



IPART Independent
Pricing and Regulatory
Tribunal | NSW

WaterNSW's compliance with its
operating licence 2021-22

Report to the Minister

March 2023

Water >>

Tribunal Members

The Tribunal members for this review are:

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The Independent Pricing and Regulatory Tribunal

IPART's independence is underpinned by an Act of Parliament. Further information on IPART can be obtained from [IPART's website](#).

Acknowledgment of Country

IPART acknowledges the Traditional Custodians of the lands where we work and live. We pay respect to Elders both past and present.

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

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Summary

Customers in NSW rely on safe and reliable water and wastewater services. Operating licences outline obligations imposed by the NSW Government on publicly owned monopoly suppliers of essential services such as WaterNSW. We undertake annual operational audits to ensure WaterNSW complies with the requirements under its operating licences.

This is our operational report to the Minister for Lands and Water on WaterNSW's compliance with:

- the *Water NSW Operating Licence 2017–2022* (2017-2022 Licence) between 1 September 2021 to 30 June 2022, and
- the *Water NSW Operating Licence 2022–2024* (2022-2024 Licence) between 1 July 2022 to 31 August 2022.

Together, we refer to these two licences as the Licences.

We check compliance with the Licences by an operational audit, as required by the *Water NSW Act (2014)* (Act).¹ We engaged specialist consulting firm Cobbitty Consulting Pty Ltd (Cobbitty Consulting), in association with Viridis Consultants Pty Ltd (Viridis Consultants), to undertake the operational audit on our behalf.

WaterNSW's operational performance in 2021–22

WaterNSW was forthcoming and cooperative throughout the audit process, demonstrating a culture and commitment to compliance. WaterNSW's compliance has continued to improve since last audited. WaterNSW has made considerable progress in maintaining and implementing its Water Quality Management System (WQMS).

Key findings

WaterNSW demonstrated a high level of compliance with the audited conditions of the Licences during the audit period.^a We did not assign WaterNSW any non-compliant grades.

WaterNSW was compliant with 9 of the 24 audited conditions of the Licences.^b For 3 of those conditions, we identified compliance with minor shortcomings. The remaining 3 conditions had no compliance requirements and were not triggered in the audit period.

The 3 conditions graded as Compliant (minor shortcomings) were associated with Part 2 of each Licence relating to aspects of the WQMS and its implementation:

^a The 2021-22 operational audit period for WaterNSW was from 1 September 2021 to 31 August 2022.

^b The same 24 conditions were audited for each Licence, as in force during the audit period. There are no material differences in those conditions across the 2 Licences. See section 1.2 of this report for a description of the audit scope, including minor differences in corresponding conditions across the two Licences.

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- The WQMS did not include a detailed documented procedure for conducting risk assessments.
 - The Water Quality Policy relating to the Non-Declared Catchment Areas was ambiguous.
 - The WQMS was not fully implemented – flow diagrams were not always prepared in accordance with the relevant procedure in that not all process steps from source to handover point were included, such as destratification systems.

The auditor made 3 recommendations to address the minor shortcomings identified.^c We discuss the audit findings and recommendations in Chapter 2.

Previous audit findings

This audit also followed up on WaterNSW's progress in addressing 21 outstanding recommendations related to non-compliances or shortcomings identified in previous audits. There were 19 recommendations outstanding from the 2021 audit, and 2 recommendations outstanding from the 2020 audit.

Chapter 3 outlines WaterNSW's progress in addressing these recommendations.

^c Auditors are only required to make recommendations for grades other than Compliant – i.e. for Compliant (minor shortcomings), Non-compliant (non-material) and Non-compliant (material) grades. This is consistent with our audit guideline for public water utilities (*IPART, Audit Guideline – Public Water Utilities*, July 2019).

1 Introduction

WaterNSW is a licenced supplier of essential water services to customers in NSW. During the audit period, WaterNSW operated under 2 consecutive operating licences as discussed in section 1.2 below. The licences outline obligations and standards for the provision of safe and reliable services.

We conduct annual audits on WaterNSW's compliance with its operating licences to assess if WaterNSW is meeting its obligations. The 2021-22 audit is the fifth audit under the 2017-2022 Licence and the first under the 2022-2024 Licence.

This report summarises the audit findings and recommendations. We explain the compliance grades used in this report in Appendix A.

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 Managing Director 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. The Statement of Compliance relates to the reporting period 1 July 2021 to 30 June 2022, while the audit period for this audit is 1 September 2021 to 31 August 2022.

For 2021-2022, WaterNSW reported 12 non-compliances with its 2017-2022 Licence, of which 11 related to previous audit recommendations.

1.1.1 Non-compliances related to previous audit recommendations

As of 30 June 2022, at the end of the reporting period, all reported non-compliances based on previous audit recommendations were reported to be in progress and due for full compliance by their due date, 31 August 2022. The 2021-22 audit found that all previous audit recommendations were closed out before the end of the audit period, 31 August 2022, and no further action is required.

1.1.2 Other reported non-compliance

WaterNSW reported one non-compliance that did not relate to a previous audit recommendation. Clause 4.3.2 of the 2017-2022 Licence required WaterNSW to contact 99% of customers who placed a non-complying Water Order within one working day to rectify the order. During the reporting period, WaterNSW achieved 98.21% compliance with this obligation and noted that it took all reasonable steps to process and deliver Water Orders promptly and efficiently. The 1.79% non-compliance reflected 4 out of 223 Water Orders.

During our 2022 review of WaterNSW's 2017-2022 Licence, we determined that a percentage is "no longer an appropriate performance measure, as it is possible that with the small number of non-complying orders, only one customer not being contacted could make up the 1% *to achieve 99% compliance*."² Clause 4.3.2 of the 2022-2024 Licence requires WaterNSW to ensure that in each financial year no more than 5 customers who place a non-complying order are contacted more than one working day after WaterNSW receives that order to rectify that order. As the 2022-23 financial year is still underway, WaterNSW has not yet reported its compliance against this requirement for this financial year.

1.2 Audit scope

The 2021-22 audit covered the period from 1 September 2021 to 31 August 2022. Appendix C describes the audit process and Appendix D includes the detailed audit scope.

1.2.1 WaterNSW operated under 2 licences during the audit period

During the audit period, WaterNSW was subject to 2 operating licences:

1. 2017-2022 Licence for the period 1 September 2021 to 30 June 2022
2. 2022-2024 Licence for the period 1 July 2022 to 31 August 2022.

The 2017-2022 Licence was valid for 10 months of the audit period and expired on 30 June 2022. The 2022-2024 licence came into effect on 1 July 2022.

There were no material changes to audited licence conditions under the 2022-2024 Licence, as compared to the 2017-2022 Licence. There were minor changes to clause 6.19.4 of the 2017-2022 Licence which required WaterNSW to agree with the Department of Planning and Environment (DPE) and the National Resources Access Regulator (NRAR) protocols for requests for data related to certain metering equipment prior to 1 December 2021. The corresponding condition in the 2022-2024 Licence, clause 6.18.4, requires WaterNSW to use its best endeavours to maintain those protocols with DPE and NRAR. Minor editorial changes were also made to clause 5.2.1 of the 2022-2024 Licence.

1.2.2 We engaged auditors to undertake the audit

We engaged specialist auditing firm, Cobbitty Consulting, in association with Viridis Consultants, to undertake the audit on our behalf. The auditors checked WaterNSW's compliance against 11 clauses of the two Licences, which are set out in the detailed audit scope in Appendix D.

2 Audit findings and recommendations

This chapter sets out the auditor's findings relating to non-compliance and compliance with minor shortcomings during the audit period.






















Where the found shortcomings are against a requirement, the auditor has made recommendations to address the shortcoming. The auditor has also identified some opportunities for improvement – these are outlined in the auditor's operational audit report, provided in Appendix E.

In our audit scope we identified several licence conditions that IPART would audit without the assistance of a specialist auditor. Our assessment of both the 2017-2022 and 2022-2024 Licence conditions that we audited is in Appendix F.

The current WaterNSW reporting manual^a requires WaterNSW to report on its progress in implementing these recommendations by 30 April 2023 (or at a later date agreed to by IPART).

Table 2.1 compares non-compliant findings and identified shortcomings for each annual audit of the 2017-2022 Licence. Table 2.1 does not include audit results for licence conditions where WaterNSW was consistently compliant for the full 5-year term of the 2017-2022 Licence.

Table 2.1 Comparative record of non-compliant findings and identified shortcomings for the 2017-2022 Licence

Licence condition	Requirement	Compliance grade				
		2017-18	2018-19	2019-20	2020-21 ^a	2021-22
15.1	Make copies of the licence available free of charge on WaterNSW's website	-	-			-
2.11	Maintain a Water Quality Management System (WQMS) in line with clause 2.1 of the licence					-
2.12	Maintain a WQMS (Declared catchment areas) consistent with specified requirements					
2.13	Maintain a WQMS (Non-Declared catchment areas) consistent with specified requirements					
2.14	Fully implement relevant WQMSs and carry out all relevant activities consistent with WQMSs					

^a Water NSW Reporting Manual 2022-2024 (October 2022). Two reporting manuals applied during the audit period: the *Water NSW Reporting Manual – Operating Licence 2017-2022* (July 2018) during 1 September 2021 to 30 June 2022; and the *Water NSW Reporting Manual 2022-2024* (July 2022) applied between 1 July 2022 to 31 August 2022. The relevant clause in the current 2022-2024 reporting manual is section 7.1.3.

Licence condition	Requirement	Compliance grade				
		2017-18	2018-19	2019-20	2020-21 ^a	2021-22
2.2.1	Manage and protect the Declared Catchment Areas in a manner consistent with WaterNSW's objectives and functions under the Act, and the WQMS, Asset Management System (AMS) and the Environmental Management System (EMS) required under the licence		-	-	-	-
2.4.1	Ensure that in the Declared Catchment Areas, Catchment Infrastructure Works are operated and managed consistently with the Design Criteria and the AMS		-	-	-	-
2.6.1	By the first quarter of 2021, engage an independent expert to review the System Yield model					-
2.6.2	Consult with customers and other stakeholders on the System Yield model review					-
2.6.3	Review the System Yield model by 30 June 2021					-
2.8.1	Maintain a program of research for each Declared Catchment Area, consistent with specified requirements		-	-	-	
3.2.1	Supply water in accordance with the relevant WQMS, relevant customer supply agreements and arrangements with Sydney Water established under s 25 of the Act		-			
3.4.2	Details which must be included in the Local Water Utility (LWU) Register	-		-		-
3.4.3	Maintain and implement a procedure for providing information to LWUs	-		-		-
4.2.2	Manage quality of water Supplied in accordance with the relevant WQMS					
4.3.2	Ensure 99% of customers who place non-complying water orders are contacted within 1 working day to rectify the order	-	-		- ^a	-
5.1.2	Fully implement and carry out activities in accordance with the AMS					-
5.2.1	Maintain an EMS consistent with specified requirements	-		-		
5.2.2	Fully implement and carry out activities in accordance with the EMS	-		-		

Licence condition	Requirement	Compliance grade				
		2017-18	2018-19	2019-20	2020-21 ^a	2021-22
6.1.2	Only Supply water to customers in accordance with Customer Supply Agreements		-			-
6.6.2	Address specified issues in the Customer Advisory Group Charter	-	-			-
6.8.2	Address specified matters in Code of Practice on Payment Difficulties		-			-
6.9.1	Maintain a complaints handling procedure consistent with AS/NZS 10002:2014		-			-
6.16.1	Agree in writing with DPE the roles and responsibilities regarding conduct of Conferred Functions specified in Schedule A of the licence and comply with that agreement		-	-	-	-
6.17.1	Establish, maintain, and comply with a Memorandum of Understanding with the Natural Resources Access Regulator (NRAR)	-	-			-
6.18.3	Retain certificates, reports and documents lodged in the portal	-	-	-		-
6.19.2	Download all data from specified metering equipment at least annually	-	-	-	-	
6.19.4	By 1 December 2021, agree protocols for data requests with DPE and NRAR	-	-	-	-	
6.19.4*	Data made available to DPE and NRAR in accordance with the protocols	-	-	-	-	
7.2.1	Comply with reporting obligations in the licence and Reporting Manual	-		-		-

Note 1: This table does not include conditions of the 2017-2022 Licence where WaterNSW has been compliant for the term of the licence.

Note 2: DPE was previously the Department of Planning, Industry and Environment.

Note 3: Duplication of sub-clause number 6.19.4 is due to an error in the 2017-2022 Licence. There are 2 sub-clauses with the numbering 6.19.4. We identify to the duplicated 6.19.4 with an asterisk (*), i.e. 6.19.4*.


Note 4: Clause 6.19 was added to the 2017-2022 Licence on 1 July 2020.



= Compliant; = Compliant (minor shortcomings); = Non-compliant (non-material); = Non-compliant (material).
 = no requirement

2.1 Audit findings and recommendations summary

Table 2.2 details the minor shortcomings we identified at the audit. We also provide recommendations to address shortcomings.

Table 2.2 2021-22 compliance with WaterNSW's 2017–2022 operating licence – grades other than Compliant

Licence condition 2017-2022	Licence condition 2022-2024	Requirement (wording of the licence condition is unchanged between Licences)	Compliance grade	Audit finding	Recommendations
2.1.2	2.1.1	With respect to Declared Catchment Areas, Water NSW must maintain a Water Quality Management System that is consistent with either: a) the Australian Drinking Water Guidelines; or 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 c) any other requirements specified or approved by NSW Health or IPART.	 Compliant (minor shortcomings)	We have assigned WaterNSW a Compliant (minor shortcomings) grade for clause 2.1.2.(2017-2022) and clause 2.1.1 (2022-2024) This aligns with the auditor's findings. The WQMS did not include a detailed documented procedure for conducting risk assessments.	2022–01: 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))

Licence condition 2017-2022	Licence condition 2022-2024	Requirement (wording of the licence condition is unchanged between Licences)	Compliance grade	Audit finding	Recommendations
2.1.3	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> <ul style="list-style-type: none"> i) a relevant quality assurance program under section 25 of the <i>Public Health Act 2010</i> (NSW); ii) the Australian Drinking Water Guidelines; or iii) any other requirements as specified or approved by NSW Health or IPART. <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 2.1.3(a):</p> <ul style="list-style-type: none"> i) the Australian Guidelines for Water Recycling; or ii) any other requirements as specified or approved by NSW Health or IPART. 	 Compliant (minor shortcomings)	<p>We have assigned WaterNSW a Compliant (minor shortcomings) grade for clause 2.1.3 (2017-2022) and clause 2.1.2 (2022-2024). This aligns with the auditor's findings.</p> <p>The Water Quality Policy in respect of its application to the Non-Declared Catchment Areas was ambiguous; and the WQMS did not include a detailed documented procedure for conducting risk assessments.</p>	<p>Recommendation 2022-01 also applies to this clause.</p> <p>2022-02: 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).</p>
2.1.4	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.	 Compliant (minor shortcomings)	<p>We have assigned WaterNSW a Compliant (minor shortcomings) grade for clause 2.1.4 (2017-2022) and clause 2.1.3(2022-2024). This aligns with the auditor's findings.</p> <p>The WQMS was not fully implemented - flow diagrams were not always prepared in accordance with the relevant procedure in that not all process steps from source to handover point were included, such as destratification systems.</p>	<p>2022-03: 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).</p>






Source: Cobbitty Consulting, 2022 Operational Audit of WaterNSW – Final Audit Report version 3.1, February 2023.












3 Progress on previous audit findings









The previous operational audits identified areas where WaterNSW did not achieve compliance with its 2017-2022 Licence obligations. We made recommendations to address these issues.³ Table 3.1 outlines WaterNSW's progress in implementing the recommended actions.





Of the 21 recommendations to be completed by WaterNSW, 18 were required to be completed within the audit period. WaterNSW completed all outstanding recommendations as summarised below.

Table 3.1 WaterNSW's progress in 2022 to address previous recommendations

2017-2022 Licence condition	Prior compliance grade	Recommendation	Progress
1.5.1 Making copies of this Licence available	 Non-compliant (non-material)	2021-01: By 30 June 2022, WaterNSW must establish processes to ensure that documents to be made publicly available on the website are current, uploaded in a timely manner and, where relevant, meet the date requirements in the Reporting Manual.	Complete
2.1.3 Water Quality Management System	 Non-compliant (material)	2020-02: By 31 July 2021, review and, where appropriate, amend the Fish River Water Supply Scheme Drinking Water Quality Management System against each of the 12 elements, 32 components and 76 actions of the Framework for Management of Drinking Water Quality. WaterNSW should document reviews and internal audits in the updated system at intervals appropriate to ensure effective implementation of the system. WaterNSW should review and update supporting documentation for currency, including: <ul style="list-style-type: none"> Fish River Water Supply System Operations and Maintenance Manual; Operating Protocols for Fish River Water Supply (CD2017/173) Fish River Water Supply Scheme Incident Management Plan (D2018/116921). 	Complete
2.1.1 Water Quality Management System	 Non-compliant (non-material)	2021-02: By 31 August 2022, WaterNSW should review the process for updating the water quality contact list (including the version attached to the WQ Incident Response Protocols) to ensure that the list is current, this should include all stakeholders, not just those relevant to the JOG.	Complete
2.1.2 Water Quality Management System	 Compliant (minor shortcomings)		
2.1.4 Water Quality Management System	 Non-compliant (non-material)		

2017-2022 Licence condition	Prior compliance grade	Recommendation	Progress
2.11 Water Quality Management System	 Non-compliant (non-material)	2021-03: By 31 August 2022, WaterNSW should document the process and responsibility for scheduling major WQMS risk reviews.	Complete
2.12 Water Quality Management System	 Compliant (minor shortcomings)		
2.11 Water Quality Management System	 Non-compliant (non-material)	2021-04: By 31 August 2022, WaterNSW should finalise the operation and maintenance manuals for the dams in the Declared Catchment.	Complete
2.12 Water Quality Management System	 Compliant (minor shortcomings)		
2.11 Water Quality Management System	 Non-compliant (non-material)	2021-05: By 31 August 2022, WaterNSW should ensure that the WaterNSW Incident Management Procedure (CD2017/180) has been updated and implemented.	Complete
2.12 Water Quality Management System	 Compliant (minor shortcomings)		
2.13 Water Quality Management System	 Non-compliant (non-material)		
2.13 Water Quality Management System	 Non-compliant (non-material)	2021-06: By 31 August 2022, WaterNSW should update the Water Quality Data Review and Reporting Procedure to explicitly cover the Fish River Supply reporting requirements.	Complete
2.13 Water Quality Management System	 Non-compliant (non-material)	2021-07: By 31 August 2022, WaterNSW should document the process to revalidate treatment process when a change condition occurs, including defining triggers for when this would occur.	Complete
2.13 Water Quality Management System	 Non-compliant (non-material)	2021-08: By 31 August 2022, WaterNSW should document the requirement for chlorine analyser reagent levels for the chlorine analyser to be included in operational checks at Duckmaloi WTP.	Complete
2.14 Water Quality Management System	 Non-compliant (non-material)	2021-09: By 31 August 2022, WaterNSW should develop processes to ensure that regulatory requirements associated with new or emerging obligations, are identified and documented within the compliance system.	Complete






2017-2022 Licence condition	Prior compliance grade	Recommendation	Progress
2.14 Water Quality Management System	 Non-compliant (non-material)	2021-10: By 30 June 2022, WaterNSW should develop and implement a process (e.g. audit) to ensure that work orders for calibration of critical limit analysers are undertaken.	Complete
2.14 Water Quality Management System	 Non-compliant (non-material)	2021-11: By 30 June 2022, WaterNSW should review monitoring processes to ensure mandatory water quality awareness training is undertaken.	Complete
2.61 Reviewing the model for the System Yield	 Non-compliant (non-material)	2021-12: By 30 September 2022, WaterNSW should conduct a lessons learned review for the system yield review project. The review should consider why consultants were not engaged in a timely manner. The outcomes of the lessons learned review should be documented and used to inform the approach for obtaining future reviews of System Yield.	Complete
2.62 Reviewing the model for the System Yield	 Non-compliant (material)	2021-13: By 30 September 2022, WaterNSW should undertake a stakeholder identification and engagement review to: a) identify stakeholders (to include broadly customers, stakeholders, regulators and interested parties) b) the appropriate level of engagement for each stakeholder for: i) updating System Yield, ii) use of System Yield. c) identify engagement strategies for the stakeholders for updating and using System Yield.	Complete
2.63 Reviewing the model for the System Yield	 Non-compliant (non-material)	2021-14: By 30 September 2022, WaterNSW should conduct a lessons learned review for the System Yield review project to identify: What led to delays in meeting milestones and providing deliverables on time, How to ensure that key deliverables include all the requirements of the project. The outcomes of the lessons learned review should be documented and used to inform the approach for obtaining and reporting on future reviews of System Yield. (We note that this review may be conducted in parallel with that for Recommendation 2020 12).	Complete
3.4.2 Bulk Water released to Local Water Utilities for Drinking Water purposes	 Compliant (minor shortcomings)	2021-15: By 31 August 2022, WaterNSW should review processes for maintaining registers (maintained in excel) to ensure accuracy of contacts in the Local Water Utilities Contact Details spreadsheet (DOC13 29697).	Complete
4.2.2 Water Supplied Performance Standards	 Compliant (minor shortcomings)	2020-09: By 30 June 2021, WaterNSW should review the appropriateness of CCP analysers at Duckmaloi Water Treatment Plant to ensure that they provide a reliable measurement of turbidity and chlorine residual.	Complete
3.2.1 Water Supply	 Compliant (minor shortcomings)		

2017-2022 Licence condition	Prior compliance grade	Recommendation	Progress
5.1.2 Asset Management System	 Compliant (minor shortcomings)	2021-16: By 31 August 2022, WaterNSW should deliver the recommendations included in the asset maintenance internal audit report (D2021/117683) dated January 2021.	Complete
5.2.1 Environmental Management System	 Compliant (minor shortcomings)	2021-17: By 31 August 2022, WaterNSW should ensure the fluoridation requirements are included in the Safety and Environment compliance obligations register.	Complete
5.2.2 Environmental Management System	 Compliant (minor shortcomings)	2021-18: Prior to operation of the fluoride plant at Duckmaloi WTP, WaterNSW must show satisfactory progress and completion of the actions from the Duckmaloi WTP Assurance report (D2020/60963) with regards to fluoridation.	Complete
6.18.3 Online portal for lodgement of documents relating to metering equipment	 Non-compliant (material)	2021-19: By 31 August 2022, WaterNSW should develop, document, and implement a data retention protocol to ensure that certificates, reports, and other documents lodged in the portal are protected against loss. The data retention protocol should be developed in consultation with the Department of Planning and Environment and the Natural Resource Access Regulator and be supported by a risk assessment.	Complete

Appendices



A Compliance grades

Grades of compliance		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 licensee 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 licensee to achieve defined objectives or assure controlled processes, products or outcomes.
	No Requirement	There is no requirement for the licensee to meet this criterion within the audit period.

Source: *IPART Audit Guideline Public Water Utilities*, July 2019, Figure 2.1.

B WaterNSW's statement of compliance

31 August 2022

Statement of Compliance 2022

For 2021/2022

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 2021-2022 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 2021-2022.
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:



DATE:



Signed

Signed

Name:

Peter Duncan

Name:

Andrew Rhys George

Designation:

Chair

Designation:

CEO



Schedule A: Non-Compliances for WaterNSW as at 31 August 2022

<p>List of clauses breached</p> <p>Clause 2.1.1 Water NSW must maintain a Water Quality Management System in accordance with this clause 2.1.</p>	<p>Description of non-compliance</p> <p>PERIOD OF NON-COMPLIANCE 1 July 2021 – 30 June 2022</p> <p>Relevant 2020-2021 IPART Audit Recommendation: Recommendations 2021-02, 2021-03, 2021-04 and 2021-05 apply to this clause.</p> <p>Reason for non-compliance: 2.1.1 was deemed non-compliant non-material following the Operational Audit of 2021 and is a cover all for the requirements of Clauses 2.1.2, 2.1.3 and 2.1.4.</p> <p>Clause 2.1.2 was deemed to be compliant with minor shortcomings as a result of the 2021 Operating Licence Audit. Whilst not non-compliant, the recommendations 2021-02, 2021-03 and 2021-04 are associated with Clause 2.1.1.</p> <p>As of 30 June 2022, WaterNSW is in progress to complete recommendations 2021-02 and 2021-03 by the due date.</p> <p>The following activity has been completed: Recommendations 2021-04 and 2021-05 are complete.</p> <p>WaterNSW report non-compliance against this clause because of the incomplete nature of the associated 2021 audit recommendations.</p> <p>Anticipated date of full compliance: 31 August 2022</p>
<p>Clause 2.1.3 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: a) in the case of water with the final end use as Drinking Water:</p>	<p>PERIOD OF NON-COMPLIANCE 1 July 2021 – 30 June 2022</p> <p>Relevant 2020-2021 IPART Audit Recommendation: Recommendations 2020-02, 2021-05, 2021-06, 2021-07 and 2021-08 apply to this clause.</p> <p>Reason for non-compliance: WaterNSW was deemed non-compliant non-material as a result of the 2021 Operating Licence Audit. Five recommendations were associated with this licence obligation.</p>

<p>List of clauses breached</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 2.1.3(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>(a) [Note: It is generally expected that Water NSW will manage the water under its control in light of its knowledge of the downstream water supply system, including that of its Customers. Therefore the Water Quality Management System should be developed in consultation with the relevant Customers to whom it Supplies water.]</p>	<p>Description of non-compliance</p> <p>As of 30 June 2022, two recommendations remain incomplete but on track for completion by their due date of 31 August 2022. (Recommendation 2020-02 and 2021-07).</p> <p>WaterNSW report non-compliance against this clause because of the incomplete nature of the associated 2021 audit recommendations.</p> <p>The following activity has been completed: Recommendations 2021-05, 2021-06 and 2021-08 are complete.</p> <p>Anticipated date of full compliance: 31 August 2022.</p>
<p>Clause 2.1.4</p> <p>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>	<p>PERIOD OF NON-COMPLIANCE 1 July 2021 – 30 June 2022</p> <p>Relevant 2020-2021 IPART Audit Recommendation: Recommendations 2021-09, 2021-10 and 2021-11.</p> <p>Reason for non-compliance: WaterNSW was deemed non-compliant non-material as a result of the 2021 Operating Licence Audit. Three recommendations were associated with this licence obligation. As of 30 June 2022, one recommendation remains incomplete and overdue. (Recommendation 2021-10) – By 30 June 2022, WaterNSW should develop and implement a</p>

List of clauses breached	Description of non-compliance
<p>Clause 2.6.1</p> <p>By the first quarter of 2021, Water NSW must engage a suitably qualified independent expert to:</p> <ul style="list-style-type: none"> a) review its modelling and procedures for calculating the System Yield to ensure that it reflects good industry practice; b) test the robustness of the modelling, the key assumptions used in the modelling, and the process for calculating the System Yield, including the appropriate frequency of yield re-calculation and the appropriateness of the trigger events in clause 2.5.1; and c) advise Water NSW on whether it should re-calculate the System Yield based on the findings of the test conducted under clause 2.6.1(b). 	<p>process (e.g. audit) to ensure that work orders for calibration of critical limit analysers are undertaken.</p> <p>Options for the management of work orders associated with critical limit analysers have been discussed. The inclusion of an annual work order in EAMS is yet to be implemented.</p> <p>WaterNSW report non-compliance against this clause because of the incomplete nature of the associated 2021 audit recommendation.</p> <p>The following activities have been completed: Recommendation 2021-09 and 2021-11.</p> <p>Anticipated date of full compliance: 31 August 2022</p> <p>PERIOD OF NON-COMPLIANCE 1 July 2021 – 30 June 2022</p> <p>Relevant 2020-2021 IPART Audit Recommendations: Recommendation 2021-12</p> <p>Reason for non-compliance: WaterNSW was deemed non-compliant non-material as a result of the 2021 Operating Licence Audit. One recommendation was associated with this licence obligation and not due for completion until 30 September 2022.</p> <p>As of 30 June 2022, the recommendation 2021-12 is in progress.</p> <p>The following activities are in progress: An internal project commenced to capture the lessons learnt for the system yield review project and a report has been drafted. A final report with activities for improvement in future system yield review project management is due for completion by end of July 2022.</p> <p>WaterNSW report non-compliance against this clause because of the incomplete nature of the associated 2021 audit recommendation.</p> <p>Anticipated date of full compliance: 31 July 2022</p>

List of clauses breached	Description of non-compliance
<p>Clause 2.6.2 Water NSW must consult with:</p> <ul style="list-style-type: none"> a) Customers who are Supplied water from the Declared Catchment Area, including Sydney Water; b) stakeholders and regulators as agreed with, or directed by, IPART; and c) any other persons that Water NSW reasonably expects to have an interest in the review of the modelling under clause 2.6.1, <p>regarding the review of the modelling under clause 2.6.1 and provide the results of the consultation to the suitably qualified independent expert.</p>	<p>PERIOD OF NON-COMPLIANCE 1 July 2021 – 30 June 2022</p> <p>Relevant 2020-2021 IPART Audit Recommendations: Recommendation 2021-13</p> <p>Reason for non-compliance: WaterNSW was deemed non-compliant non-material as a result of the 2021 Operating Licence Audit. One recommendation was associated with this licence obligation and not due for completion until 30 September 2022.</p> <p>As of 30 June 2022, recommendation 2021-13 remains in progress.</p> <p>The following activities are in progress: Internal works conducted to discuss scope of work for the development of stakeholder identification and engagement review process. The draft report has been prepared for review and finalisation.</p> <p>WaterNSW report non-compliance against this clause because of the incomplete nature of the associated 2021 audit recommendation.</p> <p>Anticipated date of full compliance: 30 September 2022</p>
<p>Clause 2.6.3 The review of the model for the System Yield must be completed by 30 June 2021 and reported to IPART in accordance with the Reporting Manual.</p>	<p>PERIOD OF NON-COMPLIANCE 1 July 2021 – 30 June 2022</p> <p>Relevant 2020-2021 IPART Audit Recommendations: Recommendation 2021-14</p> <p>Reason for non-compliance: WaterNSW was deemed non-compliant non-material as a result of the 2021 Operating Licence Audit. One recommendation was associated with this licence obligation and not due for completion until 30 September 2022.</p> <p>As of 30 June 2022, recommendation 2021-13 remains in progress.</p>

List of clauses breached	Description of non-compliance
<p>Clause 4.3.2 Water NSW must ensure that:</p> <ul style="list-style-type: none"> a) 99% of Customers who place a Non-complying Water Order are contacted within one working day to rectify that order; and b) this is calculated as a percentage of all Non-complying Water Orders placed in the financial year. 	<p>The following activities are in progress: An internal project commenced to capture the lessons learnt for the system yield review project and a report has been drafted. A final report with activities for improvement in future system yield review project management is due for completion by end of July 2022.</p> <p>WaterNSW report non-compliance against this clause because of the incomplete nature of the associated 2021 audit recommendation.</p> <p>Anticipated date of full compliance: 30 September 2022</p>
<p>Clause 4.3.2 Water NSW must ensure that:</p> <ul style="list-style-type: none"> a) 99% of Customers who place a Non-complying Water Order are contacted within one working day to rectify that order; and b) this is calculated as a percentage of all Non-complying Water Orders placed in the financial year. 	<p>PERIOD OF NON-COMPLIANCE 1 July 2021 – 30 June 2022</p> <p>Reason for non-compliance: WaterNSW was non-compliant with this clause.</p> <p>WaterNSW achieved a performance standard of 98.21%, that is, WaterNSW contacted customers within 1 working day regarding 219 of 223 non-compliant water orders.</p> <p>Whilst not achieving the 99% target, WaterNSW took all reasonable steps to process and deliver Water Orders promptly and efficiently.</p>
<p>Clause 6.1.2 Water NSW must only Supply water to these Customers in accordance with the terms and conditions of these Customer Supply Agreements.</p>	<p>PERIOD OF NON-COMPLIANCE 1 July 2021 – 19 July 2021</p> <p>Reason for non-compliance: WaterNSW was found non-compliant non-material as a result of the 2021 Operating Licence Audit, however the Auditor's made no recommendations and found WaterNSW became compliant with this obligation on 19 July 2021.</p> <p>Date of full compliance: 19 July 2021</p>

<p>List of clauses breached</p> <p>Clause 6.6.2 The Customer Advisory Group Charter must address all of the following issues:</p> <ul style="list-style-type: none"> a) the role of the Customer Advisory Group; b) how members and the chair of the Customer Advisory Group will be appointed; c) the term for which members are appointed; d) information on how the Customer Advisory Group will operate; e) a description of the type of matters that will be referred to the Customer Advisory Group and how those matters will be referred; f) procedures for communicating the outcomes of the Customer Advisory Groups' work to the public; g) procedures for monitoring issues raised at meetings of the Customer Advisory Groups and ensuring appropriate follow-up of those issues; h) procedures for amending the charter; and i) funding and resourcing of the Customer Advisory Groups by Water NSW. 	<p>Description of non-compliance</p> <p>PERIOD OF NON-COMPLIANCE 1 July 2021 – 12 August 2021</p> <p>Reason for non-compliance: WaterNSW was found non-compliant non-material as a result of the 2021 Operating Licence Audit, however the Auditor's made no recommendations and found WaterNSW became compliant with this obligation on 12 August 2021.</p> <p>Date of full compliance: 12 August 2021</p>
<p>Clause 6.8.2 The Code of Practice on Payment Difficulties must:</p> <ul style="list-style-type: none"> 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; 	<p>PERIOD OF NON-COMPLIANCE 1 July 2021 – 12 July 2021</p> <p>Reason for non-compliance: WaterNSW was found non-compliant non-material as a result of the 2021 Operating Licence Audit, however the Auditor's made no recommendations and found WaterNSW became compliant with this obligation on 12 July 2021.</p> <p>Date of full compliance: 12 July 2021</p>

	Description of non-compliance
<p>List of clauses breached</p> <ul style="list-style-type: none"> 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); 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 d) include procedures for self-identification, identification by community welfare organisations and identification by Water NSW of Customers experiencing financial hardship. 	
<p>Clause 6.18.3 Water NSW must ensure that certificates, reports and other documents lodged in the portal are retained.</p>	<p>PERIOD OF NON-COMPLIANCE 1 July 2021 – 30 June 2022</p> <p>Relevant 2020-2021 IPART Audit Recommendation: Recommendation 2021-19</p> <p>Reason for non-compliance: WaterNSW was deemed non-compliant material as a result of the 2021 Operating Licence Audit. One recommendation was associated with this licence obligation and not due for completion until 31 August 2022.</p> <p>As of 30 June 2022, recommendation 2021-13 remains in progress.</p> <p>The following activities are in progress: WaterNSW engaged KPMG to perform a risk assessment, with a report to be finalised in August 2022. A preliminary report has been reviewed. Findings from report will inform the data retention protocols for the Dually Qualified Persons Portal.</p> <p>Data Retention protocol and other activities arising from the risk assessment will be addressed following receipt of the report.</p>

<p>List of clauses breached</p> <p>Clause 7.2.1 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"> a) water source protection and conservation; b) Bulk Water storage and transmission; c) Performance Standards; d) organisational systems management; e) Customer and stakeholder relations; and f) performance monitoring and reporting including: <ul style="list-style-type: none"> i) IPART performance indicators; and ii) the National Water Initiative Performance Indicators. 	<p>Description of non-compliance</p> <p>In conjunction with undertaking the risk assessment, WaterNSW has engaged with DPE and NRAR for alignment on retention period for certificates and applicable schedules.</p> <p>WaterNSW report non-compliance against this clause because of the incomplete nature of the associated 2021 audit recommendation.</p> <p>Anticipated date of full compliance: 31 August 2022</p>
<p>PERIOD OF NON-COMPLIANCE 1 July 2020 – 30 June 2021</p> <p>Relevant 2020-2021 IPART Audit Recommendations: Recommendation 2021-01</p> <p>Reason for non-compliance: WaterNSW was deemed non-compliant material as a result of the 2021 Operating Licence Audit. One recommendation was associated with this licence obligation and not due for completion until 30 June 2022.</p> <p>As of 30 June 2022, recommendation 2021-01 was complete.</p> <p>The following activities are complete: An overarching reporting calendar has been prepared and Portfolio specific reporting calendars shared with the Executive Team for information and cascading.</p> <p>An end-to-end reporting process has been documented and is available in ARK and on the Risk & Compliance Intranet Page.</p> <p>Calendar reminders have been issued to accountable parties as an aid.</p> <p>Date of full compliance: 30 June 2022</p>	

C Audit process

C.1.1 Audit programme

We apply our Compliance and Enforcement Policy in developing the annual audit scopes.⁴ 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 WaterNSW staff, and undertaking field verification to investigate how effectively the requirements of the licence are met in practice. This year, we undertook these interviews at WaterNSW offices in Parramatta with some staff attending virtually.

