and systems in accordance with the agreed protocols (clause 6.18),*

*Whilst NRAR acknowledges considerable progress has been made in implementing these clauses during the audit period, NRAR notes the following:*

- *Required amendments to the DQP portal are not expected to be completed until the end of the 2023 calendar year.*
- *NRAR requires clear identification by data field in the DQP portal of the certificate that relates to validation of a compliant meter, as distinct from certificates that validate maintenance. Work on this data field has commenced, but it has been an outstanding issue that impacts efficient and effective compliance and enforcement for NRAR.*

NRAR provided an update on this comment in an email to WaterNSW (D2023/144392) which confirmed a verbal discussion on 21 September 2023 that the validation of a compliant meter issue had been resolved with the new release of the DQP but data inputs prior to 23 August 2023 still required to be resolved.

### **Recommendations**

No recommendations were identified.


### **Opportunities for improvement**

No opportunities for improvement were identified.

## Clause 6.18 – Downloading of data from certain metering equipment

### Clause 6.18.2

Table 3-35 Clause 6.18.2 compliance grade

Subclause	Requirement	Compliance grade
6.18.2	Water NSW must, at least once a year, download all data from the metering equipment to which this clause 6.18 applies.	Compliant 
<b>Risk</b> If volumetric data is not downloaded from certain metering equipment at regular intervals there will be a risk that WaterNSW could lose revenue through being unaware of inoperable meters. Unavailability of data may make it difficult for DPE and NRAR to undertake their regulatory functions.		<b>Target for full compliance</b> All data has been downloaded during the audit period.

#### Summary of reasons for grade

The scope of the audit covered only customers in the Northern Inland Region and one month for Southern Inland customers with Coastal customers excluded from the scope of the audit. Of the 966 sites in the Northern Inland Region, 963 are connected to telemetry and the data is transmitted daily into the Data Acquisition Service (DAS). For meters not connected to telemetry, WaterNSW must download the data from the local intelligence device (LID) at least annually. Data from only one of the three meters was scheduled to be downloaded during the audit period. The evidence provided satisfied us that this data had been downloaded.

This clause is graded as Compliant.

#### Discussion and notes

This clause applies to any metering equipment used in connection with the works described in clause 6(2) of Schedule 8 of the Water Management Regulation. The works prescribed in clause 6(2) of Schedule 8 are

- a. A pump used for surface water to which an authority that authorises the use of a pump of not more than 199 mm applies
- b. A work that is authorised by an authority to take water from a groundwater source.

The policy and metering related provisions of the Act and Regulation commenced on 1 December 2018, with some parts of the regulation becoming effective on 1 April 2019. For Northern Inland customers the compliance date was 1 December 2021. The remainder of the framework was scheduled to roll out in stages between 1 December 2020 and 1 December 2023. Due to flooding the compliance date for the Southern Inland Region moved from 1 December 2022 to 1 June 2023, and the compliance date for the Coastal Region moved from 1 December 2023 to 1 December 2024. As a result, the scope of the audit covers only customers in the Northern Inland Region and one month for Southern Inland customers with Coastal customers excluded from the scope of the audit.

At the end of the audit period there were 3,232 sites set to Installed in the DQP portal of which 1,112 were located in the Northern Inland Region. Of these, 635 are groundwater sites and 331 are surface water sites with a pump size less than 200mm giving a total of 966 sites that meet the criteria listed in Clause 6(2) of Schedule 8 of the Water Management Regulation. Of the 966 sites in the Northern Inland Region, 963 are connected to telemetry and the data is transmitted daily into the Data Acquisition Service (DAS).

For meters not connected to telemetry WaterNSW must download the data from the local intelligence device (LID) at least annually. Only one type of LID is authorised to operate as a data logger in addition to a

telemetry device. This LID is the YDOC, as it is the only LID that has a download port installed on the device.

We were provided with a PowerBI screen shot (D2023 89803) showing the scheduled YDOC data downloads. We noted that the three YDOC sites in the Northern Inland Region were installed after the compliance date of 1 December 2021. However, this is outside this audit scope.

Only one of these meters, 80WA726012-223978-2 owned by Boral Resources (NSW) Pty Ltd was scheduled to be downloaded during the audit period. We were provided with a copy of the downloads attached to an email from the Customer Field Officer dated 24/04/2023. WaterNSW's manual QA process noted that the meter reading was unusually high. The DQP identified and corrected the error that was due to an incorrect meter configuration which meant that it was reading ten times the volume. The DQP provided WaterNSW with the correct volume on 1 May 2023. A copy of the maintenance validation certificate was also provided.

### **Recommendations**


No recommendations were identified.

### **Opportunities for improvement**

No opportunities for improvement were identified.

## Clause 6.18.4

Table 3-36 Clause 6.18.4 compliance grade

Subclause	Requirement	Compliance grade
6.18.4	Water NSW must use its best endeavours to maintain protocols with DPE and NRAR for requests for data to which this clause 6.18 applies.	Compliant 
<b>Risk</b> WaterNSW is the primary data source of data relating to non-urban metering. Failure by WaterNSW through not using its best endeavours will result in inefficiencies and effectiveness of both DPE and NRAR in undertaking their functions.		<b>Target for full compliance</b> Demonstration that WaterNSW is using its best endeavours to maintaining protocols for data requests relating to non-urban meters described in clause 6(2) of Schedule 8 of the Water Management Regulation.

### Summary of reasons for grade

Based on our discussions with WaterNSW representatives, evidence provided, and stakeholder feedback we concluded that WaterNSW has demonstrated that it is applying its best endeavours to maintaining protocols for data requests relating to non-urban meters described in clause 6(2) of Schedule 8 of the Water Management Regulation. All parties acknowledge that some challenges continue but are working collaboratively to address these issues in a financially constrained environment.

This clause is graded as Compliant.

### Discussion and notes

The relationship between WaterNSW, DPE and NRAR is guided by a range of MOUs, agreements and protocols. These include:

- MOU dated 24 January 2019 in relation to the provision of WaterNSW information and records to assist NRAR in its functions
- MOU dated 31 August 2020 in relation to the ongoing relationship for sharing data and information between WaterNSW and DPE
- The “Data Sharing Agreement” entered into between WaterNSW and NRAR on 3 December 2020 in relation to the ongoing relationship for sharing data and information between WaterNSW and NRAR
- The “Data Sharing Agreement” (DSA) entered into between WaterNSW and DPE on 30 June 2021 in relation to the ongoing relationship for sharing data and information between WaterNSW and DPE
- The Roles and Responsibilities Agreement between DPE, NRAR, WAMC and WaterNSW dated 30 June 2021. One of the purposes of the Agreement is *facilitating arrangements for the sharing of Data and assets that are required by each party to perform their respective Roles and Responsibilities, including to ensure that there is a common evidence basis for the provision of integrated services and interdependent functions*. The Roles and Responsibilities Agreement Schedule 1 is updated from time to time with V1.2 being the latest and includes a Services Schedule – ICT and Data Services.

WaterNSW explained that it was using its best endeavours to maintain the protocols through:

- WaterNSW, DPE and NRAR representatives meet on a monthly basis. We were provided with copies of the minutes of the meetings of the Water Data Coordination Group from 30 October 2021 to 31 August 2023 (D2023/097711). These minutes cover a range of data related issues, including MOUs and DSAs, that are of combined interest to WaterNSW, DPE and NRAR.
- The Joint Agency ICT Steering Committee (JAICT) which is chaired by DPE meets monthly dealing with a wide range of ICT initiatives and issues such as a technology roadmap and systemic data problems. We were provided with a copy of the 25 June 2023 minutes (D2023 147673) and the 28 July 2022 minutes (D2023 14767).



- Having quarterly meetings of the WaterNSW and NRAR Strategic Group. The purpose of the Strategic Group is to provide a regular forum for collaboration between relevant WaterNSW and NRAR senior officers. Further details are provided under the discussion relating to Clause 6.16.1.
- Having quarterly meetings of the WaterNSW and NRAR Operational Group. The Operational Group has those functions set out in Part 7 of the MoU which is to provide a regular forum for collaboration between relevant WaterNSW and NRAR staff. Further details are provided under the discussion relating to Clause 6.16.1.
- Ongoing refinements to the Roles and Responsibilities Agreement
- WaterNSW continues to work with NRAR on varying the Data Sharing Agreement as outlined in the letter (unsigned) from WaterNSW to NRAR dated 3 August 2023 (D2023 58470)
- Improvements in data sharing have evolved in recent years with many of the services provided as self-service. This is further discussed in the section on clause 6.18.5.
- DPE and NRAR staff can request access to data/ systems. We were provided with a copy of a request by a NRAR officer to stored PDF certificates in addition to DQP Portal Power BI access, dated 25 May 2023.
- WaterNSW provides an appropriate level of user support, systems training and responses to continuous improvement requests in line with its JAICT Commitment Statement (D2023/147974).

WaterNSW acknowledged that even though significant improvements had been made there were still challenges to be addressed. The following were listed in the letter (unsigned) from WaterNSW to NRAR dated 3 August 2023 (D2023/58470). These included:

- Obligation of all parties to maintain security of data
- Data governance
- NRAR's evidentiary data requirements which require a higher level of quality than normally required by WaterNSW for its core business of delivering bulk water
- Ground truthing versus approvals data. We were advised that a proposal was due to go to the JAICT about improvements to non-urban metering data
- Amendments to the data sharing agreement to clarify responsibilities from each organisation.

DPE in its stakeholder response provided the following feedback relevant to this clause:

*An MoU was agreed between the Department and WaterNSW regarding the sharing of data and information end of August 2020. WaterNSW has complied with the requirements of the MOU.*

*WaterNSW and the Department have collaborated and established a more robust process for reporting and resolving data access and data quality issues. A backlog of issues are yet to be resolved and analysis shows that constraints limit WaterNSW implementing improvements to address systemic data issues.*

NRAR in its stakeholder response provided the following feedback relevant to this clause:

*I am very pleased that in November 2022, the Boards of WaterNSW and NRAR agreed to jointly prepare a Data Currency and Accuracy Remediation Plan (DRP) to pursue both short-term opportunities as well as more systemic and long-term solutions to commence addressing issues relating to the provision of timely, accurate and reliable data that meets chain of custody requirements to evidentiary standards and accessible, integrated data and information in a form which NRAR can make suitable for our needs at any point in time.*

*WaterNSW and NRAR are collaborating to embed continual improvement and cross agency support by sharing specific examples of challenges and developing practical solutions to issues that require remedy.*

*Throughout the audit period Water NSW has worked with NRAR to implement the MoU, including conducting Operating and Strategic group meetings.*



*NRAR and WaterNSW have been working co-operatively to implement clauses and address ongoing NRAR concerns about data accuracy and quality relating to the non-urban metering framework and DQPs.*

All parties acknowledge that some challenges continue but are working collaboratively to address these issues in a financially constrained environment.

**Recommendations**

No recommendations were identified.


**Opportunities for improvement**

No opportunities for improvement were identified.



## Clause 6.18.5

Table 3-37 Clause 6.18.5 compliance grade

Subclause	Requirement	Compliance grade
6.18.5	All such data must be made available to DPE and NRAR on request, provided such requests are made in accordance with the protocols agreed between Water NSW, DPE and NRAR.	Compliant 
<b>Risk</b> WaterNSW is the primary data source of data relating to non-urban metering. Failure by WaterNSW to provide relevant data, as required by DPE and NRAR will result in inefficiencies and effectiveness of both DPE and NRAR in undertaking their functions.		<b>Target for full compliance</b> Demonstration that WaterNSW makes data available on request to DPE and NRAR relating to non-urban meters described in clause 6(2) of Schedule 8 of the Water Management Regulation

### Summary of reasons for grade

Based on our discussions with WaterNSW representatives, evidence provided and stakeholder feedback we satisfied that WaterNSW has systems and processes in place to make data available, on request to DPE and NRAR relating to non-urban meters described in clause 6(2) of Schedule 8 of the Water Management Regulation.

This clause is graded as Compliant.

### Discussion and notes

The relationship between WaterNSW, DPE and NRAR is guided by a range of MOUs, agreements and protocols. These are listed in the discussion on Clause 6.18.4.

WaterNSW highlighted the improvements in data sharing that had evolved in recent years. Many of the services are now self-service as listed below:

- Water Licensing System (WLS)
- Water Accounting System (WAS)
- Data Acquisition Service (EagleiO DAS)
- Water Accounting/Licensing (database)
- Duly Qualified Person (DQP) Portal
- DQP Portal stored files (SharePoint) such as photos, validation and calibration reports, commissioning reports, and rating tables
- Reports (PowerBI or equivalent)
- Customer Portal and Water Market System
- Data and Analytics Platform (Azure Data Lake)
- API Developer Portal
- Microsoft SharePoint team sites (various).

DPE and NRAR staff can request access to data/ systems. We were provided with a copy of a request by a NRAR officer to stored PDF certificates in addition to DQP Portal Power BI access dated 25 May 2023.

WaterNSW meets with DPE and NRAR representatives at regular intervals (typically monthly/ quarterly) through a range of forums attended by officers at varying authority levels to resolve data and other issues. A listing is provided under the text for Clause 6.18.4.

WaterNSW reports to NRAR on its performance on requests received. We were provided with a copy of a report for February 2023 including the six months up to March 2023 (2023 98662). This is a



comprehensive report which provides response times for a range of categories. For the period October 2022 to March 2023, the average response time was 6 business days with the monthly average ranging from 4 to 11 business days in the period. The response time is dependent on the nature of the request and the availability of specific staff to respond to some questions.

WaterNSW acknowledged that even though significant improvements had been made there were still challenges to be addressed. The following were listed in the letter (unsigned) from WaterNSW to NRAR dated 3 August 2023 (D2023 58470) These included:

- Obligation of all parties to maintain security of data
- Data governance
- NRAR's evidentiary data requirements which require a higher level of quality than normally required by WaterNSW for its core business of delivering bulk water
- Ground truthing versus approvals data. We were advised that a proposal was due to go to the JAICT about improvements to non-urban metering data
- Amendments to the data sharing agreement to clarify responsibilities from each organisation.

While DPE and NRAR acknowledged some of the ongoing data challenges in their stakeholder feedback, their responses were generally positive (refer to discussion on Clause 6.18.4).

All parties acknowledge that some challenges continue but are working collaboratively to address these issues in a financially constrained environment.

#### **Recommendations**

No recommendations were identified.


#### **Opportunities for improvement**

No opportunities for improvement were identified.

## Clause 6.19 – Data sharing agreements with DPE and NRAR – NSW non-urban water metering framework

### Clause 6.19.1

Table 3-38 Clause 6.19.1 compliance grade

Subclause	Requirement	Compliance grade
6.19.1	<p>Water NSW must:</p> <p>a. use its best endeavours to maintain a data sharing agreement with DPE (<b>Data Sharing Agreement with DPE</b>);</p> <p>b. comply with:</p> <p>i. the Data Sharing Agreement with DPE maintained under clause 6.19.1(a); and</p> <p>ii. any cure plan that applies to Water NSW under the Data Sharing Agreement with DPE.</p>	<p>Compliant</p> 
<b>Risk</b>	<p>Failure to comply with the Data Sharing Agreement will impact on DPE's effectiveness and effectiveness in undertaking its functions.</p>	<p><b>Target for full compliance</b></p> <p>WaterNSW has demonstrated that it made every effort to maintain the Data Sharing Agreement with DPE during the audit period and complied with all cure plans generated during the audit period.</p>

#### Summary of reasons for grade

Based on our discussions with WaterNSW representatives, evidence provided and stakeholder feedback we concluded that WaterNSW has demonstrated that it is applying its best endeavours to meeting the requirement to maintain a Data Sharing Agreement with DPE. No cure plans were required during the audit period.

This clause is graded as Compliant.

#### Discussion and notes

A number of MOUs and data sharing agreements and protocols have been developed between WaterNSW and DPE since 2019. These include:

- MOU dated 31 August 2020 in relation to the ongoing relationship for sharing data and information between WaterNSW and DPE
- The "Data Sharing Agreement" (DSA) entered into between WaterNSW and DPE on 30 June 2021 in relation to the ongoing relationship for sharing data and information between WaterNSW and DPE
- The Roles and Responsibilities Agreement between DPE, NRAR, WAMC and WaterNSW dated 30 June 2021. One of the purposes of the Agreement is *facilitating arrangements for the sharing of Data and assets that are required by each party to perform their respective Roles and Responsibilities, including to ensure that there is a common evidence basis for the provision of integrated services and interdependent functions*. Section 7.1 sets out data sharing requirements. The Roles and Responsibilities Agreement Schedule 1 is updated from time to time with V1.2. being the latest and includes a Services Schedule – ICT and Data Services.

We were provided with copies of all these MOUs and agreements.

These Data Sharing Agreements are designed to provide criteria for safely sharing public water licence and approval data and sensitive metering compliance and customer data. Data is mainly provided by WaterNSW on a self-service basis via business applications. WaterNSW provides an appropriate level of user support, systems training and responses to continuous improvement requests in line with its JAICT Commitment Statement.



We were advised that no cure plans were required during the audit period.

Water NSW highlighted the improvements in data sharing that had evolved in recent years. Many of the services are now self-service as listed below:

- Water Licensing System (WLS)
- Water Accounting System (WAS)
- Data Acquisition Service (EagleiO DAS)
- Water Accounting/Licensing (database)
- Duly Qualified Person (DQP) Portal
- DQP Portal stored files (SharePoint) such as photos, validation and calibration reports, commissioning reports, and rating tables
- Reports (PowerBI or equivalent)
- Customer Portal and Water Market System
- Data and Analytics Platform (Azure Data Lake)
- API Developer Portal
- Microsoft SharePoint team sites (various).

WaterNSW and DPE (also NRAR) representatives meet on a monthly basis. We were provided with copies of the minutes of the meetings of the Water Data Coordination Group from 30 October 2021 to 31 August 2023 (D2023/097711). These minutes cover a range of data related issues, including MOUs and DSAs, that are of combined interest to WaterNSW, DPE and NRAR.

The Joint Agency ICT Steering Committee (JAICT) which is chaired by DPE meets monthly dealing with a wide range of ICT initiatives and issues such as a technology roadmap and systemic data problems. We were provided with a copy of the 27 June 2023 minutes (D2023 147673) and the July minutes (D2023 14767), as well as the JAICT Commitment Statement (D2023/147974).

We were provided with the Data Provision Statistics for the audit period which showed that a total of 1,875 tickets were submitted. Of this total, 15 tickets were submitted by NRAR with none being open at the end of the period. 170 tickets were submitted by DPE with 9 being open at the end of the period.

As requested, WaterNSW provided information on the workflow and timeline for the following data requests from DPE to enable us to track the process and understand some of the issues and challenges in processing requests:

- RITM042269 DPE Request for data model for water licensing and water accounting. This request was raised on 12 May 2023 and closed on 15 June 2023.
- RITM0456172 Consolidated Spatial View 21/22 Usage data. This request was raised on 21 February 2023 and closed on 15 May 2023.

DPE in its stakeholder response provided the following feedback relevant to this clause:

*An MoU was agreed between the Department and WaterNSW regarding the sharing of data and information end of August 2020. WaterNSW has complied with the requirements of the MOU.*

*WaterNSW and the Department have collaborated and established a more robust process for reporting and resolving data access and data quality issues. A backlog of issues are yet to be resolved and analysis shows that constraints limit WaterNSW implementing improvements to address systemic data issues.*

## Recommendations

No recommendations were identified.


## Opportunities for improvement

No opportunities for improvement were identified.



## Clause 6.19.2

Table 3-39 Clause 6.19.2 compliance grade

Subclause	Requirement	Compliance grade
6.19.2	<p>Water NSW must:</p> <ul style="list-style-type: none"> <li>a. use its best endeavours to maintain a data sharing agreement with the NRAR (<b>Data Sharing Agreement with NRAR</b>);</li> <li>b. comply with: <ul style="list-style-type: none"> <li>i. the Data Sharing Agreement with NRAR maintained under clause 6.19.1(a); and</li> <li>ii. any cure plan that applies to Water NSW under that the Data Sharing Agreement with the NRAR.</li> </ul> </li> </ul>	<p>Compliant</p> 
<p><b>Risk</b></p> <p>Failure to comply with the Data Sharing Agreement will impact on NRAR's ability to undertake its regulatory function.</p>		<p><b>Target for full compliance</b></p> <p>WaterNSW has demonstrated that it made every effort to maintain the Data Sharing Agreement with NRAR during the audit period and complied with all cure plans generated during the audit period.</p>

### Summary of reasons for grade

Based on our discussions with WaterNSW representatives, evidence provided and stakeholder feedback we concluded that WaterNSW has demonstrated that it is applying its best endeavours to meeting the requirement to maintain a Data Sharing Agreement with NRAR. No cure plans were required during the audit period.

This clause is graded as Compliant.

### Discussion and notes

A number of MOUs and data sharing agreements and protocols have been developed between WaterNSW and NRAR since 2019. These include:

- MOU dated 24 January 2019 in relation to the provision of WaterNSW information and records to assist NRAR in its functions
- The "Data Sharing Agreement" that was entered into between WaterNSW and NRAR on 3 December 2020 in relation to the ongoing relationship for sharing data and information between WaterNSW and NRAR
- The Roles and Responsibilities Agreement between DPE, NRAR, WAMC and WaterNSW dated 30 June 2021. One of the purposes of the Agreement is *facilitating arrangements for the sharing of Data and assets that are required by each party to perform their respective Roles and Responsibilities, including to ensure that there is a common evidence basis for the provision of integrated services and interdependent functions*. Section 7.1 sets out data sharing requirements. The Roles and Responsibilities Agreement Schedule 1 is updated from time to time with V1.2. being the latest and includes a Services Schedule – ICT and Data Services.

WaterNSW acknowledged that even though significant improvements had been made there were still challenges to be addressed. The following were listed in the letter from WaterNSW to NRAR (unsigned) dated 3 August 2023 (D2023 58470) These included:

- Obligation of all parties to maintain security of data
- Data governance
- NRAR's evidentiary data requirements which require a higher level of quality than normally required by WaterNSW for its core business of delivering bulk water
- Ground truthing versus approvals data. We were advised that a proposal was due to go to the JAICT about improvements to non-urban metering data



- Amendments to the data sharing agreement to clarify responsibilities from each organisation.

These Data Sharing Agreements are designed to provide criteria for safely sharing public water licence and approval data and sensitive metering compliance and customer data. Data is mainly provided on a self-service basis via business applications. WaterNSW provides an appropriate level of user support, systems training and responses to continuous improvement requests in line with its JAICT Commitment Statement.

WaterNSW highlighted the improvements in data sharing that had evolved in recent years. Many of the services are now self-service as listed below:

- Water Licensing System (WLS)
- Water Accounting System (WAS)
- Data Acquisition Service (EagleiO DAS)
- Water Accounting/Licensing (database)
- Duly Qualified Person (DQP) Portal
- DQP Portal stored files (SharePoint) such as photos, validation and calibration reports, commissioning reports, and rating tables
- Reports (PowerBI or equivalent)
- Customer Portal and Water Market System
- Data and Analytics Platform (Azure Data Lake)
- API Developer Portal
- Microsoft SharePoint team sites (various).

WaterNSW, DPE and NRAR representatives meet on a monthly basis. We were provided with copies of the minutes of meetings of the Water Data Coordination Group from 30 October 2021 to 31 August 2023. These minutes cover a range of data related issues, including MOUs and DSAs, that are of combined interest to WaterNSW, DPE and NRAR.

The Joint Agency ICT Steering Committee (JAICT) which is chaired by DPE meets monthly dealing with a wide range of ICT initiatives and issues such as a technology roadmap and systemic data problems. We were provided with a copy of the 27 June 2023 minutes (D2023 147673) and the July minutes (D2023 14767) as well as the JAICT Commitment Statement (D2023/147974).

We were also provided with a copy of a letter from the Chair of the NRAR Board to the Chair of WaterNSW Board (D2023 98712) proposing to establish a Board Level sub-committee to oversight the Data Remediation Plan (discussed under clause 6.16.1).

WaterNSW is continuing to work with NRAR on varying the Data Sharing Agreement as outlined in the letter (unsigned) from WaterNSW to NRAR dated 3 August 2023 (D2023 58470).

As requested, WaterNSW provided information on the workflow and timeline for the following data requests to enable us to track the process and understand some of the issues and challenges in processing requests:

- RITM0474248 WSL Data Dump for Namoi Valley. This request was raised on 4 April 2023 and completed on 3 May 2023.
- INC0177717 WAS/WLS access urgent. This request was raised on 6 April 2023 and resolved on 14 April 2023.

The two sample cases illustrated several process deviations that lead to delays and rework, which included:

- The client emailing individuals and not using the agreed automated queues
- An Incident (not a Service Request) was raised to provide System Access
- Multiple follow-up emails were required to obtain System Access Forms and no manager being available to authorise access to sensitive applications
- Duplicate incidents raised for the same case.



**Recommendations**

No recommendations were identified.


**Opportunities for improvement**

No opportunities for improvement were identified.



## Clause 6.19.3

Table 3-40 Clause 6.19.3 compliance grade

Subclause	Requirement	Compliance grade
6.19.3	The Data Sharing Agreement with NRAR and Data Sharing Agreement with DPE ( <b>Data Sharing Agreements</b> ) are to record the terms and conditions on which Water NSW will provide access to the data and services relating to the NSW non-urban water metering framework to DPE and to the NRAR.	Compliant 
<b>Risk</b> Without explicit terms and conditions relating to access to data and services relating to the NSW non-urban metering framework it will be difficult for DPE and NRAR to benchmark the provision of data and services and to request corrective action.		<b>Target for full compliance</b> Existing Data Sharing Agreements include relevant terms and conditions.

### Summary of reasons for grade

From our review of the Data Sharing Agreements, we consider that the requirements of this clause have been met.

This clause is graded as Compliant.

### Discussion and notes

A Data Sharing Agreement was entered into between WaterNSW and NRAR on 3 December 2020. A copy of this Agreement (D2020/7064) was provided and reviewed. Schedule 1 of the Agreement states the following:

*The sharing of information described in this schedule will occur on each instance by one or more of the following means:*

- a. *Manual data request*
- b. *Routine recurring data requests – provided on a schedule (e.g. monthly)*
- c. *Manual access to dashboards and front ends – at any time (and ability to extract data) and/or*
- d. *Automated access for databases - ‘realtime’*

Approved purposes are listed as:

*To be used by NRAR for compliance with the Water Management Act and Regulations relevant to the Non-Urban Water Metering Framework, including for Licence Holder, Water Use and Works Approvals and DQP compliance to the Non-Urban Metering Framework, and including for compliance and intelligence purposes.*

Annexure A of the Agreement provides an information sharing schedule for metering datasets and lists the information, quality, frequency, format, etc.

A Data Sharing Agreement was entered into between WaterNSW and DPE on 30 June 2021. This document is similar in format and content to the NRAR Agreement. Schedule 1 covers a range of approval purposes in relation to the NSW Non-urban Metering Framework and the NSW Floodplain harvesting measurement policy. Annexure A is a similar format to the NRAR Agreement with the wording modified to be relevant to DPE requirements.

### Recommendations

No recommendations were identified.

### Opportunities for improvement


No opportunities for improvement were identified.





## Clause 6.19.4

Table 3-41 Clause 6.19.4 compliance grade

Subclause	Requirement	Compliance grade
6.19.4	<p>By 1 September 2023, Water NSW must use its best endeavours to agree with DPE and the NRAR amendments to the Data Sharing Agreements maintained under clause 6.19.1(a) and 6.19.2(a) to specify:</p> <ol style="list-style-type: none"> <li>standards and metrics for data accuracy, quality, continuity and timeliness of data provision;</li> <li>information technology and system access, where this is not already addressed under other arrangements between the parties;</li> <li>frequency of performance reviews of the Data Sharing Agreements; and</li> <li>terms for initiating review of, or amendment to, the Data Sharing Agreements.</li> </ol>	<p>Compliant</p> 
<p><b>Risk</b></p> <p>Failure to use best endeavours to reach agreement with DPE and NRAR on amendments to the Data Sharing Agreements will result in delays in gaining agreement on the proposed amendments</p>		<p><b>Target for full compliance</b></p> <p>WaterNSW has demonstrated that it has made sufficient efforts to have amendments to the agreements agreed by 1 September 2023</p>

### Summary of reasons for grade

Based on our review of the information provided we are satisfied that, during the audit period, WaterNSW has used its best endeavours to agree with DPE and NRAR amendments to the Data Sharing Agreements maintained under clause 6.19.1(a) and 6.19.2(a) by 1 September 2023.

This clause is graded as Compliant.

### Discussion and notes

As evidence we were provided with a copy of a document, DSA amendments with DPE and NRAR – Chronology of digital and legal involvement in H2 2022-23 (D2023/163290) which listed the actions undertaken during the audit period and beyond to demonstrate that WaterNSW had used its best endeavours to agree with DPE and the NRAR amendments to the Data Sharing Agreements. From this information we were able to relate the discussions at the relevant JAICT Water Data Coordination Group monthly meeting minutes (D2023/097911) to the DSA amendments.