C.1.2 2021-22 audit scope

We do not audit all licence conditions annually. Instead, we adopt a risk-based audit approach, which means we audit 'high risk' conditions more frequently and 'low risk' conditions less frequently. We conduct audits in accordance with our Public Water Utility Audit Guideline.⁵

The audit scope for WaterNSW's 2021-22 audit included obligations on:

- Water source protection and conservation (Part 2 of the Licences) – maintain and implement WQMS for the Declared Catchment Areas and Non-Declared Catchment Areas and maintain research programs for relevant Declared Catchment Areas.
- Bulk Water storage and transmission (Part 3 of the Licences) – water is Supplied in accordance with relevant WQMS, Customer Supply Agreement and arrangements with Sydney Water.
- Performance Standards (Part 4 of the Licences) – manage the quality of water Supplied in line with the relevant WQMS.
- Organisational systems management (Part 5 of the Licences) – maintain and implement an environmental management system.
- Customer and stakeholder relations (Part 6 of the Licences) – download data from metering equipment, agree and maintain protocols for data requests with DPE and NRAR, and make data available in line with the protocols.

The detailed audit scope is set out in Appendix D.

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

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:
 - WaterNSW's progress on the review of critical asset availability for the Greater Sydney area
 - incident information sharing policies and procedures
 - progress on management of Prospect Reservoir levels
 - management of the Fish River network.
- NRAR considered that licensing data (including currency of licence details) should be explored at the audit.
 - NRAR also noted that the audit "should consider barriers to WaterNSW delivering operating licence obligations". We acknowledge NRAR's concerns and note that we will explore the existing constraints and suitability of the relevant licence conditions as part of the review of WaterNSW's 2022-2024 Licence.
- DPE requested that the audit scope include obligations related to the duly qualified personnel (DQP) portal. DPE noted that there are "some ongoing access limitations that are impacting customer service." While we will explore these issues as part of the upcoming licence review, we agreed that the audit outcomes would inform the review.
- EPA did not have concerns with WaterNSW's operations under the Licences during the audit period.

C.1.3 2021-22 audit plan

We engaged Cobbitty Consulting, in association with Viridis Consultants, to undertake the 2021-22 WaterNSW audit.

We held a project start-up meeting with the auditor on 27 July 2022 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, 10 October 2022. 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.

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 two weeks prior to the commencement of audit interviews (for this audit, the auditor issued the questionnaire 7 weeks 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. Verify the implementation of WaterNSW's systems and procedures on the ground (done via photographs and/or video as wet weather had closed the catchment).
6. Assess the level of compliance (in line with our compliance grades) WaterNSW achieved for each of the audited conditions of the Licences and provide supporting evidence for this assessment.
7. Assess and report on progress by WaterNSW in addressing any comments made by the relevant Minister and/or our recommendations from previous audits, providing supporting evidence for these assessments.
8. Verify the calculation of performance indicators associated with requirements of the relevant licence and assess trends in performance arising from these indicators.
9. Provide draft audit report to us and address comments from WaterNSW and us regarding draft audit findings.
10. Prepare and submit a final report outlining audit findings (Appendix E).

The auditor adopted a methodology consistent with our Public Water Utility Audit Guideline. The guideline defines our requirements of an audit, ensuring that it is conducted in accordance with an established and recognised audit protocol. The auditor can make recommendations or suggest opportunities for improvement under the guideline.

Where appropriate, the auditor also sought guidance from:

- *ISO 19011 Guidelines for Auditing Management Systems*
- *ASAE 3100 (2008) Compliance Engagements*
- *Auditing and Assurance Standard AUS 110 Assurance Engagements other than Audits or Reviews of Historical Financial Information*
- *International Standard on Quality Control ISQC 2009.*

Where we support an auditor's recommendation, we make a recommendation based on the auditor's recommendation. Our recommendations are summarised in Table 2.2 of this report.

Where the auditor suggests opportunities for improvement, WaterNSW can decide if it implements these suggestions. This approach aims to balance improved performance with the investment required to achieve it, i.e. we want WaterNSW to first consider the pricing implications and value for money of continued improvement. Therefore, while we encourage WaterNSW to consider the auditor's suggested opportunities for improvement, we do not follow these up. The auditor's suggested opportunities for improvement are included in Appendix E to the auditor's report (Appendix E).

The auditor conducted audit interviews from 10 October 2022 to 13 October 2022. Site visits to Cordeaux and Avon catchments, and the Nepean Dam were proposed for 12 September 2022, however they were cancelled due to heavy rainfall leading to closure of the catchments. Instead, WaterNSW provided the auditors with a series of presentations about catchment management and related activities.

The auditor assessed WaterNSW's compliance with the relevant requirements of its Licences within the audit scope per the compliance grades outlined in Appendix A.

D 2021-22 audit scope

2022 operational audit scope Water NSW

2022 audit scope

This document sets out the 2022 operational audit scope for Water NSW. Auditors should note any directions in the 'comments for the auditor' column in Table 2.

Audit period

The audit period is 1 September 2021 to 31 August 2022. The audit interviews will be held in October 2022.

We note the current WaterNSW Licence expired on 30 June 2022 and was replaced by a new licence will be in place on 1 July 2022. We will discuss changes to the audit scope with the appointed auditor.

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 our 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-compliance with licence clauses during the previous financial year. It 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 to be reviewed if necessary.

Interpretation

In the case of any discrepancies between the *Water NSW Operating Licence 2017-2022* (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 Water NSW, we will determine the locations that we will visit in the 2022 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 2022 audit
SC	Audit of this clause not required in the 2022 audit unless the utility's Statement of Compliance identifies a non-compliance, or we become aware of other reasons to audit the clause.
NR	No requirement for audit.

Table 2 2022 Audit scope for Water NSW

Licence clause	Operating Licence obligation	2022 audit requirement	Comments for the auditor
1	Licence Context and authorisation		
1.1	Objectives of this Licence		
1.1.1	<p>This licence aims to:</p> <ul style="list-style-type: none"> a) provide transparent and auditable terms and conditions for Water NSW to lawfully undertake its activities to industry good-practice; b) recognise the interests of stakeholders within its Area of Operations; and c) impose the minimum regulatory burden on Water NSW by avoiding duplication or conflict with other regulatory instruments. <p><i>Note: Consistent with the Act, the purpose of this Licence is to:</i></p> <ul style="list-style-type: none"> a) specify the listed functions and other functions conferred upon Water NSW to which this Licence relates; b) authorise Water NSW to carry out the listed functions specified in this Licence and Conferred Functions; c) specify the areas and circumstances in which Water NSW is authorised to carry out the specified Listed Functions and Conferred Functions; d) set out the terms and conditions which apply to the conduct of the functions authorised by this Licence; e) make provision for the preparation of Operational Audits; 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; 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; 	NR	Objective clause - does not require audit.

Licence clause	Operating Licence obligation	2022 audit requirement	Comments for the auditor
	<p><i>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 Water NSW’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</i></p> <p><i>i) specify other requirements as required and allowed for under the Act</i></p> <p><i>In addition to sections 11 and 12 of the Act which specify matters that must be included in this Licence, sections 7, 15, 16, 21, 25, 31 and 60 of the Act provide for other terms and conditions to be included in the Licence</i></p> <p><i>This Licence does not reproduce Water NSW’s statutory obligations in full. Water NSW’s licence obligations may be subject to other laws including the Water Management Act 2000 (NSW) and the Water Act 1912 (NSW).]</i></p>		
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"> a) to capture and store water and to release water: <ul style="list-style-type: none"> i) to persons entitled to take the water, including release to regional towns; and ii) for any other lawful purpose, including the release of environmental water; b) to supply water to Sydney Water; c) to supply water to water supply authorities and to local councils or county councils prescribed by the Regulations; d) to supply water to persons referred to in section 7(1)(d) of the Act; 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; f) to construct, maintain and operate Water Management Works (including providing or constructing systems or services for supplying water); g) to protect and enhance the quality and quantity of water in Declared Catchment Areas; 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; i) to undertake research on catchments generally, and in particular on the health of Declared Catchment Areas; and j) to undertake an educative role within the community. 	NR	Licence authorisation clause – does not require audit.

Licence clause	Operating Licence obligation	2022 audit requirement	Comments for the auditor
	<i>[Note: Clause 1.2.1 authorises all of Water NSW's listed functions referred to in section 7(1) of the Act, except for its listed function under section 7(1)(i) of the Act: to undertake flood mitigation and management. As a consequence, Water NSW may undertake flood mitigation and management only if it is authorised to do so under a different operating licence, a provision of the Act other than section 7, or under any other Act or law.]</i>		
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"> a) provide facilities or services that are necessary, ancillary or incidental to its Listed Functions; and b)) conduct any business or activity (whether or not related to its Listed Functions) that it considers will further its objectives. 	NR	Licence 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	Licence 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	Licence authorisation 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	Licence authorisation 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	Licence authorisation 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. <i>[Note: The intention behind clause 1.2.7 is that clauses 2.1.3-2.1.5, 3.1.1, 3.2.1, 4.2.1-4.2.3, 5.1.1, 5.1.2, 5.2.1, 5.2.2, 6.1.1-6.1.3, 6.3.1, 6.3.2, 6.5.1-6.5.5, 6.6.1-6.6.4, 6.8.1-6.8.4, 6.9.1-6.9.4, 6.10.1 and 6.10.2 apply in respect of the Fish River Water Supply Scheme, to the maximum extent permissible by law. See section 293(2) of the Water Management Act 2000 (NSW).]</i>	NR	Information clause – does not require audit.
1.3	Term of this Licence		
1.3.1	The term of this Licence is 5 years from the Commencement Date.	NR	

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					
1.5	Making copies of this Licence available						
1.5.1	Water NSW must make this Licence available free of charge on its website for downloading by any person.	Internal IPART check	Auditor to check for completion of recommendation 2021-01.				
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 2021 to investigate: <ul style="list-style-type: none"> a) whether this Licence is fulfilling its objectives; and b) any issues which have arisen during the term of this Licence, which may affect the effectiveness of this Licence. (End of Term Review)	NR	Information clause – does not require audit.				
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.	Internal IPART check	This clause is not included in the auditor's scope.				
1.7	Notices						
1.7.1	Any notice or other communication given under this Licence must be made in writing addressed to the intended recipient at the address shown below or the last address notified by the recipient.	NR	Information clause – does not require audit.				
	<table border="1"> <thead> <tr> <th>Water NSW</th> <th>IPART</th> </tr> </thead> <tbody> <tr> <td>The Chief Executive Officer Water NSW Level 14, 161-169 Macquarie St Parramatta NSW 2150</td> <td>The Chief Executive Officer Independent Pricing and Regulatory Tribunal of NSW Level 15, 2-24 Rawson Place Sydney NSW 2000</td> </tr> </tbody> </table>	Water NSW	IPART	The Chief Executive Officer Water NSW Level 14, 161-169 Macquarie St Parramatta NSW 2150	The Chief Executive Officer Independent Pricing and Regulatory Tribunal of NSW Level 15, 2-24 Rawson Place Sydney NSW 2000		
Water NSW	IPART						
The Chief Executive Officer Water NSW Level 14, 161-169 Macquarie St Parramatta NSW 2150	The Chief Executive Officer Independent Pricing and Regulatory Tribunal of NSW Level 15, 2-24 Rawson Place Sydney NSW 2000						
2	Water Source protection and conservation						
2.1	Water Quality Management System						
2.1.1	Water NSW must maintain a Water Quality Management System in accordance with this clause 2.1.	SC	<p>We have sought NSW Health's comments on Water NSW's performance against this clause. Auditor to consider the comments in NSW Health's submission.</p> <p>Auditor to check for completion of recommendations:</p> <ul style="list-style-type: none"> • 2021-02 • 2021-03 • 2021-04 • 2021-05 				

2.1.2	<p>With respect to Declared Catchment Areas, Water NSW must maintain a Water Quality Management System that is consistent with either:</p> <ul style="list-style-type: none"> a) the Australian Drinking Water Guidelines; or 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 c) any other requirements specified or approved by NSW Health or IPART. <p><i>[Note: It is generally expected that for the Declared Catchment Areas Water NSW will develop a Water Quality Management System consistent with the Australian Drinking Water Guidelines. However, where NSW Health considers appropriate, the application of those Guidelines may be amended or added to, to take account of Water NSW's circumstances and/or policy and practices within New South Wales regarding Drinking Water quality.</i></p> <p><i>It is generally expected that Water NSW will manage the Declared Catchment Areas and the associated Catchment Infrastructure Works in light of its knowledge of the whole system for the Supply of Drinking Water (including the Bulk Water Supply System associated with Declared Catchment Areas together with each system for treating, storing and supplying Drinking Water of each Customer to whom Water NSW Supplies water which is sourced from Declared Catchment Areas). That is, Water NSW should have adequate systems and processes in place to manage Bulk Water quality to its water Supply Customers, taking into account the implementation of planning and risk management across the whole Drinking Water Supply system.]</i></p>	Audit	<p>This clause was audited every year of the licence and received the following compliance grades:</p> <ul style="list-style-type: none"> • 2021 Comp–MS • 2020 Compliant • 2019 Compliant • 2018 NC–M <p>This audit should include elements 1-12</p> <p>We have sought NSW Health's comments on Water NSW's performance against this clause. Auditor to consider the comments in NSW Health's submission.</p> <p>Auditor to check for completion of recommendations:</p> <ul style="list-style-type: none"> • 2021–02 • 2021–03 • 2021–04 • 2021–05
2.1.3	<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> <ul style="list-style-type: none"> a) in the case of water with the final end use as Drinking Water: <ul style="list-style-type: none"> i) a relevant quality assurance program under section 25 of the Public Health Act 2010 (NSW); ii) the Australian Drinking Water Guidelines; or iii) any other requirements as specified or approved by NSW Health or IPART. 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 2.1.3(a): <ul style="list-style-type: none"> i) the Australian Guidelines for Water Recycling; or ii) any other requirements as specified or approved by NSW Health or IPART. <p><i>[Note: It is generally expected that Water NSW will manage the water under its control in light of its knowledge of the downstream water supply system, including that of its Customers. Therefore the Water Quality Management System should be developed in consultation with the relevant Customers to whom it Supplies water.]</i></p>	Audit	<p>This clause was audited every year of the licence and received the following compliance grades:</p> <ul style="list-style-type: none"> • 2021 NC–NM • 2020 NC–M • 2019 Comp–MS • 2018 NC–M <p>This audit should include elements 1-12.</p> <p>We have sought NSW Health's comments on Water NSW's performance against this clause. Auditor to consider the comments in NSW Health's submission.</p> <p>Auditor to check for completion of recommendations:</p> <ul style="list-style-type: none"> • 2020–02 • 2021–05

			<ul style="list-style-type: none"> • 2021-06 • 2021-07 • 2021-08
2.14	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	<p>This clause was audited every year of the licence and received the following compliance grades:</p> <ul style="list-style-type: none"> • 2021 NC-NM • 2020 NC-M • 2019 Comp-MS • 2018 Comp-MS <p>This audit should include elements 1-12</p> <p>We have sought NSW Health's comments on Water NSW's performance against this clause. Auditor to consider the comments in NSW Health's submission.</p> <p>Auditor to check for completion of recommendations:</p> <ul style="list-style-type: none"> • 2021-02 • 2021-09 • 2021-10 • 2021-11
2.15	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	<p>We have sought NSW Health's comments on Water NSW's performance against this clause. Auditor to consider the comments in NSW Health's submission.</p>
2.2	Catchment management		
2.21	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		
2.31	Water NSW must: <ul style="list-style-type: none"> a) reasonably cooperate with the Appointed Auditor; b) publish information collected by Water NSW on water quality relevant to Declared Catchment Areas in accordance with the Reporting Manual; 	SC	

	<p><i>[Note: For the avoidance of doubt, the above reference to information collected in accordance with the Reporting Manual is a reference to Water NSW's obligations in respect of the IPART water quality H1 and H2 indicators and water quality monitoring reports in the Reporting Manual]</i></p> <p>c) provide data in relation to the Catchment Health Indicators to the Appointed Auditor, in accordance with the Reporting Manual;</p> <p>d) monitor, record and compile data on the Environmental Indicators relevant to Declared Catchment Areas; and</p> <p>report on the Environmental Indicators in accordance with the Reporting Manual.</p>		
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.	SC	
2.4.2	Water NSW must, in accordance with the Reporting Manual make the Design Criteria available to the public free of charge on its website for downloading by any person.	SC	
2.5	Calculating System Yield		
2.5.1	<p>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:</p> <p>a) the conclusion of any drought event affecting the Declared Catchment Area;</p> <p>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;</p> <p>c) any material change to the operating rules of the Catchment Infrastructure Works in respect of the Declared Catchment Area; or</p> <p>d) any material change to the Design Criteria in respect of the Declared Catchment Area.</p>	SC	
2.5.2	<p>In accordance with the Reporting Manual, Water NSW must advise the Minister:</p> <p>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</p> <p>b) if Water NSW considers that future demand for Bulk Water may exceed the System Yield and when this exceedance might occur.</p>	SC	
2.5.3	As soon as practicable after advising the Minister of any changes to the System Yield under clause 2.5.2, Water NSW must, in accordance with the Reporting Manual, make details of those changes and the reasons for those changes available free of charge on its website for downloading by any person.	SC	
2.6	Reviewing the model for the System Yield		
2.6.1	<p>By the first quarter of 2021, Water NSW must engage a suitably qualified independent expert to:</p> <p>a) review its modelling and procedures for calculating the System Yield to ensure that it reflects good industry practice;</p>	NR	Auditor to check for progress against recommendation 2021-12.

	<p>b) test the robustness of the modelling, the key assumptions used in the modelling, and the process for calculating the System Yield, including the appropriate frequency of yield re-calculation and the appropriateness of the trigger events in clause 2.5.1; and</p> <p>c) advise Water NSW on whether it should re-calculate the System Yield based on the findings of the test conducted under clause 2.6.1(b).</p>		
2.6.2	<p>Water NSW must consult with:</p> <p>a) Customers who are Supplied water from the Declared Catchment Area, including Sydney Water;</p> <p>b) stakeholders and regulators as agreed with, or directed by, IPART; and</p> <p>c) any other persons that Water NSW reasonably expects to have an interest in the review of the modelling under clause 2.6.1.</p> <p>d) regarding the review of the modelling under clause 2.6.1 and provide the results of the consultation to the suitably qualified independent expert.</p>	NR	Auditor to check for progress against recommendation 2021-13.
2.6.3	The review of the model for the System Yield must be completed by 30 June 2021 and reported to IPART in accordance with the Reporting Manual.	NR	Auditor to check for progress against recommendation 2021-14.
2.7	Water conservation		
2.7.1	By 1 November 2018, or by a later date as approved by IPART, Water NSW must submit to IPART, a report outlining Water NSW's water conservation strategy in relation to its operations under this Licence (Water Conservation Strategy).	NR	Fixed deadline requirement (only required to be audited in year of deadline).
2.7.2	<p>The Water Conservation Strategy must include:</p> <p>a) identification and documentation of existing water conservation activities;</p> <p>b) a process for identifying additional options for conserving water;</p> <p>c) a process for comparing these options; and</p> <p>d) a process for selecting options for implementation.</p>	NR	Information clause – does not require audit.
2.7.3	By 1 September 2019, or by a later date as approved by IPART, Water NSW must develop and submit to IPART a water conservation work program using the process set out in the Water Conservation Strategy	NR	Fixed deadline requirement (only required to be audited in year of deadline).
2.8	Research on catchments		
2.8.1	<p>Water NSW must maintain a program of research for each Declared Catchment Area which:</p> <p>a) relates to catchments within that Declared Catchment Area generally and in particular their health;</p> <p>b) is consistent with its objectives under section 6 of the Act; and</p> <p>c) assists Water NSW to discharge its functions under sections 7(1)(g) and 7(1)(h) of the Act.</p>	Audit	<p>We audited this clause in 2020 WaterNSW received a compliant grade at that audit.</p> <p>We audited this clause in 2018, WaterNSW received a compliant – MS grade at the audit.</p>
2.8.2	Water NSW must report on its research programs referred to in clause 2.8.1 in accordance with the Reporting Manual.	SC	

3	Bulk Water storage and transmission		
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.	SC	
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.	Audit	This clause was audited in 2018 and 2020 and received a Compliant – MS grade for the clause and in 2021 received a compliant grade for this clause. Auditor to check for completion of recommendation 2020-09.
3.3	CSR Water		
3.3.1	For CSR Water, Water NSW must take all reasonable steps to: a) process all Water Orders promptly and efficiently; and b) manage Water Orders to ensure water is Delivered to its Customers in a timely manner.	SC	
3.4	Bulk Water released to Local Water Utilities for Drinking Water purposes		
3.4.1	Water NSW must maintain a register of all Local Water Utilities: a) for which Water NSW maintains a Water Allocation Account; and b) to which Water NSW releases water that will be used for the purposes of Drinking Water (Local Water Utility Customers), (LWU Register).	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	Auditor to check for completion of recommendation 2021-15.
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: a) describe how a Local Water Utility is to request information; b) describe how Water NSW will respond to the request in a timely manner; and 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.	SC	

3.4.5	Water NSW must make details of the LWU Information Request Procedure available free of charge on its website for downloading by any person.	SC	
3.4.6	By 31 December 2018, Water NSW must, in consultation with NSW Health, the Local Water Utility Customers on the LWU Register and its customer advisory groups established under clause 6.5, complete a review of its water quality monitoring, of water released by Water NSW to Local Water Utilities.	NR	Fixed deadline requirement (only required to be audited in year of deadline).
3.4.7	By 30 June 2019, Water NSW must provide IPART with a report detailing the outcomes of the review referred to in clause 3.4.6. The report should describe measures that were identified and the timing by which they could be implemented. Any barriers to immediate implementation of identified measures, including limitations to funding, should be outlined in the report. <i>[Note: The purpose of clause 3.4 is to ensure that there are mechanisms in place for Water NSW to share information which it currently has, or is best placed to collect with interested Local Water Utilities, where that information could usefully inform a Local Water Utility's Drinking Water quality assurance program.]</i>	NR	Fixed deadline requirement (only required to be audited in year of deadline).
4	Performance Standards		
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 2.1.2 or 2.1.3 (Supply Water Quality Performance Standard).	Audit	Auditor to check for completion of recommendation 2020-09.
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 - 4.3.7 apply to Water NSW with respect to CSR Water.	NR	Information clause – does not require audit.
4.3.2	CSR Water Delivery Performance Standard A Water NSW must ensure that: a) 99% of Customers who place a Non-complying Water Order are contacted within one working day to rectify that order; and b) this is calculated as a percentage of all Non-complying Water Orders placed in the financial year.	SC	
4.3.3	CSR Water Delivery Performance Standard B Water NSW must ensure that: a) 99% of Water Orders are Delivered within one day of the scheduled day of Delivery; and b) this is calculated as a percentage of all complying Water Orders placed in the financial year.	SC	

	<i>[Note: The scheduled day of Delivery takes into account the period of required notice specified in Water Management Work approvals, licences, or entitlements. This is measured by Complaints and/or if Water NSW identifies a Delivery delay, e.g. through its staff, systems or otherwise identifies or becomes aware of a Delivery delay.]</i>		
4.3.4	CSR Water Service Interruptions Performance Standard Water NSW must ensure that: 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 b) this is calculated as a percentage of all Water Orders rescheduled in the financial year due to an expected shortage or Delivery delay.	SC	
4.3.5	CSR Water Account Processing Performance Standard A 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	
4.3.6	CSR Water Account Processing Performance Standard B 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	
4.3.7	CSR Water Account Processing Performance Standard C 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	
5	Organisational systems management		
5.1	Asset Management System		
5.1.1	Water NSW 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 on request by Water NSW (the Asset Management System).	SC	
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.	SC	Auditor to check for completion of recommendation 2021–16.
5.2	Environmental Management System		
5.2.1	Water NSW must at all times maintain an Environmental Management System for carrying out the functions authorised under this Licence 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 (the Environmental Management System).	Audit	This clause was audited in 2019 and received a Compliant grade and in 2021 and received a Compliant – MS grade for this clause. Auditor to check for completion of recommendation 2021–17.

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	This clause was audited in 2019 and received a Compliant grade and in 2021 and received a Compliant – MS grade for this clause. Auditor to check for progress against recommendation 2021–18.
6	Customer and stakeholder relations		
6.1			
6.1.1	Water NSW must establish and maintain agreements with each of its Customers to whom it Supplies water (except Sydney Water), which agreements must set out the terms and conditions for the Supply of water (Customer Supply Agreements). <i>[Note: Under section 25 of the Act, Water NSW is required to enter into arrangements with Sydney Water regarding the Supply of water by Water NSW to Sydney Water. Therefore, this Licence does not regulate the Supply arrangements with Sydney Water under section 25 of the Act.]</i>	SC	
6.1.2	Water NSW must only Supply water to these Customers in accordance with the terms and conditions of these Customer Supply Agreements.	SC	
6.1.3	The terms and conditions of the Customer Supply Agreements must, at a minimum, include provisions addressing: a) the standard of water quality Supplied by Water NSW; b) the continuity of the water Supplied by Water NSW (that is, provisions relating to interruptions, disconnections and reconnections to Supply); c) any metering arrangements; d) the fees and charges to be paid by the Customers for the Supply of water to them; e) dispute resolution and Complaints handling procedures; and 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.	SC	
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	<p>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.</p> <p><i>[Note: In accordance with section 31(1) of the Act and clause 1.2.5 of this Licence, Water NSW is authorised to operate, replace, repair, maintain, remove, connect, disconnect or modify Metering Equipment that Water NSW does not own. Water NSW must only exercise this authority in accordance with this condition.]</i></p>	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	
6.5.1	Water NSW must establish and maintain area-based advisory groups representing a broad cross-section of its Customers for those areas (Customer Advisory Group).	SC
6.5.2	Water NSW must regularly consult with the area-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	<p>For each Customer Advisory Group, Water NSW must use its best endeavours to ensure that membership is representative of the Customers in that area and include at least one Customer representing each of the following categories (where there are Customers in this category for the area associated with the Customer Advisory Group):</p> <ol style="list-style-type: none"> stock and domestic water users; Regulated River water users; Unregulated River water users; groundwater users; environmental water users; industrial and commercial water users; Local Water Utilities; Major Utilities; small water users based on their Water Licence volume; medium water users based on their Water Licence volume; large water users based on their Water Licence volume; and Aboriginal cultural heritage water users. 	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		
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: a) the role of the Customer Advisory Group; b) how members and the chair of the Customer Advisory Group will be appointed; c) the term for which members are appointed; d) information on how the Customer Advisory Group will operate; e) a description of the type of matters that will be referred to the Customer Advisory Group and how those matters will be referred; f) procedures for communicating the outcomes of the Customer Advisory Groups' work to the public; g) procedures for monitoring issues raised at meetings of the Customer Advisory Groups and ensuring appropriate follow-up of those issues; h) procedures for amending the charter; and i) funding and resourcing of the Customer Advisory Groups by Water NSW.	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	
6.6.4	Water NSW must make the Customer Advisory Group Charter available free of charge on its website for downloading by any person.	Internal IPART check	This clause is not included in the auditor's scope.
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 2000 (NSW), the Water Act 1912 (NSW) and any other applicable law.	SC	

6.7.3	Water NSW must make the Customer Service Charter available free of charge on its website for downloading by any person.	SC
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"> 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; 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); 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 d) include procedures for self-identification, identification by community welfare organisations and identification by Water NSW of Customers experiencing financial hardship. 	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. <i>[Note: This requirement does not apply to any arrangements with Sydney Water under section 25 of the Act.]</i>	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"> a) to Customers, except Sydney Water, at least once annually with their Bills; and 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 c) on its website for downloading by any person. 	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 (AS/NZS 10002:2014) or other standard approved by IPART on request by Water NSW (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
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 to any person, free of charge, on its website for downloading.	SC	
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	Water NSW must: 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; 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 c) make the information prepared under clause 6.10.2(a) available to any person, free of charge, on its website for downloading.	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 Act, and report on its 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 25 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: a) maintain a memorandum of understanding with the Secretary of the Ministry of Health entered into under section 21(1) of the Act; and b) comply with the memorandum of understanding maintained under clause 6.13.1(a). <i>[Note: Clause 6.13.1 does not limit the persons with whom Water NSW may enter into a memorandum of understanding.]</i>	SC	This obligation was previously audited at the 2021 audit.

			We have sought NSW Health's comments on Water NSW's performance against this clause. Auditor to consider the comments in NSW Health's submission. NSW Health raised issues around the timely and appropriate information sharing during incidents and noted the October "2021 taste and odour incident".
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. <i>[Note: Clause 6.13.2 does not limit the matters which may be included in the memorandum of understanding with NSW Health.]</i>	SC	We have sought NSW Health's comments on Water NSW's performance against this clause. Auditor to consider the comments in NSW Health's submission. NSW Health raised issues around the timely and appropriate information sharing during incidents and noted the October "2021 taste and odour incident".
6.13.4	Water NSW must publish on its website for downloading by any person, 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: a) maintain the memorandum of understanding with the Environment Protection Authority entered into under section 21(1) of the Act; and b) comply with the memorandum of understanding maintained under clause 6.14.1(a). <i>[Note: Clause 6.14.1 does not limit the persons with whom Water NSW may enter into a memorandum of understanding.]</i>	SC	We have sought EPA's comments on Water NSW's performance against this clause.

6.14.2	The purpose of the memorandum of understanding referred to in clause 6.14.2 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. <i>[Note: Clause 6.14.2 does not limit the matters which may be included in the memorandum of understanding with the Environmental Protection Agency.]</i>	NR	Information clause – does not require audit.
6.14.3	Water NSW must publish on its website, for downloading by any person, the memorandum of understanding maintained with the Environmental Protection Authority under clause 6.14.1(a).	Internal IPART check	This clause is not included in the auditor's scope.
6.15	Memorandum of Understanding with Department of Planning and Environment		
6.15.1	Water NSW must: a) use its best endeavours to establish and maintain a memorandum of understanding with the Department of Planning and Environment; and b) comply with the memorandum of understanding maintained under clause 6.15.1(a). <i>[Note: Clause 6.15.1 does not limit the persons with whom Water NSW may enter into a memorandum of understanding.]</i>	SC	We have sought the Department of Planning and Environment's comments on Water NSW's performance against this clause.
6.15.2	The purpose of the memorandum of understanding referred to in clause 6.15.1 is to form the basis for a cooperative relationship between the parties to the memorandum regarding the role of Water NSW for the review and implementation of the Metropolitan Water Plan. <i>[Note: Clause 6.15.2 does not limit the matters which may be included in the memorandum of understanding with the Department of Planning and Environment.]</i>	NR	Information clause – does not require audit.
6.16	Roles and Responsibilities with Department of Industry		
6.16.1	Water NSW must: a) agree in writing with the Department of Industry the roles and responsibilities regarding the conduct of Conferred Functions specified in Schedule A of this Licence; and b) comply with the agreement established under clause 6.16.1(a). <i>[Note: Clause 6.16.1 does not limit the persons with whom Water NSW may enter into an agreement or the matters which may be contained in the agreement.]</i>	SC	We have sought the Department of Planning and Environment's comments on Water NSW's performance against this clause.
6.16.2	By 30 June 2018, Water NSW must publish on its website, for downloading by any person, a statement setting out the roles and responsibilities required under clause 6.16.1(a). <i>[Note: The statement may also include roles and responsibilities agreed with the Water Administration Ministerial Corporation or any other relevant Government departments or agencies.]</i>	SC	
6.17	Memorandum of Understanding with Natural Resources Access Regulator		
6.17.1	Water NSW must: a) use its best endeavours to establish and maintain a memorandum of understanding with the Natural Resources Access Regulator; and	SC	We have sought NRAR's comments on Water NSW's performance against this clause.

	<p>b) comply with the memorandum of understanding maintained under clause 6.17.1(a).</p> <p><i>[Note: Clause 6.17.1 does not limit the persons with whom Water NSW may enter into a memorandum of understanding.]</i></p>		NRAR noted that "throughout the audit period WaterNSW has worked with NRAR to implement the MoU".
6.17.2	<p>The purpose of the memorandum of understanding referred to in clause 6.17.1 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.</p> <p><i>[Note: Clause 6.17.2 does not limit the matters which may be included in the memorandum of understanding with the Natural Resources Access Regulator.]</i></p>	NR	Information clause – does not require audit.
6.18	Online portal for lodgement of documents relating to metering equipment		
6.18.1	<p>Water NSW must develop, operate and maintain an on-line portal to allow for the electronic lodgement of the following:</p> <p>a) a certificate provided under clause 237(1) or (2) of the Water Management (General) Regulation 2018, as required by clause 238(2) of that Regulation,</p> <p>b) a report by a person who intends to rely on clause 8 of Schedule 8 of the Water Management (General) Regulation 2018 setting out the steps taken in relation to the metering equipment, as required by clause 8(3) of that Regulation,</p> <p>c) written certification as to the matter set out in clause 9(2)(b) of Schedule 8 of the Water Management (General) Regulation 2018,</p> <p>d) a report from a person who intends to rely on clause 9 of Schedule 8 of the Water Management (General) Regulation 2018, setting out the steps taken in relation to the metering equipment, as required by clause 9(5) of that Regulation.</p>	SC	
6.18.2	The portal must be operational by 1 December 2020.	NR	Fixed deadline requirement (only required to be audited in year of deadline).
6.18.3	Water NSW must ensure that certificates, reports and other documents lodged in the portal are retained.	SC	Auditor to check for progress against recommendation 2021–19.
6.18.4	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 (General) Regulation 2018 and "duly qualified person" has the same meaning as in the Water Management Act 2000.	SC	
6.18.5	Water NSW must provide DPIE and NRAR with access to the portal, all data held in the portal and any systems related to the portal.	SC	
6.19	Downloading of data from certain metering equipment		
6.19.1	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 (General) Regulation 2018.	NR	Information clause – does not require audit.
6.19.2	Water NSW must, at least once a year, download all data from the metering equipment to which this clause applies.	Audit	This clause was added to the licence in 2020.

			This is the first audit of this clause.
6.19.3	All such data must be entered into and retained in Water NSW's data systems.	SC	
6.19.4	Prior to 1 December 2021, Water NSW, DPIE and NRAR are to agree on protocols for requests for data to which this clause applies.	Audit	This clause was added to the licence in 2020. This is the first audit of this clause.
6.19.4	All such data must be made available to DPIE and NRAR on request, provided such requests are made in accordance with the protocols agreed between Water NSW, DPIE and NRAR.	Audit	This clause was added to the licence in 2020. This is the first audit of this clause.
6.19.5	The obligations imposed by this clause take effect from 1 December 2021.	NR	Information clause – does not require audit.
6.20	Data sharing and services agreement with DPIE and NRAR – NSW non-urban water metering framework		
6.20.1	Water NSW must use its best endeavours to develop and enter into a data sharing and services agreement with DPIE and NRAR as soon as practicable after 1 July 2020 or by a date approved by the Minister in writing (the Metering Data Sharing and Services Agreement). If such an agreement has been entered into before 1 July 2020, this subclause does not apply. <i>[Note: The Metering Data Sharing and Services Agreement is in addition to the MWP Data Sharing Agreement described in clause 2.9.6.]</i>	SC	We have sought Department of Planning and Environment and NRAR's comments on Water NSW's performance against this clause.
6.20.2	The Metering Data Sharing and Services Agreement is 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 DPIE and to the NRAR.	SC	
6.20.3	Once Water NSW has entered into the Metering Data Sharing and Services Agreement, Water NSW must: a) provide access to the data and services under that Agreement to DPIE and NRAR, in accordance with that Agreement, and b) comply with any cure plan that applies to Water NSW under that Agreement.	SC	
6.20.4	If by 1 July 2020, Water NSW, DPIE and NRAR have entered into an agreement as required by this clause, clause 6.20.3 applies to that agreement.	NR	Fixed deadline requirement (only required to be audited in year of deadline).
7	Performance monitoring and reporting		
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: a) this Licence; b) the Reporting Manual; or c) any other matters required by the Minister. (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	This clause is not included in the auditor's scope.

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	This clause is not included in the auditor's scope.
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"> a) access any Works, premises or offices occupied by Water NSW; b) carry out inspections, measurements and tests on, or in relation to, any such Works, premises or offices; 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; 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 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. <i>[Note: Water NSW is required under section 60 of the Act to pay to the Treasurer the cost (as certified by IPART) involved in and in connection with carrying out the Operational Audit of Water NSW.]</i>	Internal IPART check	This clause is not included in the auditor's scope.
7.2	Reporting in accordance with this Licence and the Reporting Manual		
7.2.1	Water NSW must comply with its reporting obligations set out in this Licence and in the Reporting Manual, including in relation to: <ul style="list-style-type: none"> a) water source protection and conservation; b) Bulk Water storage and transmission; c) Performance Standards; d) organisational systems management; e) Customer and stakeholder relations; and f) performance monitoring and reporting including: <ul style="list-style-type: none"> i) IPART performance indicators; and ii) the National Water Initiative Performance Indicators. 	IPART check	Auditor to check for completion of recommendation 2021-01.
7.2.2	Water NSW must maintain sufficient record systems that enable it to report accurately in accordance with clause 7.2.1.	SC	
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. <i>[Note: The Reporting Manual identifies the details of when, what, to whom and how Water NSW must report to IPART and NSW Health. The Reporting Manual also specifies what and how reports and other information must be made publicly available.]</i>	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	This clause is not included in the auditor's scope.
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	This clause is not included in the auditor's scope.
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	This clause is not included in the auditor's scope.
7.3.4	Where this Licence requires Water NSW to provide information to IPART or an Auditor that is information to which: a) section 24FF of the IPART Act applies; or 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.	Internal IPART check	This clause is not included in the auditor's scope.

Source: IPART, Water NSW Operational Audit 2021 - Report to the Minister – Compliance Report, March 2022.

Table 3 Recommendations / outstanding items from previous audits

Recommendation number	Operational issue (licence reference where applicable)	IPART's recommendation to the Minister	Audit findings (Water NSW will provide a status update in the status against audit recommendations report on 6 June 2022 ^a)	Guidance for 2022 audit
2020-02	Water Quality Management System (clause 2.1.3)	By 31 July 2021, review and, where appropriate, amend the Fish River Water Supply Scheme Drinking Water Quality Management System against each of the 12 elements, 32 components and 76 actions of the Framework for Management of Drinking Water Quality. WaterNSW should document reviews and internal audits in the updated system at intervals appropriate to ensure effective implementation of the system. WaterNSW should review and update supporting documentation for currency, including: - Fish River Water Supply System operations and maintenance manual - Operating Protocols for Fish River Water Supply (CD2017/173) - Fish River Water Supply Scheme Incident Management Plan (D2018/116921).	At the 2021 audit, the auditor found that WaterNSW had partially completed the requirements of this recommendation. However, the auditor noted that the finalisation of the Fish River Water Supply System operations and maintenance manual including the supporting SOPs and maintenance requirements was outstanding.	Auditor to check for completion.
2020-09	Clauses 4.2.2 and 3.2.1	By 30 June 2021, WaterNSW should review the appropriateness of CCP analysers at Duckmaloi Water Treatment Plant to ensure that they provide a reliable measurement of turbidity and chlorine residual.	WaterNSW had not closed out this recommendation in the 2021 audit period. The work to resolve this recommendation was delayed by the COVID-19 travel restrictions imposed on the Greater Sydney and Hunter Valley local government areas.	Auditor to check for completion.
2021-01	15.1	By 30 June 2022, WaterNSW must establish processes to ensure that documents to be made publicly on the website are current, uploaded in a timely manner and, where relevant, meet the date requirements in the Reporting Manual.	New recommendation from the 2021 audit.	Auditor to check for completion.
2021-02	2.11 2.12 2.14	By 31 August 2022, WaterNSW should review the process for updating the water quality contact list (including the version attached to the WQ Incident Response Protocols) to ensure that the list is current, this should include all stakeholders, not just those relevant to the JOG.	New recommendation from the 2021 audit.	Auditor to check for completion.

Recommendation number	Operational issue (licence reference where applicable)	IPART's recommendation to the Minister	Audit findings (Water NSW will provide a status update in the status against audit recommendations report on 6 June 2022^a)	Guidance for 2022 audit
2021-03	2.11 2.12	By 31 August 2022, WaterNSW should document the process and responsibility for scheduling major WQMS risk reviews.	New recommendation from the 2021 audit.	Auditor to check for completion.
2021-04	2.11 2.12	By 31 August 2022, WaterNSW should finalise the Operation & Maintenance manuals for the dams in the Declared Catchment.	New recommendation from the 2021 audit.	Auditor to check for completion.
2021-05	2.11 2.12 2.13	By 31 August 2022, WaterNSW should ensure that the WaterNSW Incident Management Procedure (CD2017/180) has been updated and implemented.	New recommendation from the 2021 audit.	Auditor to check for completion.
2021-06	2.13	By 31 August 2022, WaterNSW should update the Water Quality Data Review and Reporting Procedure to explicitly cover the Fish River Supply reporting requirements	New recommendation from the 2021 audit.	Auditor to check for completion.
2021-07	2.13	By 31 August 2022, WaterNSW should document the process to revalidate treatment process when a change condition occurs, including defining triggers for when this would occur.	New recommendation from the 2021 audit.	Auditor to check for completion.
2021-08	2.13	By 31 August 2022, WaterNSW should document the requirement for chlorine analyser reagent levels for the chlorine analyser to be included in operational checks at Duckmaloi WTP.	New recommendation from the 2021 audit.	Auditor to check for completion.
2021-09	2.14	By 31 August 2022, WaterNSW should develop processes to ensure that regulatory requirements associated with new or emerging obligations, are identified and documented within the compliance system.	New recommendation from the 2021 audit.	Auditor to check for completion.
2021-10	2.14	By 30 June 2022, WaterNSW should develop and implement a process (e.g. audit) to ensure that work orders for calibration of critical limit analysers are undertaken	New recommendation from the 2021 audit.	Auditor to check for completion.
2021-11	2.14	By 30 June 2022, WaterNSW should review monitoring processes to ensure mandatory water quality awareness training is undertaken.	New recommendation from the 2021 audit.	Auditor to check for completion.

Recommendation number	Operational issue (licence reference where applicable)	IPART's recommendation to the Minister	Audit findings (Water NSW will provide a status update in the status against audit recommendations report on 6 June 2022^a)	Guidance for 2022 audit
2021-12	2.6.1	By 30 September 2022, WaterNSW should conduct a lessons learned review for the system yield review project. The review should consider why consultants were not engaged in a timely manner. The outcomes of the lessons learned review should be documented and used to inform the approach for obtaining future reviews of System Yield.	New recommendation from the 2021 audit.	Auditor to check for progress.
2021-13	2.6.2	By 30 September 2022, WaterNSW should undertake a stakeholder identification and engagement review to: a) identify stakeholders (to include broadly customers, stakeholders, regulators and interested parties) b) the appropriate level of engagement for each stakeholder for i) updating System Yield ii) use of System Yield c) identify engagement strategies for the stakeholders for updating and using System Yield.	New recommendation from the 2021 audit.	Auditor to check for progress.
2021-14	2.6.3	By 30 September 2022, WaterNSW should conduct a lessons learned review for the System Yield review project to identify: • What led to delays in meeting milestones and providing deliverables on time. • How to ensure that key deliverables include all the requirements of the project. The outcomes of the lessons learned review should be documented and used to inform the approach for obtaining and reporting on future reviews of System Yield. (We note that this review may be conducted in parallel with that for Recommendation 2020-12).	New recommendation from the 2021 audit.	Auditor to check for progress.
2021-15	3.4.2	By 31 August 2022, WaterNSW should review processes for maintaining registers (maintained in excel) to ensure accuracy of contacts in the Local Water Utilities Contact Details spreadsheet (DOC13 29697).	New recommendation from the 2021 audit.	Auditor to check for completion.
2021-16	5.1.2	By 31 August 2022, WaterNSW should deliver the recommendations included in the asset maintenance internal audit report (D2021/117683) dated January 2021.	New recommendation from the 2021 audit.	Auditor to check for completion.
2021-17	5.2.1	By 31 August 2022, WaterNSW should ensure the fluoridation requirements are included in the Safety and Environment compliance obligations register.	New recommendation from the 2021 audit.	Auditor to check for completion.

Recommendation number	Operational issue (licence reference where applicable)	IPART's recommendation to the Minister	Audit findings (Water NSW will provide a status update in the status against audit recommendations report on 6 June 2022 ^a)	Guidance for 2022 audit
2021-18	5.2.2	Prior to operation of the fluoride plant at Duckmaloi WTP, WaterNSW must show satisfactory progress and completion of the actions from the Duckmaloi WTP Assurance report (D2020/60963) with regards to fluoridation.	New recommendation from the 2021 audit.	Auditor to check for progress/completion.
2021-19	6.18.3	By 31 August 2022, WaterNSW should develop, document and implement a data retention protocol to ensure that certificates, reports and other documents lodged in the portal are protected against loss. The data retention protocol should be developed in consultation with the Department of Planning and Environment and the Natural Resource Access Regulator and be supported by a risk assessment.	New recommendation from the 2021 audit.	Auditor to check for completion.

a Water NSW is required to provide a report on progress by 31 March 2021 or a later date agreed by IPART. Due to the timing of the 2021 audit, the Tribunal has agreed to a later date of 6 June 2022 for Water NSW to report on its progress with the audit recommendations

Note: Licence references are to the Water NSW's Operating Licence 2017-2022 unless otherwise stated.

Source: IPART, Water NSW Operational Audit 2021 – Report to the Minister, March 2022.

Table 4 Previous field verification locations for Water NSW

Audit year	Location	Facility
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 ^a	Warragamba Dam	Warragamba Dam and W5 fire trail to the north of the dam
	Duckmaloi	Water treatment plant
2019 ^b	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
Water NSW (State Water Corporation) Operating Licence 2013-2018		
2017	Griffith - Murrumbidgee, Beavers Creek, Tombullen Creek	Weirs, Outlet
2016	Burrinjuck Dam	Infrastructure
2015	Fish River	Water Supply
2014	Warren	Marebone Weir fishway
	Dubbo	Burrendong Dam floating curtain
Previous Licence		
2013	Dubbo	Burrendong 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)
2013	Broughton's Pass to Prospect Reservoir	Upper Canal
	Prospect Reservoir	Prospect Reservoir

a. In 2020, audit interviews were conducted remotely using online video conferencing, and site visits were made to 2 facilities.

b. 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.

E Auditor's report



2022 Operational Audit of WaterNSW

Final Audit Report

#20030-10-001 Version 3.1

Independent Pricing and Regulatory Tribunal

February 2023

Document History

2022 Operational Audit of WaterNSW

Final Audit Report

Independent Pricing and Regulatory Tribunal

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Glossary

Acronym/Term	Description
ADWG	<i>Australian Drinking Water Guidelines</i>
AM&S	Asset Maintenance and Services (<i>team within WaterNSW</i>)
AMS	Asset Management System
BFMC	Bush Fire Management Committee
C2C	Catchment to Customer (<i>relates to the scope of risk assessments</i>)
CCP	Critical Control Point
DOC	Dissolved Organic Carbon
DPE	Department of Planning and Environment (<i>previously DPIE</i>)
DPIE	Department of Planning, Industry and Environment (<i>now DPE</i>)
DQP	Duly Qualified Person (<i>a person with the qualifications, skills or experience to carry out certain work in relation to metering equipment</i>)
DWQMS	Drinking Water Quality Management System
EAMS	Enterprise Asset Management System
EMS	Environmental Management System
EPL	Environment Protection Licence
FRWSS	Fish River Water Supply System
IMP	Incident Management Plan
IPART	The Independent Pricing and Regulatory Tribunal (NSW)
JOG	Joint Operations Group
KPI	Key Performance Indicator
LID	Local Intelligence Device (<i>a device connected to a pattern-approved meter and used to securely record information about water take</i>)
LWU	Local Water Utility
MoU	Memorandum of Understanding
NOCTSO	Notification of Change to System Operation
NOM	Natural Organic Matter
NRAR	Natural Resources Access Regulator
OFI	Opportunity for Improvement
PM	Programmed Maintenance (<i>type of maintenance activity</i>)
RACS	Risk Assurance and Compliance System
REC	Recommendation
RFS	NSW Rural Fire Service
RWSA	<i>Raw Water Supply Agreement (between WaterNSW and Sydney Water)</i>
SCADA	Supervisory Control and Data Acquisition

Acronym/Term	Description
SCARMS	WaterNSW (<i>previously Sydney Catchment Authority/SCA</i>) Reservoir Management System
SITREP	Situation Report
SLG	Strategic Liaison Group
THM	Trihalomethane
TOC	Total Organic Carbon
WATHNET	Water Headworks Network simulation model
WFP	Water Filtration Plant
WQMS	Water Quality Management System
WQIRP	<i>Water Quality Incident Response Plan</i>
WTP	Water Treatment Plant

Executive Summary

Auditor Declaration

This report presents the findings of an Operational Audit of WaterNSW's compliance with the requirements of its Operating Licence during the period 1 September 2021 to 31 August 2022. The audit was undertaken by Cobbitty Consulting, in association with Viridis Consultants, for the Independent Pricing and Regulatory Tribunal (IPART).

The audit team confirms that:

- the auditors have seen sufficient evidence on which to base their conclusions;
- the audit findings accurately reflect the professional opinion of the auditors;
- the lead auditor and team members have conducted the audit, determined audit findings and prepared this report in accordance with the requirements of the *Audit Guideline – Public Water Utilities*¹ and IPART's *Request for Quote*.²
- the audit findings have not been unduly influenced by the utility and/or any of its associates.

Major Findings

The audit team found that WaterNSW had performed well against the audited obligations over the audit period. Eleven (11) clauses of the Operating Licence were audited, the findings in respect of which can be summarised as follows:

- It was found that there was no requirement for compliance in respect of two (2) of the audited clauses during the audit period;
- Compliant (minor shortcomings) has been assigned in respect of three (3) clauses; and
- Compliant has been awarded to all of the remaining six (6) audited clauses.












The identified shortcomings relate to the Water Quality Management System and its implementation.

The findings of the audit of performance against the audited Licence obligations are summarised in **Table E.1**. The assessment of progress in respect of previous audit recommendations is summarised in **Table E.2**.

¹ IPART, *Audit Guideline; Public Water Utilities* (Issue PWUAG-Rev4), July 2019.

² IPART, *Request for Quote – RFQ 19/80; 2019 Public Water Utility Audits*, undated.






Table E.1 Summary of Audit Findings

Licence Part	Sub-clause /Obligation	Compliance Grade/Comment ³
2. Water Source protection and conservation	2.1.2	 Compliant (minor shortcomings) <i>The Water Quality Management System does not include a detailed documented procedure for conducting risk assessments.</i> Recommendation REC-WNSW-2022-01 (refer Table E.3 for details) is made.
	2.1.3	 Compliant (minor shortcomings) <i>The Water Quality Policy in respect of its application to the Non-Declared Catchment Areas is ambiguous; and the Water Quality Management System does not include a detailed documented procedure for conducting risk assessments.</i> Recommendations REC-WNSW-2022-01 and REC-WNSW-2022-02 (refer Table E.3 for details) are made.
	2.1.4	 Compliant (minor shortcomings) <i>Flow diagrams are not always prepared in accordance with the relevant procedure in that not all processes are included.</i> Recommendation REC-WNSW-2022-03 (refer Table E.3 for details) is made.
	2.8.1	 Compliant
3. Bulk Water storage and transmission	3.2.1	 Compliant
4. Performance Standards	4.2.2	 Compliant
5. Organisational systems management	5.2.1	 Compliant
	5.2.2	 Compliant
6. Customer and stakeholder relations	6.19.2	 No requirement
	6.19.4	 Compliant
	6.19.4* ⁴	 No requirement

³ Comment provided where shortcomings were identified, or non-compliance was assessed.

⁴ Duplication of sub-clause number 6.19.4 is due to an error in the Licence; there are two separate sub-clauses both numbered 6.19.4. This report references the duplicate sub-clause as 6.19.4*.









Table E.2 Summary of Assessed Progress in Respect of Previous Audit Recommendations






Recommendation ⁵	Licence Reference ⁶ and Operational Issue	Status/Comment ⁷
2021-01	<p><i>Making copies of this Licence available (sub-clause 1.5.1):</i></p> <p>By 30 June 2022, WaterNSW must establish processes to ensure that documents to be made publicly available on the website are current, uploaded in a timely manner and, where relevant, meet the date requirements in the Reporting Manual.</p>	 Completed
2020-02	<p><i>Water Quality Management System (sub-clause 2.1.3):</i></p> <p>By 31 July 2021, review and, where appropriate, amend the Fish River Water Supply Scheme Drinking Water Quality Management System against each of the 12 elements, 32 components and 76 actions of the Framework for Management of Drinking Water Quality. WaterNSW should document reviews and internal audits in the updated system at intervals appropriate to ensure effective implementation of the system. WaterNSW should review and update supporting documentation for currency, including:</p> <ul style="list-style-type: none"> ▪ <i>Fish River Water Supply System Operations and Maintenance Manual;</i> ▪ <i>Operating Protocols for Fish River Water Supply (CD2017/173)</i> <p><i>Fish River Water Supply Scheme Incident Management Plan (D2018/116921).</i></p>	 Completed
2021-02	<p><i>Water Quality Management System (sub-clauses 2.1.1, 2.1.2 and 2.1.4):</i></p> <p>By 31 August 2022, WaterNSW should review the process for updating the water quality contact list (including the version attached to the WQ Incident Response Protocols) to ensure that the list is current, this should include all stakeholders, not just those relevant to the JOG.</p>	 Completed
2021-03	<p><i>Water Quality Management System (sub-clauses 2.1.1 and 2.1.2):</i></p> <p>By 31 August 2022, WaterNSW should document the process and responsibility for scheduling major WQMS risk reviews.</p>	 Completed
2021-04	<p><i>Water Quality Management System (sub-clauses 2.1.1 and 2.1.2):</i></p> <p>By 31 August 2022, WaterNSW should finalise the operation and maintenance manuals for the dams in the Declared Catchment.</p>	 Completed




⁵ Recommendations are listed in order by the applicable *Operating Licence* clause, and then numerically.

⁶ Refer to the relevant section of this report and associated appendix for full details of previous recommendations.

⁷ Comment provided where recommendation has not been fully addressed (i.e. completed).

Recommendation ⁵	Licence Reference ⁶ and Operational Issue	Status/Comment ⁷
2021-05	<p><i>Water Quality Management System (sub-clauses 2.1.1, 2.1.2 and 2.1.3):</i></p> <p>By 31 August 2022, WaterNSW should ensure that the <i>WaterNSW Incident Management Procedure</i> (CD2017/180) has been updated and implemented.</p>	 Completed
2021-06	<p><i>Water Quality Management System (sub-clause 2.1.3):</i></p> <p>By 31 August 2022, WaterNSW should update the <i>Water Quality Data Review and Reporting Procedure</i> to explicitly cover the Fish River Supply reporting requirements.</p>	 Completed
2021-07	<p><i>Water Quality Management System (sub-clause 2.1.3):</i></p> <p>By 31 August 2022, WaterNSW should document the process to revalidate treatment process when a change condition occurs, including defining triggers for when this would occur.</p>	 Completed
2021-08	<p><i>Water Quality Management System (sub-clause 2.1.3):</i></p> <p>By 31 August 2022, WaterNSW should document the requirement for chlorine analyser reagent levels for the chlorine analyser to be included in operational checks at Duckmaloi WTP.</p>	 Completed
2021-09	<p><i>Water Quality Management System (sub-clause 2.1.4):</i></p> <p>By 31 August 2022, WaterNSW should develop processes to ensure that regulatory requirements associated with new or emerging obligations, are identified and documented within the compliance system.</p>	 Completed
2021-10	<p><i>Water Quality Management System (sub-clause 2.1.4):</i></p> <p>By 30 June 2022, WaterNSW should develop and implement a process (e.g. audit) to ensure that work orders for calibration of critical limit analysers are undertaken.</p>	 Completed
2021-11	<p><i>Water Quality Management System (sub-clause 2.1.4):</i></p> <p>By 30 June 2022, WaterNSW should review monitoring processes to ensure mandatory water quality awareness training is undertaken.</p>	 Completed
2021-12	<p><i>Reviewing the model for the System Yield (sub-clause 2.6.1):</i></p> <p>By 30 September 2022, WaterNSW should conduct a lessons learned review for the system yield review project. The review should consider why consultants were not engaged in a timely manner.</p> <p>The outcomes of the lessons learned review should be documented and used to inform the approach for obtaining future reviews of System Yield.</p>	 Completed

Recommendation ⁵	Licence Reference ⁶ and Operational Issue	Status/Comment ⁷
2021-13	<p><i>Reviewing the model for the System Yield (sub-clause 2.6.2):</i></p> <p>By 30 September 2022, WaterNSW should undertake a stakeholder identification and engagement review to:</p> <ol style="list-style-type: none"> a) identify stakeholders (to include broadly customers, stakeholders, regulators and interested parties) b) the appropriate level of engagement for each stakeholder for: <ol style="list-style-type: none"> i) updating System Yield, ii) use of System Yield. c) identify engagement strategies for the stakeholders for updating and using System Yield. 	 Completed
2021-14	<p><i>Reviewing the model for the System Yield (sub-clause 2.6.3):</i></p> <p>By 30 September 2022, WaterNSW should conduct a lessons learned review for the System Yield review project to identify:</p> <ul style="list-style-type: none"> ▪ What led to delays in meeting milestones and providing deliverables on time, ▪ How to ensure that key deliverables include all the requirements of the project. <p>The outcomes of the lessons learned review should be documented and used to inform the approach for obtaining and reporting on future reviews of System Yield.</p> <p><i>(We note that this review may be conducted in parallel with that for Recommendation 2020-12).</i></p>	 Completed
2021-15	<p><i>Bulk Water released to Local Water Utilities for Drinking Water purposes (sub-clause 3.4.2):</i></p> <p>By 31 August 2022, WaterNSW should review processes for maintaining registers (maintained in excel) to ensure accuracy of contacts in the Local Water Utilities Contact Details spreadsheet (DOC13 29697).</p>	 Completed
2020-09	<p><i>Water Supplied Performance Standards (sub-clause 4.2.2) and Water Supply (sub-clause 3.2.1):</i></p> <p>By 30 June 2021, WaterNSW should review the appropriateness of CCP analysers at Duckmaloi Water Treatment Plant to ensure that they provide a reliable measurement of turbidity and chlorine residual.</p>	 Completed
2021-16	<p><i>Asset Management System (sub-clause 5.1.2):</i></p> <p>By 31 August 2022, WaterNSW should deliver the recommendations included in the asset maintenance internal audit report (D2021/117683) dated January 2021.</p>	 Completed

Recommendation ⁵	Licence Reference ⁶ and Operational Issue	Status/Comment ⁷
2021-17	<i>Environmental Management System (sub-clause 5.2.1):</i> By 31 August 2022, WaterNSW should ensure the fluoridation requirements are included in the Safety and Environment compliance obligations register.	 Completed
2021-18	<i>Environmental Management System (sub-clause 5.2.2):</i> Prior to operation of the fluoride plant at Duckmaloi WTP, WaterNSW must show satisfactory progress and completion of the actions from the Duckmaloi WTP Assurance report (D2020/60963) with regards to fluoridation.	 Completed
2021-19	<i>Online portal for lodgement of documents relating to metering equipment (sub-clause 6.18.3):</i> By 31 August 2022, WaterNSW should develop, document and implement a data retention protocol to ensure that certificates, reports and other documents lodged in the portal are protected against loss. The data retention protocol should be developed in consultation with the Department of Planning and Environment and the Natural Resource Access Regulator and be supported by a risk assessment.	 Completed

Recommendations

Recommendations arising from the audit are presented in **Table E.3**.

Table E.3 Audit Recommendations

Licence Part	Clause /Obligation	Recommendation
2. Water Source protection and conservation	2.1.2	REC-WNSW-2022-01: By 30 June 2023, WaterNSW should revise the <i>Conduct Catchment to Customer (C2C) Risk Assessment Procedure</i> 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 even go as far as stating how these should be implemented (relates to Element 2).
	2.1.3	REC-WNSW-2022-02: By 30 June 2023, WaterNSW should revise the scope of the <i>Water Quality Policy</i> to clarify its application to the non-declared catchment. The coverage is dependent on the definition of the word “supply” in the Operational Licence. It should be clear to readers of the policy what the scope of its application is, without seeking clarification (relates to Element 1). REC-WNSW-2022-01 is also applicable.

Licence Part	Clause /Obligation	Recommendation
	2.1.4	REC-WNSW-2022-03: 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).

Opportunities for Improvement

Opportunities for improvement arising from the audit are presented in **Table E.4**.

Table E.4 Identified Opportunities for Improvement

Licence Part	Clause /Obligation	Opportunities for Improvement
2. Water Source protection and conservation	2.1.2	<ul style="list-style-type: none"> ▪ OFI-WNSW-2022-01: Consider including in the Water Quality Policy a statement that required regulatory and other requirements will be complied with (relates to Element 1). ▪ OFI-WNSW-2022-02: Check/confirm that the Incident Management Procedure (CD2022/72) is current and approved for use; some pages are still marked as draft (Element 6). ▪ OFI-WNSW-2022-03: Consider including a status for employees and contractors in MyLearning that would exclude them from KPI calculations if they are not actively working. This may include parental leave, long service leave or contractors that do not currently have work/project assignment (Element 7). ▪ OFI WNSW-2022-04: The Water Quality Management System does not detail record management systems under Element 10 in Modelpedia. It would be useful for WaterNSW to map records to systems under this element, providing a quick reference for users to identify the location of certain records (Element 10).
	2.1.3	<ul style="list-style-type: none"> ▪ OFI-WNSW-2022-05: Consider revising the supply contract with Oberon Council to make it consistent with other supply protocols (relates to Element 4). ▪ OFI-WNSW-2022-01, 03 and 04 are also applicable.
	2.1.4	<ul style="list-style-type: none"> ▪ OFI-WNSW-2022-06: Update the review timeframe in the <i>Legal and Other Requirements Register</i> to match that stated in Modelpedia (relates to Element 1). ▪ OFI-WNSW-2022-07: Consider linking the current risk registers in Modelpedia, providing a single location to access current information (Element 2). ▪ OFI-WNSW-2022-08: The taste and odour incident in October 2021 has resulted in an increase in geosmin and MIB monitoring through a Special Request (D2021/110919). Ensure that this is considered at the next review of the monitoring plan so that appropriate routine monitoring is included in the plan (Element 3).

Licence Part	Clause /Obligation	Opportunities for Improvement
		<ul style="list-style-type: none"> ▪ OFI-WNSW-2022-09: Consider putting a common identifier, such as the RACS incident number, on documentation relating a specific incident, such as on email communications, NOCTSOs and SITREPs. This would be useful to WaterNSW staff and stakeholders, especially when there are multiple concurrent incidents (Element 6). ▪ OFI-WNSW-2022-10: Consider having a 'last reviewed date' as well as a 'next review date' on documents so that assumptions in terms of the currency of the document are not made without referring back to the metadata in ARK (Element 10).
	2.6.1 (Rec. 2021-12)	<ul style="list-style-type: none"> ▪ OFI-WNSW-2022-12: It is suggested that WaterNSW develops a more detailed timeline for the conduct of future reviews of the model for System Yield, similar to that developed for the stakeholder engagement component of the review.
	2.6.2 (Rec. 2021-13)	<ul style="list-style-type: none"> ▪ OFI-WNSW-2022-13: It is suggested that communication with the DPE for the purposes of the System Yield model review should include "Targeted Briefing and/or Workshop" in addition to "Letter" as communication tools. ▪ OFI-WNSW-2022-14: It is suggested that WaterNSW should include the agreement of stakeholders and regulators to be consulted for the purposes of the System Yield model review with IPART as an additional communication activity.
	2.6.3 (Rec. 2021-14)	<ul style="list-style-type: none"> ▪ OFI-WNSW-2022-12: It is suggested that WaterNSW develops a more detailed timeline for the conduct of future reviews of the model for System Yield, similar to that developed for the stakeholder engagement component of the review.
4. Performance Standards	4.2.2	<ul style="list-style-type: none"> ▪ OFI-WNSW-2022-11: It is suggested that WaterNSW considers embedding the monitoring of performance against identified Water Quality Performance Targets (such as reported in the "Corporate Scorecard Table") in its Water Quality Management System, and that these form the basis of demonstrating compliance with sub-clause 4.2.2 of the Operating Licence.

1. Introduction

1.1 Objectives

The objective of this audit was to assess, for the period from 1 September 2021 to 31 August 2022, WaterNSW’s performance against the terms and conditions (obligations) of:

- the *Water NSW Operating Licence 2017-2022* (Operating Licence);⁸ and
- any other Ministerially-imposed requirements.

1.2 Audit Method

1.2.1 Audit Scope

The scope of the 2022 Operational Audit of WaterNSW is specified in detail in the *Scope of Work – 2022 Public Water Utility Audits; RFQ 22/237*; it comprised:

- audit of WaterNSW’s compliance with the obligations and requirements set out in its *Operating Licence*;⁹ and
- assessment of WaterNSW’s progress in addressing outstanding recommendations arising from previous audits.

As outlined in its *Audit Guideline – Public Water Utilities*,¹⁰ IPART adopts a risk-based approach in setting the scope of public water utility operational audits. The clauses/obligations against which WaterNSW’s compliance has been assessed are identified in **Table 1.1**. Full details of the audit scope, as defined by IPART, are presented in **Appendix A**.

Table 1.1 Scope of 2022 Operational Audit of WaterNSW

Licence Part	Sub-clause/Obligation
2. Water Source protection and conservation	2.1.2; 2.1.3; 2.1.4 2.8.1
3. Bulk Water storage and transmission	3.2.1
4. Performance standards	4.2.2
5. Organisational systems management	5.2.1; 5.2.2
6. Customer and stakeholder relations	6.19.2; 6.19.4; 6.19.4* ¹¹

WaterNSW’s progress in addressing recommendations from previous audits was also considered as part of the audit. Those recommendations are identified in **Table 1.2**.

⁸ It is noted that from 1 July 2022 until the end of the audit period (30 August 2022), WaterNSW has been/will be operating under the *Water NSW Operating Licence 2022-2024*. The obligations identified for audit remain substantially unchanged under the new Licence.

⁹ Refer to **Section 1.3** for a discussion of the regulatory regime under which WaterNSW operates, including its operating licence.

¹⁰ IPART, *Audit Guideline; Public Water Utilities* (Issue PWUAG-Rev4), July 2019.

¹¹ Duplication of sub-clause number 6.19.4 is due to an error in the Licence; there are two separate sub-clauses both numbered 6.19.4. This report references the duplicate sub-clause as 6.19.4*.