Also included with the chronology were copies of the:

- Agenda for the NRAR and WaterNSW Data Day, 23 March 2023
- NRAR Information Management Plan dated February 2023
- NRAR Evidentiary Requirements Policy Statement dated 7 February 2023.

The chronology listed a range of activities and discussions (internal and with NRAR and DPE) that led to the issue of a draft of the amended DSA to NRAR (working draft v0.3) on 29 June 2023 to NRAR. A draft of the amended DSA was issued to DPE (working draft v0.3) on 6 July 2023. This was followed by further discussions between the parties and amendments to the initial drafts.

Copies of draft letters to NRAR (unsigned) (D2023/58470) and DPE (annotated draft) (D2023/58471), both dated 3 August 2023 and titled Letter of Agreement to Vary the Data Sharing Agreement (DSA), were provided as evidence. The chronology indicated that that these letters were finalised on 12 September 2023, following reviews by the three organisations.

NRAR, in its stakeholder feedback dated 26 July 2023, indicated that draft amendments to the DSA were on track to be agreed and finalised by 1 September 2023.

### Recommendations

No recommendations were identified.



### **Opportunities for improvement**

No opportunities for improvement were identified.

## 4 Previous recommendations

### 4.1 Recommendation 2022-01 (Clause 2.1.1)

Item	Detail
IPART's recommendation to the Minister	By 30 June 2023, WaterNSW should revise the Conduct Catchment to Customer (C2C) Risk Assessment Procedure to include the step-by-step process for undertaking a water quality risk assessment. This should include the risk assessment matrix and definitions, and the process for identifying hazards, hazardous events, consequence, and likelihood. It should also state what is an appropriate control and may state how these should be implemented (relates to Element 2 of the Australian Drinking Water Guidelines (ADWG)).
Progress on audit findings as reported by utility in April 2023	Ongoing. The Procedure has been revised to better describe the risk assessment/review process, which addresses the issues raised by the auditors. The revised draft is currently being reviewed by other subject matter experts within the business and is on track to be completed by the end of June 2023.
IPART guidance	New recommendation from the 2022 operational audit.
Audit finding	The <i>Conduct Catchment to Customer C2C Risk Assessment Procedure</i> (CD2021/92[v2]) has been revised and approved and meets the requirements of the recommendation. The new procedure was approved on 30 June 2023 (D2023/92967) and is pending upload to a new controlled document version.
Recommendation status	This recommendation is closed

### 4.2 Recommendation 2022-02 (Clause 2.1.2)

Item	Detail
IPART's recommendation to the Minister	By 30 June 2023, WaterNSW should revise the scope of the Water Quality Policy to clarify its application to the non-declared catchment areas. The coverage is dependent on the definition of the word "Supply" in each Licence. It should be clear to readers of the policy what the scope of its application is, without seeking clarification (relates to Element 1 of the ADWG).
Progress on audit findings as reported by utility in April 2023	Ongoing. Minor wording is required to amend the Policy. Draft wording is currently being developed and will be provided to the Board Committee for approval by end of June 2023.
IPART guidance	New recommendation from the 2022 operational audit.
Audit finding	The Water Quality Policy (CD2014/5[v7]) was revised and approved by the Board (27 June 2023). The scope of the policy has been updated to clarify that it applies to water taken under their water access licences and supplied as drinking water or bulk water with a final end use as drinking water. An ARK notes screenshot was provided that showed the date the requirement was met.
Recommendation status	This recommendation is closed

## 4.3 Recommendation 2022-03 (Clause 2.1.3)

Item	Detail
IPART's recommendation to the Minister	By 30 June 2023, WaterNSW should review its flow diagrams to ensure that all steps and processes from source to handover point, such as destratification systems, are included in the scheme flow diagrams (relates to Element 2 of the ADWG).
Progress on audit findings as reported by utility in April 2023	Ongoing. Destratification systems have been added to existing schematics where relevant. The How to Guide – Supply Schematics (D2021/103279) is currently under review to ensure the steps and processes are included in schematics. This is on track to be completed by the end of June 2023. A project has also commenced to build schematic diagrams using Holocentric functionality to improve access to staff via Modelpedia.
IPART guidance	New recommendation from the 2022 operational audit.
Audit finding	WaterNSW updated the schematic diagrams and received approval prior to 30 June 2023. Once all diagrams were approved it was requested that the diagrams were moved into the online WQMS (D2023/55675). WaterNSW communicated the updated flow diagrams to stakeholders advising of their availability in the WQMS (D2023/68240). A new how-to-guide was written for creating schematics directly in the online WQMS (D2023/52131).
Recommendation status	This recommendation is closed

# Appendix A Evidence sighted

## Clause 2.1 – Water quality management system

- 2.1 - D202178516 - Blue Mountains Supply Schematic.PDF
- 2.1 - D2022173651 - Face to Face meeting - WaterNSW Wingecarribee Shire Council Goulburn Mulwarree Shire Council Operations interface Meeting.MSG
- 2.1 - D2023 116656 - TRP-059 - Fish River Report on 2nd Full-Scale Yard Trial for Water NSW.PDF
- 2.1 - D2023 12054 - Item 1.1 Water Quality Management System Update 13 February 2023.PPTX
- 2.1 - D2023 121738 - IPART Evidence 2.1 Point 100 - WM CCP and OCP site.PDF
- 2.1 - D2023 122543 - Operating Licence WQMS Audit response for evidence 24Oct2023.DOCX
- 2.1 - D2023 33999 - WaterNSW LCC NOCTSO - LCC to back feed FRWS Stage1 to facilitate CIP Clean on 26th April.DOCX
- 2.1 - D2023117902 - Email RE Sampling point location HWI1 confirmation for Wingecarribee schematic.MSG
- 2.1 - D2023117902 - Email RE Sampling point location HWI1 confirmation for Wingecarribee schematic.PDF
- 2.1 - E4 - CD2021136 - Operations and Maintenance Manual - Broughton Pass Weir.PDF
- 2.1 - E4 - CD202192[v2] - Conduct Catchment-to-Customer (C2C) Risk Assessment.DOCX
- 2.1 - E4 - Contract Management and Supplier Performance Management Framework.DOCX
- 2.1 - E4 - D201930124 - C2C Risk Review Process - OBSOLETE refer to MODELPEA.DOCX
- 2.1 - E4 - D202378727 - Email from Selma including Monthly Prospect supply risk assessment..MSG
- 2.1 CD2011 179[V7] Water Monitoring Program.DOCX
- 2.1 CD2019 227 Asset Class Strategy - Upper Canal.DOCX
- 2.1 CD202 063 Risk Management Procedure.DOCX
- 2.1 CD2020 62[v2] Risk Management Policy.DOCX
- 2.1 D2014 69211 Raw Water Supply Agreement - SCCSCA - July 2014.EML
- 2.1 D2019 27969 Induction - Declared Catchments.PPTX
- 2.1 D2020 45494 Warragamba Pipeline Maintenance Work Packages Scope & Specification.DOCX
- 2.1 D2021 110919 Waragamba Geosmin Incident Monitoring Oct 2021.DOCX
- 2.1 D2021 130651 Burratorang Bacterial Genetic Monitoring Dec 2021.DOCX
- 2.1 D202152068 Fish River Supply and Duckmaloi Water Filtration Plant Schematic.PDF
- 2.1 D2022 157334 Post Health check 2022 changes CP11 and CCP name plate.MSG
- 2.1 D2022 175246 FW WSC Risk Register - updated draft following comments from Graeme Mellor and responses from AB (20 Dec 2022).MSG
- 2.1 D2022 80037 2022-2023-Fish River-Raw-Water Supply Agreement-Minor-Consumer-FA-010822 .DOCX
- 2.1 D2023 102609 Debrief document Rain Blast July Rainfall 2022.DOCX
- 2.1 D2023 102613 FRWS Lead Monitoring.XLSX
- 2.1 D2023 102687 Screenshot Yammer water quality awareness WQMS link 3 May 2023.JPG



- 2.1 D2023 102688 Screenshot CEO Blog Staff communications May 2023.JPG
- 2.1 D2023 102689 Screenshot National Science Week 2022 Year of Glass staff communication.JPG
- 2.1 D2023 102690 2023 Q1 JOG 3.3 Update of actions from incidents and exercises.DOCX
- 2.1 D2023 102690 Fish River Supply Schematic.PDF
- 2.1 D2023 102692 Screenshot WQIP taste and odour action completed Aug2023.JPG
- 2.1 D2023 102693 2023 Q1 SLG item 5.3 Medium Term Water Quality Risk Update.PPTX
- 2.1 D2023 102726 RE Water supply system schematic diagrams - final review and approval - ID of critical valves.MSG
- 2.1 D2023 102818 POTPER-25NSFC Product Specification Feb 2023.PDF
- 2.1 D2023 102824 Jar Testing Investigation into Oxidation of Naturally Occurring Manganese.PDF
- 2.1 D2023 103487 Board Meeting - 26 August 2023 - Risk Appetite Workshop - Item 4.1x.pdf with selected Att.PDF
- 2.1 D2023 107765 Upper Canal Draft Operations and Maintenance Manual.PDF
- 2.1 D2023 107806 SCADA turbidity trend evidence.PNG
- 2.1 D2023 107813 Email showing photo of locked browns valve.MSG
- 2.1 D2023 107855 RFI operating licence audit WQMS 18 October 2023.XLSX
- 2.1 D2023 107873 Lead ingot supplier receipt audit evidence.PDF
- 2.1 D2023 108152 A175 - Environmental Impact Checklist- 2022-09-21.PDF
- 2.1 D2023 108155 DBC SWMS - J001056 Pheasants Nest Stoney Gate Destructive Removal - 23.03.2023.PDF
- 2.1 D2023 3036 WaterNSW briefing with SWC and NSW Health 19-01-23.DOCX
- 2.1 D2023 32730 WSC C2C Risk Register.MSG
- 2.1 D2023 4591 D2023 3036 WaterNSW briefing with SWC and NSW Health 25-01-23.DOCX
- 2.1 D2023 49117 COPY OF Board Committee S&SD Meeting 14 June 2023 - Water Quality Awareness Training - Item 7.3.DOCM
- 2.1 D2023 50133 Duckmaloi WFP Supply Schematic.PDF
- 2.1 D2023 50136 Fish River Supply Schematic.PDF
- 2.1 D2023 57018 Operational use of chlorophyll a sensors in Lake Burragarang.DOCX
- 2.1 D2023 57261 Cryptosporidium Catchment Assessment 30 June 2023.MSG
- 2.1 D2023 66066 Minor change in CD2011\_179 August 2023.MSG
- 2.1 D2023 73820 WaterNSW SCC 4 monthly meeting Minutes - 31 July 2023.DOCX
- 2.1 D2023 7388 Board Committee on Sustainability and Service Delivery 15 March 2023 - Quarterly Water Quality Performance and trend analysis.DOCX
- 2.1 D2023 80119 ALS Invoice completion of Junction VPS upgrade.PDF
- 2.1 D2023 80120 ALS Invoice completion of Steves Head VPS upgrade.PDF
- 2.1 D2023 80121 ALS quote VPS upgrades scope.PDF
- 2.1 D2023 83739 FW\_ FOSROC - Lake Medlow Trunnion- Additional information.MSG
- 2.1.2 - E1 - CD2013 26(v3) Legal and Other Requirements Register.XLSX
- 2.1.2 - E1 - CD2014 5[v7] Water Quality Policy.DOCX
  - 2.1.2 - E1 - CD2019 123[v2] Controlled Documents Framework.DOCX



- 2.1.2 - E1 - CD2019 153 Manage Controlled Document Review - Procedure.DOCX
- 2.1.2 - E1 - CD2019 154 Request New or Updated Controlled Document Procedure.DOCX
- 2.1.2 - E1 - CD2019 155[v2] Develop New or Review Existing Controlled Document Procedure.DOCX
- 2.1.2 - E1 - CD2019 156[v2] Make Controlled Document Obsolete Procedure.DOCX
- 2.1.2 - E1 - CD2021 121[v1] Compliance Management Procedure.DOCX
- 2.1.2 - E1 - D2013 94543 WaterNSW Water Quality Contact List.DOCX
- 2.1.2 - E1 - D2022 112840 Fish River Water Supply Operations Forum Minutes 22 Sept 2022.DOCX
- 2.1.2 - E1 - D2022 122309 Fish River Water Supply Operations Forum Minutes 18 October 2022.DOCX
- 2.1.2 - E1 - D2022 161113 FR JOG Meeting Minutes 21 November 2022.DOCX
- 2.1.2 - E1 - D2023 092944 Compliance Management Implementation Plan FY23.DOCX
- 2.1.2 - E1 - D2023 092945 Example of Community of Practice WSAA Risk Manager CoP Meeting – April 2023.PPTX
- 2.1.2 - E1 - D2023 092958 Board Committee on Audit and Risk – 29 May 2023 – Quarterly Compliance and BCM Update Item 4.1.DOCX
- 2.1.2 - E1 - D2023 11006 FR JOG Meeting Minutes 8 February 2023.DOCX
- 2.1.2 - E1 - D2023 11932 Fish River Water Supply Operations Forum Minutes 21 February 2023.DOCX
- 2.1.2 - E1 - D2023 33404 Fish River Water Supply Operations Forum Minutes 18 April 2023.DOCX
- 2.1.2 - E1 - D2023 41685 FR JOG Meeting Minutes 24 May 2023.DOCX
- 2.1.2 - E1 - D2023 42323 Water Quality Awareness eLearning module update June 2023.PPTX
- 2.1.2 - E1 - D2023 48977 COPY OF Board Committee on Sustainability and Service Delivery - 14 June 2023 - Water Quality Policy Review - Item 3.4.DOCM
- 2.1.2 - E1 - D2023 48979 COPY OF Board Committee on Sustainability and Service Delivery - 14 June 2023 - Water Quality Policy Review - Item 3.4 ATT 1.DOCX
- 2.1.2 - E1 - D2023 48981 COPY OF Board Committee on Sustainability and Service Delivery - 14 June 2023 - Water Quality Policy Review - Item 3.4 ATT 2.DOCX
- 2.1.2 - E1 - D2023 49117 COPY OF Board Committee S&SD Meeting 14 June 2023 - Water Quality Awareness Training - Item 7.3.DOCM
- 2.1.2 - E1 - D2023 56391 Board approval RE\_ Approval of Water Quality Policy.MSG
- 2.1.2 - E1 - D2023 74558 Email sent\_WaterNSW water quality contact list - February 2023.MSG
- 2.1.2 - E1 - D2023 78516 Example L&D email\_ Operations\_ Monthly Online Learning completion reporting June 2023.MSG
- 2.1.2 - E1 - D2023 78521 Screenshot February 2023 and August 2022 review contact list ARK notes.JPG
- 2.1.2 - E1 - D2023 85764 Example of Review of Legal Register& Other Requirements for S&P.XLSX
- 2.1.2 - E1 - D2023 85769 Example portfolio review process for leg reg for FLR.PPTX
- 2.1.2 - E1 - D2023 89521 Board Committee on Audit and Risk - 23 November 2022 - Quarterly Compliance Update - Item 4.1.DOCX
- 2.1.2 - E1 - D2023 89527 Board Committee on Audit and Risk - 15 February 2023 - Quarterly Compliance Update - Item 4.1.DOCX
- 2.1.2 - E1 - D2023 89590 RE Legislative Register - Legal Review April 2023.MSG
- 2.1.2 - E1 - IM2023 1202 Photo evidence\_WQ policy at Wallerawang office update 2023.JPEG



- 2.1.2 - E10 - D2023 2179 Catchment Cryptosporidium Assessment 16 January 2023.MSG
- 2.1.2 - E10 - D2023 31472 Cryptosporidium Catchment Assessment 6 April 2023.MSG
- 2.1.2 - E10 - D2023 32776 Cryptosporidium Catchment Assessment 14 April 2023.MSG
- 2.1.2 - E10 - D2023 34128 Cryptosporidium Catchment Assessment 21 April 2023.MSG
- 2.1.2 - E10 - D2023 35390 Cryptosporidium Catchment Assessment 28 April 2023.MSG
- 2.1.2 - E10 - D2023 3617 Cryptosporidium Catchment Assessment 20 January 2023.MSG
- 2.1.2 - E10 - D2023 4822 Cryptosporidium Catchment Assessment 27 January 2023.MSG
- 2.1.2 - E10 - D2023 48982 COPY OF Board Committee on Sustainability and Service Delivery - 14 June 2023 - Water Quality Performance and ~ Item 6.2.DOC
- 2.1.2 - E10 - D2023 54047 All-in-One Business Case\_Water Quality Analytics.DOCX
- 2.1.2 - E10 - D2023 6185 Full Paper - Climatic Influences on Warragamba Water Quality.DOCX
- 2.1.2 - E10 - D2023 729 Catchment Cryptosporidium Assessment 9 January 2023.MSG
- 2.1.2 - E11 - D2022 111060[v2] Annual Water Quality Monitoring Report 2022.PDF
- 2.1.2 - E11 - D2022 152687 Fish River Good Practice Health Check October 2022.DOCX
- 2.1.2 - E11 - D2022 168384 Health check - Warragamba Dam outlet and screen change - December 2022.XLSX
- 2.1.2 - E11 - D2022 175239 Reporting as per Operating Licence Reporting Manual Health Check Dec 2022.XLSX
- 2.1.2 - E11 - D2023 30610 Materials & chemicals in contact with water - Audit tool - April 2023.XLSX
- 2.1.2 - E11 - D2023 36509 WQMS Accountability Framework.XLSX
- 2.1.2 - E11 - D2023 48976 COPY OF Board Committee S&SD 14 June 2023 - Annual System Health Check Report Water Quality ~ Item 7.2.docx.DOCM
- 2.1.2 - E2 - CD2012 130[v7] Water Quality Data Review and Reporting Procedure.DOCX
- 2.1.2 - E2 - CD2021 92[v2] Conduct Catchment-to-Customer (C2C) Risk Assessment.DOCX
- 2.1.2 - E2 - D2019 140471 Water Supply Agreement Thresholds.XLSX
- 2.1.2 - E2 - D2019 53719 Water Quality Improvement Plan.XLSX
- 2.1.2 - E2 - D2022 116894 C2C Risk Review Process - final.DOCX
- 2.1.2 - E2 - D2022 157099 Q3 SLG Item 4.1 C2C Annual report.DOCX
- 2.1.2 - E2 - D2022 167080 WaterNSW SCC 4 monthly meeting Minutes - 8 December 2022.DOCX
- 2.1.2 - E2 - D2023 40068 Quarterly Water Quality Performance Dashboard Report - February to April 2023 - Board meeting.DOCX
- 2.1.2 - E2 - D2023 50133 Duckmaloi WFP Supply Schematic.PDF
- 2.1.2 - E2 - D2023 50136 Fish River Supply Schematic.PDF
- 2.1.2 - E2 - D2023 58286 Winge GMC Catchment to Customer Risk Review notes 29 Nov2022.DOCX
- 2.1.2 - E2 - D2023 62078 WSC GMC Nov 2022 Risk Review Outcomes.DOCX
- 2.1.2 - E2 - D2023 66841 Water Quality Teams Qualifications and Experience Register 2023.XLSX
- 2.1.2 - E2 - D2023 73033 C2C Risk Register (30 June 2023).XLSX
- 2.1.2 - E2 - D2023 78129 C2C Issues Register (snapshot as at 30 Jun 2023).XLSX
- 2.1.2 - E2 - D2023 78140 Fish River Risk Register (30 June 2023).XLSX
- 2.1.2 - E2 - D2023 78140 Fish River Risk Register (snapshot as at 30 June 2023).XLSX





- 2.1.2 - E2 - D2023 78666 Minutes C2C W G 24 held Oct 2022.DOCX
- 2.1.2 - E2 - D2023 78667 Minutes C2C W G 24 held Nov 2022.DOCX
- 2.1.2 - E2 - D2023 78694 Dual Pipelines outage Actions review.MSG
- 2.1.2 - E2 - D2023 78727 Email from Selma including Monthly Prospect supply risk assessment.MSG
- 2.1.2 - E3 - CD2021 127 Critical Control Points - CCP - Fish River Water Supply System.DOCX
- 2.1.2 - E3 - D2016 67172 SCADA & Automation Configuration & Change Management.DOC
- 2.1.2 - E3 - D2022 51483[v2] Annual Catchment Management Report 2022.PDF
- 2.1.2 - E3 - D2022 54484 Letter from WNSW to NPWS re SASPoM Review.DOCX
- 2.1.2 - E3 - D2022 60350 Source Water Protection Strategy 2040\_For printing A4.PDF
- 2.1.2 - E3 - D2023 21954 WaterNSW - Sydney Water - NSW Health Operations Meeting Minutes 23-03-23.DOCX
- 2.1.2 - E3 - D2023 30992 WNSW SWC NSW Health minutes 30 3 23 - continued discussions around moving outlet.DOCX
- 2.1.2 - E3 - D2023 31428 WNSW SWC NSW Health ~ continued discussions around moving outlet. SWC advised they will inform decision the next week.DOCX
- 2.1.2 - E3 - D2023 32392 WNSW SWC NSWH minutes 13 4 - concerns around chemical availability.DOCX
- 2.1.2 - E3 - D2023 33884 WNSW SWC NSWH minutes 20 4 - WNSW recommends drawing from deepest outlet.DOCX
- 2.1.2 - E3 - D2023 36715 WNSW SWC NSWH minutes 27 4 Further recommendation to move to lower outlets.DOCX
- 2.1.2 - E3 - D2023 40138 WaterNSW LCC NOCTSO - LCC to back feed FRWS Stage1 due to elevated Manganese during 22nd May-18th June.DOCX
- 2.1.2 - E3 - D2023 43501 Draft Catchment Protection Work Program 2024.PDF
- 2.1.2 - E3 - D2023 43508 Documentation of considerations in preparation of CPWP 2024.DOCX
- 2.1.2 - E3 - D2023 48982 COPY OF Board Committee on Sustainability and Service Delivery - 14 June 2023 - Water Quality Performance and Trend ~ Item 6.2.DOC
- 2.1.2 - E3 - D2023 64584 Lake Cordeaux Water Quality Report July 2023 .PDF
- 2.1.2 - E3 - D2023 68041 2023 Annual Catchment Management Report - Draft.DOCX
- 2.1.2 - E3 - D2023 71215 Drinking Water Catchment Audit 2022 Main Report v5 (2).PDF
- 2.1.2 - E3 - D2023 73887 Response pending following ESG meeting of 16 08 2023 .MSG
- 2.1.2 - E3 - D2023 74442 Email communications with the NSW Health PHU.MSG
- 2.1.2 - E3 - D2023 78215 Lake Burragorang Update 14\_4\_23 - recommending a change in screen position.MSG
- 2.1.2 - E3 - D2023 78216 Lake Burragorang Update 6\_4\_23 - recommending a move to a position deeper in the water column.MSG
- 2.1.2 - E3 - D2023 79568 Fish River Trihalomethane Management Trials - January 2023.DOCX
- 2.1.2 - E3 - D2023 80009 RITM0404775RE\_ CCP SCADA Alarms - Warra Pipeline.MSG
- 2.1.2 - E3 - D2023 80011 Copy of CCP Alarm Change Request - RITM0404775.PDF
- 2.1.2 - E3 - D2023 80021 RITM0402324 - RE\_ Critical Alarm - Prospect RWPS Spike.MSG
- 2.1.2 - E3 - D2023 80023 Copy of CCP Alarm Change - RITM0402324.PDF



- 2.1.2 - E3 - D2023 80026 RITM0415186 - RE\_CCP\_alarm limits for PRWPS.MSG
- 2.1.2 - E3 - D2023 80028 Copy of CCP Alarm Change - RITM0415186.PDF
- 2.1.2 - E3 - D2023 80032 SCADA Critical Control Points in Valve House - Warragamba Pipelines.MSG
- 2.1.2 - E3 - D2023 89843 Screenshot from Water Quality Improvement Plan actions\_audit evidence 2023.DOCX
- 2.1.2 - E3 - D2023 89856 Fluoridation at Duckmaloi - water quality improvement plan actions.MSG
- 2.1.2 - E3 - D2023 89858 WQIP actions D2022\_152687 \_ Fish River Good Practice Health Check October 2022.MSG
- 2.1.2 - E3 - D2023 89859 RE\_USER Story - 85676 Realign the depth relative to screen stop board number positions.MSG
- 2.1.2 - E3 - D2023 89860 RE\_User Story 77943 - Dashboard for Reportable Incidents to Health.MSG
- 2.1.2 - E3 - D2023 89872 [EXTERNAL] RE [External] D202349294 NOCTSO Warragamba - Open Outlet#3- Supply blend of Outlet#2&3- 31st May ~ SW response.MSG
- 2.1.2 - E3 - D2023 92966 Wingecarribee Algal Update 251122.MSG
- 2.1.2 - E4 - CD2002 13[v3] O&M manual for the Kangaroo Pipeline Control Structure.PDF
- 2.1.2 - E4 - CD2004 183 WaterNSW Water Quality Incident Response Protocol.DOCX
- 2.1.2 - E4 - CD2007 2[v3] Raw Water Supply Protocols – Sydney Water.PDF
- 2.1.2 - E4 - CD2015 331[v3] Asset Criticality Assessment Procedure.DOCX
- 2.1.2 - E4 - CD2015 38[v3] Hypochlorite Purchasing Procedure for Private Water Supply Chlorination Facilities.DOCX
- 2.1.2 - E4 - CD2019 36[v4] Materials and Chemicals in contact with Drinking Water Supplies Procedure.DOC
- 2.1.2 - E4 - CD2021 119[v2] Update Operations and Maintenance Manuals Process.DOCX
- 2.1.2 - E4 - CD2021 127[v2] Critical Control Points - CCP - Fish River Water Supply System.DOCX
- 2.1.2 - E4 - CD2021 128[v2] Critical Control Points - CCP – Sydney Water Water Filtration Plants.DOCX
- 2.1.2 - E4 - D2013 101721 Raw Water Supply Agreement – Sydney Water.PDF
- 2.1.2 - E4 - D2018 27584 Operation and Maintenance Manual (Final) - Upper Canal Control Gates.PDF
- 2.1.2 - E4 - D2022 122207 W0000840 - Hydraulic Piezometer Flushing - Procurement Plan.DOCX
- 2.1.2 - E4 - D2023 11830 Fish River C2C Issues Register.XLSX
- 2.1.2 - E4 - D2023 28204 Warragamba Pipeline Valves & Controls Upgrade FBC.JPEG
- 2.1.2 - E4 - D2023 71874 NOCTSO Warra PL 1 outage valve configuration\_SWC response .MSG
- 2.1.2 - E4 - D2023 71878 NOCTSO Warra PL 1 return to service\_SWC response .MSG
- 2.1.2 - E4 - D2023 79370 Purchase of Aluminium Chlorohydrate Solution for Coagulation Trial.MSG
- 2.1.2 - E4 - D2023 79372 RE Purchase of Aluminium Chlorohydrate Solution for Coagulation Trial.MSG
- 2.1.2 - E4 - D2023 79581 ACR RITM0462194.PDF
- 2.1.2 - E4 - D2023 79583 Fish River Network Sampling Results – December 2022.XLSX
- 2.1.2 - E4 - D2023 79585 Turbidity Meter-TU5X00 Process Report-2104232.PDF
- 2.1.2 - E4 - D2023 79587 Turbidity Meter-WO-01313943-Ultraturb Report-1552248.PDF
- 2.1.2 - E4 - D2023 79588 Turbidity Meter-WO-01313943-Ultraturb Report-1552267.PDF
- 2.1.2 - E4 - D2023 79589 Fish River Network Sampling Results - April 2023.XLSX