Table 1.2 Recommendations/Outstanding Items from Previous Audits included in the Audit Scope

Recommendation ¹²	Licence Reference ¹³ and Operational Issue
2021-01	<p><i>Making copies of this Licence available (sub-clause 1.5.1):</i></p> <p>By 30 June 2022, WaterNSW must establish processes to ensure that documents to be made publicly available on the website are current, uploaded in a timely manner and, where relevant, meet the date requirements in the Reporting Manual.</p>
2020-02	<p><i>Water Quality Management System (sub-clause 2.1.3):</i></p> <p>By 31 July 2021, review and, where appropriate, amend the Fish River Water Supply Scheme Drinking Water Quality Management System against each of the 12 elements, 32 components and 76 actions of the Framework for Management of Drinking Water Quality. WaterNSW should document reviews and internal audits in the updated system at intervals appropriate to ensure effective implementation of the system. WaterNSW should review and update supporting documentation for currency, including:</p> <ul style="list-style-type: none"> ▪ <i>Fish River Water Supply System Operations and Maintenance Manual;</i> ▪ <i>Operating Protocols for Fish River Water Supply (CD2017/173)</i> ▪ <i>Fish River Water Supply Scheme Incident Management Plan (D2018/116921).</i>
2021-02	<p><i>Water Quality Management System (sub-clauses 2.1.1, 2.1.2 and 2.1.4):</i></p> <p>By 31 August 2022, WaterNSW should review the process for updating the water quality contact list (including the version attached to the WQ Incident Response Protocols) to ensure that the list is current, this should include all stakeholders, not just those relevant to the JOG.</p>
2021-03	<p><i>Water Quality Management System (sub-clauses 2.1.1 and 2.1.2):</i></p> <p>By 31 August 2022, WaterNSW should document the process and responsibility for scheduling major WQMS risk reviews.</p>
2021-04	<p><i>Water Quality Management System (sub-clauses 2.1.1 and 2.1.2):</i></p> <p>By 31 August 2022, WaterNSW should finalise the operation and maintenance manuals for the dams in the Declared Catchment.</p>
2021-05	<p><i>Water Quality Management System (sub-clauses 2.1.1, 2.1.2 and 2.1.3):</i></p> <p>By 31 August 2022, WaterNSW should ensure that the <i>WaterNSW Incident Management Procedure</i> (CD2017/180) has been updated and implemented.</p>
2021-06	<p><i>Water Quality Management System (sub-clause 2.1.3):</i></p> <p>By 31 August 2022, WaterNSW should update the <i>Water Quality Data Review and Reporting Procedure</i> to explicitly cover the Fish River Supply reporting requirements.</p>
2021-07	<p><i>Water Quality Management System (sub-clause 2.1.3):</i></p> <p>By 31 August 2022, WaterNSW should document the process to revalidate treatment process when a change condition occurs, including defining triggers for when this would occur.</p>
2021-08	<p><i>Water Quality Management System (sub-clause 2.1.3):</i></p> <p>By 31 August 2022, WaterNSW should document the requirement for chlorine analyser reagent levels for the chlorine analyser to be included in operational checks at Duckmaloi WTP.</p>
2021-09	<p><i>Water Quality Management System (sub-clause 2.1.4):</i></p> <p>By 31 August 2022, WaterNSW should develop processes to ensure that regulatory requirements associated with new or emerging obligations, are identified and documented within the compliance system.</p>

¹² Recommendations are listed in order by the applicable *Operating Licence* clause, and then numerically.

¹³ Refer to the relevant section of this report and associated appendix for full details of previous recommendations.

Recommendation ¹²	Licence Reference ¹³ and Operational Issue
2021-10	<p><i>Water Quality Management System (sub-clause 2.1.4):</i></p> <p>By 30 June 2022, WaterNSW should develop and implement a process (e.g. audit) to ensure that work orders for calibration of critical limit analysers are undertaken.</p>
2021-11	<p><i>Water Quality Management System (sub-clause 2.1.4):</i></p> <p>By 30 June 2022, WaterNSW should review monitoring processes to ensure mandatory water quality awareness training is undertaken.</p>
2021-12	<p><i>Reviewing the model for the System Yield (sub-clause 2.6.1):</i></p> <p>By 30 September 2022, WaterNSW should conduct a lessons learned review for the system yield review project. The review should consider why consultants were not engaged in a timely manner.</p> <p>The outcomes of the lessons learned review should be documented and used to inform the approach for obtaining future reviews of System Yield.</p>
2021-13	<p><i>Reviewing the model for the System Yield (sub-clause 2.6.2):</i></p> <p>By 30 September 2022, WaterNSW should undertake a stakeholder identification and engagement review to:</p> <ol style="list-style-type: none"> a) identify stakeholders (to include broadly customers, stakeholders, regulators and interested parties) b) the appropriate level of engagement for each stakeholder for: <ol style="list-style-type: none"> i) updating System Yield, ii) use of System Yield. c) identify engagement strategies for the stakeholders for updating and using System Yield.
2021-14	<p><i>Reviewing the model for the System Yield (sub-clause 2.6.3):</i></p> <p>By 30 September 2022, WaterNSW should conduct a lessons learned review for the System Yield review project to identify:</p> <ul style="list-style-type: none"> ▪ What led to delays in meeting milestones and providing deliverables on time, ▪ How to ensure that key deliverables include all the requirements of the project. <p>The outcomes of the lessons learned review should be documented and used to inform the approach for obtaining and reporting on future reviews of System Yield.</p> <p><i>(We note that this review may be conducted in parallel with that for Recommendation 2020-12).</i></p>
2021-15	<p><i>Bulk Water released to Local Water Utilities for Drinking Water purposes (sub-clause 3.4.2):</i></p> <p>By 31 August 2022, WaterNSW should review processes for maintaining registers (maintained in excel) to ensure accuracy of contacts in the Local Water Utilities Contact Details spreadsheet (DOC13 29697).</p>
2020-09	<p><i>Water Supplied Performance Standards (sub-clause 4.2.2) and Water Supply (sub-clause 3.2.1):</i></p> <p>By 30 June 2021, WaterNSW should review the appropriateness of CCP analysers at Duckmaloi Water Treatment Plant to ensure that they provide a reliable measurement of turbidity and chlorine residual.</p>
2021-16	<p><i>Asset Management System (sub-clause 5.1.2):</i></p> <p>By 31 August 2022, WaterNSW should deliver the recommendations included in the asset maintenance internal audit report (D2021/117683) dated January 2021.</p>
2021-17	<p><i>Environmental Management System (sub-clause 5.2.1):</i></p> <p>By 31 August 2022, WaterNSW should ensure the fluoridation requirements are included in the Safety and Environment compliance obligations register.</p>

Recommendation ¹²	Licence Reference ¹³ and Operational Issue
2021-18	<i>Environmental Management System (sub-clause 5.2.2):</i> Prior to operation of the fluoride plant at Duckmaloi WTP, WaterNSW must show satisfactory progress and completion of the actions from the Duckmaloi WTP Assurance report (D2020/60963) with regards to fluoridation.
2021-19	<i>Online portal for lodgement of documents relating to metering equipment (sub-clause 6.18.3):</i> By 31 August 2022, WaterNSW should develop, document and implement a data retention protocol to ensure that certificates, reports and other documents lodged in the portal are protected against loss. The data retention protocol should be developed in consultation with the Department of Planning and Environment and the Natural Resource Access Regulator and be supported by a risk assessment.

1.2.2 Audit Standard

The auditing principles/guidance presented in ISO 19011:2018 *Guidelines for auditing management systems* have been applied in conducting this audit. Guidance presented in the following standards was also considered where appropriate:

- ASAE 3100 (2008) *Compliance Engagements*;
- Auditing and Assurance Standard AUS 110 *Assurance Engagements other than Audits or Reviews of Historical Financial Information*; and
- International Standard on Quality Control ISQC 2009.

1.2.3 Audit Steps

The audit was undertaken in accordance with the methodology outlined in IPART's *Audit Guideline – Public Water Utilities*.¹⁴ The audit steps are identified in **Table 1.3**.

Table 1.3 Audit Steps¹⁵

Step	Description	Responsibility
Step 1	Audit scoping	IPART
Step 2	Appointment of the auditor	IPART
Step 3	Audit preparation	Auditor/Utility/IPART
Step 4	Audit interviews and Field verification site visits	Auditor/Utility (IPART observer)
Step 5	Audit assessment and reporting	Auditor/Utility/IPART
Step 6	Report to the Minister	IPART
Step 7	Report on audit recommendations	Utility

Audit interviews and field verification site visits were undertaken during the four (4) day period 10 October 2022 to 13 October 2022. Interviews were conducted with WaterNSW representatives at WaterNSW's Parramatta offices.

¹⁴ IPART, *Audit Guideline; Public Water Utilities* (Issue PWUAG-Rev4), July 2019, as updated by the memo: IPART, *Memo to 2022 Audit teams and Public Water Utilities; IPART instructions for assigning grades and reporting on audits*, 14 September 2022.

¹⁵ IPART, *Audit Guideline; Public Water Utilities* (Issue PWUAG-Rev4), July 2019, section 3 and figure 3.1.

Field verification site visits to the Cordeaux and Avon Catchment Areas and to Nepean Dam were proposed; however, heavy rainfall during the week prior to the proposed visits led to closure of the catchment and cancellation of the visits. 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.

An overview in respect of the field verification visits/briefing sessions is presented in **Appendix B**.

1.2.4 Audit Team

The audit team comprised of the following:

- Jim Sly – team lead and Lead Auditor;
- James Howey – Lead Auditor;
- Mark Favetta – Technical Specialist providing audit support
- Karen Pither –Lead Auditor providing audit support.

The allocation of responsibility for the various components of the audit (clauses audited by each auditor) was as nominated in **Table 1.4**.

Table 1.4 Allocation of Audit Responsibilities

Licence Part	Clause/Obligation	Lead Auditor
2. Water Source protection and conservation	2.1.2; 2.1.3; 2.1.4 2.8.1	James Howey James Howey
3. Bulk Water storage and transmission	3.2.1	Jim Sly/James Howey
4. Performance standards	4.2.2	Jim Sly/James Howey
5. Organisational systems management	5.2.1; 5.2.2	James Howey
6. Customer and stakeholder relations	6.19.2; 6.19.4; 6.19.4* ¹⁶	Jim Sly
Recommendations/Outstanding Items from Previous Audits	2020-02, 09	James Howey
	2021-01	Jim Sly
	2021-02, 03, 04, 05, 06, 07, 08, 09, 10, 11	James Howey
	2021-12, 13, 14	Jim Sly
	2021-15	Jim Sly
	2021-16	Jim Sly
	2021-17, 18	James Howey
	2021-19	Jim Sly






¹⁶ Duplication of sub-clause number 6.19.4 is due to an error in the Licence; there are two separate sub-clauses both numbered 6.19.4. This report references the duplicate sub-clause as 6.19.4*.

IPART representatives Maria Morahan, Shweta Shrestha and Leonie Huxedurp attended either in-person or online throughout the audit as observers. A list of WaterNSW representatives that attended audit interviews and/or field verification presentations is provided in **Appendix B**; WaterNSW’s Audit Coordination Team members Megan Patterson, Gary Bennett and Clarita Imperial attended throughout the audit.

1.2.5 Audit Grades

Audit grades have been awarded in accordance with the guidance presented in the *Audit Guideline – Public Water Utilities*. The compliance grades used in this report are as identified in **Table 1.5**.

Table 1.5 Compliance Grades for Public Utilities¹⁷

Grades of compliance	Description
 Compliant	The auditor has established compliance and identified no shortcomings.
 Compliant (minor shortcomings)	The auditor has established compliance but has identified minor shortcomings that may pose a minimal risk to the licence objectives.
 Non-compliant (non-material)	The auditor has established non-compliance, but the identified deficiencies pose a minor risk to the licence objectives.
 Non-compliant (material)	The auditor has established non-compliance and the identified deficiencies pose a moderate-high risk to the licence objectives.
 No Requirement	There was no requirement for the Public Water Utility to comply with the Operating Licence requirement during the audit period.

1.3 Regulatory Regime

WaterNSW is constituted under the *Water NSW Act 2014* and is a statutory State-owned corporation pursuant to the *State Owned Corporations Act 1989*.

Pursuant to Section 11 of the *WaterNSW Act 2014*, WaterNSW can be granted one or more operating licences to authorise it to carry out its specified and other functions. For the purposes of this audit (which addresses the audit period 1 September 2021 to 31 August 2022), WaterNSW has been granted and, for most of the audit period, has been operating under the provisions of the *Water NSW Operating Licence 2017-2022*.

It is noted that this *Operating Licence* was amended in December 2021 and April 2022 (i.e. during the audit period). The changes relate to flood mitigation and floodplain harvesting, as follows:

¹⁷ IPART, *Audit Guideline; Public Water Utilities* (Issue PWUAG-Rev4), July 2019, figure 2.1.

- Clause 1.2.1 (Licence authorisations) – paragraph k) in respect of flood mitigation and management added and related note removed (1 December 2021); and
- Schedule A (Conferral of Functions) – some revised details relating to floodplain harvesting (28 April 2022).

It is further noted that from 1 July 2022 until the end of the audit period (30 August 2022), WaterNSW has been operating under the *Water NSW Operating Licence 2022-2024*. The obligations identified for audit remain substantially unchanged under this new Licence.¹⁸

1.4 Quality Assurance Process

The quality assurance processes implemented in undertaking this audit have included:

- Peer review of the audit questionnaires prior to submission to IPART;
- Processes to control all documents used in the audit;
- Accuracy checks of reported data and the completeness of audit trails;
- Peer review of preliminary findings and audit assessments included in the Draft Reports;
- Quality review of the Draft Reports (both independently and by the Audit Team Leader);
- Peer review of the Revised Draft Reports, specifically the treatment of comments received on the Draft Report and the feasibility of recommendations and opportunities for continuous improvement; and
- Quality review of the Final Report (both independently and by the Audit Team Leader).

An independent peer review has been undertaken to ensure that the accuracy of each section of the report is checked through quality control steps and all audit judgements, conclusions and recommendations are validated. The independent review was undertaken by primarily by the Lead Auditors (Jim Sly and James Howey) reviewing each other's work, with additional input from Karen Pither, who holds Exemplar Global lead auditor accreditation in respect of Drinking Water and Recycled Water Quality Management Systems.

As Audit Team Leader, Jim Sly has reviewed all aspects of the Audit Report prior to release.

¹⁸ IPART advice.

2. Detailed Audit Findings

2.1 Overview

This section sets out the detailed findings of the audit for each audited clause of the *Operating Licence*. In each case the following is provided:


- the Licence requirement is defined;
- the risk that non-compliance with the requirement presents;
- the assessed level of compliance (compliance grade);
- a summary of the reason for the assessed compliance grade;
- a list of the evidence reviewed in assessing compliance;
- discussion of the evidence reviewed and how it demonstrates/supports the assessed level of compliance;
- any recommendations (in the event that full compliance is not assessed); and
- any identified opportunities for improvement.

A list of the evidence reviewed in assessing compliance for each clause is presented in **Appendix C**.

2.2 Water Source protection and conservation (Licence Part 2)

2.2.1 Water Quality Management System (clause 2.1)

2.2.1.1 Water Quality Management System (sub-clause 2.1.2)

Sub-clause	Requirement	Compliance Grade
2.1.2	<p>With respect to Declared Catchment Areas, Water NSW must maintain a Water Quality Management System that is consistent with either:</p> <ul style="list-style-type: none"> a) the Australian Drinking Water Guidelines; or 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 c) any other requirements specified or approved by NSW Health or IPART. <p><i>[Note: It is generally expected that for the Declared Catchment Areas Water NSW will develop a Water Quality Management System consistent with the Australian Drinking Water Guidelines. However, where NSW Health considers appropriate, the application of those Guidelines may be amended or added to, to take account of Water NSW's circumstances and/or policy and practices within New South Wales regarding Drinking Water quality.</i></p> <p><i>It is generally expected that Water NSW will manage the Declared Catchment Areas and the associated Catchment Infrastructure Works in light of its knowledge of the whole system for the Supply of Drinking Water (including the Bulk Water Supply System associated with Declared Catchment Areas together with each system for treating, storing and supplying Drinking Water of each Customer to whom Water NSW Supplies water which is sourced from Declared Catchment Areas). That is, Water NSW should have adequate systems and processes in place to manage Bulk Water quality to its water Supply Customers, taking into account the implementation of planning and risk management across the whole Drinking Water Supply system.]</i></p>	 Compliant (minor shortcomings)

Risk if non-compliant

Without a comprehensive Water Quality Management System, there is a high risk that WaterNSW may not be able to effectively manage risks to water quality and protect public health.

Evidence sighted

Refer Appendix C (C.3.1).

Summary of audit findings/reasons for grade

WaterNSW provided sufficient evidence to demonstrate that it has maintained a Water Quality Management System (WQMS), for the declared catchment, that is consistent with the *Australian Drinking Water Guidelines* (ADWG) and any additional requirements of any amendments identified by NSW Health and IPART.

WaterNSW provided its WQMS on the 'Modelpedia' platform. The WQMS is closely aligned to the 12 elements, 32 components and 76 actions of the Framework for Management of Drinking Water Quality outlined in the ADWG. The Modelpedia site includes links to supporting documents under the WQMS such as policies, registers, procedures, and training modules. Modelpedia seems to be a much more useful and robust approach, if maintained, than traditional paper/pdf WQMS.

There was one minor issue identified that would pose a minimal risk to the Licence objectives. It is noted in Modelpedia that the procedure *Conduct Catchment-to-Customer (C2C) Risk Assessment* (CD2021/92) is referenced for identifying hazards, estimating risk and identifying uncertainty. However, this document is a process flow for the person organising a risk assessment; it does not include the risk assessment methodology or reference it. The only location the risk assessment methodology was observed was in the risk assessment spreadsheets. A consistent set of instructions should be in place across the business.

On this basis, WaterNSW is assessed to have demonstrated compliance with this obligation with minor shortcomings.

Discussion and notes

WaterNSW has developed an on-line WQMS in 'Modelpedia', which is accessible to WaterNSW staff via 'The Source' (intranet). The intranet version includes links to relevant documentation in the ARK records management system. WaterNSW has made the system available to NSW Health, including copies of key linked documents through a SharePoint site.

Element 1:

The WaterNSW WQMS conforms to the requirement of this element.

Drinking water quality policy

WaterNSW has a *Water Quality Policy*¹⁹ that is available through Modelpedia. The policy is endorsed by the Chief Executive Officer and Board of WaterNSW.

The policy is consistent with the activities undertaken by WaterNSW. It is considered that it would be an improvement if the policy were to state that WaterNSW will comply with appropriate regulatory and other requirements. This sets the expectation across the business, especially in relation to requirements that are not legally enforced. **OFI-WNSW-2022-01.**

Regulatory and formal requirements

WaterNSW has the *Compliance Management Procedure*²⁰ that is followed to ensure that WaterNSW is able to meet its regulatory compliance obligations; this is at a corporate level. Details of requirements are documented in the *Legal and Other Requirements Register*.²¹ The frequency of the review of the *Legal and Other Requirements Register* and responsibilities is detailed in Modelpedia, which includes process specific requirements. This is further explained in the *Compliance Management – Legal and Other Requirements Register Update PowerPoint*.²²

¹⁹ CD2014/5 Water Quality Policy Version 6 24/11/2021.

²⁰ CD2021/121 Compliance Management Procedure Nov-21.

²¹ CD2013/26 Legal and Other Requirements Register Version 2 9/08/2022.

²² D2022/74445 Compliance Management - Legal & Other Requirements Register Update 26/05/2022.

Engaging stakeholders

WaterNSW has a *Water Quality Contact Directory*²³ that it maintains through the Joint Operational Group (JOG) meeting process. This includes all raw water customers in Greater Sydney and regulators. WaterNSW has various instruments in place for the engagement of key stakeholders that include the following:

- MOU with NSW Health;²⁴
- Strategic Liaison Group (SLG) and JOG with NSW Health and Sydney Water terms of reference;²⁵ and
- Raw Water Supply Protocols – Sydney Water and WaterNSW.²⁶

Element 2:

The WaterNSW WQMS has fallen slightly short in regard to the requirements of this element. The WQMS outlines processes for analysis of the water supply system; however, it does not define the risk and hazard identification methodology. It is acknowledged that many of the required elements of this process are in place, which is why it is considered to be a minor shortcoming.

Water supply system analysis

A Catchment to Customer (C2C) working group has been established through the public health JOG. Minutes for one of these meetings²⁷ has been provided as evidence and the participants appear to be appropriate. The risk assessment team is also detailed in the risk assessment reports. Modelpedia includes a process for undertaking C2C and identification of risk review workshop members. This is also in the *Conduct Catchment-to-Customer (C2C) Risk Assessment*²⁸ procedure.

The attendees for the Prospect/Orchard Hills Supply Risk Assessment appear to be appropriate for the risk assessment.²⁹

WaterNSW has a procedure for the preparation/development and maintenance of schematics.³⁰ This provides a detailed process for the preparation of these system documents.

The ADWG requires that pertinent information be assembled on the water supply scheme and that each element of the water supply system be characterised to determine the factors that could affect water quality. Modelpedia includes a section on this and lists a number of documents that should be considered at a risk assessment. This is also detailed in the *Conduct Catchment-to-Customer (C2C) Risk Assessment*³¹ procedure.

Assessment of water quality data

The *Water Quality Data Analysis and Reporting Procedure*³² includes the details of how to access data and generate routine water quality reports.

Modelpedia includes a process for undertaking C2C and the gathering of water quality data. This is also in the *Conduct Catchment-to-Customer (C2C) Risk Assessment*³³ procedure.

²³ D2013/94543 WaterNSW Water Quality Contact Directory May-22.

²⁴ D2021/130449 2021 Memorandum of Understanding WaterNSW and NSW Health 24/12/2021.

²⁵ Terms of Reference for Public Health Strategic Liaison Group and Joint Operational Group Version 5 15-Jun-22.

²⁶ CD2007/2 Raw Water Supply Protocols Version 3 5/05/2017.

²⁷ D2021/121483 Version 2 of C2C Working Group Minutes 27 Sept Version 2 21/10/2021.

²⁸ CD2021/92 Conduct Catchment-to-Customer (C2C) Risk Assessment Aug-21.

²⁹ D2022/106011 Prospect/ Orchard Hills Supply Risk Assessment 27/07/2022.

³⁰ D2021/103279 How to Guide - Supply Schematics 2021.

³¹ CD2021/92 Conduct Catchment-to-Customer (C2C) Risk Assessment Aug-21.

³² CD2012/130 Water Quality Data Analysis and Reporting Procedure Version 6.

³³ CD2021/92 Conduct Catchment-to-Customer (C2C) Risk Assessment Aug-21.

Hazard identification and risk assessment

Modelpedia refers to the *Conduct Catchment-to-Customer (C2C) Risk Assessment* procedure for identifying hazards, estimating risk, and identifying uncertainty. However, this document is a process flow for the person organising a risk assessment; it does not include the risk assessment methodology or reference it. The risk assessment spreadsheet³⁴ does contain the risk matrix and definitions of descriptors, but it falls short of including all of the detail of how to conduct the risk assessment and this is assumed based on the risk template. The ADWG states that: “*A consistent methodology should be established for both hazard identification and risk assessment.*”

REC-WNSW-2022-01.

Element 3:

The WaterNSW WQMS conforms to the requirement of this element.

Preventive measures and multiple barriers

The C2C Risk Assessment for Greater Sydney³⁵ includes ‘Existing Controls (catchment, storage, delivery)’; these are the preventive measures that WaterNSW implements operationally to manage hazards. This risk assessment also details ‘Existing Controls (Treatment, distribution)’, which are implemented by Sydney Water.

WaterNSW also utilises the Pollution Source Assessment Tool to identify risk to water quality in the catchment and these are implemented in the annual *Catchment Protection Work Program*.³⁶ There is a process to develop the program based on risk and this was supported by the Checklist of matters to be considered for inclusion in the program.³⁷

Where it is considered that additional controls are required, ‘Proposed Controls’ are identified in the risk register. Modelpedia identifies that these are then required to be input into the *Water Quality Improvement Plan*.

Critical control points

Modelpedia states that WaterNSW uses the ADWG methodology to identify critical control points.

CCPs are identified and described under CCP tables and system schematics, which are developed in consultation with major customers and NSW Health. The *Critical and Operational Control Points for Greater Sydney Water Supply System*³⁸ document was supplied to demonstrate that CCPs are in place.

Element 4:

The WaterNSW WQMS conforms to the requirement of this element.

Operational procedures

WaterNSW has operation and maintenance manuals for each of the storages in the Greater Sydney system. There is also a procedure³⁹ to ensure that all the manuals are kept up to date. The following manuals were provided as evidence:

³⁴ D2022 61325 C2C Risk Register 30/06/2022.

³⁵ D2022 61325 C2C Risk Register 30/06/2022.

³⁶ D2021/25494 Catchment Protection Work Program 2022.

³⁷ D2020/39211 Checklist of Matters to be Considered for Inclusion in the Catchment Protection Work Program FY21 in accordance with CD2019/30 (Prepare Catchment Protection Work Program Procedure) and CD2019/171 (Catchment Protection Work Plan Initiative Template) 2020.

³⁸ CD2021/128 Critical and Operational Control Points for Greater Sydney Water Supply System Jan-22.

³⁹ CD2021/119 Update Operations and Maintenance Manuals Version 2 Feb-22.

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- *Cataract Dam Operations and Maintenance Manual*;⁴⁰
 - *Nepean Dam Operations and Maintenance Manual*;⁴¹ and
 - *Avon Dam Operations and Maintenance Manual*.⁴²

Operational monitoring

Routine operational water quality monitoring is defined in the *Water Monitoring Program*;⁴³ this includes both grab sample monitoring and online monitoring. The plan also contains operational limits for certain parameters. Further details of operational controls are also detailed in the *Critical and Operational Control Points for Greater Sydney Water Supply System*⁴⁴ document.

*Raw Water Supply Protocols*⁴⁵ are in place with Sydney Water. These include details of water quality monitoring and acceptance criteria.

Corrective action

The *Raw Water Supply Protocols*⁴⁶ in place with Sydney Water include details of water quality monitoring and acceptance criteria. They also detail how operational changes are to be implemented between the two organisations, including details of communication arrangements. Where a change to the supply is required, the protocols specify the Notification of Operational Change to System Operation (NOCTSO) process. This is a formal process that requires agreement of operational changes to raw water supplies between WaterNSW and Sydney Water.

The CCP tables⁴⁷ detail corrective actions that are required for critical control points in the supply.

Where an issue is identified in regard to the operational monitoring, it is communicated in accordance with the *Water Quality Incident Response Protocol*.⁴⁸ The *Water Quality Contact Directory*⁴⁹ is in place to ensure that the relevant people can be contacted at short notice when required.

Equipment capability and maintenance

Asset Class Standards⁵⁰ define maintenance requirements, risks and criticalities for different categories of assets. Maintenance frequencies for all asset types are based on asset object criticality ratings (increasing criticality 1 to 5). The Enterprise Asset Management System (EAMS) schedules maintenance activities at the specified frequencies and enables tracking of preventive and corrective maintenance orders.

Materials and chemicals

The *Procedure for Materials and Chemicals in contact with Drinking Water Supplies*⁵¹ details approved chemicals and specification. To establish requirements for the purchase and use of materials and chemicals in contact with drinking water supplies, the WaterNSW eProcurement Portal (SpendWise) has a risk assessment process for materials and chemicals that may come into contact with drinking water.⁵²

⁴⁰ CD2001/113 Cataract Dam Operations and Maintenance Manual Version 3 9/06/2022.

⁴¹ CD2001/116 Nepean Dam Operations and Maintenance Manual Version 2 29/10/2021.

⁴² CD2001/122 Avon Dam Operations and Maintenance Manual Version 2 29/10/2021.

⁴³ CD2011/179 Water Monitoring Program Version 7 Aug-21.

⁴⁴ CD2021/128 Critical and Operational Control Points for Greater Sydney Water Supply System Jan-22.

⁴⁵ CD2007/2 Raw Water Supply Protocols Version 3 5/05/2017.

⁴⁶ CD2007/2 Raw Water Supply Protocols Version 3 5/05/2017.

⁴⁷ CD2021/128 Critical and Operational Control Points for Greater Sydney Water Supply System Jan-22.

⁴⁸ CD2004/183 Water Quality Incident Response Protocol Version 4 Jun-21.

⁴⁹ D2013/94543 WaterNSW Water Quality Contact Directory May-22.

⁵⁰ CD2022 70 Asset Class Strategy Cranes and Lifting Assets Version 0 2022.

⁵¹ CD2019/36 Procedure for Materials and Chemicals in contact with Drinking Water Supplies Version 4 Oct-21.

⁵² D2021/106423 Screen print - WaterNSW SpendWise eProcurement Portal - procurement risk questionnaire.

Element 5:

The WaterNSW WQMS conforms to the requirement of this element.

Drinking water quality monitoring

Verification monitoring is detailed in the *Water Monitoring Program*.⁵³ The program clearly identifies the monitoring to be undertaken, including parameters, location and frequency. Section 1.4 includes details of the monitoring quality assurance and quality control processes.

Consumer satisfaction

Customer feedback is managed according to the *Feedback Compliments and Complaints Policy*,⁵⁴ which is available to customers on the website, as well as an online complaints form.⁵⁵

Complaints are processed internally according to the *Complaints and Compliments Handling Procedure*.⁵⁶

Customer complaints are reviewed at both JOGs under the standing agenda items.⁵⁷

Short-term evaluation of results

The process for short-term evaluation of results is captured in the *Water Quality Data Review and Reporting* procedure.⁵⁸ Timely review of data facilitates the rapid response to non-compliant results.

The WaterNSW PowerBI water quality database reports exceptions on a dedicated page; this was reviewed during the audit. Exceptions and results are emailed to a list of subscribers.

Corrective action

The *Raw Water Supply Protocols*⁵⁹ in place with Sydney Water include details of water quality monitoring and acceptance criteria. These detail how operational changes are to be implemented between the two organisations, including details of communication arrangements. Where a change to the supply is required, the protocols specify the Notification of Operational Change to System Operation (NOCTSO) process. This is a formal process that requires agreement of operational changes to raw water supplies between WaterNSW and Sydney Water.

Element 6:

The WaterNSW WQMS conforms to the requirement of this element.

Communication

The *Incident Management Procedure*⁶⁰ provides a framework for the Incident Management Team to respond to major events. This contains an overview and responsibilities for incident communication with various parties including the following:

- Media;
- WaterNSW staff;
- Ministers; and

⁵³ CD2011/179 Water Monitoring Program Version 7 Aug-21.

⁵⁴ https://www.waternsw.com.au/_data/assets/pdf_file/0006/162645/Feedback-Compliments-and-Complaints-Policy-2020.pdf.

⁵⁵ <https://www.waternsw.com.au/customer-services/help-and-support/customer-feedback-and-inquiry-form>.

⁵⁶ CD2007/13 Feedback Compliments and Complaints Handling Procedure Version 6 Jul-21.

⁵⁷ D2022/100211 Screenshot from JOG presentation Item 3.2 May 2022 JOG meeting May-22.

⁵⁸ CD2012/130 Water Quality Data Analysis and Reporting Procedure Version 7 Jul-22.

⁵⁹ CD2007/2 Raw Water Supply Protocols Version 3 5/05/2017.

⁶⁰ CD2022/72 Incident Management Procedure Jun-22.

- Other stakeholders.

Specific details on the management of water quality incidents are in the *Water Quality Incident Response Protocol*.⁶¹ This details specific water quality incident classifications and the communications required for each.

For the Declared Catchment, there is a great degree of coordination between WaterNSW, Sydney Water and NSW Health. To this extent they have gone a step further and developed *Joint Communication Protocols*.⁶² This has agreed communications messages with nominated agency lead for responding to identified potential water quality incidents.

The *Incident Management Procedure* has some pages still marked as draft. This looks to be a typo in the document approval process; it should be checked/confirmed that the document is current and approved for use. **OFI-WNSW-2022-02**.

The *Water Quality Contact Directory*⁶³ contains contact details for relevant stakeholders. Modelpedia states that this is to be updated at least annually.

Incident and emergency response protocols

The *Incident Management Procedure*⁶⁴ provides a framework for the Incident Management Team to respond to major events. Specific details on the management of water quality incidents are in the *Water Quality Incident Response Protocol*.⁶⁵

Section 4 of the *Incident Management Procedure* includes details of incident debrief, including feeding learning into continual improvement.

Training details are in the *Water Quality Incident Protocol*, which states:

- Relevant staff are trained through an eLearning module.
- General training is provided in the *Incident Management Plan*.
- Annual scenario exercises are undertaken with NSW Health and Sydney Water.

Element 7:

The WaterNSW WQMS conforms to the requirement of this element.

Employee awareness and involvement

The Water Quality Awareness eLearning course⁶⁶ is mandatory for all new employees and a refresher is delivered every two years. Employees and contractors (e.g. labour hire) are added to the MyLearning system and training is managed using this software.

Employees and contractors (including project-based contractors) have to undergo site specific and/or catchment awareness training⁶⁷ at WaterNSW sites. Completed forms are currently scanned and saved in the ARK document management system; however, a new induction system (Rapid Induct) is currently being rolled out that will deliver online inductions and allow supervisors to check a person's induction status easily.

The *Water Quality Policy*⁶⁸ is on display in WaterNSW offices and is available from Modelpedia.

Other channels are used to raise employee and contractors awareness of water quality management, including (for example):

⁶¹ CD2004/183 Water Quality Incident Response Protocol Version 4 Jun-21.

⁶² D2019/26923 Joint Communication Responsibilities Mar-19.

⁶³ D2013/94543 WaterNSW Water Quality Contact Directory May-22.

⁶⁴ CD2022/72 Incident Management Procedure Jun-22.

⁶⁵ CD2004/183 Water Quality Incident Response Protocol Version 4 Jun-21.

⁶⁶ D2017/58449 Water Quality Awareness eLearning Module.

⁶⁷ D2019 27969 WaterNSW Declared Catchment Induction.

⁶⁸ CD2014/5 Water Quality Policy Version 6 24/11/2021.