- 2.1.2 - E4 - D2023 79657 Warragamba Guide WC 10-07-2023.PDF
- 2.1.2 - E4 - D2023 79658 Warragamba Guide WC 17-07-2023.PDF
- 2.1.2 - E4 - D2023 79659 Warragamba Guide WC 24-07-2023.PDF
- 2.1.2 - E4 - D2023 79664 IPART Audit - Quality Management System September 2023\_EAMS.DOCX
- 2.1.2 - E4 - D2023 79671 August 2023 Broughton Pass Hach Turbidity Instrument Calibration Report.PDF
- 2.1.2 - E4 - D2023 79672 August 2023 Upper Canal Hach Turbidity Instrument Calibration Report.PDF
- 2.1.2 - E4 - D2023 80113 ALS\_EXO Calibration Record 2023\_EC.XLSX
- 2.1.2 - E4 - D2023 80114 ALS\_EXO Calibration Record 2023\_DO.XLSX
- 2.1.2 - E4 - D2023 80115 ALS\_EXO Calibration Record 2023\_pH.XLSX
- 2.1.2 - E4 - D2023 80116 ALS\_EXO Calibration Record 2023\_Turbidity.XLSX
- 2.1.2 - E4 - D2023 80119 ALS Invoice completion of Junction VPS upgrade.PDF
- 2.1.2 - E4 - D2023 80120 ALS Invoice completion of Steves Head VPS upgrade.PDF
- 2.1.2 - E4 - D2023 80121 ALS quote VPS upgrades scope.PDF
- 2.1.2 - E4 - D2023 80123 WNSW Menangle\_EXO Calibration File Export\_EC.XLSX
- 2.1.2 - E4 - D2023 80124 WNSW Menangle\_EXO Calibration File Export\_DO.XLSX
- 2.1.2 - E4 - D2023 80125 WNSW Menangle\_EXO Calibration File Export\_pH.XLSX
- 2.1.2 - E4 - D2023 80126 WNSW Menangle\_EXO Calibration File Export\_Turbidity.XLSX
- 2.1.2 - E4 - D2023 80231 Dual PL Outage Risk assessment and Actions .PDF
- 2.1.2 - E4 - D2023 80293 Dual PL Outage Actions Review .MSG
- 2.1.2 - E4 - D2023 80294 Dual PL Outage Actions Review 290623 .MSG
- 2.1.2 - E4 - D2023 80297 Joint Operational RA channel 2 issues .MSG
- 2.1.2 - E4 - D2023 83739 FW\_ FOSROC - Lake Medlow Trunnion- Additional information.MSG
- 2.1.2 - E4 - D2023 83743 Material Safety Data Sheet (MSDS) - Lead.PDF
- 2.1.2 - E4 - D2023 92898 Screenshot risk questionnaire in procurement portal - audit evidence 2022-23.JPG
- 2.1.2 - E5 - CD2007 13[V6] Complaints and compliments handling procedure.DOC
- 2.1.2 - E5 - D2016 133508 Customer Strategy.PPTX
- 2.1.2 - E5 - D2020 99743 Protocol WNSW LCC for comms and investigation of drinking water complaints of Fish River supply zones in the Lithgow LGA.DOCX
- 2.1.2 - E5 - D2022 100623 FR JOG Minutes 17 August 2022 .DOCX
- 2.1.2 - E5 - D2022 161113 FR JOG Minutes 21 November 2022.DOCX
- 2.1.2 - E5 - D2022 162771 November 2022 Minutes.DOCX
- 2.1.2 - E5 - D2022 174518 Lake Oberon and Duckmaloi Weir Water Quality Report - December 2022.DOCX
- 2.1.2 - E5 - D2022 174624 Blue Mountains Water Quality Report December 2022.PDF
- 2.1.2 - E5 - D2023 11006 FR JOG Minutes 8 February 2023.DOCX
- 2.1.2 - E5 - D2023 11932 February 2023 Minutes.DOCX
- 2.1.2 - E5 - D2023 18990 Lake Oberon and Duckmaloi Weir Water Quality Report - February 2023.DOCX



- 2.1.2 - E5 - D2023 21614 Blue Mountains Water Quality Report March 2023.DOCX
- 2.1.2 - E5 - D2023 32450 Lake Oberon and Duckmaloi Weir Water Quality Report -March.DOCX
- 2.1.2 - E5 - D2023 43684 FR JOG Minutes 24 May 2023.PDF
- 2.1.2 - E5 - D2023 51076 Blue Mountains Water Quality Report June 2023.PDF
- 2.1.2 - E5 - D2023 58421 Lake Oberon and Duckmaloi Weir Water Quality Report - June.DOCX
- 2.1.2 - E5 - D2023 7729 Blue Mountains Water Quality Report February 2023.PDF
- 2.1.2 - E5 - D2023 78785 Prospect Reservoir WQ report May 23.DOCX
- 2.1.2 - E5 - D2023 78788 Prospect Reservoir WQ report April 23.PDF
- 2.1.2 - E5 - D2023 78790 Prospect Acceptance Criteria 11 May 23.MSG
- 2.1.2 - E5 - D2023 78791 Prospect Acceptance Criteria 20 April 23.MSG
- 2.1.2 - E6 - CD2017 73[v3] Incident Investigation Form - Level 1 UNDER REVIEW.DOC
- 2.1.2 - E6 - CD2017 74[v2] Incident Investigation Form - Level 2 ICAM.DOC
- 2.1.2 - E6 - CD2019 136 RACS - Reporting an Incident - How to Guide.DOCX
- 2.1.2 - E6 - CD2021 83[v2] Fish river incident Management Plan.DOCX
- 2.1.2 - E6 - CD2022 72 Incident Management Procedure - 2022.DOCX
- 2.1.2 - E6 - CD2022 80 Incident Management - 2022 - Incident Debrief Report.DOCX
- 2.1.2 - E6 - D2016 39701 Contingency Plan Warragamba Rain V6.DOCX
- 2.1.2 - E6 - D2019 133673 Heavy Rain Upper Nepean and Woronora Response Plan.DOCX
- 2.1.2 - E6 - D2023 78473 WQDB extract for major exceedances 1SEP2022 to 30JUN2023\_Audit request.XLSX
- 2.1.2 - E6 - D2023 80170 Debrief document for RainBlast – July Rainfall.DOCX
- 2.1.2 - E6 - D2023 80189 Hot debrief document for Rain Burst March 2022.DOCX
- 2.1.2 - E6 - D2023 85776 Learning Attendance\_Control a level 1 incident\_2023\_09\_13.XLSX
- 2.1.2 - E6 - D2023 92908 EXTERNAL\_ Final Report from Exercise Wyuna.MSG
- 2.1.2 - E7 - D2018 77988 Water Quality Incident Response eLearning module.PPTX
- 2.1.2 - E7 - D2019 48488 Materials and Chemicals in contact with drinking water eLearning module.PPTX
- 2.1.2 - E7 - D2023 35849 WQ-Mandatory Training Report exported 1 May 2023.XLSX
- 2.1.2 - E7 - D2023 78516 Example L&D email\_ Operations\_ Monthly Online Learning completion reporting June 2023.MSG
- 2.1.2 - E8 - D2023 079992 Communication and engagement brief - WaterNSW.DOCX
- 2.1.2 - E8 - D2023 79976 2070\_001\_FRV notification letter\_1 March 2023\_signed.PDF
- 2.1.2 - E8 - D2023 79977 Fish River Newsletter August 2023 WEB.PDF
- 2.1.2 - E8 - D2023 79979 Fish River Valves Notification Letter Nov2022 Signed.PDF
- 2.1.2 - E8 - D2023 79980 FR Treated Water notification May23.PDF
- 2.1.2 - E8 - D2023 79981 FR Untreated Water notification May23.PDF
- 2.1.2 - E8 - D2023 79982 Potassium Permanganate Dosing Plant Notification letter 20230208\_FINAL.PDF
- 2.1.2 - E8 - D2023 79987 Kangaroo Valley - Roads Drainage and Bearing Project (CSEP).DOCX



- 2.1.2 - E9 - CD2015 591 Approval to Spend (ATS) Process Framework.DOCX
- 2.1.2 - E9 - CD2016 57 Asset Change Management Procedure (1).DOCX
- 2.1.2 - E9 - CD2016 57 Asset Change Management Procedure.DOCX
- 2.1.2 - E9 - CD2016 67 How to Guide – Assessing an Asset Change Request.DOCX
- 2.1.2 - E9 - CD2016 77[v4] Procurement Framework.DOCX
- 2.1.2 - E9 - D2021 76050 Catchment health Indicators Review- Final Report.DOCX
- 2.1.2 - E9 - D2022 151754 Board Committee on Water Quality, Health and Catchment Protection - 23 November 2022 - Annual Science Program ~ Item 3.2.PPTX
- 2.1.2 - E9 - D2022 151754 Title Board Committee on Water Quality, Health and Catchment Protection - 23 November 2022 - Annual Science ~ Item 3.2.PPTX
- 2.1.2 - E9 - D2023 20466 Ozwater Paper - Future Scenarios for Sydney s Drinking Water Catchments.DOCX
- 2.1.2 - E9 - D2023 54047 All-in-One Business Case\_Water Quality Analytics.DOCX
- 2.1.2 - E9 - D2023 57018 Operational use of chlorophyll a sensors in Lake Burragorang.DOCX
- 2.1.2 - E9 - D2023 66265 2023 06 Science Program Monthly report - EOFY position.PDF
- 2.1.2 - E9 - D2023 7806 Catchment Outlook Project - Urban Indicators - Impervious surfaces report.DOCX
- 2.1.2 - E9 - D2023 79568 Fish River Trihalomethane Management Trials - January 2023.DOCX
- 2.1.2 - E9 - D2023 79602 Work scope - Duckmaloi Weir WQ instrument.MSG
- 2.1.3 - E12 - D2019 53719 Water Quality Improvement Plan.XLSX
- 2.1.3 - E12 - D2019 64126 Review Water Quality Management System – How to Guide.DOCX
- 2.1.3 - E12 - D2022 157951 Quarterly Water Quality Dashboard August to October.DOCX
- 2.1.3 - E12 - D2023 40068 Quarterly Water Quality Performance Dashboard Report - February to April 2023 - Board meeting.DOCX
- 2.1.3 - E12 - D2023 48644 Water Quality Performance Dashboard - June 2023 meeting.DOCX
- 2.1.3 - E12 - D2023 48976 COPY OF Board Committee S&SD 14 June 2023 - Annual System Health Check Report Water Quality ~ Item 7.2.docx.DOCM
- 2.1.3 - E12 - D2023 48982 COPY OF Board Committee on Sustainability and Service Delivery - 14 June 2023 - Water Quality Performance and ~ Item 6.2.DOC
- 2.1.3 - E12 - D2023 49117 Quarterly Water Quality Performance Dashboard Report - February to April 2023 - Board meeting- Board Committee ~ Item 7.3.DOCM
- 2.1.3 - E12 - D2023 57756 Annual Report on the Water Quality Management System 2022-23.PDF
- 2022 - 1 - 2.1.1 - D2023 92967 D2023\_57265 \_ CD2021 92 Conduct Catchment-to-Customer (C2C) Risk Assessment.MSG
- 2022 - 2 - 2.1.2 - CD2014 5[v7] Water Quality Policy.DOCX
- 2022 - 2 - 2.1.2 - D2023 48977 COPY OF Board Committee on Sustainability and Service Delivery - 14 June 2023 - Water Quality Policy Review - Item 3.4.DOCM
- 2022 - 2 - 2.1.2 - D2023 48979 COPY OF Board Committee on Sustainability and Service Delivery - 14 June 2023 - Water Quality Policy ~ Item 3.4 ATT 1.DOCX
- 2022 - 2 - 2.1.2 - D2023 48981 COPY OF Board Committee on Sustainability and Service Delivery - 14 June 2023 - Water Quality Policy ~ Item 3.4 ATT 2.DOCX
- 2022 - 2 - 2.1.2 - D2023 56391 Board approval RE\_ Approval of Water Quality Policy.MSG



- 2022 - 3 - 2.1.3 - D2023 52131 How To Guide - Developing Water Supply System Schematics in Holocentric 2023.DOCX
- 2022 - 3 - 2.1.3 - D2023 55675 Revised flow diagrams to WQMS production.MSG
- 2022 - 3 - 2.1.3 - D2023 68240 RE WaterNSW Supply Schematics Review.MSG
- 2022 - 3 - 2.1.3 - D2023 92963 Screenshot approval for schematic Prospect 23 June 2023.JPG
- 2022 -1 - 2.1.1 - CD2021 92[v2] Conduct Catchment to Customer C2C Risk Assessment has been revised and approved (30 June 2023). Pending upload to new CD version.DOCX
- Annual Water Quality Monitoring Report 2019-20 Appendices.pdf
- Annual Water Quality Monitoring Report 2019-20.pdf
- Annual WQMS Report to IPART- 2020-21.PDF
- CD2011 179[v6] Water Monitoring Program Manual.docx
- CD2012 130[v6] Water Quality Data Review and Reporting Procedure.docx
- Clause 2.1 - E4 - D202366841- Incident and CCP tracker - Water Quality Services.XLSX
- Clause 2.1 - RFI operating licence audit WQMS 18 October 2023 Doc 2.tr5
- Clause 2.1 RFI operating licence audit WQMS 18 October 2023.XLSX
- Critical Control Points - CCP - Fish River Water Supply System.docx
- Critical Control Points - CCP - Raw Water supply to Sydney Water s Water Filtration Plants.docx
- D2023\_108151 NOCTSO - Extension of current Nepean Tunnel outage for Pheasants Nest Stoney Gate removal until Thursday 30th March.docx
- D2023\_108152 A175 - Environmental Impact Checklist- 2022-09-21.pdf
- D2023\_108154 ACPL - Gate House Methodology.pdf
- Sharepoint - 2022 - Annual Water Quality Management System report 1 September 2022 D2022 94114.PDF
- Sharepoint - 2022 - Blue Mountains Supply Schematic - D2021 78516.pdf
- Sharepoint - 2022 - C2C 5-Year Report 2021 D2021 98447.docx
- Sharepoint - 2022 - Critical Control Points - CCP - Fish River Water Supply System - CD2021 127.docx
- Sharepoint - 2022 - Fish River Catchment Land Use D2022 100026.docx
- Sharepoint - 2022 - Fish River Supply and Duckmaloi~ter Filtration Plant Schematic - D2021 52068.pdf
- Sharepoint - 2022 - Goulburn Mulwaree Supply Agreement September 2020 - D2021 22294.PDF
- Sharepoint - 2022 - Incident Management Procedure - CD2022 72.docx
- Sharepoint - 2022 - Joint Comms Protocols-v1 2019 D2019 26923.PDF
- Sharepoint - 2022 - Materials and Chemicals in contact with Drinking Water Supplies Procedure CD2019 36.doc
- Sharepoint - 2022 - NOCTSO TEMPLATE D2017 72042 .docx
- Sharepoint - 2022 - Oberon Council customer contract - DOC12 32669.PDF
- Sharepoint - 2022 - Operations and Maintenance Manual - Duckmaloi Water Treatment Plant WTP CD2021 107.docx
- Sharepoint - 2022 - Operations and Maintenance Manual - Oberon Dam CD2021 151.docx
- Sharepoint - 2022 - Raw Water Supply Agreement Protocol - Shoalhaven City Council - CD2013 17.PDF