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- Intranet -Water Quality Back to Basics content written for feature article on WaterNSW intranet to raise awareness of water quality management⁶⁹.
 - Monthly communications kit to senior leaders, which include water quality performance KPIs.⁷⁰

Employee training

Mandatory training is managed using the MyLearning platform. Training is allocated to specific roles. As an example, a Catchment Field Officer is required to undertake the following training:⁷¹

- Asbestos & Hazardous Materials Management (Online Learning);
 - Asset Management System (AMS) Awareness (Online Learning);
 - Business Continuity Management (Online Learning);
 - Code of Conduct (Online Learning);
 - Corporate Orientation;
 - Diversity & Equality (Discrimination and sexual harassment) (Online Learning);
 - Diversity & Equality (Workplace bullying) (Online Learning);
 - Environmental Essentials (Online Learning);
 - Environmental Management (Online Learning);
 - Fraud and Corruption Prevention Awareness (Online Learning);
 - General Induction Module 1 Safety Essentials (Online Learning);
 - General Induction Module 2 WHS & Wellbeing (Online Learning);
 - General Induction Module 3 PPE, Noise & Infectious Diseases (Online Learning);
 - General Induction Module 4 Safety Commitments (Online Learning);
 - Heritage Management (Online Learning);
 - ICT Cyber Security Awareness (Online Learning);
 - Materials and Chemicals in contact with Drinking Water (Online Learning);⁷²
 - Module 1: Introduction to Risk, Assurance & Compliance System (RACS) (Online Learning);
 - Online Driver Training (Online Learning);
 - Risk Management (Online Learning);
 - Switch on to Safety (Session 1);
 - Switch on to Safety (Session 2);
 - ThinkSafe4Life (Session 1);
 - ThinkSafe4Life (Session 2);
 - Water Quality Awareness (Online Learning);⁷³
-

⁶⁹ D2022/100040 Back to Basics – Cascade Aug-22.

⁷⁰ D2022/105455 RE: July Comms Kit 2/08/2022.

⁷¹ D2022/119835 Mandatory Training by Role - Export from MyLearning.

⁷² D2019/48488 Materials and Chemicals in contact with Drinking Water.

⁷³ D2017/58449 Water Quality Awareness eLearning Module.

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- Water Quality Incident Response (Online Learning);⁷⁴
 - Water Safety (Online Learning); and
 - Workplace Behaviours - Diversity and inclusion (Online Learning).

A review of the provision of the Water Quality Awareness course has been undertaken following an audit recommendation.⁷⁵ It was found that the majority of the personnel not compliant with this training were contractors. Many work periodically but remain active in the MyLearning system. The review resulted in recommendations to bring compliance up from 84% to the KPI target of 95%, which is high when including contractors. **OFI-WNSW-2022-03.**

Element 8:

The WaterNSW WQMS conforms to the requirement of this element.

Community consultation

Decisions around effective community involvement are made with reference to the IAP2 spectrum of engagement and are informed by the degree of community impact or interest from any given project or policy change.⁷⁶ The Community Engagement team makes this assessment in consultation with the project team and external stakeholders.

WaterNSW has two templates used to develop Community and Stakeholder Engagement Plans:

- Short Form⁷⁷ – used for less complex projects.
- Long Form⁷⁸ – used for more complex projects with a larger number of stakeholders and greater community impact.

WaterNSW has ten Customer Advisory Groups based on area,⁷⁹ which provide a forum to consult a broad section of customers on issues. Each of the groups seeks to have a representative from each of the customer categories:

- stock and domestic water users;
 - regulated river water users;
 - unregulated river water users;
 - groundwater users;
 - environmental water users;
 - industrial and commercial water users;
 - Local Water Utilities;
 - major utilities;
 - volumetric categories of water users (small/medium/large); and
 - Aboriginal cultural heritage water users.
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⁷⁴ D2018/77988 Water Quality Incident Response - Training Package.

⁷⁵ D2022/60824 Water Quality Awareness Training Compliance Assessment 2022.

⁷⁶ <https://iap2.org.au/resources/spectrum/>

⁷⁷ D2019/29701 Community and Stakeholder Engagement Plan - Short Form.

⁷⁸ D2018/78477 Community and Stakeholder Engagement Plan - Long Form.

⁷⁹ CD2015/281 Customer Advisory Groups Charter Version 5.

Communication

Consumers are communicated with as follows:

- Details of WaterNSW's projects are available via the website.⁸⁰
- WaterNSW offers a range of educational resources through its website.⁸¹
- Information is delivered to the community through social media, such as Facebook.⁸²
- WaterInsights⁸³ provides the public with key information regarding the declared catchment storages.
- Feedback from consumers can be lodged through the website or call centre.⁸⁴

Element 9:

The WaterNSW WQMS conforms to the requirement of this element.

Investigative studies and research monitoring

WaterNSW has a science program that is designed to increase the knowledge of the catchments, but also develop improved ways of monitoring water quality through the development and training of new technologies. Details of the current status of the science program were provided;⁸⁵ this is reviewed in detail in **Section 2.2.2.1** (in respect of Licence sub-clause 2.8.1).

In addition to the science program, if a risk assessment identifies an issue that is not well understood, investigations are commissioned.

Validation of processes

WaterNSW determines the need for validation of processes through the catchment to consumer risk assessment process. Validation requirements for CCPs are detailed in the CCP tables.⁸⁶

Design of equipment

Equipment is to be selected to ensure continued reliability. Details of the process followed by WaterNSW are on Modelpedia, which states the following:

“WaterNSW has established an "Approval to Spend" process to ensure the business makes prudent, efficient and justifiable purchasing decisions. 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.”

An asset change request form⁸⁷ has been provided as evidence of the process of installing a new asset. In the form there are details of the risk assessment process that is followed, as well as the required testing and approval.

⁸⁰ <https://www.watarnsw.com.au/projects>.

⁸¹ <https://www.watarnsw.com.au/education>.

⁸² <https://www.facebook.com/WaterNSW>.

⁸³ <https://waterinsights.watarnsw.com.au/>.

⁸⁴ <https://www.watarnsw.com.au/customer-services/help-and-support/feedback-and-complaints>.

⁸⁵ D2021/124453 Annual Water Quality Research & Development Update 7/12/2021.

⁸⁶ CD2021/128 Critical and Operational Control Points for Greater Sydney Water Supply System Jan-22.

⁸⁷ D2022/121282 Requested Item Details - Install an actuator on the shaft of this winch 15/07/2021.

Element 10:

The WaterNSW WQMS conforms to the requirement of this element.

Management of documentation and records

The records management system is ARK (HP Trim). The *Controlled Document Framework*⁸⁸ provides details on the management of documents, and it refers to the *Records Management Procedures Manual* (CD2015/546). The minimum review frequency of a controlled document is determined by the risk that the document is intending to manage; the higher the risk ranking the more frequent the review schedule.

In addition to the document management system, there are a number of systems used for records management, including but not limited to, the following:

- MyLearning;
- Water Quality database;
- EAMS;
- RACS; and
- SCADA.

The WQMS does not detail these systems under this element. It would be useful to map records to systems under this element, providing a quick reference for users to identify the location of certain records. **OFI-WNSW-2022-04.**

Reporting

The *Water Quality Data Analysis and Reporting Procedure*⁸⁹ details the key water quality reports, the location of the data and the required contents.

Modelpedia references the weekly Catchment *Cryptosporidium* Hazard Assessment (D2016/117391), which is prepared to provide details of the inherent water quality risk to treatment plant operators. It also refers to the *Annual Water Quality Monitoring Report* for Greater Sydney, which is published on the WaterNSW website.⁹⁰

Raw water quality reports are prepared for each storage and supplied to customers as specified in the raw water supply protocols.

Element 11:

The WaterNSW WQMS conforms to the requirement of this element.

Long-term evaluation of results

Every second year, the annual water quality monitoring report includes a statistical analysis of trends over 10 years for sites and parameters agreed with NSW Health and major customers. This is a requirement of the WaterNSW Reporting Manual. Details are in the *Water Quality Data Review and Reporting Procedure*.⁹¹

Audit of drinking water quality management

WaterNSW implements a WQMS audit program.⁹²

⁸⁸ CD2019/123 Controlled Documents Framework Version 2 Jun-21.

⁸⁹ CD2012/130 Water Quality Data Analysis and Reporting Procedure Version 7 Jul-22.

⁹⁰ <https://www.watarnsw.com.au/water-services/water-quality/monitoring-and-reporting>.

⁹¹ CD2012/130 Water Quality Data Analysis and Reporting Procedure Version 7 Jul-22.

⁹² D2017/87415 Water Quality Management System Audit Program.

Element 12:

The WaterNSW WQMS conforms to the requirement of this element.

Review by senior executive

Performance of the WQMS is reported to the Management and Board Committee on Water Quality, Health and Catchment Protection, based on the *Water Quality Management System Annual Review and Continual Improvement Cycle*.⁹³ The committee receives quarterly trend reports, annual system effectiveness and health checks, and the annual report to IPART on the WQMS. The 2022 committee meeting schedule has been provided as evidence,⁹⁴ as well as the work plan.⁹⁵

Drinking water quality management improvement plan

Improvement actions arising from audits, incidents and health checks are registered in the *Water Quality Improvement Plan*.⁹⁶

Recommendations

The following recommendation is made in respect of this obligation:

- **REC-WNSW-2022-01:** 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 even go as far as stating how these should be implemented (relates to Element 2).
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Opportunities for improvement

The following opportunities for improvement have been identified in respect of this obligation:

- **OFI-WNSW-2022-01:** Consider including in the Water Quality Policy a statement that required regulatory and other requirements will be complied with (relates to Element 1).
 - **OFI-WNSW-2022-02:** Check/confirm that the Incident Management Procedure (CD2022/72) is current and approved for use; some pages are still marked as draft (Element 6).
 - **OFI-WNSW-2022-03:** Consider including a status for employees and contractors in MyLearning that would exclude them from KPI calculations if they are not actively working. This may include parental leave, long service leave or contractors that do not currently have work/project assignment (Element 7).
 - **OFI-WNSW-2022-04:** The Water Quality Management System does not detail record management systems under Element 10 in Modelpedia. It would be useful for WaterNSW to map records to systems under this element, providing a quick reference for users to identify the location of certain records (Element 10).
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⁹³ D2017/50060 Water Quality Management System Annual Review and continual improvement cycle.

⁹⁴ D2022/105437 Proposed Water Quality, Health and Catchment Protection Board Committee meetings 2022.

⁹⁵ D2021/115777 Water Quality, Health and Catchment Protection Board Committee Work Plan 2022.

⁹⁶ D2019/53719 WQ Improvement Plan.

2.2.1.2 Water Quality Management System (sub-clause 2.1.3)

Sub-clause	Requirement	Compliance Grade
2.1.3	<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 2.1.3(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><i>[Note: It is generally expected that Water NSW will manage the water under its control in light of its knowledge of the downstream water supply system, including that of its Customers. Therefore the Water Quality Management System should be developed in consultation with the relevant Customers to whom it Supplies water.]</i></p>	<p></p> <p>Compliant (minor shortcomings)</p>

Risk if non-compliant

Without a comprehensive Water Quality Management System, there is a high risk that WaterNSW may not be able to effectively manage risks to water quality and protect public health.

Evidence sighted

Refer Appendix C (C.3.1).

Summary of audit findings/reasons for grade

WaterNSW provided evidence that it has maintained a Water Quality Management System (WQMS) for the non-declared catchment that is consistent with the *Australian Drinking Water Guidelines* (ADWG) and any additional requirements of any amendments identified by NSW Health and IPART.

WaterNSW provided its WQMS, which has been documented on 'Modelpedia'. The WQMS is closely aligned to the 12 elements, 32 components and 76 actions of the Framework for Management of Drinking Water Quality outlined in the ADWG. The Modelpedia site includes links to supporting documents under the WQMS such as policies, registers, procedures, and training modules.

There were two issues noted that it is considered would present a low risk to meeting the objectives of the Licence objectives. Therefore, compliant with minor shortcomings has been assigned for this obligation.

The scope in the *Water Quality Policy* was considered to be ambiguous, especially in relation to the non-declared catchment. The scope states: “*This policy applies to water supplied by WaterNSW as drinking water, or as bulk water with the final end use as drinking water (supplied by pipe or canal directly to a drinking water supplier).*” It is assumed that the definition of ‘supply’ is the same as that in the *Operating Licence* and excludes drinking Water Suppliers such as Essential Water at Broken Hill. It is considered that the scope of the policy and hence the Drinking Water Management System should be clear and unambiguous.

It is noted in Modelpedia that the procedure *Conduct Catchment-to-Customer (C2C) Risk Assessment* (CD2021/92) is referenced for identifying hazards, estimating risk and identifying uncertainty. However, this document is a process flow for the person organising a risk assessment; it does not include the risk assessment methodology or reference it. The only location the risk assessment methodology was observed was in the risk assessment spreadsheets.

Discussion and notes

WaterNSW has developed an on-line WQMS in 'Modelpedia', which is accessible to WaterNSW staff via 'The Source' (intranet). The intranet version includes links to relevant documentation in the ARK records management system. WaterNSW has made the system available to NSW Health, including copies of key linked documents through a SharePoint site.

Element 1:

The WaterNSW WQMS does not conform to the requirement of this element. The scope of the Water Quality Policy is too ambiguous for its application in the non-declared catchment.

Drinking water quality policy

WaterNSW has a *Water Quality Policy*⁹⁷ that is available through Modelpedia. The policy is endorsed by the Chief Executive Officer and Board of WaterNSW.

The policy is consistent with the activities undertaken by WaterNSW. It is considered that it would be an improvement if the policy were to state that WaterNSW will comply with appropriate regulatory and other requirements. This sets the expectation across the business, especially in relation to requirements that are not legally enforced. **OFI-WNSW-2022-01** is again applicable.

The scope of the policy is, however, not considered to be sufficiently clear. It is applicable to the Declared Catchment, but only the Fish River Scheme in the non-declared catchment. This comes down to the definition of the word “supply” in the Operational Licence. It is considered that this is too ambiguous for all potential readers of the policy.

REC-WNSW-2022-02.

⁹⁷ CD2014/5 Water Quality Policy Version 6 24/11/2021.

Regulatory and formal requirements

WaterNSW has the *Compliance Management Procedure*⁹⁸ that is followed to ensure that WaterNSW is able to meet its regulatory compliance obligations; this is at a corporate level. Details of requirements are documented in the *Legal and Other Requirements Register*.⁹⁹ The frequency of the review of the *Legal and Other Requirements Register* and responsibilities is detailed in Modelpedia, which includes process specific requirements. This is further explained in the *Compliance Management – Legal and Other Requirements Register Update PowerPoint*.¹⁰⁰

Engaging stakeholders

WaterNSW has a *Water Quality Contact Directory*¹⁰¹ that it maintains through the JOG meeting process. This includes all raw water customers in Greater Sydney and regulators. WaterNSW has various instruments in place for the engagement of key stakeholders that include the following:

- MOU with NSW Health;¹⁰²
- Strategic Liaison Group (SLG) and Joint Operational Group (JOG) with NSW Health and Sydney Water terms of reference.¹⁰³ This is principally for the Declared Catchment, but does include a point that states that the geographical coverage includes the Fish River supply system.
- Raw Water Supply Protocols for the Fish River Water Supply.¹⁰⁴

Element 2:

The WaterNSW WQMS has fallen slightly short in regard to the requirements of this element. It is considered that the WQMS does not define the risk and hazard identification methodology; however, it is acknowledged that many of the required elements of this process are in place, which is why it is considered to be a minor short-coming.

Water supply system analysis

A Catchment to Customer (C2C) working group has been established through the public health JOG. Minutes for one of these meetings¹⁰⁵ has been provided as evidence and the participants appear to be appropriate. The risk assessment team is also detailed in the risk assessment reports. Modelpedia includes a process for undertaking C2C and identification of risk review workshop members. This is also in the *Conduct Catchment-to-Customer (C2C) Risk Assessment*¹⁰⁶ procedure.

The attendees for the Fish River System C2C Risk Assessment appear to be appropriate for the risk assessment.¹⁰⁷

WaterNSW has a procedure for the preparation/development and maintenance of schematics.¹⁰⁸ This provides a detailed process for the preparation of these system documents.

The ADWG requires that pertinent information be assembled on the water supply scheme and that each element of the water supply system be characterised to determine the factors that could affect water quality. Modelpedia includes a section on this and list a number of

⁹⁸ CD2021/121 Compliance Management Procedure Nov-21.

⁹⁹ CD2013/26 Legal and Other Requirements Register Version 2 9/08/2022.

¹⁰⁰ D2022/74445 Compliance Management - Legal & Other Requirements Register Update 26/05/2022.

¹⁰¹ D2013/94543 WaterNSW Water Quality Contact Directory May-22.

¹⁰² D2021/130449 2021 Memorandum of Understanding WaterNSW and NSW Health 24/12/2021.

¹⁰³ Terms of Reference for Public Health Strategic Liaison Group and Joint Operational Group Version 5 15-Jun-22.

¹⁰⁴ CD2017/173 Operating Protocols for the Fish River Water Supply Version 2 Jun-21.

¹⁰⁵ D2021/121483 Version 2 of C2C Working Group Minutes 27 Sept Version 2 21/10/2021.

¹⁰⁶ CD2021/92 Conduct Catchment-to-Customer (C2C) Risk Assessment Aug-21.

¹⁰⁷ D2022/23686 Fish River System C2C Risk Assessment Workshop – minutes 17/03/2022.

¹⁰⁸ D2021/103279 How to Guide - Supply Schematics 2021.

documents that should be considered at a risk assessment. This is also detailed in the *Conduct Catchment-to-Customer (C2C) Risk Assessment*¹⁰⁹ procedure.

Assessment of water quality data

The *Water Quality Data Analysis and Reporting Procedure*¹¹⁰ includes the details of how to access data and generate routine water quality reports.

Modelpedia includes a process for undertaking C2C and the gathering of water quality data. This is also in the *Conduct Catchment-to-Customer (C2C) Risk Assessment*¹¹¹ procedure.

Hazard identification and risk assessment

Modelpedia refers to the *Conduct Catchment-to-Customer (C2C) Risk Assessment*¹¹² procedure for identifying hazards, estimating risk, and identifying uncertainty. However, this document is a process flow for the person organising a risk assessment; it does not include the risk assessment methodology or reference it. The risk assessment spreadsheet¹¹³ does contain the risk matrix and definitions of descriptors, but it falls short of including all of the detail of how to conduct the risk assessment and this is assumed based on the risk template. The ADWG states that: “A consistent methodology should be established for both hazard identification and risk assessment.”

REC-WNSW-2022-01 is again applicable.

Element 3:

The WaterNSW WQMS conforms to the requirement of this element.

Preventive measures and multiple barriers

The C2C Risk Assessment for the Fish River Scheme¹¹⁴ includes ‘WaterNSW Controls (catchment, storage, delivery)’; these are the preventive measure that WaterNSW implements operationally to manage hazards. This risk assessment also details ‘Existing Controls (Treatment, distribution) (WaterNSW and LCC)’ which are implemented by WaterNSW at the Duckmaloi WTP or Lithgow City Council post treatment.

Where it is considered that additional controls are required, ‘Possible Controls for Consideration’ are identified in the risk register. Modelpedia identifies that these are then required to be input into the *Water Quality Improvement Plan*.

Critical control points

Modelpedia states that WaterNSW uses the ADWG methodology to identify critical control points.

CCPs are identified and described under CCP tables and system schematics, which are developed in consultation with major customers and NSW Health. The *Critical and Operational Control Points for Fish River Water Supply System*¹¹⁵ document was supplied to demonstrate that CCPs are in place.

It was noted during the audit that there are no interlocks on the CCP critical limits for the Duckmaloi WFP. In discussions with WaterNSW it was determined that there is considerable contingency in the limits that have been set. In particular, with regard to chlorine C.t there would be adequate time to respond to alarms, even after hours through the on-call process.¹¹⁶

¹⁰⁹ CD2021/92 Conduct Catchment-to-Customer (C2C) Risk Assessment Aug-21.

¹¹⁰ CD2012/130 Water Quality Data Analysis and Reporting Procedure Version 6.

¹¹¹ CD2021/92 Conduct Catchment-to-Customer (C2C) Risk Assessment Aug-21.

¹¹² CD2021/92 Conduct Catchment-to-Customer (C2C) Risk Assessment Aug-21.

¹¹³ D2022/23686 Fish River System C2C Risk Assessment Workshop – minutes 17/03/2022.

¹¹⁴ D2022/23684 Fish River C2C Risk Register 2022.

¹¹⁵ CD2021/127 Critical and Operational Control Points for Fish River Water Supply System 2021.

¹¹⁶ WaterNSW Response to Summary of Grades Report November 2022.

Element 4:

The WaterNSW WQMS conforms to the requirement of this element.

Operational procedures

WaterNSW has operation and maintenance manuals for each of the storages and other installations in the non-declared catchment areas. There is also a procedure¹¹⁷ to ensure that all the manuals are kept up to date. The following manuals were provided as evidence:

- Duckmaloi Water Treatment Plant Operations and Maintenance Manual;¹¹⁸
- Rydal Dam Operations and Maintenance Manual;¹¹⁹
- Oberon Dam Operations and Maintenance Manual;¹²⁰ and
- Operation and Maintenance Manual - Wallerawang Re-Chlorination.¹²¹

Operational monitoring

Routine operational water quality monitoring is defined in the *Water Monitoring Program*;¹²² this includes both grab sample monitoring and online monitoring. The plan also contains operation limits for certain parameters. Further details of operational controls are also detailed in the *Critical and Operational Control Points for Fish River Water Supply System*¹²³ document.

Process for short-term evaluation of results is captured in the *Water Quality Data Review and Reporting* procedure.¹²⁴ This includes data from the SCARMS (Reservoir Management System) database, which has been collected from thermistor chains and water quality profilers.

Corrective action

There is a supply contract with Oberon Council¹²⁵ and operational protocols for supply of water to Lithgow City Council.¹²⁶ These include details of water quality monitoring and acceptance criteria. The Lithgow City Council supply protocol details how operational changes are to be implemented between the two organisations, including details of communication arrangements. Where a change to the supply is required, the protocols specify the NOCTSO process. The supply contract with Oberon Council is an older document and is still in the name of State Water; it does not include all of the details in the supply protocols with Lithgow City Council. **OFI-WNSW-2022-05.**

The CCP tables¹²⁷ detail corrective actions that are required for critical control points in the supply.

Where an issue is identified in regard to the operational monitoring it is communicated in accordance with the *Water Quality Incident Response Protocol*.¹²⁸ The *Water Quality Contact Directory*¹²⁹ is in place to ensure that the relevant people can be contacted at short notice when required.

¹¹⁷ CD2021/119 Update Operations and Maintenance Manuals Version 2 Feb-22.

¹¹⁸ CD2021/107 Duckmaloi Water Treatment Plant Operations and Maintenance Manual Version 2 29/07/2022.

¹¹⁹ CD2021/114 Rydal Dam Operations and Maintenance Manual 25/10/2021.

¹²⁰ CD2021/151 Oberon Dam Operations and Maintenance Manual 31/10/2021.

¹²¹ D2021/106376 Operation and Maintenance Manual - Wallerawang Re-Chlorination 2021.

¹²² CD2011/179 Water Monitoring Program Version 7 Aug-21.

¹²³ CD2021/127 Critical and Operational Control Points for Fish River Water Supply System Dec-21.

¹²⁴ CD2012/130 Water Quality Data Analysis and Reporting Procedure Version 7 Jul-22.

¹²⁵ DOC12/32669 Agreement Concerning the Supply of Water from the Fish River Water Supply - Oberon Council.

¹²⁶ CD2017/173 Operating Protocols for the Fish River Water Supply Version 2 Jun-21.

¹²⁷ CD2021/128 Critical and Operational Control Points for Greater Sydney Water Supply System Jan-22.

¹²⁸ CD2004/183 Water Quality Incident Response Protocol Version 4 Jun-21.

¹²⁹ D2013/94543 WaterNSW Water Quality Contact Directory May-22.

Equipment capability and maintenance

Asset Class Standards¹³⁰ define maintenance requirements, risks and criticalities for different categories of assets. Maintenance frequencies for all asset types are based on asset object criticality ratings (increasing criticality 1 to 5). The Enterprise Asset Management System (EAMS) schedules maintenance activities at the specified frequencies and enables tracking of preventive and corrective maintenance orders.

Materials and chemicals

The *Procedure for Materials and Chemicals in contact with Drinking Water Supplies*¹³¹ details approved chemicals and specifications. To establish requirements for the purchase and use of materials and chemicals in contact with drinking water supplies, the WaterNSW eProcurement Portal (Spendwise) has a risk assessment process for material and chemicals that may come into contact with drinking water.¹³²

Element 5:

The WaterNSW WQMS conforms to the requirement of this element.

Drinking water quality monitoring

Verification monitoring is detailed in the *Water Monitoring Program*.¹³³ The program clearly identifies the monitoring to be undertaken, including parameters, location, and frequency. Section 1.4 includes details of the monitoring quality assurance and quality control processes.

Consumer satisfaction

Customer feedback is managed according to the *Feedback Compliments and Complaints Policy*,¹³⁴ which is available to customers on the website, as well as an online complaints form.¹³⁵

Complaints are processed internally according to the *Complaints and Compliments Handling Procedure*.¹³⁶

Customer complaints are reviewed at both JOGs under the standing agenda items.¹³⁷

Short-term evaluation of results

The process for short-term evaluation of results is captured in the *Water Quality Data Review and Reporting* procedure.¹³⁸ Timely review of data facilitates the rapid response to non-compliant results.

The WaterNSW PowerBI water quality database reports exceptions on a dedicated page; this was reviewed during the audit. Exceptions and results are emailed out to a list of subscribers.

Corrective action

There is a supply contract with Oberon Council¹³⁹ and operational protocols for supply of water to Lithgow City Council.¹⁴⁰ These include details of water quality monitoring and acceptance criteria. The Lithgow City Council supply protocol details how operational changes are to be implemented between the two organisations, including details of communication

¹³⁰ CD2022/70 Asset Class Strategy Cranes and Lifting Assets Version 0 2022.

¹³¹ CD2019/36 Procedure for Materials and Chemicals in contact with Drinking Water Supplies Version 4 Oct-21.

¹³² D2021/106294 Screen print - WaterNSW SpendWise eProcurement Portal - procurement risk questionnaire.

¹³³ CD2011/179 Water Monitoring Program Version 7 Aug-21.

¹³⁴ https://www.waternsw.com.au/_data/assets/pdf_file/0006/162645/Feedback-Compliments-and-Complaints-Policy-2020.pdf.

¹³⁵ <https://www.waternsw.com.au/customer-services/help-and-support/customer-feedback-and-inquiry-form>.

¹³⁶ CD2007/13 Feedback Compliments and Complaints Handling Procedure Version 6 Jul-21.

¹³⁷ D2022/100211 Screenshot from JOG presentation Item 3.2 May 2022 JOG meeting May-22.

¹³⁸ CD2012/130 Water Quality Data Analysis and Reporting Procedure Version 7 Jul-22.

¹³⁹ DOC12/32669 Agreement Concerning the Supply of Water from the Fish River Water Supply - Oberon Council.

¹⁴⁰ CD2017/173 Operating Protocols for the Fish River Water Supply Version 2 Jun-21.

arrangements. Where a change to the supply is required, the protocols specify the NOCTSO process.

Element 6:

The WaterNSW WQMS conforms to the requirement of this element.

Communication

The *Incident Management Procedure*¹⁴¹ provides a framework for the Incident Management Team to respond to major events. This contains an overview and responsibilities for incident communication with various parties including the following:

- Media;
- WaterNSW staff;
- Ministers; and
- Other stakeholders.

Specific details on the management of water quality incidents are in the *Water Quality Incident Response Protocol*.¹⁴² This details specific water quality incident classifications and the communications required for each.

The *Water Quality Contact Directory*¹⁴³ contains contact details for relevant stakeholders. Modelpedia states that this is to be updated at least annually.

Incident and emergency response protocols

The *Incident Management Procedure*¹⁴⁴ provides a framework for the Incident Management Team to respond to major events. Specific details on the management of water quality incidents are in the *Water Quality Incident Response Protocol*.¹⁴⁵

The *Fish River Incident Management Plan*¹⁴⁶ contains details of how to manage site specific incidents, such as chlorine gas leaks.

Section 4 of the *Incident Management Procedure* includes details of incident debrief, including feeding learning into continual improvement.

Training details are in the *Water Quality Incident Response Protocol*, which states:

- Relevant staff are trained through an eLearning module.
- General training is provided in the *Incident Management Plan*.
- Annual scenario exercises are undertaken.

Element 7:

The WaterNSW WQMS conforms to the requirement of this element.

Employee awareness and involvement

The Water Quality Awareness eLearning course¹⁴⁷ is mandatory for all new employees and a refresher is delivered two years. Employees and contractors (e.g. labour hire) are added to the MyLearning system and training is managed using this software.

¹⁴¹ CD2022/72 Incident Management Procedure Jun-22.

¹⁴² CD2004/183 Water Quality Incident Response Protocol Version 4 Jun-21.

¹⁴³ D2013/94543 WaterNSW Water Quality Contact Directory May-22.

¹⁴⁴ CD2022/72 Incident Management Procedure Jun-22.

¹⁴⁵ CD2004/183 Water Quality Incident Response Protocol Version 4 Jun-21.

¹⁴⁶ CD2021/83 Fish River Incident Management Plan Jun-21.

¹⁴⁷ D2017/58449 Water Quality Awareness eLearning Module.

Employees and contractors (including project-based contractors) have to undergo site specific and/or catchment awareness training¹⁴⁸ at WaterNSW sites. Completed forms are currently scanned and saved in the ARK document management system; however, a new induction system (Rapid Induct) is currently being rolled out that will deliver online inductions and allow supervisors to check a person's induction status easily.

The *Water Quality Policy*¹⁴⁹ is on display in WaterNSW offices and is available from Modelpedia.

Other channels are used to raise employee and contractors awareness of water quality management, including (for example):

- Intranet -Water Quality Back to Basics content written for feature article on WaterNSW intranet to raise awareness of water quality management.¹⁵⁰
- Monthly communications kit to senior leaders, which includes water quality performance KPIs.¹⁵¹

Employee training

Mandatory training is managed using the MyLearning platform. Training is allocated to specific roles. As an example, a WFP Maintenance Officer¹⁵² is required to undertake the following training:

- Asbestos & Hazardous Materials Management (Online Learning);
 - Asset Management System (AMS) Awareness (Online Learning);
 - Corporate Orientation;
 - Dam Surveillance Training (Initial);
 - Dam Surveillance Training (Refresher);
 - Diversity & Equality (Discrimination and sexual harassment) (Online Learning);
 - Diversity & Equality (Workplace bullying) (Online Learning);
 - Environmental Essentials (Online Learning);
 - Environmental Management (Online Learning);
 - General Induction Module 4 Safety Commitments (Online Learning);
 - General Induction Module 3 PPE, Noise & Infectious Diseases (Online Learning);
 - General Induction Module 2 WHS & Wellbeing (Online Learning);
 - General Induction Module 1 Safety Essentials (Online Learning);
 - Heritage Management (Online Learning);
 - ICT Cyber Security Awareness (Online Learning);
 - Online Driver Training (Online Learning);
 - Materials and Chemicals in contact with Drinking Water (Online Learning);¹⁵³
 - Module 1: Introduction to Risk, Assurance & Compliance System (RACS) (Online Learning);
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¹⁴⁸ D2019/27969 WaterNSW Declared Catchment Induction.

¹⁴⁹ CD2014/5 Water Quality Policy Version 6 24/11/2021.

¹⁵⁰ D2022/100040 Back to Basics – Cascade Aug-22.

¹⁵¹ D2022/105455 RE: July Comms Kit 2/08/2022.

¹⁵² D2022/119835 Mandatory Training by Role - Export from MyLearning.

¹⁵³ D2019/48488 Materials and Chemicals in contact with Drinking Water 2019.

-
- NSW Construction Induction (White Card);
 - Safe Access Rules (Online Learning);
 - ThinkSafe4Life (Session 1);
 - Switch on to Safety (Session 1);
 - Water Quality Awareness (Online Learning);¹⁵⁴
 - Water Quality Incident Response (Online Learning);¹⁵⁵
 - Water Safety (Online Learning);
 - Water Treatment Update Seminar;
 - Fluoridation of public water supplies;
 - Water Treatment Operator Part 1 - Chemical Dosing Systems; and
 - Water Treatment Operator Part 2 - Water Treatment Operations.

A review of the provision of the Water Quality Awareness course has been undertaken following an audit recommendation.¹⁵⁶ It was found that the majority of the personnel not compliant with this training were contractors. Many work periodically but remain active in the MyLearning system. Recommendations were made to bring compliance up from 84% to the KPI target of 95%, which is high when including contractors. **OFI-WNSW-2022-03** is again applicable.

Element 8:

The WaterNSW WQMS conforms to the requirement of this element.

Community consultation

Decisions around effective community involvement are made with reference to the IAP2 spectrum of engagement and are informed by the degree of community impact or interest from any given project or policy change.¹⁵⁷ The Community Engagement team makes this assessment in consultation with the project team and external stakeholders.

WaterNSW has two templates used to develop Community and Stakeholder Engagement Plans:

- Short Form¹⁵⁸ – used for less complex projects.
- Long Form¹⁵⁹ – used for more complex projects with a larger number of stakeholders and greater community impact.

WaterNSW has ten Customer Advisory Groups based on area,¹⁶⁰ which provide a forum to consult a broad section of customers on issues. Each of the groups seeks to have a representative from each of the customer categories:

- stock and domestic water users;
 - regulated river water users;
 - unregulated river water users;
-

¹⁵⁴ D2017/58449 Water Quality Awareness eLearning Module.

¹⁵⁵ D2018/77988 Water Quality Incident Response - Training Package.

¹⁵⁶ D2022/60824 Water Quality Awareness Training Compliance Assessment 2022.

¹⁵⁷ <https://iap2.org.au/resources/spectrum/>.

¹⁵⁸ D2019/29701 Community and Stakeholder Engagement Plan - Short Form.

¹⁵⁹ D2018/78477 Community and Stakeholder Engagement Plan - Long Form.

¹⁶⁰ CD2015/281 Customer Advisory Groups Charter Version 5.

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- groundwater users;
 - environmental water users;
 - industrial and commercial water users;
 - Local Water Utilities;
 - major utilities;
 - volumetric categories of water users (small/medium/large); and
 - Aboriginal cultural heritage water users.

Communication

Consumers are communicated with as follows:

- Details of WaterNSW's projects are available via the website.¹⁶¹
- WaterNSW offers a range of educational resources through its website.¹⁶²
- Information is delivered to the community through social media, such as Facebook.¹⁶³
- WaterInsights¹⁶⁴ provides the public with key information regarding the non-declared catchment storages.
- Feedback from consumers can be lodged through the website or call centre.¹⁶⁵

Element 9:

The WaterNSW WQMS conforms to the requirement of this element.

Investigative studies and research monitoring

WaterNSW has a science program that is designed to increase the knowledge of the catchments, but also develop improved ways of monitoring water quality through the development and training of new technologies. Details of the current status of the science program were provided;¹⁶⁶ this is reviewed in detail in **Section 2.2.2.1** (in respect of Licence sub-clause 2.8.1).

In addition to the science program, if a risk assessment identifies an issue that is not well understood, investigations are commissioned.

Validation of processes

WaterNSW determines the need for validation of processes through the catchment to consumer risk assessment process. Validation requirements for CCPs are detailed in the CCP tables.¹⁶⁷

Design of equipment

Equipment is to be selected to ensure continued reliability. Details of the process followed by WaterNSW are on Modelpedia, which states the following:

¹⁶¹ <https://www.watensw.com.au/projects>.

¹⁶² <https://www.watensw.com.au/education>.

¹⁶³ <https://www.facebook.com/WaterNSW/>.

¹⁶⁴ <https://waterinsights.watensw.com.au/>.

¹⁶⁵ <https://www.watensw.com.au/customer-services/help-and-support/feedback-and-complaints>.

¹⁶⁶ D2021/124453 Annual Water Quality Research & Development Update 7/12/2021.

¹⁶⁷ CD2021/127 Critical and Operational Control Points for Fish River Water Supply System 2021.

“WaterNSW has established an “Approval to Spend” process to ensure the business makes prudent, efficient and justifiable purchasing decisions. 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.”

An asset change request form¹⁶⁸ has been provided as evidence of the process of installing a new asset. In the form there are details of the risk assessment process that is followed, as well as the required testing and approval.

Element 10:

The WaterNSW WQMS conforms to the requirement of this element.

Management of documentation and records

The records management system is ARK (HP Trim). Training in ARK is managed by the Records Management Team and through job inductions.

The *Controlled Document Framework*¹⁶⁹ provides details on the management of documents, and it refers to the *Records Management Procedures Manual* (CD2015/546). The minimum review frequency of a controlled document is determined by the risk that the document is intending to manage; the higher the risk ranking the more frequent the review schedule.

In addition to the document management system, there are a number of systems used for records management, including but not limited to, the following:

- MyLearning;
- Water Quality database;
- EAMS;
- RACS; and
- SCADA.

The WQMS does not detail these systems under this element. **OFI-WNSW-2022-04** is again applicable.

Reporting

The *Water Quality Data Analysis and Reporting Procedure* details the key water quality reports, the location of the data and the required contents.

Modelpedia references the weekly *Catchment Cryptosporidium Hazard Assessment* (D2016/117391), which is prepared to provide details of the inherent water quality risk to treatment plant operators. It also refers to the *Annual Review of the Drinking Water Quality Management System for Fish River*.¹⁷⁰

¹⁶⁸ D2022/121282 Requested Item Details - Install an actuator on the shaft of this winch 15/07/2021.

¹⁶⁹ CD2019/123 Controlled Documents Framework Version 2 Jun-21.

¹⁷⁰ D2021/110932 Fish River Water Supply - Annual Review of the Drinking Water Quality Management System 2020 – 2021.

Element 11:

The WaterNSW WQMS conforms to the requirement of this element.

Long-term evaluation of results

WaterNSW produces an annual review the Fish River Drinking Water Management System, including trends. Details are in the *Water Quality Data Review and Reporting Procedure*.¹⁷¹

Audit of drinking water quality management

WaterNSW implements a WQMS audit program.¹⁷²

Element 12:

The WaterNSW WQMS conforms to the requirement of this element.

Review by senior executive

Performance of the WQMS is reported to the Management and Board Committee on Water Quality, Health and Catchment Protection, based on the *Water Quality Management System Annual Review and Continual Improvement Cycle*.¹⁷³ The committee receives quarterly trend reports, annual system effectiveness and health checks, and the annual report to IPART on the WQMS. The 2022 committee meeting schedule has been provided as evidence,¹⁷⁴ as well as the work plan.¹⁷⁵

Drinking water quality management improvement plan

Improvement actions arising from audits, incidents and health checks are registered in the *Water Quality Improvement Plan*.¹⁷⁶

Recommendations

The following recommendation is made in respect of this obligation:

- **REC-WNSW-2022-02:** By 30 June 2023, WaterNSW should revise the scope of the *Water Quality Policy* to clarify its application to the non-declared catchment. The coverage is dependent on the definition of the word “supply” in the Operational Licence. It should be clear to readers of the policy what the scope of its application is, without seeking clarification (relates to Element 1).

The following recommendation, made in respect of sub-clause 2.1.2, is also applicable:

- **REC-WNSW-2022-01:** 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 even go as far as stating how these should be implemented (Element 2).
-

Opportunities for improvement

The following opportunity for improvement has been identified in respect of this obligation:

- **OFI-WNSW-2022-05:** Consider revising the supply contract with Oberon Council to make it consistent with other supply protocols (relates to Element 4).
-

¹⁷¹ CD2012/130 Water Quality Data Analysis and Reporting Procedure Version 7 Jul-22.

¹⁷² D2017/87415 Water Quality Management System Audit Program.

¹⁷³ D2017/50060 Water Quality Management System Annual Review and continual improvement cycle.

¹⁷⁴ D2022/105437 Proposed Water Quality, Health and Catchment Protection Board Committee meetings 2022.


¹⁷⁵ D2021/115777 Water Quality, Health and Catchment Protection Board Committee Work Plan 2022.

¹⁷⁶ D2019/53719 WQ Improvement Plan.

The following opportunities for improvement, identified in respect of sub-clause 2.1.2, are also applicable:

- **OFI-WNSW-2022-01:** Consider including in the Water Quality Policy a statement that required regulatory and other requirements will be complied with (Element 1).
 - **OFI-WNSW-2022-03:** Consider including a status for employees and contractors in MyLearning that would exclude them from KPI calculations if they are not actively working. This may include parental leave, long service leave or contractors that do not currently have work/project assignment (Element 7).
 - **OFI-WNSW-2022-04:** The Water Quality Management System does not detail record management systems under Element 10 in Modelpedia. It would be useful to map records to systems under this element, providing a quick reference for users to identify the location of certain records (Element 10).
-

2.2.1.3 Water Quality Management System (sub-clause 2.1.4)

Sub-clause	Requirement	Compliance Grade
2.1.4	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.	 Compliant (minor shortcomings)

Risk if non-compliant

If the Water Quality Management System is not fully implemented, there is a high risk that WaterNSW may not be able to effectively manage risks to water quality and protect public health.

Evidence sighted

Refer Appendix C (C.3.1).

Summary of audit findings/reasons for grade

WaterNSW provided evidence to demonstrate that its Water Quality Management System (WQMS) has been implemented. Evidence of regular consultation with NSW Health was provided to demonstrate that NSW Health's requirements are identified and communicated.

There was only one minor shortcoming identified in the implementation of the WQMS, and it is considered to present a low risk to WaterNSW achieving the objectives of the Licence. Element 2 of the ADWG requires the construction of a flow diagram of the water supply system from catchment to consumer. WaterNSW has a 'how to guide' for preparing the flow diagram; however, during the audit it was identified that the Woronora Schematic shows an open valve that could supply raw water to the Sydney Water network. This valve is closed (photographic evidence provided) and the schematic has an error. It was also noted that processes such as destratification are not included in the flow diagrams; the procedure requires all steps and processes from source to handover point.

These are considered a gap in the implementation of the 'how to guide'. It is considered a minor shortcoming due to the other review processes involved in managing the risk assessment process.

Discussion and notes

Implementation of the WQMS to be consistent with each ADWG Element is discussed below.

Element 1:

WaterNSW demonstrated that it has effectively implemented the requirements of this element of its WQMS.

Drinking water quality policy

The *Water Quality Policy*¹⁷⁷ that is available through Modelpedia for staff. The auditor did view it on the website, but the page is no longer available at the time of reporting. It was noted that

¹⁷⁷ CD2014/5 Water Quality Policy Version 6 24/11/2021.

the internet version did not include the accountabilities section of the policy; this is not particularly relevant to the general public.

Mandatory training Water Quality Awareness course is to be completed by all new staff and again for all staff every two years. A register for this training¹⁷⁸ was provided as evidence. The training includes details of the *Water Quality Policy* and key regulatory requirements. Communications Kit monthly meetings with senior leadership provides performance against KPI, water quality compliance and incidents, which are also shared by team leaders with their respective teams. An email with the July 2022 Communications Kit was supplied as evidence.¹⁷⁹

The policy is to be reviewed every two years and was last reviewed 24 November 2021.

Regulatory and formal requirements

The *Legal and Other Requirements Register*¹⁸⁰ was last reviewed on 9 August 2022 and it is noted that in the register it states that the next review is due in 12 months. This contradicts Modelpedia, which states it is to be reviewed every 6 months. **OFI-WNSW-2022-06.**

Engaging stakeholders

The MoU with NSW Health was reviewed and executed on 24 December 2021. This requires a SLG¹⁸¹ and JOG¹⁸² for greater Sydney (GS), with a separate JOG for Fish River (FR).¹⁸³ Minutes have been provided for both these meetings, demonstrating that they take place.

The *Water Quality Contact Directory*¹⁸⁴ is due for review in November 2022, within the six-month review timeframe.

Element 2:

WaterNSW has not demonstrated that it has fully implemented the requirements of this element of its WQMS.. This is due to the procedure for the preparation/development and maintenance of schematics not being fully implemented.

Water supply system analysis

There are flow diagrams for each scheme, available on Modelpedia, which generally comply with the procedure for the preparation/development and maintenance of schematics.¹⁸⁵ The following exceptions were noted:

- Woronora Schematic shows an open valve that could supply raw water to the Sydney Water network. This valve is closed (photographic evidence provided) and the schematic has an error (note, this was corrected post audit).
- It was also noted that processes such as destratification are not included in the flow diagrams. The procedure requires all steps and processes from source to handover point. **REC-WNSW-2022-03.**

Assessment of water quality data

The following water quality assessments were provided as evidence:

¹⁷⁸ D2022/100306 WQ Mandatory Training Export from MyLearning 5/08/2022.

¹⁷⁹ D2022/105455 RE: July Comms Kit 2/08/2022.

¹⁸⁰ CD2013/26 Legal and Other Requirements Register Version 2 9/08/2022.

¹⁸¹ D2021/108913 Strategic Liaison Group – Agenda item 4.1 Catchment to Customer Annual Update 21/09/2021.

¹⁸² D2022/13285 2022 Q1 JOG Minutes and Papers Combined 10/11/2021.

¹⁸³ D2022/100623 JOG Meeting NSW Health, WNSW, LCC and Oberon Council - minutes 17/08/2022.

¹⁸⁴ D2013/94543 WaterNSW Water Quality Contact Directory May-22.

¹⁸⁵ D2021/103279 How to Guide - Supply Schematics 2021.

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- *Lake Oberon and Duckmaloi Weir Water Quality Report*,¹⁸⁶
 - *Duckmaloi WTP Daily Sheet*,¹⁸⁷
 - *Fish River Drinking Water Quality Report*,¹⁸⁸
 - *Wingecarribee Reservoir Water Quality Review*,¹⁸⁹
 - *Lake Nepean WQ report; April 2022*,¹⁹⁰
 - *Lake Cataract WQ report; May 2022*,¹⁹¹ and
 - *Lake Avon WQ report; June 2022*.¹⁹²

Hazard identification and risk assessment

Evidence was provided for the following risk assessments undertaken during the audit period:

- Fish River C2C Risk Assessment (targeted on specific risks),¹⁹³
- Prospect/Orchard Hills Supply Risk Assessment,¹⁹⁴ and
- Annual Catchment to Customer Risk Review.¹⁹⁵

The audit program was agreed to by the C2C Working Group.¹⁹⁶

The last major review of the Greater Sydney C2C risk assessment was undertaken in 2021.¹⁹⁷ The C2C Working Group has been conducting targeted risk assessments and reporting to the SLG annually.¹⁹⁸ A new approach to undertake a major review of the C2C every 5 years has been approved. The workload will be split, risk assessments being undertaken of around two schemes per year, which is documented in Modelpedia. This new program will commence in 2023, as indicated in the C2C Working Group Annual report to the SLG. A review schedule has been prepared for the future program.¹⁹⁹

The Fish River scheme risk assessments are to be undertaken every 5 years, as specified in Modelpedia. This was updated within the audit period.²⁰⁰

It is noted that Modelpedia does not link to the risk assessments for each of the schemes. It would be an improvement if the output of the risk assessments could be located from Modelpedia, as well as the procedures and processes. **OFI-WNSW-2022-07**.

In a review of the Greater Sydney²⁰¹ and Fish River²⁰² C2C risk assessments, the registers appeared to meet the requirements of the ADWG and the risks were appropriate.

¹⁸⁶ D2022/12032 Lake Oberon and Duckmaloi Weir Water Quality Report 21/02/2022.

¹⁸⁷ D2022/100405 Duckmaloi Water Treatment Plant - Daily Data 23/08/2022.

¹⁸⁸ D2022/71031 Fish River Drinking Water Quality Report 19/07/2022.

¹⁸⁹ D2021/109453 Wingecarribee Reservoir Water Quality Review 2021.

¹⁹⁰ D2022/50095 Lake Nepean Water Quality Report 30/04/2022.

¹⁹¹ D2022/53104 Lake Cataract Water Quality Report 31/05/2022.

¹⁹² D2022/58684 Lake Avon Water Quality Report 22/06/2022.

¹⁹³ D2022/23686 Fish River System C2C Risk Assessment Workshop - minutes 17/03/2022.

¹⁹⁴ D2022/106011 Prospect/Orchard Hills Supply Risk Assessment 27/07/2022.

¹⁹⁵ D2022/48942 Annual Catchment to Customer Risk Review 2/06/2022.

¹⁹⁶ D2021/108913 Strategic Liaison Group – Agenda item 4.1 Catchment to Customer Annual Update 21/09/2021.

¹⁹⁷ D2022/48942 Annual Catchment to Customer Risk Review 2/06/2022.

¹⁹⁸ D2021/108913 Strategic Liaison Group – Agenda item 4.1 Catchment to Customer Annual Update 21/09/2021.

¹⁹⁹ D2022/100491 WaterNSW C2C Review Schedule 2023/24-2025/26 FY 2022.

²⁰⁰ D2022/23686 Fish River System C2C Risk Assessment Workshop - minutes 17/03/2022.

²⁰¹ D2022 61325 Greater Sydney C2C Risk Register 30/06/2022.

²⁰² D2022/23684 Fish River C2C Risk Register 2022.

Element 3:

WaterNSW demonstrated that it has effectively implemented the requirements of this element of its WQMS.

Preventive measures and multiple barriers

In this year's audit the site visits were virtual, but we were able to observe the following:

- Presentation on the new destratification system at Nepean Dam and the improvement in mixing of the water column.
- Notifications of Change to System Operation (NOCTSO) in respect of:
 - Screen change at Nepean Dam;²⁰³
 - Turning on the Nepean Dam destratification;²⁰⁴
 - Implementation of the Orchard Hills Contingency Pipeline Configuration;²⁰⁵ and
 - Use of the Lithgow City Council supply for the villages after high manganese from the Duckmaloi WFP.²⁰⁶
- The *Catchment Protection Work Program*²⁰⁷ includes details of catchment activities to reduce the risk of hazards in the drinking water. During the audit a presentation²⁰⁸ was delivered on the maintenance of fire trails and fuel reduction burns, both of which are in the work program.
- The *Annual Catchment Management Report*²⁰⁹ shows how the work program for the previous year was implemented. Any items that were not complete are carried over to the next year's program. They are listed in a document with mandatory items for inclusion in the plan.²¹⁰

WaterNSW has a Master List of Controls²¹¹ that is used to improve consistency across the C2C risk assessment.²¹²

Critical control points

The Declared Catchment operational controls and CCPs are for the supply of bulk water. Changes in water quality can trigger the implementation of certain operational controls such as intake depth or source selection in some instances. However, once these operational controls have been exhausted, water is still supplied in consultation with Sydney Water and in some instances an incident may be called. During the audit period there were a number of flood events where the turbidity at Warragamba Dam exceeded 20 NTU and in these instances the source was switched to Prospect Reservoir. Evidence was supplied of an operational change to the raw water supplied to the Orchard Hills WFP and Prospect WFP due to forecast deterioration in water quality in Warragamba Dam on 2 July 2022.²¹³

CCP 6 is in part to manage taste and odour issues generated by algae. This is managed through the monitoring of algae and adjustment of intake depth. In October 2021 there was an incident where >1000 Sydney Water customers reported taste and odour issues. This was the result of water being taken from a higher than usual depth to avoid dirty water at lower depths and atypical weather resulting very high geosmin concentration and only comparatively low levels of potentially toxic algae. It can be seen from the situation report (SITREP)²¹⁴ that WaterNSW has responded by changing the offtake depth and resolve this issue. The CCP in this instance did not prevent the taste and odour issue. In response to this, WaterNSW has amended through a Special Request for Field Service/Analysis²¹⁵ to include more geosmin and MIB monitoring to try and prevent recurrences in the future. **OFI-WNSW-2022-08.**

CCPs for the Fish River scheme include limits at Oberon Dam and the Duckmaloi WFP.²¹⁶ Raw water is supplied to Oberon Council and treated water is supplied to Lithgow City Council and other private customers.

During the audit the SCADA was demonstrated, including looking at trends and alarm levels set in SCADA. The sample of limits viewed were consistent with the plans.

The *Annual Report to IPART on the Water Quality Management System*²¹⁷ provides a summary of CCP performance over the audit period. It can be seen that there were limited exceedances of the turbidity critical limit at Cascades, Nepean, Warragamba and Orchard Hills. There were also 7 samples that exceeded algae critical limits at Wingecarribee Dam. Based on the evidence reviewed, it is considered that these issues were managed appropriately. In addition, two critical limit exceedances were noted at the Duckmaloi WFP, but the plant was not operational at the time.

Element 4:

WaterNSW demonstrated that it has effectively implemented the requirements of this element of its WQMS.

Operational procedures

On review of the operational procedures provided as evidence, they all look to be adequate and suitable for the purpose. The following procedures were provided:

- *Duckmaloi Water Treatment Plant Operations and Maintenance Manual;*²¹⁸
- *Rydal Dam Operations and Maintenance Manual;*²¹⁹
- *Oberon Dam Operations and Maintenance Manual;*²²⁰
- *Operation and Maintenance Manual - Wallerawang Re-Chlorination;*²²¹
- *Cataract Dam Operations and Maintenance Manual;*²²²
- *Nepean Dam Operations and Maintenance Manual;*²²³ and
- *Avon Dam Operations and Maintenance Manual.*²²⁴

Operational monitoring

The SCADA system was reviewed during the audit, and it could be seen that real-time monitoring was being implemented. In addition, WaterNSW produces various water quality reports that demonstrate that the monitoring is undertaken. These include the following:

²⁰³ D2022/84364 Notification of Change to System Operation - Raw Water 9/08/2022.

²⁰⁴ D2022/100606 NOCTSO - Switch on Nepean Dam Destratification 21/03/2022.

²⁰⁵ D2022/61372 NOCTSO - Implement Orchard Hills Contingency Pipeline Configuration 2/07/2022.

²⁰⁶ D2022/31857 NOCTSO - LCC Back Feed- due to elevated Manganese in RW 26/04/2022.

²⁰⁷ D2021/25494 Catchment Protection Work Program 2022.

²⁰⁸ Fire Management Operational Audit – 2022.

²⁰⁹ D2021/84624 Annual Catchment Management Report 7/10/2021.

²¹⁰ D2020/39211 Checklist of Matters to be Considered for Inclusion in the Catchment Protection Work Program FY21 in accordance with CD2019/30 (Prepare Catchment Protection Work Program Procedure) and CD2019/171 (Catchment Protection Work Plan Initiative Template) 2020.

²¹¹ D2022/119662 Controls list extract.

²¹² D2022/163554 C2C reviews and updates - email from AB 24/11/2022.

²¹³ D2022/61372 Notification of Change to System Operation - Raw Water (Warragamba Pipelines) 2/07/2022.

²¹⁴ CD2017/178 Situation Report (SITREP) – Warragamba Water Supply Incident Version 1 14/10/2021.

²¹⁵ D2021/110919 Warragamba Geosmin Incident Monitoring Oct 2021 Version 18 14/02/2022.

²¹⁶ CD2021/127 Critical and Operational Control Points for Fish River Water Supply System 2021.

²¹⁷ D2022/84572 Annual Report to IPART on the Water Quality Management System 1/09/2022.

²¹⁸ CD2021/107 Duckmaloi Water Treatment Plant Operations and Maintenance Manual Version 2 29/07/2022.

²¹⁹ CD2021/114 Rydal Dam Operations and Maintenance Manual 25/10/2021.

²²⁰ CD2021/151 Oberon Dam Operations and Maintenance Manual 31/10/2021.

²²¹ D2021/106376 Operation and Maintenance Manual - Wallerawang Re-Chlorination 2021.

²²² CD2001/113 Cataract Dam Operations and Maintenance Manual Version 3 9/06/2022.

²²³ CD2001/116 Nepean Dam Operations and Maintenance Manual Version 2 29/10/2021.

²²⁴ CD2001/122 Avon Dam Operations and Maintenance Manual Version 2 29/10/2021.

-
- *Fish River Drinking Water Quality Report*;²²⁵ and
 - *Lake Oberon and Duckmaloi Weir Water Quality Report*.²²⁶

The Water Quality Database was also reviewed during the audit, demonstrating that the monitoring is being undertaken.²²⁷

The Daily Data Sheet for the Duckmaloi WFP²²⁸ was also provided as evidence on the operational monitoring undertaken at the plant.

Operational weather conditions are monitored to give an early warning of potential water quality issues, as detailed in the *Flood Prediction Procedure*.²²⁹ Implementation of the procedure was observed during the audit.

Corrective action

Evidence of operational changes were demonstrated with the completed NOCTSO forms:

- NOCTSO - Raw Water Nepean Dam;²³⁰
- NOCTSO - Switch on Nepean Dam Destratification;²³¹
- NOCTSO - LCC Back Feed- due to elevated Manganese in RW;²³² and
- NOCTSO - Implement Orchard Hills Contingency Pipeline Configuration.²³³

RACS records were provided as evidence of the corrective action process being followed for CCP critical limits:

- A high filtered water turbidity issue at the Duckmaloi WFP;²³⁴ and
- Taste and odour issues from the Prospect WFP.²³⁵

Equipment capability and maintenance

The following evidence of instrument calibrations was provided as evidence:

- Ultraturb Turbidimeter Maintenance and Calibration Report;²³⁶ and
- ALS EXO calibration worksheets.²³⁷

NSW Health raised an issue regarding operation of the variable depth offtake at the Nepean Dam. The crane used to adjust the boards in the well failed while they were being adjusted during a wet weather event. Maintenance records in EAMS for the Nepean Crest House Crane^{238,239} were reviewed against the *Asset Class Plan – Crane and Lifting Assets*.²⁴⁰ Based on the audit evidence and interviews it appears that processes were followed.

Materials and chemicals

The Duckmaloi WFP uses chlorine gas for water disinfection. The following was provided as evidence that chemical deliveries follow the prescribed procedures:

- Ixom product specification chlorine gas;²⁴¹ and
 - Ixom chlorine gas delivery docket.²⁴²
-

²²⁵ D2022/71031 Fish River Drinking Water Quality Report 19/07/2022.

²²⁶ D2022/74717 Lake Oberon and Duckmaloi Weir Water Quality Report 25/07/2022.

²²⁷ D2022/105882 Lake Burragorang operational report WQDB screenshot 22/08/2022.

²²⁸ D2022/100405 Duckmaloi Water Treatment Plant - Daily Data 23/08/2022.

²²⁹ CD2007/17 Flood Prediction Procedure Version 4 2019.

²³⁰ D2022/84364 Notification of Change to System Operation - Raw Water Nepean Dam 9/08/2022.

²³¹ D2022/100606 NOCTSO - Switch on Nepean Dam Destratification 21/03/2022.

²³² D2022/31857 NOCTSO - LCC Back Feed- due to elevated Manganese in RW 26/04/2022.

Element 5:

WaterNSW demonstrated that it has effectively implemented the requirements of this element of its WQMS.

Drinking water quality monitoring

Data extracts for the Water Quality Database were requested for the following over the audit period:

- All *Cryptosporidium* and *Giardia* results for both the declared and non-declared catchments;²⁴³ and
- MIB and geosmin results for Lake Burragorang.²⁴⁴

This data was compared to the *Water Monitoring Program*.²⁴⁵ The monitoring was in accordance with the plan except that *Cryptosporidium* monitoring was not taken at a number of monthly monitoring locations during February 2022 (E130, E157, E210 and E488). It was noted in the SLG *Source Water Quality Update*²⁴⁶ that this was due to the weather preventing helicopter access to the site. Communications were provided as evidence indicating that additional samples were taken in March to prevent a shortfall.²⁴⁷

A number of water quality reports demonstrating that water quality monitoring is being undertaken were provided by WaterNSW:

- *Lake Oberon and Duckmaloi Weir Water Quality Report*;²⁴⁸
- *Lake Nepean Water Quality Report*;²⁴⁹
- *Lake Cataract Water Quality Report*;²⁵⁰
- *Lake Avon Water Quality Report*;²⁵¹ and
- *Fish River Drinking Water Quality Report*.²⁵²

Consumer satisfaction

Customer complaints for drinking water are reviewed at the JOG meetings and are trended.²⁵³ It can be seen that in September 2021 there was an increase in discoloured water complaints and in October a dramatic increase in taste and odour complaints.

²³³ D2022/61372 NOCTSO - Implement Orchard Hills Contingency Pipeline Configuration 2/07/2022.

²³⁴ D2022/105734 RACS example CIP Duckmaloi - Incident 2113 - Duckmaloi high turbidity 5/05/2022.

²³⁵ D2022 119659 RACS records relating to Taste and Odour event in Lake Burragorang October 2021 6/10/2021.

²³⁶ D2022/105987 Ultraturb Turbidimeter Maintenance and Calibration Report 11/08/2022.

²³⁷ D2022/106207 ALS EXO calibration worksheets 29/08/2022.

²³⁸ D2022 119742 EAMS Nepean crest house crane maintenance Object: OB0007362.

²³⁹ D2022 119720 Inspection condition Report - Nepean Crest House Crane 1/06/2022.

²⁴⁰ CD2022 70 Asset Class Strategy Cranes and Lifting Assets Version 0 2022.

²⁴¹ D2022/106006 Water Treatment Product Specification - Chlorine Gas 2022.

²⁴² D2022/100434 Delivery Docket Oberon Duckmaloi 19/07/2022.

²⁴³ D2022 119532 MIB and Geosmin Data Extract 2022.

²⁴⁴ D2022 119533 Cryptosporidium and Giardia Data Extract 2022.

²⁴⁵ CD2011/179 Water Monitoring Program Version 7 Aug-21.

²⁴⁶ D2022/33343 Source Water Quality Update: Feb - Apr 2022 May-22.

²⁴⁷ D2022 157091 Email: RE Chopper Sites 25/03/2022.

²⁴⁸ D2022/12032 Lake Oberon and Duckmaloi Weir Water Quality Report 21/02/2022.

²⁴⁹ D2022/50095 Lake Nepean Water Quality Report 30/04/2022.

²⁵⁰ D2022/53104 Lake Cataract Water Quality Report 31/05/2022.

²⁵¹ D2022/58684 Lake Avon Water Quality Report 22/06/2022.

²⁵² D2022/71031 Fish River Drinking Water Quality Report 19/07/2022.

²⁵³ D2022/100211 Screenshot from JOG presentation Item 3.2 May 2022 JOG meeting May-22.

These taste and odour complaints were raised as an incident and details recorded in WaterNSW's RACS system (1847 and 1850).²⁵⁴ It can be seen that there was communication with Sydney Water on the management of this incident and immediate corrective actions were undertaken.

Short-term evaluation of results

The Water Quality Database was also reviewed during the audit, demonstrating that the monitoring is being undertaken.²⁵⁵ A screenshot from the database showing the exceptions over a month was provided as evidence.²⁵⁶

During the audit period there was an exceedance of THMs in the Fish River system. There were a number of incidents raised in RACS (2190, 2101, 2110).²⁵⁷ This prompted a targeted risk assessment to manage the THM issues in the system,²⁵⁸ which was a new phenomenon.

Corrective action

Evidence of operational changes were demonstrated by the following records:

- NOCTSO - Raw Water Nepean Dam;²⁵⁹
- NOCTSO - LCC Back Feed- due to elevated Manganese in RW;²⁶⁰
- NOCTSO - Implement Orchard Hills Contingency Pipeline Configuration;²⁶¹
- THM Risk Assessment;²⁶²
- THM RACS records (2190, 2101, 2110);²⁶³ and
- Taste and odour RACS records (1847 and 1850).²⁶⁴

Element 6:

WaterNSW demonstrated that it has effectively implemented the requirements of this element of its WQMS.

Communication

The *Water Quality Contact Directory*²⁶⁵ was last updated in May 2022, within the 12-month period specified in Modelpedia. It was also noted that the contact list is maintained through the JOG meeting outside of the annual review.

Incident and emergency response protocols

There were a number of incidents reported during the audit period. During the audit interviews, RACS was reviewed and WaterNSW provided an extract²⁶⁶ from the system showing all the incidents logged during the audit period.

Further details were provided on some incidents to allow further examination of the process:

²⁵⁴ D2022/119659 RACS taste odour event Oct-2021.

²⁵⁵ D2022/105882 Lake Burragorang operational report WQDB screenshot 22/08/2022.

²⁵⁶ D2022/100356 Screenshot of exception report in PowerBI Water Quality Database (all sites, last month) 23/08/2022.

²⁵⁷ D2022 119660 RACS Incidents Extract 2022.

²⁵⁸ D2022 120098 Proposed CWT Aeration - Minutes and amended Risk Register 7/03/2022.

²⁵⁹ D2022/84364 Notification of Change to System Operation - Raw Water Nepean Dam 9/08/2022.

²⁶⁰ D2022/31857 NOCTSO - LCC Back Feed- due to elevated Manganese in RW 26/04/2022.

²⁶¹ D2022/61372 NOCTSO - Implement Orchard Hills Contingency Pipeline Configuration 2/07/2022.

²⁶² D2022 120098 Proposed CWT Aeration - Minutes and amended Risk Register 7/03/2022.

²⁶³ D2022 119660 RACS Incidents Extract 2022.

²⁶⁴ D2022 119659 RACS records relating to Taste and Odour event in Lake Burragorang October 2021 6/10/2021.

²⁶⁵ D2013/94543 WaterNSW Water Quality Contact Directory May-22.

²⁶⁶ D2022 119660 RACS Incidents Extract 2022.

-
- October 2021 taste and odour Greater Sydney (RACS Nos: 1847 and 1850):
 - RACS records were provided.²⁶⁷
 - Emails were also supplied with the above record; these detailed communication regarding the incident between WaterNSW, Sydney Water and NSW Health.
 - SITREP²⁶⁸ showing that WaterNSW had responded and changed the offtake depth and resolved this issue.
 - NOCTSO – reconfiguration of the Warragamba Dam Outlet on 7 October 2021.²⁶⁹
 - *Special Request for Field Service/ Analysis*²⁷⁰ to include more geosmin and MIB monitoring to try and prevent recurrences in the future.
 - Flood incidents in Greater Sydney:
 - Situation Report (SITREP) 3/3/2022 – Greater Sydney Rain Boom (No. 3).²⁷¹
 - SITREP 4/8/2022 – Greater Sydney Rain (No. 21).²⁷²
 - NOCTSO - Implement Orchard Hills Contingency Pipeline Configuration in the event of deteriorating water quality in Warragamba on 2 July 2022.²⁷³
 - It can be seen that this was an ongoing incident for a number of months and was managed in constant contact with Sydney Water and other stakeholders.
 - Heavy rain and main break at Fish River:
 - Incident Action Plan²⁷⁴ which details multiple risks that were being managed as part of this incident. This included exceedance of THM health guidelines, high levels of manganese and customer complaints, and stagnating water in the WNSW pipeline due to changed configurations.
 - SITREP 9/3/2022 – Fish River Water Supply Incident Mar 2022 (No. 7).²⁷⁵
 - SITREP 27/4/2022 – Fish River Water Supply Incident Mar/Apr 2022 (No. 16).²⁷⁶

Based on the evidence provided and audit interview, it appears that incidents have been well managed over the audit period. It was noted when reviewing the information there was no common identifier on the documentation. This may be useful, especially considering that at times during the audit period there were multiple incidents running concurrently.

OFI-WNSW-2022-09.

The *Annual Water Quality Report*²⁷⁷ details the water quality incidents in the period in Appendix C²⁷⁸ The latest report is available on the WaterNSW website.²⁷⁹

There is an annual review of the Fish River drinking water quality management²⁸⁰ undertaken and it summarises scheme incidents in Section 7. In addition, there is a *Fish River Drinking Water Quality Report*²⁸¹ that also reports incidents; this report is circulated to Lithgow City Council and NSW Health.

Due to the prolonged number of incidents over the audit period there were no training incident scenarios completed. In place, workshops were held with NSW Health and Sydney Water to desktop review recent incidents and see if there were any lessons to be learnt. This was presented and agreed to at the SLG on 15 June 2022.²⁸²

The training package for the Water Quality Incident Protocols²⁸³ was provided as evidence of the training program. This is mandatory for a number of roles as shown by the mandatory training by role export from MyLearning.²⁸⁴ The register of employees that have undertaken that training was also extracted from MyLearning²⁸⁵ and provided as evidence; it showed a very high level of compliance with training requirements.

²⁶⁷ D2022/119659 RACS records relating to Taste and Odour event in Lake Burragorang October 2021 6/10/2021.

²⁶⁸ CD2017/178 Situation Report (SITREP) – Warragamba Water Supply Incident Version 1 14/10/2021.

²⁶⁹ D2021/109659 NOCTSO - Reconfiguration of the Warragamba Dam Outlet 8/10/2021.

²⁷⁰ D2021/110919 Warragamba Geosmin Incident Monitoring Oct 2021 Version 18 14/02/2022.

Element 7:

WaterNSW demonstrated that it has effectively implemented the requirements of this element of its WQMS.

Employee awareness and involvement

It was demonstrated that awareness training was undertaken based on the extract of mandatory training from the MyLearning System.²⁸⁶

A sample of completed contractor catchment inductions were provided using the new Rapid Induct system,²⁸⁷ including staff from:

- ARTC;
- NSW Fisheries;
- Veolia;
- TransGrid; and
- Eco Logical Australia Pty Ltd.