- Sharepoint - 2022 - Raw Water Supply Protocols - Sydney Water Corporation and WaterNSW CD2007 2.PDF
- Sharepoint - 2022 - Rolling calendar SLG JOG 2022-2024 - D2022 17056.docx
- Sharepoint - 2022 - Shoalhaven Water Supply Schematic - D2021 78517 .pdf
- Sharepoint - 2022 - Sydney Water - Executed Raw Water Supply Agreement D2013 101721.PDF
- Sharepoint - 2022 - Upper Nepean Supply Schematic - D2021 78518 .pdf
- Sharepoint - 2022 - Warragamba to Prospect Supply Schematic - D2021 78515.pdf
- Sharepoint - 2022 - Water Monitoring Program CD2011 179.docx
- Sharepoint - 2022 - Water Quality Data Review and Reporting Procedure CD2012 130.docx
- Sharepoint - 2022 - Water Quality Incident Response Protocol CD2004 183 .docx
- Sharepoint - 2022 - Water Supply Agreement - Wingecarribee Shire Council Executed 2020 D2020 80599.PDF
- Sharepoint - 2022 - WaterNSW LCC NOCTSO Template D2017 84625 .docx
- Sharepoint - 2022 - WaterNSW Water Quality Contact List D2013 94543 .docx
- Sharepoint - 2022 - Woronora Supply Schematic - D2021 78521 .pdf
- Sharepoint - 2022 - WQMS Assurance Program D2017 87415.docx
- Sharepoint - 2023 - Blue Mountains Supply Schematic D2023 50132.pdf
- Sharepoint - 2023 - Duckmaloi WFP Supply Schematic D2023 50133.pdf
- Sharepoint - 2023 - Fish River Supply Schematic D2023 50136.pdf
- Sharepoint - 2023 - Operations and Maintenance Manual - Rydal Dam.docx
- Sharepoint - 2023 - Shoalhaven Supply Schematic D2023 50139.pdf
- Sharepoint - 2023 - Upper Nepean Supply Schematic D2023 50128.pdf
- Sharepoint - 2023 - Warragamba to Prospect Supply Schematic D2023 50130.pdf
- Sharepoint - 2023 - Water Quality Policy - CD2014 5[v7].docx
- Sharepoint - 2023 - WaterNSW Water Quality Contact List D2013 94543 Water Quality Contact List\_Feb 2023.docx
- Sharepoint - 2023 - Woronora Supply Schematic D2023 50131.pdf
- Water Quality Management System Annual Review and Continual Improvement cycle.docx
- WaterNSW Water Quality Contact List July 2021.docx

## Clause 2.4 – Catchment infrastructure works management

- 2.4.1 - D2023 74115 Master Schedule.XLSB
- 2.4.1 - D2023 93041 Major Outage Plan – MS Project.MPP
- 2.4.1 - D2023 93100 Greater Sydney Water Supply Operating Plan July 2023.DOCX
- 2.4.1 - D2023 93182 WaterNSW technical paper on enduring supply provided to Sydney Water.DOCX
- 2.4.1 - D2023 95729 Climate change impact assessment for Greater Sydney Water Supply System using NARCLiM 1.5 data (1).DOCX
- 2.4.1 - D2023 95729 Climate change impact assessment for Greater Sydney Water Supply System using NARCLiM 1.5 data.DOCX
- 2.4.1 - D2023 95743 IOC - Action update - LoS.JPG
- 2.4.1 - CD2015 436[v10] Strategic Asset Management Plan.DOCX
- 2.4.1 - D2022 61992 Orchard Hill Contingency configuration.MSG
- 2.4.1 - D2022 140119 2022 WaterNSW AMS RES Audit Report.PDF
- 2.4.1 - D2023 1914 ISO55001 2014 WaterNSW AMS Certificate 2023-2026.PDF
- 2.4.1 - D2023 31442 WNSW Major Outage Program Excel Gantt V10 # 060423.XLSM
- 2.4.1 - D2023 41622 DPE letter to WaterNSW.PDF
- IPART Evidence Point 16- 17 - PowerBI Report\_EAMS PMs.pdf
- Major Outage Plan – MS Project.MPP
- NOCTSO Warragamba Pipelines Orchard Hills Contingency July 2022.DOCX
- ### WNSW Major Outage Program Excel Gantt V10 ### 060423.XLSM
- Greater Sydney Water Supply Operating Plan October 2022.DOCX
- D2023 112305 DAY 2 - C2.4.1 - Catchment Infrastructure Works - Operational Audit 2023 Presentation.pptx



## Clause 2.5 – Calculating system yield

- 2.5.1 - D2023 1474 approved by Minister on 10 01 2023. .PDF
- 2.5.1 - D2023 93182 WaterNSW technical paper on enduring supply provided to Sydney Water.DOCX
- 2.5.1 - D2022 165325 Update of Greater Sydney Supply System yield- December 2022.DOCX
- 2.5.1 - D2022 120089 Procedure for reviewing model for Greater Sydney Supply system yield.DOC
- 2.5.2 - D2021 81686 Independent Review of Sydney water supply system model .DOCX
- 2.5.2 - D2023 1474 approved by Minister on 10 01 2023. .PDF
- Clause 2.5.2 - WaterNSW Board meeting - 27 January 2021 - Greater Sydney Supply Augmentation Planning - January Update [ Letter from Minister ~ Item 4.3 ATT1.PDF
- Clause 2.5.2 - D202366417 - MOU - Supply Planning Transfer - WaterNSW Counterpart - Executed - 29.01.21.PDF
- D2023 112313 DAY 3 - C2.5.1-2.5.2 - Calculating System Yield - Operational Audit 2023 Presentation.pptx

## Clause 2.8 – Water planning

- 2.8.4 - D2023 79396 GSWS Working Group Meeting Minutes (record of discussions on GSDRP actions tracking) 13 Mar '23.DOCX
- 2.8.4 - D2023 79505 Master GSWS IOC Action Tracker updated as at 28 June.DOCX
- 2.8.6 - D2023 15422 WaterNSW LTCOP (version submitted to the Minister).PDF
- 2.8.4 - D2021 124395 GSDRP (Dec 2021 version).PDF
- 2.8.4 - D2023 3712 GSDRP (Dec 2022 update) (1).PDF
- 2.8.4 - D2023 3712 GSDRP (Dec 2022 update).PDF
- 2.8.4 - D2023 3714 GSDRP Action Tracker (Dec 2022 update).MSG
- 2.8.4 - D2023 79288 GSWS MER Framework.PDF
- 2.8.6 - D2023 79458 Climate Change Paper provided to Sydney Water.PDF
- 2.8.6 - D2023 79495 Modelling Reports provided to Sydney Water.DOCX
- 2.8.6 - D2023 79496 Modelling Reports provided to Sydney Water.DOCX
- 2.8.6 - D2023 79498 Transfer of supply augmentation function from Sydney Water to WaterNSW.PDF
- 2.8.6 - D2023 79505 Master GSWS IOC Action Tracker updated as at 28 June.DOCX
- 2.8.6 - D2023 15422 WaterNSW LTCOP (version submitted to the Minister).PDF
- 2.8.6 - D2023 43337 WaterNSW LTCOP (version submitted to the Minister).MSG
- 2.8.6 - D2023 79288 GSWS MER Framework.PDF
- 2.8.8 - D2023 58471 Variation Letter - DPE Data Sharing Agreement .DOCX
- 2.8.8 - D2023 96366 EXTERNAL\_RE\_ Data Sharing Agreement and compliance with WaterNSW Operating Licence .MSG
- Agenda (13 February 2023) - GSWS Working Group.DOCX
- Clause 2.8.4.msg
- Greater Sydney Drought Monitoring Dashboard - June 2023.PDF
- GSDRP Action Tracking - Internal Progress Reports.XLSX
- GSDRP action tracking - June 2023.XLSX
- GSWS Working Group Meeting Minutes (record of discussions on GSDRP actions tracking) 13 Feb '23.DOCX
- GSWS Working Group Meeting Minutes (record of discussions on GSDRP actions tracking) 13 Mar '23.DOCX
- 130922 GSWS IOC Meeting 3 - Minutes(2).PDF
- 130922 GSWS IOC Meeting 3 - Minutes.PDF
- 230509 GSWS IOC Agenda meeting 8 (2).PDF
- 2.8.6 - D2023102850 - Joint Board Meeting - LTCOP - 26 April 2023.PDF
- IPART RFI cl2.8.8 GSWS MOU.docx
- Clause 2.8.9 - D2023116817 - IPART RFI cl2.8.8 GSWS MOU.DOCX
- D2023 112315 DAY 3 - C2.8.1,4,6,8,9 - Water Planning - Operational Audit 2023 Presentation.pptx

## Clause 3.1 – Construct, maintain and operate water management works

- 3.1.1 - CD2021 99 WNSW-WER-AS-002 Weirs Asset Class Strategy .DOCX
- 3.1.1 - CD2022 70 WNSW-CRN-AS-001 WNSW Cranes and Lifting Assets Asset Class Strategy .DOCX
- 3.1.1 - CD2022 72 Incident Management Procedure .DOCX
- 3.1.1 - D2017 58363 Asset Management System RACS Actions Register .XLSX
- 3.1.1 - D2022 140119 WaterNSW Asset Management System Recertification Audit Report – Nov 2022 .PDF
- 3.1.1 - DOC14 36047 Mollee Weir and Fishlock and Regulator Operations and Maintenance Manual .PDF
- 3.1.1 - CD2015 331[v3] Asset Criticality Assessment Procedure .DOCX
- 3.1.1 - CD2015 436[v10] Strategic Asset Management Plan. .DOCX
- 3.1.1 - CD2019 224 WNSW-FWY-AS-001 Fishway Asset Class Strategy .DOCX
- 3.1.1 - CD2020 51 WNSW-ROA-AS-001 Roads Asset Class Strategy .DOCX
- 3.1.1 - CD2020 110 WNSW-VLV-AS-002 - Valves (Isolation, Non-Return, Relief, In-Line Control) and Pressure Regulators Asset Class Strategy .DOCX
- 3.1.1 - CD2021 1 WNSW-GAT-AS-001 Gates, Stoplogs, Baulks and Bulkheads Asset Class Strategy .DOCX
- 3.1.1 - CD2021 78[v2] Operations and Maintenance Manual Keepit Dam .PDF
- Mollee Fishway Project -Department of Primary Industries (DPI) Communication.PDF
- Mollee Fishway Remediation Works - Fishway Workshop Meeting Minutes 01.DOCX
- Mollee Fishway Remediation Works - Fishway Workshop Meeting Minutes 02.DOCX
- Mollee Fishway Remediation Works - Fishway Workshop Meeting Minutes 03.DOCX
- Mollee Fishway Remediation Works Project Change Request (PCR) 02.DOCX
- Mollee Fishway Remediation Works Project Change Request (PCR) 03.DOCX
- Mollee Fishway Remediation Works Project Change Request (PCR) 04.DOCX
- Mollee Fishway Remediation Works Project Change Request (PCR) 05.DOCX
- D2023 112330 DAY 2 - C3.1.1 - Water Management Works - Operational Audit 2023 Presentation.pptx

## Clause 5.1 – Asset management system

- 5.1.1 - CD2015 488[v5] Asset Management Policy .DOCX
- 5.1.1 - CD2016 173[v4] Dam Safety Emergency Plan (DSEP) - Keepit Dam - V3.3 - June 2023.PDF
- 5.1.1 - CD2022 72 Incident Management Procedure .DOCX
- 5.1.1 - D2022 070247 Annual Asset Performance and Health Report FY21-22. .DOCX
- 5.1.1 - D2022 115973 Annual System Health Check, Asset Management System – 2022 Board Paper .DOCX
- 5.1.1 - D2022 140119 WaterNSW Asset Management System Recertification Audit Report – Nov 2022 .PDF
- 5.1.1 - D2023 1219 Asset Planning Activity Report – AMS Internal Audit Report .DOC
- 5.1.1 - D2023 1914 ISO55001 2014 WaterNSW AMS Certificate 2023-2026. .PDF
- 5.1.1 - D2023 15598 L&D Team Assurance Activity Report – AMS Internal Audit Report. .DOC
- 5.1.1 - CD2015 331[v3] Asset Criticality Assessment Procedure .DOCX
- 5.1.1 - CD2015 436[v10] Strategic Asset Management Plan. .DOCX
- 5.1.2 - CD2016 15[v4] Asset Condition and Capability Audit Procedure .DOCX
- 5.1.2 - CD2019 224 WNSW-FWY-AS-001 Fishway Asset Class Strategy .DOCX
- 5.1.2 - CD2020 51 WNSW-ROA-AS-001 Roads Asset Class Strategy .DOCX
- 5.1.2 - CD2020 110 WNSW-VLV-AS-002 Valves (Isolation, Non-Return, Relief, In-Line Control) and Pressure Regulators Asset Class Strategy .DOCX
- 5.1.2 - CD2021 1 WNSW-GAT-AS-001 Gates, Stoplogs, Baulks and Bulkheads Asset Class Strategy .DOCX
- 5.1.2 - CD2021 99 WNSW-WER-AS-002 Weirs Asset Class Strategy .DOCX
- 5.1.2 - CD2021 123[v2] Achieve Dam Safety Surveillance Accreditation .DOCX
- 5.1.2 - CD2022 70 WNSW-CRN-AS-001 WNSW Cranes and Lifting Assets Asset Class Strategy .DOCX
- 5.1.2 - D2017 58363 AMS Continuous Improvement Register .XLSX
- 5.1.2 - D2019 65995 Water Monitoring Asset Class Standard .DOCX
- 5.1.2 - D2022 11867 Keepit Annual Surveillance Report .PDF
- 5.1.2 - D2022 070247 Annual Asset Performance and Health report FY21-22 .DOCX
- 5.1.2 - D2022 140119 WaterNSW Asset Management System Recertification Audit Report – Nov 2022 .PDF
- 5.1.2 - D2023 1914 ISO55001 2014 WaterNSW AMS Certificate 2023-2026. .PDF
- 5.1.2 - D2023 97710 Warragamba Dam Operational Risk Assessment .PDF
- 5.1.2 - IM2023 1622 Greater Sydney Water Supply Diagram .PDF
- 5.1.2 - CD2011 163[v5] Integrated Business Management System.DOC
- 5.1.2 - CD2015 331[v3] Asset Criticality Assessment Procedure .DOCX
- 5.1.2 - CD2015 436[v10] Strategic Asset Management Plan. .DOCX
- 5.1.2 - CD2015 488[v5] Asset Management Policy .DOCX
- 5.1 - D2023 121534 - Evidence 110 Keepit Damguard Screenshots.PDF
- 5.1 - D201757522 - Dam Surveillance Program Tracking - Automated.XLSX



- 5.1 - D202315598 - Learning & Development Assurance Activity Report - 28 02 2023.DOC
- 5.1 - D202320107 - Annual Dams Safety Standards Report 2022 - WaterNSW Dams Combined.PDF
- 5.1 - D202325191 - WaterNSW CEO Cover Letter - Dams Safety Standards Reports - March 2023.PDF
- 5.1 - D2023107785 - IPART Evidence Point 16 -17 - PowerBI Report\_EAMS PMs(3).PDF
- 5.1 - D2023120324 - RE\_ ADDITIONAL RFIs - Due COB Thursday 26\_10\_2023.MSG
- 5.2 - D202368060 - Management Review Meeting Minutes 2022.PDF
- AMS Process Health Check Internal Audit Schedule.XLSX
- Asset Condition Assessment Guidelines.DOCX
- Asset Management System awareness course.PDF
- Asset Planning Manual.DOCX
- Assurance Activity Procedure - Integrated Business Management System.DOC
- Capital Investment Strategy FY 2019 to 2023.DOCX
- Clause 5.1 - Management Committee on Assets - 9 November ~ Annual System Health Check Asset Management System 2022(2).DOCX
- Clause 5.1 RFIs.msg
- Completed Clause 5.1.msg
- IPART Audit FY21-22 RACS Actions Status Record.XLSX
- IPART Evidence Point 16 -17 - PowerBI Report\_EAMS PMs(2).PDF
- IPART Evidence Point 16 -17 - PowerBI Report\_EAMS PMs.PDF
- Learning & Development Assurance Activity Report - 28 02 2023.DOC
- RACS Action 2923 now 3048 close out report.XLSX
- WaterNSW 20 Year Infrastructure Strategy\_Edition 1 (Final).DOCX
- WaterNSW Internal and External Stakeholders FY 2022-23.XLSX
- 2.1 - D2022121535 - SRN for ALS Workorder ES2235788 Your Reference E300, E301.MSG
- 5.1 - CD2020144 - Manage Dam Safety Actions.DOCX
- 5.1 - CD2021150 - Dam Expert Review Panel Terms of Reference.DOCX
- 5.1.2 CD2007 27 - Asset Reliability & Maintenance Manual.DOCX
- Controlled Document - Approve and Publish - How To Guide.DOCX
- FW ADDITIONAL RFIs - Due COB Thursday 26102023.msg
- 5.1.2 - CD2011 173 - TRIM - How To Guide - Approve and Publish Controlled Documents - OBSOLETE - REFER TO LATEST VERSION.DOCX
- D2023 112311 DAY 2 - C5.1.1-5.1.2 - AMS - Operating Licence Audit 2023 Presentation.pptx

## Clause 5.2 – Environmental management system

- 2.5 - D2017 37767 - Keepit Dam Hydro Lease.PDF
- 2.5 - D2022 107709 - Mollee Fishway Remediation Works Project Change Request (PCR) 07.DOCX
- 5.2 - CD2012184 - Unexpected Aboriginal Objects Procedure - OBSOLETE refer latest version.DOC
- 5.2 - D2017 37770 - Deed of Agreement - Keepit Dam ( Hydro ) Water Agreement - State Water Corporation and Green State Power Pty Ltd - 18 July 2014 - AI736161S.PDF
- 5.2 - D201871524 - Work site environmental checklist OBSOLETE Use [v2].DOCX
- 5.2 - D201920459 - Project Change Request - Mollee Fishway Drop boards GH 20190222(2).DOCX
- 5.2 - D2020111514 - Mollee Fishway Remediation Works Project Change Request (PCR) 03(2).DOCX
- 5.2 - D2020113280 - Mollee Fishway Remediation Works Project Change Request (PCR) 04.DOCX
- 5.2 - D2020131280 - 3.6\_WAVE Program Review Committee Meeting - 30 June 2020 - WAVE Mobile Application Solution Approach.DOCX
- 5.2 - D202028895 - Mollee Fishway Remediation Works Project Change Request (PCR) 02(2).DOCX
- 5.2 - D202028895 - Mollee Fishway Remediation Works Project Change Request (PCR) 02(3).DOCX
- 5.2 - D2021 102414 - Corporate Risk Management Plan (consolidated) - as at 31 August 2021.pptx(2).PDF
- 5.2 - D2021 76259 v8 - BR4 - Environment CRMP Risk Event Summary - v1 May 2021(2).DOCX
- 5.2 - D2021102414 - Corporate Risk Management Plan (consolidated) - as at 31 August 2021.pptx.PDF
- 5.2 - D202119151 - Mollee Fishway Remediation Works Project Change Request (PCR) 05.DOCX
- 5.2 - D202176259 - BR4 - Environment CRMP Risk Event Summary - v1 May 2021.DOCX
- 5.2 - D2022 25569 - Mollee Fishway Remediation Works Project Change Request (PCR) 06.PDF
- 5.2 - D2023144346 - 30.3.23 Pre-Start Keepit dam biodiversity management activities (2).PDF
- 5.2 - D2023144351 - 5.12.22 Keepit Dam Pre-start checklist.PDF
- 5.2 - DOC106878 - Keepit Dam Foreshores Management - Site Specific Action Plan - June 2010.PDF
- 5.2 173524[v1] EIA Fish River Potassium Permanganate and ACH Dosing Plant.PDF
- 5.2 CD2015 593 Environmental Policy.DOCX
- 5.2 CD2016 151 Project Delivery Framework (PDF) User Guide .DOCX
- 5.2 CD2019 113 v2 Environmental Standard Operating Procedure (ESOP) - Exempt Development for Maintenance Activities.DOCX
- 5.2 CD2020 63 Risk Management Procedure.DOCX
- 5.2 D2015 48040(v2) Process Health Audit Schedule .XLSX
- 5.2 D2018 54341(v2) WaterNSW Corporate Assurance Program 2018-2023\_High Risk Sites v2.XLSX
- 5.2 D2020 94259 Keepit Dam Environmental Considerations\_v2.DOCX
- 5.2 D2021 28649 Safety and Environment Compliance Obligations Register.XLSX
- 5.2 D2022 173524[v2] Approval - EIA Fish River Potassium Permanganate and ACH Dosing Plant - 09062023 - RITM0433466.PDF
- 5.2 D2022 24595 Briefing Note - Considerations for Prospect Dosing Proposal by Sydney Water.DOCX
- 5.2 D2023 108034 4a. Status of PBC RE\_ ARR FY22\_ 3\_5 Mollee Weir Electrical Renewals Draft PIB review.MSG

- 5.2 D2023 108039. 6c. FW\_ Trimming of tree on Oberon Council Managed Land -Addendum Potassium Manganese Treatment Plant EIA approval -RITM0433466.MSG
- 5.2 D2023 108041 6d. Construction Environmental Management Plan (CEMP) REV4.PDF
- 5.2 D2023 108042 6e. Traffic Management Plan -v2.PDF
- 5.2 D2023 108043 6f. 22028 - Fish River Project Induction.PPTX
- 5.2 D2023 108044 8. Env Hazard Identification - Chem Dosing into Prospect Res\_ with Notes 181022.PDF
- 5.2 D2023 108045 13. Site Specific Induction - Keepit Dam.PPTX
- 5.2 D2023 108056 11a. Board Committee on Audit and Risk - 29 May 2023 - Quarterly Enterprise Risk Management Update - Item 3.1 REF.PPTX
- 5.2 D2023 145073 FW Quarterly risk review - May ARC - BR4.MSG
- 5.2 D2023 52093 v1 Environmental Impact Assessment for Minor Works - Mollee Fishway cleanout.PDF
- 5.2 D2023 52093 v2 Approval - EIA - Mollee Fishway cleanout - 11072023 - RITM0499711.PDF
- 5.2 D2023 59799 PIB - Project Initiation Brief ARR FY22 - 3.5 Mollee Weir Electrical Renewal(Signed).PDF
- 5.2 D2023 61073 Review of Incident Closures in RACS Jul 22 to Jun 23- Report FINAL.PDF
- 5.2 D2023108057 11b. Board Committee on Audit and Risk - 29 May 2023 - Quarterly Enterprise Risk Management Update - Item 3.1.DOCX
- 5.2.2 - D2015 48040(v2) Process Health Audit Schedule .XLSX
- 5.2.2 - D2021 106800[v2] Environmental Objectives and Targets 2022 2023 .DOCX
- 5.2.2 - D2022 101990 Reports Charts 2022 2023 .XLSM
- 5.2.2 - D2022 81524 Environmental Training – Monthly Report FY 2023 .XLSX
- FW Content Manager Document D2023107855 RFI operating licence audit WQMS 18 October 2023.msg

## Clause 6.1 – Customer supply agreements - Customers other than Sydney Water

- 6.1.1 - D2022 80037 2022-2023-Fish River-Raw-Water Supply Agreement-Minor-Consumer-FA-010822 .DOCX
- 6.1.1 - D2023 83642 Clause 6\_1\_1 Fish River Customer List Tab from D2023-58062.XLSX
- 6.1.1 - DOC13 26706 Application for a New connections or a CHANGE to the Fish River Water Supply .DOC
- 6.1.1 - PL2012 21 Upper Canal - Water Supply Connection and Plumbing Schematic for Private Offtakes .PDF
- 6.1.1 - D2019 108997 Customer Supply Agreement revised agreement established with Lithgow City Council during the 2022 23 period .PDF
- 6.1.1 - CD2019 112 Customer Supply Agreement Procedure to assist with the development of and renewal of supply agreements. .DOCX
- 6.1.1 - CD2020 29 Standard Template for Agreement for Supply of Water Major Customer – Bulk Water .DOCX
- 6.1.1 - D2019 27567 Register of Customer Supply Agreements lists the major customer agreements including renewal dates .XLSX
- 6.1.1 - D2019 84749 Agreement for the Supply of Water Minor Consumer - Warragamba and Pipeline Offtake .DOCX
- 6.1.1 - D2020 80599 Water Supply Agreement – Wingecarribee Shire Council Executed 2020 .PDF
- 6.1.1 - D2022 80031 2022-2023-Fish River-Filtered-Water Supply Agreement-Minor-Consumer-FA-010822 .DOCX
- 6.1.2 - D2023 21614 Blue Mountains Water Quality Report March 2023.DOCX
- 6.1.2 - D2023 32450 Lake Oberon and Duckmaloi Weir Water Quality Report -March.DOCX
- 6.1.2 - D2023 40068 Quarterly Water Quality Performance Dashboard Report - February to April 2023 - Board meeting.DOCX
- 6.1.2 - D2023 48644 Water Quality Performance Dashboard - June 2023 meeting.DOCX
- 6.1.2 - D2023 51076 Blue Mountains Water Quality Report June 2023.PDF
- 6.1.2 - D2023 58421 Lake Oberon and Duckmaloi Weir Water Quality Report - June.DOCX
- 6.1.2 - D2023 78785 Prospect Reservoir WQ report May 23.DOCX
- 6.1.2 - D2023 78788 Prospect Reservoir WQ report April 23.PDF
- 6.1.2 - D2023 78790 Prospect Acceptance Criteria 11 May 23.MSG
- 6.1.2 - D2023 78791 Prospect Acceptance Criteria 20 April 23.MSG
- 6.1.2 - D2023 79660 FW\_ Lithgow City Council\_ Request for Credit - Water Quality issue - Account No\_11061826.MSG
- 6.1.2 - D2023 79660 WNSW response-Credit Note.MSG
- 6.1.2 - D2023 79661 Email trail on LCC claiming credit for flushing water.MSG
- 6.1.2 - D2023 79661 RE\_ Lithgow City Council\_ Request for Credit - Water Quality issue - Account No\_11061826.MSG
- 6.1.2 - CD2011 179[v7] Water Monitoring Program.DOCX
- 6.1.2 - CD2012 130[v7] Water Quality Data Review and Reporting Procedure.DOCX





- 6.1.2 - D2022 174518 Lake Oberon and Duckmaloi Weir Water Quality Report - December 2022.DOCX
- 6.1.2 - D2022 174624 Blue Mountains Water Quality Report December 2022.PDF
- 6.1.2 - D2023 7729 Blue Mountains Water Quality Report February 2023.PDF
- 6.1.2 - D2023 18990 Lake Oberon and Duckmaloi Weir Water Quality Report - February 2023.DOCX
- 6.1.3 - D2022 80037 2022-2023-Fish River-Raw-Water Supply Agreement-Minor-Consumer-FA-010822 .DOCX
- 6.1.3 - PL2012 21 Upper Canal - Water Supply Connection and Plumbing Schematic for Private Offtakes .PDF
- 6.1.3 - CD2020 29 Standard Template for Agreement for Supply of Water Major Customer – Bulk Water .DOCX
- 6.1.3 - D2019 27567 Register of Customer Supply Agreements .XLSX
- 6.1.3 - D2019 50111 WNSW-CNL-SP-001 UPNE Upper Canal Private Offtake Specification A .PDF
- 6.1.3 - D2019 84749 Agreement for the Supply of Water Minor Consumer - Warragamba and Pipeline Offtake .DOCX
- 6.1.3 - D2020 80599 Water Supply Agreement – Wingecarribee Shire Council Executed 2020 .PDF
- 6.1.3 - D2022 80031 2022-2023-Fish River-Filtered-Water Supply Agreement-Minor-Consumer-FA-010822 .DOCX
- Clause 6.1.1 - D202350517 - Lithgow City Council Variation to Supply Agreement - 29 November 2022.PDF
- Lithgow City Council Variation to Supply Agreement - 29 November 2022.tr5
- 6.1.2 - FW Request for Data Exchange from LCC SCADA.msg
- 6.1.2 - FR JOG Meeting Minutes 6 September 2023.docx
- D2023 112316 DAY 3 - C6.1.1-6.1.3 - Customer Supply Agreements - Operational Audit 2023 Presentation.pptx

## Clause 6.15 – Roles and responsibilities with Department of Planning and Environment

- 6.15.1 - D2023 99012 FW RRA Steering Group April.MSG
- 6.15.1 - D2023 99016 FW RRA Steering Group June Face-to-Face Parramatta.MSG
- 6.15.1 - D2021 102614 Roles and Responsibilities Agreement - signed by J Bentley\_WAMC\_G Barnes\_A George.PDF
- 6.15.1 - D2023 97569 RRA schedules.PDF
- 6.15.1 - D2023 99009 FW RRA Steering Group February.MSG
- D2023 112319 DAY 3 - C6.15.1-6.15.2 - Roles and responsibilities - Operational Audit 2023 Presentation.pptx