Employee training

It was demonstrated that employee training is being undertaken based on the extract of mandatory training from the MyLearning System.²⁸⁸

Additional evidence was provided for the maintenance Officers at the Duckmaloi WFP,²⁸⁹ indicating that they had completed the following units:

- Fluoridation of public water supplies;
- Water Treatment Operator Part 1 - Chemical Dosing Systems;
- Water Treatment Operator Part 2 - Water Treatment Operations; and
- Water Treatment Update Seminar.

It is not currently mandatory for treatment plant operators to have a Certificate III in Water Industry Operations. However, a new position description is being developed and this will include it as a required qualification. This may help recruitment, as it will elevate the status of the position.

²⁷¹ D2022/105792 Situation Report (SITREP) – Greater Sydney Rain Boom Version 3 3/03/2022.

²⁷² D2022/105791 Situation Report (SITREP) - Rainfall Greater Sydney Version 21 4/08/2022.

²⁷³ D2022/61372 NOCTSO - Implement Orchard Hills Contingency Pipeline Configuration 2/07/2022.

²⁷⁴ D2022/105118 Incident Action Plan Fish River 25/02/2022.

²⁷⁵ D2022/105193 Situation Report (SITREP) – Fish River Water Supply Incident Mar 2022 Version 7 9/03/2022.

²⁷⁶ D2022/105174 Situation Report (SITREP) – Fish River Water Supply Incident March/April 2022 Version 16 27/07/2022.

²⁷⁷ D2021/64991 Annual Water Quality Monitoring Report 2020-21.

²⁷⁸ D2021/86608 Annual Water Quality Monitoring Report 2020-21 Appendices.

²⁷⁹ <https://www.waternsw.com.au/water-services/water-quality/monitoring-and-reporting>.

²⁸⁰ D2021/110932 Fish River Water Supply - Annual Review of the Drinking Water Quality Management System 2020 – 2021.

²⁸¹ D2022/71031 Fish River Drinking Water Quality Report - June 2022 19/07/2022.

²⁸² D2022/94168 Strategic Liaison Group 15 June 2022– Agenda item 5.1 15/06/2022.

²⁸³ D2018/77988 Water Quality Incident Response - Training Package.

²⁸⁴ D2022/100306 WQ Mandatory Training Export from MyLearning 5/08/2022.

²⁸⁵ D2022 119835 Mandatory Training by Role - Export from MyLearning.

²⁸⁶ D2022/100306 WQ Mandatory Training Report – MyLearning 5/08/2022.

²⁸⁷ D2022 121193 WaterNSW Declared Catchment Completed Induction Certificates.

²⁸⁸ D2022/100306 WQ Mandatory Training Report – MyLearning 5/08/2022.

²⁸⁹ D2021/106240 LMS Report - Water Treatment Operator - Learning Report.

Element 8:

WaterNSW demonstrated that it has effectively implemented the requirements of this element of its WQMS.

Community consultation

Details of WaterNSW projects are on the website;²⁹⁰ this includes the following projects:

- Blue Mountains Assets Upgrade;
- Chaffey Dam Pipeline;
- Gunidgera Weir Raising;
- Hume Dam maintenance Works;
- Lake Cargelligo Embankment Dams;
- Rural Valleys Asset Upgrade; and
- Warragamba Dam Raising.

A varying amount of information is available on each of the projects and there are also contact details for the public to request further information or raise a concern.

WaterNSW has ten Customer Advisory Groups based on area,²⁹¹ each of which is detailed on WaterNSW's website. Minutes from the last meeting and a list of group members are provided in each case.

Communication

To demonstrate community engagement WaterNSW provided the following evidence of activities/initiatives:

- Mid-year report on the schools program.²⁹² This showed monthly activities from July 2021 to December 2021. Each month had details of:
 - Significant dates;
 - Opportunities;
 - Projects and Tasks;
 - Targets; and
 - Twitter posts aimed at educating school age children.
- WaterNSW has a visitor centre at Warragamba Dam and daily visitor number are recorded to track engagement.²⁹³ The centre was closed due to COVID up until 14 March 2022. From this time, it can be seen that there were an average of approximately 170 people entering the centre per day, with the highest number visiting on Easter Saturday.
- The WaterNSW social media accounts, including the following, can be seen to have consistent activity communicating to customers:
 - Facebook;²⁹⁴
 - Twitter;²⁹⁵
 - Instagram;²⁹⁶ and

²⁹⁰ <https://www.watnsw.com.au/water-services/projects>.

²⁹¹ CD2015/281 Customer Advisory Groups Charter Version 5.

²⁹² D2022/5001 Schools Program Monthly Reporting Mid Year 2021/2022.

²⁹³ D2022/71246 Warragamba Visitor Centre Numbers 2021-2022 Version Final 2022.

²⁹⁴ <https://www.facebook.com/WaterNSW/>.

²⁹⁵ <https://twitter.com/WaterNSW>.

²⁹⁶ <https://www.facebook.com/WaterNSW/>.

-
- o YouTube.²⁹⁷
-

Element 9:

WaterNSW demonstrated that it has effectively implemented the requirements of this element of its WQMS.

Investigative studies and research monitoring

The science program is being implemented as demonstrated by the annual update supplied as evidence.²⁹⁸ This is also reviewed in detail in **Section 2.2.2.1** (in respect of Licence sub-clause 2.8.1).

Detailed evidence was also provided for some of the research projects undertaken during the audit period:

- Investigation regarding elevated lead at the Prospect spillway.²⁹⁹
- Adaptation of catchment monitoring for climate change for organic matter:
 - o ARC Linkage Project Collaborative Research Agreement with UNSW;³⁰⁰
 - o Service contract to develop a method to manage natural organic matter in the catchments;³⁰¹ and
 - o ARC Linkage NOM project outcomes.³⁰²
- Real-time algae monitoring:
 - o Business case for the chlorophyll-a monitoring technology trial;³⁰³
 - o Project Management Plan for chlorophyll-a sensors;³⁰⁴ and
 - o Operational Trial of chlorophyll-a monitoring.³⁰⁵

Validation of processes

During the audit period the instrumentation at the Duckmaloi WFP was upgraded. WaterNSW has provided details of the installation and commissioning of this instrumentation.³⁰⁶ In addition, re-validation of the Duckmaloi WFP chlorination system has been undertaken after changes in the dose control system. The validation demonstrated that the control of chlorine levels has been improved with 73% reduction in residual variation and a 33% reduction in chlorine gas consumption.

Design of equipment

An asset change request form³⁰⁷ has been provided as evidence of the process of installing a new asset. In the form there are details of the risk assessment process that is followed, as well as the required testing and approval.

²⁹⁷ <https://www.youtube.com/@WaterNSWvideos>.

²⁹⁸ D2021/124453 Annual Water Quality Research & Development Update 7/12/2021.

²⁹⁹ D2022/122345 Investigation of incident at Prospect Reservoir Spillway Channel (SCA-108) 27/01/2021 23/02/2022.

³⁰⁰ D2017 90457 ARC Linkage Projects Collaborative Research Agreement Version 3-4-17 2017.

³⁰¹ D2015/111077 Adapting water catchment and treatment of natural organic matter (NOM) to maximise water production in water treatment plants with a changing climate Version 21/10/2015.

³⁰² D2022 120085 ARC Linkage NOM project outcomes 2022.

³⁰³ D2020 132093 Technology Trial: Operational use of chl-a/phyco cyanin sensors in Lake Burragorang. All-in-One Business Case Version 1 26/10/2022.

³⁰⁴ D2020 132094 Operational use of chlorophyll-a sensors in Lake Burragorang - Project Management Plan Version 1.

³⁰⁵ D2022/84819 Technology trial: the use of chl-a and phycocyanin sensors in Lake Burragorang.

³⁰⁶ D2022 121207 Duckmaloi WTP Water Quality Instrumentation Project 5/09/2022.

³⁰⁷ D2022/121282 Requested Item Details - Install an actuator on the shaft of this winch 15/07/2021.

Element 10:

WaterNSW demonstrated that it has effectively implemented the requirements of this element of its WQMS.

Management of documentation and records

The records management system is ARK (HP Trim). Many documents were provided as part of this audit and all reviewed were within their required review and appeared to be controlled appropriately. All documents requested could be readily retrieved. It was noted that some documents have a 'next review date' rather than a 'last reviewed date'. This does lead to some assumptions being made without referring back to the metadata in ARK.

OFI-WNSW-2022-10.

Review of the following record management systems was undertaken as part of the audit:

- MyLearning;
- Water Quality database;
- EAMS;
- RACS; and
- SCADA.

All of the required records appear to be stored as required.

Modelpedia is the WQMS now for WaterNSW and the process for the review and update of this system was also reviewed and found to be appropriate.^{308,309}

Reporting

A number of water quality reports were reviewed as part of this audit, demonstrating that the required reporting is being undertaken. These reports include the following:

- *Annual Report to IPART on the Water Quality Management System*,³¹⁰
- *Fish River Drinking Water Quality Report; June 2022*,³¹¹
- *Lake Oberon and Duckmaloi Weir Water Quality Report*,³¹²
- *Lake Nepean Water Quality Report*,³¹³
- *Lake Cataract Water Quality Report*,³¹⁴
- *Lake Avon Water Quality Report*,³¹⁵
- *Annual Water Quality Monitoring Report 2020-21*,³¹⁶
- *Science Program Quarterly Progress Report; July 2022*,³¹⁷ and
- *Fish River Water Supply - Annual Review of the Drinking Water Quality Management System 2020-2021*.³¹⁸

³⁰⁸ D2022/119628 Modelpedia update 2022.

³⁰⁹ D2022 941187 WQMS Change Request 18/08/2022.

³¹⁰ D2022/84572 Annual Report to IPART on the Water Quality Management System 1/09/2022.

³¹¹ D2022/71031 Fish River Drinking Water Quality Report June 2022 19/07/2022.

³¹² D2022/74717 Lake Oberon and Duckmaloi Weir Water Quality Report 25/07/2022.

³¹³ D2022/50095 Lake Nepean Water Quality Report 30/04/2022.

³¹⁴ D2022/53104 Lake Cataract Water Quality Report 31/05/2022.

³¹⁵ D2022/58684 Lake Avon Water Quality Report 22/06/2022.

³¹⁶ D2021/64991 Annual Water Quality Monitoring Report 2020-21.

³¹⁷ D2022/84925 Science Program Quarterly Progress report July 2022.

³¹⁸ D2021/110932 Fish River Water Supply - Annual Review of the Drinking Water Quality Management System 2020 – 2021.

Element 11:

WaterNSW demonstrated that it has effectively implemented the requirements of this element of its WQMS.

Long-term evaluation of results

The long-term review of data has been undertaken as required within the audit period, as demonstrated by:

- *Fish River Water Supply - Annual Review of the Drinking Water Quality Management System 2020-2021*;³¹⁹ and
- *Annual Water Quality Monitoring Report*.³²⁰

There are many more water quality reports produced and listed under Element 10.

Audit of drinking water quality management

WaterNSW implements a WQMS audit program.³²¹ This reports on the progress against the plan and the future plan. It is noted that there are 12 items that have been deferred or cancelled.

This does not seem to be an issue at the present time, as there are several items that have been completed from May 2022. It is understandable that there is some delay based on the number of incidents and the COVID period; however, this recent momentum should be maintained.

Element 12:

WaterNSW demonstrated that it has effectively implemented the requirements of this element of its WQMS.

Review by senior executive

The annual reviews by management have been undertaken, based on the evidence supplied:

- *Annual System Health Check – Water Quality Management*;³²²
- *Water Quality Management System Trend Analysis*;³²³ and
- *Annual Report to IPART on the Water Quality Management System*.³²⁴

Drinking water quality management improvement plan

Improvement actions arising from audits, incidents and health checks are registered in the *Water Quality Improvement Plan* and the plan is being maintained and implemented.³²⁵

Recommendations

The following recommendation is made in respect of this obligation:

- **REC-WNSW-2022-03:** 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).

³¹⁹ D2021/110932 Fish River Water Supply - Annual Review of the Drinking Water Quality Management System 2020 – 2021.

³²⁰ D2021/64991 Annual Water Quality Monitoring Report 2021.

³²¹ D2017/87415 Water Quality Management System Audit Program.

³²² D2022/49314 Annual System Health Check – Water Quality Management 2/06/2022.

³²³ D2022/75895 Water Quality Management System Trend Analysis 1/09/2022.

³²⁴ D2022/84572 Annual Report to IPART on the Water Quality Management System 1/09/2022.

³²⁵ D2019/53719 WQ Improvement Plan.


Opportunities for improvement

The following opportunities for improvement have been identified in respect of this obligation:

- **OFI-WNSW-2022-06:** Update the review timeframe in the *Legal and Other Requirements Register* to match that stated in Modelpedia (relates to Element 1).
 - **OFI-WNSW-2022-07:** Consider linking the current risk registers in Modelpedia, providing a single location to access current information (Element 2).
 - **OFI-WNSW-2022-08:** The taste and odour incident in October 2021 has resulted in an increase in geosmin and MIB monitoring through a Special Request (D2021/110919). Ensure that this is considered at the next review of the monitoring plan so that appropriate routine monitoring is included in the plan (Element 3).
 - **OFI-WNSW-2022-09:** Consider putting a common identifier, such as the RACS incident number, on documentation relating a specific incident, such as on email communications, NOCTSOs and SITREPs. This would be useful to WaterNSW staff and stakeholders, especially when there are multiple concurrent incidents (Element 6).
 - **OFI-WNSW-2022-10:** Consider having a 'last reviewed date' as well as a 'next review date' on documents so that assumptions in terms of the currency of the document are not made without referring back to the metadata in ARK (Element 10).
-

2.2.2 Research on catchments (clause 2.8)

2.2.2.1 Research on catchments (sub-clause 2.8.1)

Sub-clause	Requirement	Compliance Grade
2.8.1	<p>Water NSW must maintain a program of research for each Declared Catchment Area which:</p> <ul style="list-style-type: none"> a) relates to catchments within that Declared Catchment Area generally and in particular their health; b) is consistent with its objectives under section 6 of the Act; and c) assists WaterNSW to discharge its functions under sections 7(1)(g) and 7(1)(h) of the Act. 	 Compliant

Risk if non-compliant

Failure to fully and effectively maintain a program of research presents a high risk that WaterNSW may not fully understand catchment processes and activities that may lead to water quality and quantity risks. This could have a flow on affect to the ability to supply drinking water to the Greater Sydney area.

Evidence sighted

Refer Appendix C (C.3.2).

Summary of audit findings/reasons for grade

WaterNSW provided evidence that it has maintained a program of research, the Science Program, for the Declared Catchment. The program is consistent with the objective of Section 6 of the Act. The Science Program was found to assist WaterNSW in protecting and enhancing the quality and quantity of water in the Declared Catchment Area.

WaterNSW provided an annual program review and a progress summary report as evidence that it has a Science Program, and that items on the program are being progressed. Evidence of program delivery was provided and included roadmaps for types of research, project reports and presentations.

On this basis, WaterNSW is assessed to have demonstrated compliance with this obligation.

Discussion and notes

WaterNSW provided evidence that it has maintained a program of research, the Science Program, for the declared catchment.

The program is consistent with the objective of Section 6 and the functions of Sections 7(1)(g) and 7(1)(h) of the Act. The Science Program was found to assist WaterNSW in protecting and enhancing the quality and quantity of water in the Declared Catchment Area.

WaterNSW provided an annual program review³²⁶ and a progress summary report³²⁷ as evidence that it has a Science Program, and that items on the program are being progressed. The framework for managing the quality and quantity of water in the Declared Catchment

³²⁶ D2021 103764 MC WQHCP - 7 October 2021 - Annual Science Program Review - Item 3.2.4.

³²⁷ D2022 48894 MC WQHCP - 2 June 2022 - Science Program Progress Report - Item 5.2.2.

includes *Source Water Protection Strategy 2040*,³²⁸ the *Catchment Protection Work Program FY2022*,³²⁹ a listing of mandatory inclusions for the *Catchment Protection Work Program 2020/21*³³⁰ and investigations and reports on the specific projects.

The program (based on the review)³³¹ includes 29 specific projects, with 8 projects completed in 2021.

Evidence of program delivery was provided and included roadmaps^{332,333} for types of research, project reports and presentations. For complex research goals, WaterNSW has developed research roadmaps including mining in the catchment and cyanobacteria.

WaterNSW provided the Business Case Report³³⁴ for the Catchment Outlook Report, demonstrating establishment of a framework for progressing the Science Program.

An example discussed in the audit include CR5 (Catchment Resilience) Understand the impacts of mining on catchment health and water quality. WaterNSW provided the roadmap and the corresponding draft *Upland Peat Swamps Hydrological Monitoring and Water Balance Modelling* report³³⁵ and the meeting presentation³³⁶ for the project. During the audit, WaterNSW presented the findings of the modelling and research on how mining in the catchment is impacting on upland swamps, and how this can affect water quality and quantity for the water supply. This corresponds to a project completed in 2021 “Cumulative Loss Estimate in Undermined Catchments”.

WaterNSW provided a report³³⁷ that assesses the feasibility of evaporation reduction technologies to decrease water losses through evaporation, which is one of the new projects for 2021.

A new project titled ‘Technology trial – Chl-a sensors in Burratorang’ was identified in the Annual Review report, the corresponding reports^{338,339} were provided.

‘Lake trend analysis overview (IWM2)’, was also another new project for 2021. WaterNSW provided corresponding reports^{340,341,342} on water quality and trend analysis, demonstrating the commencement of this project.

The annual program review³⁴³ and a progress summary report³⁴⁴ provide evidence that WaterNSW is reviewing the implementation and delivery of the Science Program.

Recommendations

There are no recommendations in respect of this obligation.

Opportunities for improvement

No opportunities for improvement have been identified in respect of this obligation.

³²⁸ D2022 60350 Source Water Protection Strategy 2040 For printing A4.

³²⁹ D2021 25494 Catchment Protection Work Program FY2022.

³³⁰ D2020 39211 Mandatory Inclusions for Catchment Protection Work Program 2020 21.

³³¹ D2022 48894 MC WQHCP - 2 June 2022 - Science Program Progress Report - Item 5.2.2.

³³² D2022 91494 Algae and cyanobacteria research roadmap.

³³³ D2021 119137 Mining Research Roadmap.

³³⁴ D2021 131949 Catchment Outlook Report Approval to Spend.

³³⁵ D2022 61662 Draft upland peat swamps hydrological monitoring and water balance modelling.

³³⁶ D2021 78040 Technical Working Group Meeting – Upland Swamp Research.

³³⁷ D2021 60496 Risks to WQ and ecology from evaporative reduction technologies.

³³⁸ D2022 91494 Major inflow WQ data for Lake Burratorang 2021-22.

³³⁹ D2022 84819 Operationalisation of chl-a PC sensors- Draft Final report.

³⁴⁰ D2021 109453 Wingecarribee Reservoir WQ Analysis - Data Review 1999-2020.

³⁴¹ D2022 84113 2022 Q3 Item 5.2 Long-Term WQ Trends Presentation - JOG Project Update.

³⁴² D2022 91499 RE External Warragamba WQ for recent inflow and mixing estimates.


³⁴³ D2021 103764 MC WQHCP - 7 October 2021 - Annual Science Program Review - Item 3.2.4.

³⁴⁴ D2022 48894 MC WQHCP - 2 June 2022 - Science Program Progress Report - Item 5.2.2.

2.3 Bulk Water storage and transmission (Licence Part 3)

2.3.1 Water Supply (clause 3.2)

2.3.1.1 Water Supply (sub-clause 3.2.1)

Sub-clause	Requirement	Compliance Grade
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.	 Compliant

Risk if non-compliant

Failure to supply water in accordance with the relevant Water Quality Management System, Customer Supply Agreement and the agreed supply arrangements with Sydney Water, as appropriate, may compromise the quality of water supplied to end users resulting in a high risk to public health.

Evidence sighted

Refer Appendix C (C.3.3).

Summary of audit findings/reasons for grade

WaterNSW supplies raw water, unfiltered and *Australian Drinking Water Guidelines* (ADWG) compliant drinking water to customers including Sydney Water, several Councils, and a number of retail customers in accordance with individual supply agreements and/or protocols. These agreements identify the water quality standards and arrangement in respect of supply quantity in each case, whilst the operating protocols (where applicable) provide a framework through which achievement of the supply requirements are jointly managed.

Review of a sample of water quality related records reveals that, for the most part, water was supplied in accordance with the agreed quality objectives; any parameter exceedances were effectively managed by WaterNSW acting in conjunction with the customer. For example, WaterNSW demonstrated that it had liaised effectively with Wingecarribee Shire Council in respect of a marginal raw water iron exceedance in April 2022, and that it had managed Trihalomethane and Manganese exceedances in the Fish River supply system (drinking water supply to Lithgow City Council) in accordance with *Water Quality Incident Response Protocol*. In both cases, the provisions of the relevant supply agreements (*Wingecarribee Shire Council Raw Water Supply Agreement* and *Lithgow City Council Supply Agreement* respectively) require WaterNSW to "... endeavour ..." to meet that nominated water quality objectives.

Given the abundance of water availability during the audit period, there was no indication that WaterNSW failed to meet the water quantity provisions of the various supply agreements. A pipe break in the Fish River supply system in March 2022 led to supply interruptions; however, WaterNSW demonstrated that it had notified Lithgow City Council consistent with the requirements of the *Lithgow City Council Supply Agreement*, and that ongoing liaison had been maintained throughout the incident.

Accordingly, WaterNSW is assessed to have demonstrated compliance with this obligation.

Discussion and notes

WaterNSW advised that water is supplied to Sydney Water in accordance with the *Raw Water Supply Agreement*,³⁴⁵ which sets out the commercial arrangements, and the *Raw Water Supply Protocols*,³⁴⁶ which provide a framework for WaterNSW and Sydney Water to work together to provide the best quality of water to consumers.

Agreements are also in place with Lithgow City Council (for the supply of drinking water), Oberon Council (unfiltered water), Energy Australia, Wingecarribee Shire Council (raw water), Shoalhaven City Council (raw water), Goulburn Mulwaree Council (raw water), and Retail customers (raw, unfiltered and drinking water).

Review of the Sydney Water *Agreement and Protocols* and the Oberon Council,³⁴⁷ Wingecarribee Shire Council,³⁴⁸ Shoalhaven City Council,³⁴⁹ and Goulburn Mulwaree Council³⁵⁰ (for example) *Supply Agreements* reveal that these agreements typically require WaterNSW to supply:

- the highest quality water available, and in accordance with documented water quality specifications (in most cases raw water quality); and
- the quantity of water forecast by the customer.

It is understood that WaterNSW uses its 'best endeavours' to provide raw water compliant with the relevant agreements; however, due to the nature of supplying raw water, cannot always control water quality. Changes to raw water quality are typically more critical than absolute values.

The quality of water supplied to customers is monitored in accordance with the *Water Quality Monitoring Program*,³⁵¹ which includes details of the site-specific standards for each customer/customer group. Any exceptions to the agreed targets are managed in accordance with the *Water Quality Incident Response Protocol*,³⁵² in which the targets and response (alert and incident level) triggers are also documented.

Performance against water targets is monitored and reported to customers monthly. Monthly reports provided to Sydney Water,³⁵³ Wingecarribee Shire Council/Goulburn Mulwaree Council³⁵⁴ and Shoalhaven City Council³⁵⁵ for April 2022 were provided as examples.

The report provided to Wingecarribee Shire Council reveals a marginal exceedance of the site-specific standard for total iron (1.1 mg/L versus <1.1 mg/l) at the inlet to the water filtration plant. WaterNSW provided copies of email correspondence demonstrating that it had followed up with Council following issue of the monthly report to ensure that there were no

³⁴⁵ SCA/SWC, *Raw Water Supply Agreement*, dated 14 October 2013 (file: 2.1.2 - E8 - D2013 101721 Sydney Water - Executed RWS Agreement.pdf).

³⁴⁶ WaterNSW/Sydney Water, *Raw Water Supply Protocols; Operational Protocol* (Revision 02), 8 December 2016 (file: 3.2.1 - CD2007 2 v3 Sydney Water operating protocols.pdf).

³⁴⁷ Oberon Council/State Water, *Agreement Concerning the Supply of Water from the Fish River Water Supply* between Oberon Council and State Water Corporation, undated (file: 2.1.3 - E1 - DOC12 32669 Oberon Council Water Supply Contract.pdf).

³⁴⁸ WaterNSW, *Raw Water Supply Agreement* between WaterNSW and Wingecarribee Shire Council (Version 1.0), June 2020 (file: D2020 80599 Wingecarribee Council.pdf).

³⁴⁹ WaterNSW/SCC, *Raw Water Supply Agreement* between WaterNSW and Shoalhaven City Council (Ref: CD2013/16), undated (file: CD2013 16v1 Shoalhaven council.pdf).

³⁵⁰ WaterNSW/GMC, *Raw Water Supply Agreement* between WaterNSW and Goulburn Mulwaree Council (Version 1.0), July 2020 (file: 2.1.2 - E8 - D2021 22294 Goulburn Mulwaree Supply Agreement September 2020 replaced D2012 97095.pdf).

³⁵¹ WaterNSW, *Water Monitoring Program* (Ref: CD2011/179[v7]), August 2021 (file: 3.2.1 - CD2011 179 v7 Water Monitoring Program.docx).

³⁵² WaterNSW, *Water Quality Incident Response Protocol* (Ref: CD2004/183[v4]), June 2021 (file: 3.2.1 - CD2004 183 v4 WQ Incident Response Protocol.pdf).

³⁵³ Document: 3.2.1 - D2022 53923 Compliance report SWC April.docx.

³⁵⁴ MS Excel workbook: 3.2.1 - D2022 33406 Compliance report WSC April.xlsx.

³⁵⁵ MS Excel workbook: 3.2.1 - D2022 33367 Compliance report SCC April.xlsx.

treatment issues associated with this issue; Council confirmed that the water remained treatable (no problems were identified).³⁵⁶

WaterNSW also demonstrated that it undertakes quarterly reviews of water quality performance, as demonstrated by the *Water Quality Management System; Trend Analysis* for the April-June 2022 quarter.³⁵⁷ This analysis considers water quality performance, resources and processes, communication, statutory obligations, training, incident analysis, incident trends, investigation outputs, review and continuous improvement, and water quality audits. Performance against targets is assessed and emerging trends/issues identified.

In its *Annual Report to IPART on the Water Quality Management System*,³⁵⁸ WaterNSW reported the following performance in respect of “Water Quality Supplied is Fit for Purpose” for the 2021/22 reporting year:

Scorecard	Target	2021/22 Actual
Water available for supply meets the standards under the RWSA, ADWG or other agreed criteria	97.5%	98.96% conformance Jul-Jun
Raw water supplied for treatment meets ADWG for Health-related characteristics	100%	100% conformance Jul-Jun
Raw water supplied for treatment meets RWSA (Greater Sydney)	95%	97.93% conformance Jul-Jun
Raw water supplied for treatment within preferred operational ranges	85%	64.73 % average conformance Jul-Jun
Drinking water in the Fish River supply system meets ADWG for health parameters	100%	98% conformance Jul-Jun
Drinking water in private water supplies (picnic areas and regional sites) meets ADWG for health parameters	100%	97.39% conformance Jul-Jun
Compliance with critical limits at CCPs	95%	97.36% conformance Jul-Jun

This indicates that for most scorecard criteria, the target was exceeded. Less than target performance was explained as follows:

- Raw water supplied for treatment within preferred operational ranges – “... due to the cumulative impacts of successive large inflow events following the February 2019-20 bushfires, bringing elevated metals, organics and colour into the raw water supply.”³⁵⁹
- Drinking water in the Fish River supply system meets ADWG for health parameters – there were a total of nine (9) exceedances of health guidelines; eight (8) in respect of Trihalomethanes and one (1) in respect of Manganese levels.
- Drinking water in private water supplies (picnic areas and regional sites) meets ADWG for health parameters – *E. coli* detections in rainwater supplies; an *E. coli* detection in Cordeaux; and Copper, Lead and Manganese exceedances were identified in the *Water Quality Management System; Trend Analysis* for the April-June 2022 quarter;³⁶⁰ however, these sites fall outside the scope of this audit and are not discussed further.

³⁵⁶ Email correspondence between WaterNSW and Wingecarribee Shire Council with entries dated 10 May 2022, 23 May 2022 and 24 May 2022 (re: Iron?) (file: D2022 119961 resp email Wingec iron.msg).

³⁵⁷ WaterNSW, *Water Quality Management System; Trend Analysis* (Ref: D2022/75895), September 2022 (file: 3.2.1 - D2022 75895 MC WQHCP – 010922 – WQ Performance and Trend Analysis – Item 3.2.3).

³⁵⁸ WaterNSW, *Annual Report to IPART on the Water Quality Management System* (Ref: D2022/94114), 1 September 2022 (file: *Annual Water Quality Management System report 1 September 2022.pdf*).

³⁵⁹ WaterNSW, *Annual Report to IPART on the Water Quality Management System* (Ref: D2022/94114), 1 September 2022 (file: *Annual Water Quality Management System report 1 September 2022.pdf*).

³⁶⁰ WaterNSW, *Water Quality Management System; Trend Analysis* (Ref: D2022/75895), September 2022 (file: 3.2.1 - D2022 75895 MC WQHCP – 010922 – WQ Performance and Trend Analysis – Item 3.2.3.docx).

The failure to fully comply with “preferred operational ranges” for water quality parameters is not considered to constitute non-compliance or shortcoming for the purposes of this assessment. Instances were managed in accordance with the respective agreements/protocols, principally through communication between WaterNSW and the relevant customer(s).

The exceedances of health guideline values in the Fish River supply system were managed in accordance with the *Fish River Incident Management Plan*³⁶¹ and *Water Quality Incident Response Protocol*,³⁶² thereby minimising the impact, including the risk to public health. Evidence sighted and discussed during the audit interviews demonstrated that:

- these were minor exceedances, arising principally from changing climate conditions;
- the responses included back feeding the Fish River Water Supply zone from Lithgow City Council, thereby ensuring that the quality of water supplied to customers was maintained; and
- operational/process changes were made to prevent future occurrences.

It is noted that the *Lithgow Council Supply Agreement*³⁶³ requires that “WaterNSW will endeavour to deliver water in accordance with Australian Drinking Water Guidelines”; i.e. it does not specifically require compliance with the ADWG. Furthermore, the Water Quality Management System requires that water quality exceedances are managed in accordance with the *Water Quality Incident Response Protocol* which, as noted above, has been demonstrated.

Given the abundance of water availability during the audit period, there was no indication that WaterNSW failed to meet the water quantity provisions of the various supply agreements. A pipe break in the Fish River supply system in March 2022 led to supply interruptions; however, review of the *Lithgow Council Supply Agreement* reveals that WaterNSW is required to “... notify Lithgow City Council immediately it becomes aware of any circumstance or event which will affect the supply of water to Lithgow City Council”. A *Situation Report*³⁶⁴ in respect of the incident indicates that appropriate liaison was maintained with Lithgow City Council.

Recommendations

There are no recommendations in respect of this obligation.

Opportunities for improvement

No opportunities for improvement have been identified in respect of this obligation.

³⁶¹ WaterNSW, *Fish River Incident Management Plan* (Ref: CD2021/83), undated (file: 2.1.3 - E6 - CD2021 83 Fish River Incident Management Plan.docx).

³⁶² WaterNSW, *Water Quality Incident Response Protocol* (Ref: CD2004/183[v4]), June 2021 (file: 3.2.1 - CD2004 183 v4 WQ Incident Response Protocol.pdf).


³⁶³ Lithgow City Council/WaterNSW, *Lithgow City Council and WaterNSW; Agreement Concerning the Supply of Water from the Fish River Water Supply*, 3 October 2019 (file: D2019 108997 LCC WNSW.pdf).

³⁶⁴ Document: 2.1.4 - E6 - D2022 105193 FRWS Situation Report #7 09-Mar-22 - Imported from SharePoint.docx.

2.4 Performance standards (Licence Part 4)

2.4.1 Water Supplied Performance Standards (clause 4.2)

2.4.1.1 Water Supplied Performance Standards (sub-clause 4.2.2)

Sub-clause	Requirement	Compliance Grade
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 2.1.2 or 2.1.3 (Supply Water Quality Performance Standard).	 Compliant

Risk if non-compliant

Failure by WaterNSW to manage the quality of water supplied to its customers in accordance with the relevant Water Quality Management System presents a high risk that the quality of water supplied to end users may be compromised and a consequent high risk to public health.

Evidence sighted

Refer Appendix C (C.3.4).

Summary of audit findings/reasons for grade

In its *Annual Performance Standards Report*, WaterNSW reported its performance in respect of water quality compliance against five (5) criteria. Performance in respect of two (2) of the criteria was reported to be less than the identified targets during the reporting period (2021/22 financial year).

Less than target performance was reported in respect of:

- Drinking Water quality supplied in the Fish River Water Supply meets *Australian Drinking Water Guidelines* (ADWG) for health-related characteristics (97.83% versus 100% target); and
- Water quality supplied for treatment within preferred operational targets (65.0% versus 85% target).

Notwithstanding, WaterNSW noted that supply in accordance with the Water Quality Management System (WQMS) requires that water is supplied in accordance with the various customer supply agreements and that any water quality parameter exceedances are managed in accordance with the relevant protocols. WaterNSW further noted that the above reported targets have been set for internal governance and reporting purposes; there is no obligation to comply with these targets under existing supply agreements, protocols or the *Operating Licence*.

WaterNSW demonstrated that it managed all water quality exceedances in accordance with the relevant supply agreements, operational protocols, incident management plans and the *Water Quality Incident Response Protocol*, as required pursuant to the WQMS. It is therefore assessed that, from a technical perspective, WaterNSW effectively managed the quality of water supplied to its customers in accordance with the WQMS throughout the audit period.

Accordingly, WaterNSW is assessed to have demonstrated compliance with this obligation. However, there are concerns regarding the manner in which performance against the requirements of the WQMS is demonstrated in the absence of these performance indicators, and an opportunity for improvement has been identified.

Discussion and notes

In its response to the Audit Questionnaire, WaterNSW noted that:

“Supply agreements and operating protocols include agreed site-specific standards for WQ.

WQ supplied to customers is monitored as per WQ monitoring program, in line with WQMS requirements which include Customer supply agreements and ADWG targets. Exceptions to agreed targets are managed in accordance with the agreed WQIRP and associated protocols.

Compliance of water supplied in relation to WQMS is summarised under the 1 Sep report to IPART, and also includes compliance with RWSA with SW and other Major customers

KPIs have been assigned to track performance against key customer agreements WQ targets and ADWG. These are reported to IPART under the 1Sep report (see corporate scorecard table).”