## Clause 6.16 – Memorandum of understanding with Natural Resources Access Regulator

- 6.16.1 - D2023 98381 Attachment 5.2 - Protocols - Area 2.DOCX
- 6.16.1 - D2023 98382 Attachment 5.3 - Protocols - Area 3.DOCX
- 6.16.1 - D2023 98401 Operational Group ToR As Agreed 05-05-2021 MoU NRAR.DOCX
- 6.16.1 - D2023 98402 Strategic Group Agenda - Meeting 6 - 1 July 2022.DOCX
- 6.16.1 - D2023 98404 Strategic Group Action Items - Meeting 6 - 1 July 22.XLSX
- 6.16.1 - D2023 98409 Strategic Group Agenda - Meeting 8 - 30 June 2023.DOCX
- 6.16.1 - D2023 98639 NRAR-WNSW Operations Group Agenda - Meeting 14 - 2022-10-06.DOCX
- 6.16.1 - D2023 98640 Attachment 2 - 2022-08-24 Draft Operating Group Meeting 13 Minutes.DOCX
- 6.16.1 - D2023 98641 Attachment 3 - Action items 2022-10-06.XLSX
- 6.16.1 - D2023 98644 Attachment 4 - 22-10-06 NRAR Requests Stats October 2022.PDF
- 6.16.1 - D2023 98652 NRAR-WNSW Operations Group Agenda - Meeting 15 - 2023-03-08.DOCX
- 6.16.1 - D2023 98657 Attachment 1 - Data Remediation Plan - Dashboard February 2023.PPTX
- 6.16.1 - D2023 98658 Data Currency Accuracy Remediation Plan - Dashboard February 2023 v3 WaterNSW\_NRAR review.PPTX
- 6.16.1 - D2023 98660 Attachment 2 - 2023-03-20 Draft Operating Group Meeting 14 Minutes.DOCX
- 6.16.1 - D2023 98661 Attachment 3 - Action items 2023-03-20.XLSX
- 6.16.1 - D2023 98662 Attachment 4 - NRAR Request Stats March 2023.PDF
- 6.16.1 - D2023 98703 NRAR-WNSW Operations Group Agenda - Meeting 16 - 30052023docx (1)(2).DOCX
- 6.16.1 - D2023 98705 NRAR-WNSW Operations Group Agenda - Meeting 16 - 30052023docx (1)(3).DOCX
- 6.16.1 - D2023 98707 Attachment 1 - 2023-05-30 Draft Operating Group Meeting 15 Minutes (2).DOCX
- 6.16.1 - D2023 98710 Attachment 2- Action items 2023-05-30.XLSX
- 6.16.1 - D2023 98712 NRAR Board Letter Data Remediation Plan Sub-Committee.PDF
- 6.16.1 - D2023 98716 Chair Response to NRAR letter Nov 22 V2.PDF
- 6.16.1 - D2023 98718 Board Meeting - WaterNSW NRAR Correspondance re data remediation V2.DOCM
- 6.16.1 - D2023 98759 ACTION REQUIRED - WAL S 33258 33226 33250 33239 - STEWART DONALDSON.MSG
- 6.16.1 - D2023 98761 CS0508436 - WaterNSW\_ unsafe site register - Alert to share with other Gov agencies.MSG
- 6.16.1 - D2023 98762 CS0571348 - EXTERNAL OFFICIAL Sensitive - Law Enforcement Security Alert!!!.MSG
- 6.16.1 - D2023 98764 Mandatory safety training.DOCX
- 6.16.1 - D2023 98797 Unsafe Sites Procedure Template.DOC
- 6.16.1 - D2023 98798 Safety Alert 23 March 2023.MSG
- 6.16.1 - D2023 98986 SAFETY ALERT - AGGRESSIVE ANIMALS DOGS.MSG



- 6.16.1 - D2023 98998 Attachment 2a - NRAR Paper - Implementing the Rules - Data and Systems (Attachment A).DOCX
- 6.16.1 - D2023 99003 Attachment 2 - NRAR Paper - Implementing the Rules.DOCX
- 6.16.1 - D2023 99288 FW WaterNSW NRAR Strategic Group meeting.MSG
- 6.16.1 - DOC11 25426 Unsafe Site Register.XLSX
- 6.16.1 D2023 98393 Strategic Group ToR MoU NRAR.PDF
- 6.16.1 D2023 98403 WaterNSW\_NRAR Strategic Group meeting - Nov 2022.MSG
- 6.16.1 - D2020 7064 Memorandum of Understanding - WaterNSW and the Natural Resources Access Regulator.PDF
- 6.16.1 - D2023 97569 RRA schedules.PDF
- 6.16.1 - D2023 98380 Attachment 5.1 - Protocols - Area 1.DOCX
- 6.16.1 - D2023 98759 - ACTION REQUIRED - WAL S 33258 33226 33250 33239 - STEWART DONALDSON.MSG
- 6.16.1 D2023 144408 Data Currency Accuracy Remediation Plan - Dashboard June 2023\_FinalB.pptx
- Item 82 - FW FOR ACTION by COB Tues 24th Oct - RFI - Operational Audit.msg
- 6.16.1 - D2016 86897 - Water Access Licence Suspension Register (v2) - Original to be updated.XLSX
- D2023 112321 DAY 3 - C6.16.1 - MoU with NRAR - Operational Audit 2023 Presentation.pptx

## Clause 6.17 – Online portal for lodgement of documents relating to metering equipment

- 6.17.1 - D2023 89765 Example of Landholder tracking status.XLSX
- 6.17.1 - D2023 89769 Add New DQP to Portal Process.PDF
- 6.17.1 - D2023 89809 BRD for DQP Portal V1.DOCX
- 6.17.1 - D2023 89810 Example of meter design certificate.PDF
- 6.17.1 - D2023 89812 information for customers when they receive consent email from DQP Portal.PDF
- 6.17.1 - D2023 89813 NUMR Post-Install QA Process (1).PDF
- 6.17.1 - D2023 89813 NUMR Post-Install QA Process.PDF
- 6.17.1 - D2023 89819 Example of DQP List from IAL.CSV
- 6.17.1 - D2023 89821 All DQPs Registered up to and including Audit Period - including their activities.XLSX
- 6.17.1 - D2023 89827 FAQs for DQPs new DQP Portal.PDF
- 6.17.1 - D2023 89829 New DQP Portal - Release Notes.PDF
- 6.17.1 - D2023 89882 DQP Video – Customer Consent.MP4
- 6.17.1 - D2023 90965 DAS data for incorrectly configured site.XLSX
- 6.17.1 - D2023 91751 DQPP Consent email.DOCX
- 6.17.1 - D2023 92912 DQPP bug fixes.DOCX
- 6.17.1 - D2023 92941 Example of Transitional Agreement Report.PDF
- 6.17.1 - D2023 92942 Example of Meter Design Certificate.PDF
- 6.17.1 - D2023 92943 Example of val cert.PDF
- Copy of D2023 89764 All registrations into DQP Portal during audit period.pdf
- Example of Landholder tracking status.pdf
- 6.17.1 - D2023 89760 Example of accuracy certificate.PDF
- 6.17.1 - D2023 89761 Example of maintenance certificate.PDF
- 6.17.1 - D2023 89762 step by step guide for how to use new portal.PDF
- 6.17.1 - D2023 89763 All certs into DQP Portal during audit period.XLSX
- 6.17.1 - D2023 89764 All registrations into DQP Portal during audit period.XLSX
- 6.17.4 - D2023 89821 All DQPs Registered up to and including Audit Period - including their activities.XLSX
- 6.17.4 - D2023 89769 Add New DQP to Portal Process.PDF
- 6.17.5 - D2023 89832 Presentation to DPE and NRAR on new DQP Portal 22 August (1).DOCX
- 6.17.5 - D2023 89832 Presentation to DPE and NRAR on new DQP Portal 22 August.DOCX
- 6.17.5 - D2023 89833 JAICT example minutes.DOCX
- 6.17.5 - D2023 89844 Request from NRAR.PDF
- 6.17.5 - D2023 89846 DQP Portal Report Training March 2023.PDF
- 6.17.5 - D2023 89907 WaterNSW delivering Campbell LID as per requested by DPE.MSG
- 6.17.5 - D2023 89909 WaterNSW giving DPE staff access to the portal.MSG



- 6.17.5 - D2023 91277 Ashraf response 15.09.2023 confirming DPE comfortable with current portal.PDF
- 6.17.5 - D2023 89772 List of NRAR staff with access to PowerBI for DQP Portal.CSV
- 6.17.5 - D2023 89809 BRD for DQP Portal V1.DOCX
- 6.17.5 - D2023 89831 Water NSW must provide DPE and NRAR with access to the portal - Requests for Access.DOCX
- 6.17.1 Example of Landholder Tracking Status.xlsx
- 6.17.1 All registrations into DQP Portal during audit period.xlsx
- 6.17.5 D2023 144392 EXTERNAL Re WaterNSW IPART Audit.msg
- D2023 112324 DAY 4 - C6.17.1,4,5 - Online portal for lodgement of documents relating to metering equip - Operational Audit 2023 Presentation.pptx

## Clause 6.18 – Downloading of data from certain metering equipment

- 6.18.2 - D2023 89798 CFO explanation - Site access issues Re 80WA726012 - 223978 – 1 .MSG
- 6.18.2 - D2023 89798 CFO explanation - Site access issues Re 80WA726012 - 223978 – 1.MSG
- 6.18.2 - D2023 89799 CS0577916 - Request to download a Non-telemetered LID - annual reading for 90CA828846-117047-2 - WEDPA PTY LTD.pdf .PDF
- 6.18.2 - D2023 89799 CS0577916 - Request to download a Non-telemetered LID - annual reading for 90CA828846-117047-2 - WEDPA PTY LTD.pdf.PDF
- 6.18.2 - D2023 89800 DQP resolution reply - EXTERNAL BORAL PIT 3 meter – Agwaterplus.msg .MSG
- 6.18.2 - D2023 89800 DQP resolution reply - EXTERNAL BORAL PIT 3 meter – Agwaterplus.msg.MSG
- 6.18.2 - D2023 89801 gazette-23-no-164-data-logging-and-telemetry-specifications .PDF
- 6.18.2 - D2023 89801 gazette-23-no-164-data-logging-and-telemetry-specifications.PDF
- 6.18.2 - D2023 89802 NUMR Non-Telemetry LID Data Download and QA Process.pdf .PDF
- 6.18.2 - D2023 89802 NUMR Non-Telemetry LID Data Download and QA Process.pdf.PDF
- 6.18.2 - D2023 89803 PowerBI used to schedule YDOC downloads.docx .DOCX
- 6.18.2 - D2023 89803 PowerBI used to schedule YDOC downloads.docx.DOCX
- 6.18.2 - D2023 89804 YDOC-Datalogger-Manual.pdf .PDF
- 6.18.2 - D2023 89804 YDOC-Datalogger-Manual.pdf.PDF
- 6.18.2 - D2023 89805 CFO reply - YDOC Download Boral Resources (NSW) Pty Ltd 80WA726012 - 223978-2.msg .MSG
- 6.18.2 - D2023 89805 CFO reply - YDOC Download Boral Resources (NSW) Pty Ltd 80WA726012 - 223978-2.msg.MSG
- 6.18.2 - D2023 89806 CS0522397 - Request to download a Non-telemetered LID - annual reading for ~ BORAL RESOURCES (NSW) PTY LTD.pdf .PDF
- 6.18.2 - D2023 89806 CS0522397 - Request to download a Non-telemetered LID - annual reading for 80WA726012-223978-1 - BORAL RESOURCES (NSW) PTY LTD.pdf.PDF
- 6.18.2 - IM2023 1623 CFO request process.png .PNG
- 6.18.2 - IM2023 1623 6.18.2 CFO request process.png.PNG
- 6.18.2 - D2023 89795 Maintenance Validation Certificate - VAL-80WA726012-damien.reid@boral.com.au-9851.pdf .PDF
- 6.18.2 - D2023 89795 Maintenance Validation Certificate - VAL-80WA726012-damien.reid@boral.com.au-9851.pdf.PDF
- 6.18.2 - D2023 89796 Return to DQP - Confidential and privileged - information request YDOC Download Boral Resources (NSW) Pty Ltd 80WA726012 - ~ 2.msg.MSG
- 6.18.2 - D2023 89796 Return to DQP - Confidential and privileged - information request YDOC Download Boral Resources (NSW) Pty Ltd 80WA726012 ~ 2.msg .MSG
- 6.18.2 - D2023 89797 Work instruction downloading YDOC.doc .DOC
- 6.18.2 - D2023 89797 Work instruction downloading YDOC.doc.DOC
- 6.18.4 - D2023 58470 Variation Letter - NRAR Data Sharing Agreement .DOCX
- 6.18.4 - D2023-97569 RRA schedules .PDF
- 6.18.4 - D2020 7064 MOU agreed and executed.PDF



- 6.18.4 - D2020 126232 Data Sharing Agreement - Water NSW and NRAR 2020 .PDF
- 6.18.5 - D2020 7064 MOU agreed and executed.PDF
- 6.18.5 - D2023-97569 RRA schedules.PDF



## Clause 6.19 – Data sharing agreements with DPE and NRAR – NSW non-urban water metering framework

- 6.19.1 - D2021-99517 Data Sharing Agreement - HNRS Program .PDF
- 6.19.1 - D2023-97569 RRA schedules.PDF
- 6.19.1 - 2023-097711 Record\_of\_Meeting\_for\_WDCG Til Aug 23 .PDF
- 6.19.2 - D2023-97569 RRA schedules.PDF
- 6.19.3 - 2023-097711 Record\_of\_Meeting\_for\_WDCG Til Aug 23 .PDF
- 6.19.3 - D2020 7064 MOU agreed and executed.PDF
- 6.19.3 - D2023-97569 RRA schedules.PDF
- 6.19.4 - D2020 126232 Data Sharing Agreement - Water NSW and NRAR 2020 .PDF
- 6.19.4 - D2021 38294 Data Sharing Agreement - WaterNSW and DPIE 2021 .PDF
- 6.19.4 - D2023 58470 Variation Letter - NRAR Data Sharing Agreement .DOCX
- 6.19.4 - D2023 58471 Variation Letter - DPE Data Sharing Agreement .DOCX
- 6.19.4 - 2023-097711 Record\_of\_Meeting\_for\_WDCG Til Aug 23 .PDF

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- <sup>1</sup> IPART, *WaterNSW Reporting Manual – Operating Licence 2022-2024*.
  - <sup>2</sup> IPART, *WaterNSW's compliance with its operating licence 2021-2022, Report to the Minister*, March 2023.
  - <sup>3</sup> IPART, *Compliance and Enforcement Policy*, December 2017.

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