As noted in its response, WaterNSW reported in respect of the ‘Supply Water Quality Performance Standards’, which is taken to reflect compliance with this obligation, in its *Annual Performance Standards Report*.³⁶⁵ Performance against the following criteria was reported:

- Water quality supplied for treatment meets *Australian Drinking Water Guidelines* (ADWG) for health-related characteristics (target = 100%) – performance in 2021/22 = 100%.
- Drinking Water quality supplied in the Fish River Water Supply meets *Australian Drinking Water Guidelines* (ADWG) for health-related characteristics (target = 100%) – performance in 2021/22 = 97.83%.
- Water quality supplied for treatment meets Raw Water Supply Agreements (target = 95%) – performance in 2021/22 = 99.55%.
- Water quality supplied for treatment within preferred operational targets (target = 85%) – performance in 2021/22 = 65.0%.
- Compliance with Critical Limits at Critical Control Points (target = 95%) – performance in 2021/22 = 97.36%.

These outcomes were also reported in the *Annual Report to IPART on the Water Quality Management System*;³⁶⁶ in which WaterNSW reported the following performance in respect of “Water Quality Supplied is Fit for Purpose” for the 2021/22 reporting year (noting that an additional two criteria are included); this is taken to be the referenced “corporate scorecard table”:

Scorecard	Target	2021/22 Actual
Water available for supply meets the standards under the RWSA, ADWG or other agreed criteria	97.5%	98.96% conformance Jul-Jun
Raw water supplied for treatment meets ADWG for Health-related characteristics	100%	100% conformance Jul-Jun
Raw water supplied for treatment meets RWSA (Greater Sydney)	95%	97.93% conformance Jul-Jun
Raw water supplied for treatment within preferred operational ranges	85%	64.73 % average conformance Jul-Jun
Drinking water in the Fish River supply system meets ADWG for health parameters	100%	98% conformance Jul-Jun
Drinking water in private water supplies (picnic areas and regional sites) meets ADWG for health parameters	100%	97.39% conformance Jul-Jun
Compliance with critical limits at CCPs	95%	97.36% conformance Jul-Jun

This reporting indicates that for most performance criteria, the target was exceeded (i.e. WaterNSW performed favourably against the targets). However, less than target performance was reported against three (3) of the criteria, which was explained as follows:

- Raw water supplied for treatment within preferred operational ranges – “... due to the cumulative impacts of successive large inflow events following the February 2019-20 bushfires, bringing elevated metals, organics and colour into the raw water supply.”³⁶⁷
- Drinking water in the Fish River supply system meets ADWG for health parameters – there were a total of nine (9) exceedances of health guidelines; eight (8) in respect of Trihalomethanes and one (1) in respect of Manganese levels.
- Drinking water in private water supplies (picnic areas and regional sites) meets ADWG for health parameters – *E. coli* detections in rainwater supplies; *E. coli* detection in Cordeaux, as well as Copper, Lead and Manganese exceedances were identified in the *Water Quality Management System; Trend Analysis* for the April-June 2022 quarter;³⁶⁸ however, these sites fall outside the scope of this audit and are not discussed further.

As reported in **Section 2.3.1.1** (in respect of Licence sub-clause 3.2.1):

- the failure to fully comply with “preferred operational ranges” for water quality parameters is not considered to constitute non-compliance or shortcoming for the purposes of this assessment. Instances were managed in accordance with the respective agreements/protocols, principally through communication between WaterNSW and the relevant customer(s); and
- the exceedances of health guideline values in the Fish River supply system were managed in accordance with the *Fish River Incident Management Plan*³⁶⁹ and *Water Quality Incident Response Protocol*,³⁷⁰ thereby minimising the impact, including the risk to public health; the responses included back feeding the Fish River Water Supply zone from Lithgow City Council, thereby ensuring that the quality of water supplied to customers was maintained,³⁷¹ and operational/process changes to prevent future occurrences.

In addition to reference to the 1 September reporting (*Annual Performance Standards Report* and *Annual Report to IPART on the Water Quality Management System*), WaterNSW also provided a sample of monthly water quality compliance reports (including for Sydney Water,³⁷² Wingecarribee Shire Council/Goulburn Mulwaree Council³⁷³ and Shoalhaven City Council³⁷⁴ for April 2022) and the *Water Quality Management System; Trend Analysis* for the April-June 2022 quarter³⁷⁵ as evidence of compliance. As discussed in **Section 2.3.1.1** (in respect of Licence sub-clause 3.2.1), any water quality parameter exceedances were managed in accordance with relevant protocols.

³⁶⁵ WaterNSW, *Annual Performance Standards Report 2021-2022*, undated (file: *Part 4 - Compliance and Performance report - Performance Standards - 2021 to 2022 - WaterNSW Operating Licence.pdf*).

³⁶⁶ WaterNSW, *Annual Report to IPART on the Water Quality Management System* (Ref: D2022/94114), 1 September 2022 (file: *Annual Water Quality Management System report 1 September 2022.pdf*).

³⁶⁷ WaterNSW, *Annual Report to IPART on the Water Quality Management System* (Ref: D2022/94114), 1 September 2022 (file: *Annual Water Quality Management System report 1 September 2022.pdf*).

³⁶⁸ WaterNSW, *Water Quality Management System; Trend Analysis* (Ref: D2022/75895), September 2022 (file: *3.2.1 - D2022 75895 MC WQHCP - 010922 - WQ Performance and Trend Analysis - Item 3.2.3.docx*).

³⁶⁹ WaterNSW, *Fish River Incident Management Plan* (Ref: CD2021/83), undated (file: *2.1.3 - E6 - CD2021 83 Fish River Incident Management Plan.docx*).

³⁷⁰ WaterNSW, *Water Quality Incident Response Protocol* (Ref: CD2004/183[v4]), June 2021 (file: *3.2.1 - CD2004 183 v4 WQ Incident Response Protocol.pdf*).

³⁷¹ Document: *2.1.3 - E6 - D2022 105193 FRWS Situation Report #7 09-Mar-22.docx*.

³⁷² Document: *3.2.1 - D2022 53923 Compliance report SWC April.docx*.

³⁷³ MS Excel workbook: *3.2.1 - D2022 33406 Compliance report WSC April.xlsx*.

³⁷⁴ MS Excel workbook: *3.2.1 - D2022 33367 Compliance report SCC April.xlsx*.

³⁷⁵ WaterNSW, *Water Quality Management System; Trend Analysis* (Ref: D2022/75895), September 2022 (file: *3.2.1 - D2022 75895 MC WQHCP - 010922 - WQ Performance and Trend Analysis - Item 3.2.3.docx*).

In its response to the initial audit findings, WaterNSW contended that failure to meet the identified performance targets did not constitute non-compliance with this obligation, noting that it had supplied water to its customers in accordance with the WQMS, which requires that:

- water is supplied in accordance with the relevant supply agreements (which require WaterNSW to “... endeavour ...” to meet that nominated water quality objectives); and
- water quality exceedances are managed in accordance with the *Water Quality Incident Response Protocol*, which has been demonstrated.

It further noted that the above reported performance targets (KPIs) have been set by WaterNSW for internal governance and reporting purposes; there is no obligation to comply with these targets under existing supply agreements, protocols or the *Operating Licence*.

Given that WaterNSW has used these performance targets as the basis of its formal reporting to IPART in respect of this obligation (no other criteria are presented), it seems incongruous that their use for assessment of compliance against this obligation is not considered applicable. It is noted that WaterNSW has included this information as evidence of compliance in this and previous audits.

Notwithstanding, on the basis that it has demonstrated that any water quality parameter exceedances have been managed in accordance with the relevant protocols, WaterNSW is assessed to have been technically compliant with this obligation during the audit period; i.e. it has managed the quality of water supplied to its customers in accordance with the WQMS. However, there are concerns regarding the manner in which performance against the requirements of the WQMS is demonstrated in the absence of these performance indicators.

Accordingly, as an opportunity for improvement (**OFI-WNSW-2022-11**), it is strongly suggested that WaterNSW considers embedding the monitoring of performance against identified Water Quality Performance Targets (such as reported in the “Corporate Scorecard Table”) in its Water Quality Management System, and that these form the basis of demonstrating compliance with sub-clause 4.2.2 of the *Operating Licence*.

Recommendations

There are no recommendations in respect of this obligation.

Opportunities for improvement


The following opportunity for improvement has been identified in respect of this obligation:

- **OFI-WNSW-2022-11:** It is suggested that WaterNSW considers embedding the monitoring of performance against identified Water Quality Performance Targets (such as reported in the “Corporate Scorecard Table”) in its Water Quality Management System, and that these form the basis of demonstrating compliance with sub-clause 4.2.2 of the *Operating Licence*.
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2.5 Organisational systems management (Licence Part 5)

2.5.1 Environmental Management System (clause 5.2)

2.5.1.1 Environmental Management System (sub-clause 5.2.1)

Sub-clause	Requirement	Compliance Grade
5.2.1	Water NSW must at all times maintain an Environmental Management System for carrying out the functions authorised under this Licence that is consistent with the <i>Australian/New Zealand Standard AS/NZS ISO 14001:2016: Environmental management systems – Requirements with guidance for use</i> or other standard approved by IPART, on request by Water NSW (the Environmental Management System).	 Compliant

Risk if non-compliant

Failure to maintain an Environmental Management System for carrying out the functions authorised under the Licence presents a high level of operational risk that WaterNSW may not be able to effectively manage risks to the environment resulting from its operations.

Evidence sighted

Refer Appendix C (C.3.5).

Summary of audit findings/reasons for grade

WaterNSW demonstrated that it has maintained an Environmental Management System, which is encapsulated in its *Environmental Management System Manual*, and provided evidence that the Environmental Management System continues to be certified by an external body as being consistent with *ISO 14001:2015* (and therefore *AS/NZS ISO 14001:2016*, which is an “identical adoption” of *ISO 14001:2015*). The report on the most recent surveillance audit identified two opportunities for improvement, both of which had been previously identified/initiated by WaterNSW.

Accordingly, WaterNSW is assessed to have demonstrated compliance with this obligation.

Discussion and notes

WaterNSW implements an Integrated Business Management System; the Environmental Management System (EMS) is one of five subsidiary management systems, each of which forms part of the overarching integrated Business Management System.

WaterNSW provided the *Environmental Management System Manual*³⁷⁶ as evidence of the established EMS and the *BSI Certificate of Registration*³⁷⁷ as evidence of certification by an external certification body that the EMS is consistent with *ISO 14001:2015*. The scope of the certification aligns with WaterNSW’s bulk water supply functions; the current certification expires on 9 September 2023.

³⁷⁶ WaterNSW, *Environmental Management System Manual* (Reference: CD2015/445), undated (file: 5.2.2 - CD2015 445 v6 *Environmental Management System Manual.docx*).

³⁷⁷ BSI, *Certificate of Registration; Environmental Management System – ISO 14001:2015* (file: 5.2.1 - D2021 30800 *WaterNSW Certificate EMS 659131*).

It is noted that, whilst the EMS is certified as complying with the requirements of *ISO 14001:2015*, the Australian/New Zealand Standard *AS/NZS ISO 14001:2016: Environmental management systems – Requirements with guidance for use* nominated in the Licence is an “identical adoption” of *ISO 14001:2015*.³⁷⁸

WaterNSW also provided the most recent certification body’s *Assessment Report*,³⁷⁹ which presents the findings of a surveillance audit of WaterNSW’s management systems conducted by the certification body in June 2021.³⁸⁰ The report identified two (2) opportunities for improvement in respect of the EMS; these related to:

- Planning – the use of information relating to biosecurity, herbicides, etc. in planning the sequence of site visits; this improvement had already been identified by WaterNSW.
- Support/Training – an update to the mandatory environmental training, including 3-yearly refresher training; this was already being implemented by WaterNSW.

Recommendations

There are no recommendations in respect of this obligation.

Opportunities for improvement


No opportunities for improvement have been identified in respect of this obligation.

³⁷⁸ Standards Australia, Standards Catalogue, available at: <https://www.standards.org.au/standards-catalogue/sa-snz/other/cv-021/as-slash-nzs-iso-14001-colon-2016>.

³⁷⁹ BSI, *Assessment Report; WaterNSW*, 31 May 2021 to 26 June 2021 (file: 5.2.1 - D2021 102541 WNSW-Assessment Report-Surveillance May - June 2021.pdf).

³⁸⁰ It is noted that the next surveillance audit was scheduled for September-October 2022, i.e. after the audit period.

2.5.1.2 Environmental Management System (sub-clause 5.2.2)

Sub-clause	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

Risk if non-compliant

Failure to fully and effectively implement its Environmental Management System presents a high level of operational risk that WaterNSW may not be effectively managing risks to the environment resulting from its operations.

Evidence sighted

Refer Appendix C (C.3.5).

Summary of audit findings/reasons for grade

WaterNSW demonstrated it had implemented the EMS in the audit period and provided adequate evidence of implementation.

Discussion and notes

WaterNSW demonstrated it had implemented the Environmental Management System (EMS) during the audit period and provided adequate evidence of implementation including:

- The EMS Manual³⁸¹ has been prepared in accordance with the *Australian/New Zealand Standard AS/NZS ISO 14001:2016: Environmental management systems – Requirements with guidance for use*. The EMS Manual includes identification and assessment of environmental risk and relevant preventive measures to manage risk. This risk assessment comprised of a ‘bow tie’ risk assessment of environmental risk undertaken in May 2021, which was documented in a risk event summary³⁸². The Objectives and Targets Summary³⁸³ was provided which outlines WaterNSW’s environmental objectives, targets and measures to be implemented to achieve the objectives. WaterNSW provided an Assurance Audit Report³⁸⁴ on the progress in implementing the Objectives and Targets. The audit found one major issue relating to the development of a Biodiversity Offset Strategy, which had not been completed; however, a RACS action had been generated to address the issue by November 2022.
- The EMS Framework includes a Safety and Environment Compliance Obligations Register³⁸⁵ that was kept up to date in the audit period and was last updated on 30th August 2022. The register includes a comprehensive list of legal and other requirements.

³⁸¹ CD2015 445 v6 Environmental Management System Manual.

³⁸² D2021 76259 v5 BR4 - Environment CRMP Risk Event Summary - v5 May 2022.

³⁸³ D2021 106800 WaterNSW EMS Objectives and Targets 2021 22.

³⁸⁴ D2022 72925 2021 22 Objectives and Targets Audit.

³⁸⁵ D2021 28649 Safety and environment compliance obligations register.

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- The Environmental Incident Management Protocol³⁸⁶ was provided as evidence of an incident management framework. Records³⁸⁷ of incident management implementation were provided including notifications made to the EPA^{388,389,390} when an incident had occurred.
 - Populated checklists^{391,392,393} of inspections that WaterNSW had undertaken at the pre-start and during construction works were provided as evidence that WaterNSW is implementing environmental procedures and confirming contractors are implementing procedures to manage environmental risk.
 - The Training Matrix³⁹⁴ showed the roles and relevant training modules that are mandatory, including the ‘Environmental Essentials’, ‘Environmental Management’ and ‘Heritage Management’ Modules. The ‘Workers Report’ Tab in the matrix showed that 78 people were required to complete all three modules.
 - WaterNSW provided evidence that it is auditing the implementation of the environmental framework through assurance audits. The Upper Cordeaux Audit Report³⁹⁵ included audit of the Upper Cordeaux Moran Road Culvert/Wing Wall Repair to confirm that the project conforms to WaterNSW’s requirements for its specific Management System and identified evidence for effective implementation and maintenance of system and processes.
 - An annual summary report^{396,397} of actions undertaken to implement the EMS during the audit period (2021/2022 financial year).
-

Recommendations

There are no recommendations in respect of this obligation.

Opportunities for improvement

No opportunities for improvement have been identified in respect of this obligation.

³⁸⁶ CD2016 6 v3 Environmental Incident Management Protocol.

³⁸⁷ D2022/122345 Investigation of incident at Prospect Reservoir Spillway Channel (SCA-108) 27/01/2021 23/02/2022.

³⁸⁸ D2022 106262 Notifiable Incident NSW EPA Elevated levels of lead Prospect.

³⁸⁹ D2022 106267 Notifiable Incident NSW EPA REF-NO-9859 Report to NSW EPA 16022022.

³⁹⁰ D2022/122342 FW: REF-NO-9859 Report to NSW EPA 16/02/2022 29/08/2022.

³⁹¹ D2018 1524 v2 Work Site environmental checklist.

³⁹² D2021 108352 Final Cookes Weir preliminary work site environmental checklist 17 Sep 2021.

³⁹³ CD2017 86 v3 Example of continuous improvement Environmental operational site checklist.

³⁹⁴ D2022 106213 Training Matrix workers report.

³⁹⁵ D2022 11898 Assurance Activity Report Audit Upper Cordeaux Jan 2022 V2.

³⁹⁶ D2021 107347 MC SPC - 6 September 2021 - EMS Annual Management Review - Item 3.5.

³⁹⁷ D2022 122339 Agenda Item: 6.2 EMS Performance and Trend Analysis Report 14/09/2022.

2.6 Customers and stakeholder relations (Licence Part 6)

2.6.1 Downloading of data from certain metering equipment (clause 6.19)

2.6.1.1 Context note


It is noted that, pursuant to sub-clause 6.19.1:

“This clause [clause 6.19] applies to any metering equipment used in connection with the works described in clause 6(2) of Schedule 8 of the Water Management (General) Regulation 2018.”

In practice, this means it relates to metering equipment that is not required to transmit data relating to water usage via a telemetry system. More specifically, it includes metering equipment used in conjunction with the following:

- “(a) a pump used for surface water to which an authority that authorises the use of a pump of not more than 199mm applies,*
- (b) a work that is authorised by an authority to take water from a groundwater source.”*

2.6.1.2 Downloading of data from certain metering equipment (sub-clause 6.19.2)

Sub-clause	Requirement	Compliance Grade
6.19.2	Water NSW must, at least once a year, download all data from the metering equipment to which this clause applies.	 No Requirement

Risk if non-compliant

Failure to download data from the relevant metering equipment presents a high risk that water use will not be accurately recorded, with resultant impacts on overall water accounting and billing.

Evidence sighted

Refer Appendix C (C.3.6).

Summary of audit findings/reasons for grade

WaterNSW demonstrated that, as at the end of the audit period, there had been only two (2) installations to which this obligation will apply. Installation of compliant metering at these two sites were finalised on 17 April 2022 and 25 May 2022, so there has at this stage been no requirement to download data (i.e. at the end of the audit period, they had both been installed and operational for less than 5-months).

Accordingly, it is assessed that there was no requirement for compliance with this obligation during the audit period.

Discussion and notes

WaterNSW advised that, as at the end of the audit period, there have been only two (2) installations to which this obligation will apply. This is consistent with records extracted from the DQP (Duly Qualified Person) Portal that identifies sites at which data downloading is/will be required.³⁹⁸ The extract also identified a further applicable seven (7) sites, however, compliant metering has not yet been installed at those sites. Of the two existing installations that require downloading of data, one is located in the Northern inland area and one in the Southern inland area.

To provide further context, WaterNSW explained the requirements in respect of compliant metering and water use data collection, as defined by the *Non-urban Water Metering Framework*:³⁹⁹

- Surface water metering installations with pumps less than 200mm and groundwater metering installations (refer **Section 2.6.1.1** for further explanation) are not required to transmit water use via telemetry; however, the owner may choose to do so. Where data is not transmitted, it must be downloaded by WaterNSW at least annually.
- Compliant metering is being rolled out in stages, as follows:
 - 1 December 2020 – Surface water pumps 500mm and greater in NSW; all need to be connected via telemetry.
 - 1 December 2021 – Northern inland NSW; this milestone occurred during the audit period.

³⁹⁸ MS Excel workbook: 6.19.2 - D2022 106948 Extract from the DQP Portal identifying those sites that need downloading.xlsx.

³⁹⁹ Document: Clause 6.19 - Data Download - OL Audit 2022_Final.ppt (PowerPoint Presentation: 6.19 - Downloading of data from certain metering equipment).

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- 1 December 2022 – Southern inland NSW.
 - 1 December 2023 – Coastal NSW.
 - As at the end of the audit period, there were 1,252 sites with compliant metering. Of these, 764 are located in the Northern inland area. Of these 764 sites, 419 are groundwater sites and 112 are surface water sites with pump size less than 200mm, giving a total of 531 sites that meet the criteria listed in Clause 6(2) of Schedule 8 of the *Water Management Regulation*, i.e. they are not required to be connected to telemetry for the purposes of water use data transmission. Of the 531 sites, 530 are connected to telemetry (at the owners' choice); data from these installations is downloaded daily.

Note: This summary is consistent with records extracted from the DQP (Duly Qualified Person) Portal.⁴⁰⁰

Installation of Local Intelligence Devices (LIDs) at the two existing sites were finalised on 17 April 2022 and 25 May 2022, so there has at this stage been no requirement to download data (i.e. at the end of the audit period, they had both been installed and operational for less than 5-months). WaterNSW advised that both installations will be scheduled for download later this year in accordance with the annual requirement. A draft procedure for this activity has been prepared and will be finalised in conjunction with the activity commencing (a site visit is required to validate the procedure).

Recommendations


There are no recommendations in respect of this obligation.

Opportunities for improvement

No opportunities for improvement have been identified in respect of this obligation.

⁴⁰⁰ MS Excel workbook: *D2022 123170 Clause 6.19 - applicable sites.xlsx*.

2.6.1.3 Downloading of data from certain metering equipment (sub-clause 6.19.4)

Sub-clause	Requirement	Compliance Grade
6.19.4	Prior to 1 December 2021, Water NSW, DPIE and NRAR are to agree on protocols for requests for data to which this clause applies.	 Compliant

Risk if non-compliant

Failure to agree on protocols for data requests within the nominated timeline presents a moderate risk that appropriate arrangements will not be in place for the sharing of data downloaded from metering equipment that is not required to transmit data relating to water usage via a telemetry system.

Evidence sighted

Refer Appendix C (C.3.5).

Summary of audit findings/reasons for grade

WaterNSW demonstrated that it has agreed and entered into *Data Sharing Agreements* with both DPIE (now DPE) and NRAR, in both cases well in advance of the required date. These *Data Sharing Agreements* include agreement to share metering datasets, which in turn includes non-telemetered metering data (i.e. data to which this clause applies).

Accordingly, WaterNSW is assessed to have demonstrated compliance with this obligation.

Discussion and notes

WaterNSW advised that protocols in the form of *Data Sharing Agreements* were agreed with the Natural Resources Access Regulator (NRAR) in December 2020 and with the Department of Planning, Industry and Environment (DPIE) (now the Department of Planning and Environment (DPE)) in March 2021; copies of the *Data Sharing Agreements* were provided as evidence.^{401,402} In both cases, the desire to “...establish an ongoing relationship for sharing data and information access between them relating to the Non-Urban Metering” is recorded as part of the *Agreements*.

WaterNSW further advised that it has in place a joint *Roles and Responsibilities Agreement* with the DPIE/DPE and NRAR,⁴⁰³ which sets out in detail how the three agencies work together. The *Agreement*, which came into effect on 30 June 2021, 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. It is noted that section 7 of this *agreement*, which addresses data (data sharing requirements and water monitoring data), makes specific references to the *Data Sharing Agreements*.

Review of the *Data Sharing Agreements* reveals that they include typical agreement provisions such as Interpretation, Term of the Agreement, Compliance with laws and policy, Confidentiality, Assignment and novation, Termination or expiry, Privacy, Authorised representatives, Review and General provisions. Provisions more specific to data sharing

⁴⁰¹ WaterNSW/NRAR, *Data Sharing Agreement* (Ref: D2020/126232), dated 1/3 December 2020 (file: 6.19.4 - D2020 126232 *Data Sharing Agreement - Water NSW and NRAR 2020.pdf*).

⁴⁰² WaterNSW/DPIE, *Data Sharing Agreement* (Ref: D2021/038294), dated 31 March 2021/5 July 2021 (file: 6.19.4 - D2021 38294 *Data Sharing Agreement - WaterNSW and DPIE 2021.pdf*).

⁴⁰³ DPIE/NRAR/WaterNSW, *Roles and Responsibilities Agreement*, dated 30 June 2021.

address matters including Agreement to Share Information, Licence (for use of the information), Use of Shared Information, Quality and Responsibility for the Shared Information, User Support, Information and Records Management Arrangements, and Security Arrangements.

Under the provisions of the *Data Sharing Agreements*, the parties agree to enter an *Information Sharing Schedule* for each jointly agreed opportunity (specific datasets). An *Information Sharing Schedule* (and Annexure that provides more specific detail) for the sharing of Metering Datasets is included with the *Data Sharing Agreements* for both the DPIE/DPE and NRAR. The Metering Datasets include: “*Data for Manually read meters/stand alone meter logger records /grandfathered meter records*”, of which the standalone meter logger records equate to the non-telemetered metering data that is the subject of this obligation.


Recommendations

There are no recommendations in respect of this obligation.

Opportunities for improvement

No opportunities for improvement have been identified in respect of this obligation.

2.6.1.4 Downloading of data from certain metering equipment (sub-clause 6.19.4*)⁴⁰⁴

Sub-clause	Requirement	Compliance Grade
6.19.4*	All such data must be made available to DPIE and NRAR on request, provided such requests are made in accordance with the protocols agreed between Water NSW, DPIE and NRAR.	 No Requirement

Risk if non-compliant

Failure to share data downloaded from metering equipment that is not required to transmit data relating to water usage via a telemetry system presents a high risk that DPIE and NRAR may not be able to fulfil their functions in respect of water use management.

Evidence sighted

Refer Appendix C (C.3.5).

Summary of audit findings/reasons for grade

As reported in respect of sub-clause 6.19.2, as at the end of the reporting period, there had been no requirement to download data from non-telemetered metering equipment (i.e. metering equipment to which clause 6.19 applies) during the audit period. Accordingly, there was no data that could be provided to either DPIE/DPE or NRAR pursuant to this obligation.

It is therefore assessed that there was no requirement for compliance with this obligation during the audit period.

Discussion and notes

Under the provisions of the protocols (*Data Sharing Agreements*) between WaterNSW and the Natural Resources Access Regulator (NRAR), and between WaterNSW and the Department of Planning, Industry and Environment (DPIE) (now the Department of Planning and Environment (DPE)), information can be shared by one or more of the following means:^{405,406}

- (a) *manual data requests;*
- (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’?*

Both the DPIE/DPE and NRAR have online access to the *Data Acquisition Service (DAS)*, a cloud-based platform in which telemetered water use data and data that is downloaded in the field is captured. This will be the primary source from which data will be provided to DPIE/DPE and NRAR for the purposes of this obligation.

As reported in respect of sub-clause 6.19.2 (refer **Section 2.6.1.2**), as at the end of the reporting period, there had been no requirement to download data from non-telemetered metering equipment (i.e. metering equipment to which clause 6.19 applies) during the audit period. Accordingly, there was no data that could be provided to either DPIE/DPE or NRAR pursuant to this obligation.

⁴⁰⁴ Repeat of sub-clause number 6.19.4 is due to an error in the Licence; there are two separate clauses both numbered 6.19.4.

⁴⁰⁵ WaterNSW/NRAR, *Data Sharing Agreement* (Ref: D2020/126232), dated 1/3 December 2020 (file: 6.19.4 - D2020 126232 Data Sharing Agreement - WaterNSW and NRAR 2020.pdf).

⁴⁰⁶ WaterNSW/DPIE, *Data Sharing Agreement* (Ref: D2021/038294), dated 31 March 2021/5 July 2021 (file: 6.19.4 - D2021 38294 Data Sharing Agreement - WaterNSW and DPIE 2021.pdf).

Notwithstanding, WaterNSW provided evidence that it has worked with NRAR (for example) in developing online reporting for a wider range of metering related information/data; this was demonstrated by a series of email correspondence.^{407,408,409} WaterNSW advised that it has been trialling a Service Request Tracking System with both NRAR and the DPE with a view to adopting a standardised monitoring process. Example records of NRAR ‘requests’⁴¹⁰ and ‘incidents’⁴¹¹ were provided; however, these do not at this stage include any requests for metering data that is the subject of this obligation.

Recommendations

There are no recommendations in respect of this obligation.

Opportunities for improvement

No opportunities for improvement have been identified in respect of this obligation.

⁴⁰⁷ Email correspondence between WNSW and NRAR with entries dated 19 July 2021, 1 August 2021, 3 August 2021, 4 August 2021, 5 August 2021 and 11 August 2021 (re: *Feedback Session – Updated DQP Portal Reports Available for User Test*).

⁴⁰⁸ Email correspondence between WNSW and NRAR with entries dated 2 September 2021 and 14 September 2021 (re: *Tamper seals management – proposed way for NRAR staff*).

⁴⁰⁹ Email correspondence between WNSW and NRAR with entries dated 30 June 2022, 11 July 2022 and 19 July 2022 (re: *Feedback Session 1 – Updated DQP Portal Reports Available for User Test*).

⁴¹⁰ MS Excel workbook: *NRAR_RECsLIST_04102022.xlsx*.

⁴¹¹ MS Excel workbook: *NRAR_INCsList_04102022.xlsx*.

3. Previous Recommendations

3.1 Overview

This section sets out the detailed findings in respect of the status of previous recommendations.


In each case the following is provided:

- the reference number for the previous recommendation;
- the previous recommendation;
- the assessed status (Complete, Ongoing or No action taken);
- a summary of the reason for the assessed status;
- a list of the evidence reviewed in assessing the status;
- discussion of the evidence reviewed and how it demonstrates the assessed status;
- any further recommendations; and
- any identified opportunities for improvement.

3.2 Detailed Assessment of Status

3.2.1 Making copies of this Licence available (clause 1.5)

3.2.1.1 Previous Recommendation 2021-01

Reference	Requirement	Status
2021-01	<p><i>Making copies of this Licence available (sub-clause 1.5.1):</i></p> <p>By 30 June 2022, WaterNSW must establish processes to ensure that documents to be made publicly available on the website are current, uploaded in a timely manner and, where relevant, meet the date requirements in the Reporting Manual.</p>	 Completed

Anticipated completion date

Not applicable – recommendation has been addressed.

Evidence sighted

Refer Appendix C (C.4.1).

Summary of findings/reasons for assessed status

WaterNSW demonstrated that processes for making documents publicly available on its website have been strengthened and documented in an *Operating Licence Reporting Process* procedure, which is supported by a detailed *Portfolio Based Activity Lookahead* (Reporting Calendar). WaterNSW also provided evidence that it continues to meet its reporting obligations, including making required documents publicly available on its website.

On this basis, this previous recommendation is considered to have been addressed.

Discussion and notes

It is understood that, whilst this recommendation was raised in respect of sub-clause 1.5.1 of the Licence, it also relates to WaterNSW's reporting obligations under sub-clause 7.2.1.

WaterNSW advised that it has “...prepared an annual reporting calendar, reporting approval and submission process and established calendar reminders within the business to manage their reporting requirements and the uploading of Annual Reports to the internet as required by the WaterNSW Operating Licence Reporting Manual 2017-2022”.

As evidence that its processes have been strengthened and documented, WaterNSW provided:

- An *Operating Licence Reporting Process* procedure,⁴¹² which includes a procedural flow chart for *Operating Licence* reporting, including approval and submission requirements.
- A detailed *Portfolio Based Activity Lookahead* (Reporting calendar),⁴¹³ which sets out actions, accountability and due dates for all reporting activities by business portfolio.

As evidence that it has implemented its reporting processes, WaterNSW demonstrated that:

⁴¹² Document: 2021-01 D2022 61582 *Operating Licence - Annual Reporting approval and submission process.ppt*.

⁴¹³ Document: 2021-01 D2022 68956 *BU Lookahead - Operating Licence 2022.ppt*.

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- following revision in December 2021, the updated *Operating Licence* was uploaded to the website in early January 2022;⁴¹⁴
 - both the new (2022-2024) *Operating Licence* and *Reporting Manual* were uploaded to the website on 5th July;⁴¹⁵
 - annual reporting including the following (for example) had been submitted/published as required:⁴¹⁶
 - 1st September reporting had been submitted to IPART on 1 September 2021;
 - 1st September reporting had been uploaded to the WaterNSW website on 1 September;
 - that the *Annual Report on the Water Quality Management System* had been submitted to NSW Health on 1 September 2021;
 - the *Annual Water Quality Monitoring Report 2020-21* and *Annual Catchment Management Report 2020-21* had both been uploaded to the WaterNSW website on 30 November 2021.
 - an internal meeting notification “*Reminder – Report Preparation & Submission – IPART Report – IPART Performance Indicator*” indicating that the report is due for completion and submission to IPART on 1 September 2022 was issued on 13 July 2022. Guidance in respect of report requirements was included.⁴¹⁷

This evidence indicates that the recommendation has been addressed and the resultant processes are being implemented.

Further recommendations

There are no further recommendations arising in respect of this previous recommendation.

Opportunities for improvement

No opportunities for improvement have been identified in respect of this previous recommendation.

⁴¹⁴ WaterNSW internal email with entries dated 13 January 2022 and 18 January 2022 (re: *Operating licence - flood mitigation and management amendment*) (file: 2021-01 D2022 61235 *Confirmation of updated licence on Internet.msg*).


⁴¹⁵ WaterNSW internal email with entries dated 5 July 2022 (re: *WaterNSW Operating Licence 2022-2024 Reporting Manual*) (file: 2021-01 D2022 62782 *FW WaterNSW Operating Licence 2022-2024 Reporting Manual.msg*).

⁴¹⁶ Document: *Clause 1.5 and 7.2 – Reporting.ppt* (extracts showing email submission of reporting as indicated).

⁴¹⁷ WaterNSW internal email dated 13 July 2022 (re: *Audit Recommendations supporting evidence*) (file: 2021-01 D2022 69088 *Audit Recommendations supporting evidence*).

3.2.2 Water Quality Management System (clause 2.1)

3.2.2.1 Previous Recommendation 2020-02

Reference	Requirement	Status
2020-02	<p><i>Water Quality Management System (sub-clause 2.1.3):</i></p> <p>By 31 July 2021, review and, where appropriate, amend the Fish River Water Supply Scheme Drinking Water Quality Management System against each of the 12 elements, 32 components and 76 actions of the Framework for Management of Drinking Water Quality. WaterNSW should document reviews and internal audits in the updated system at intervals appropriate to ensure effective implementation of the system. WaterNSW should review and update supporting documentation for currency, including:</p> <ul style="list-style-type: none"> ▪ Fish River Water Supply System Operations and Maintenance Manual; ▪ Operating Protocols for Fish River Water Supply (CD2017/173) ▪ Fish River Water Supply Scheme Incident Management Plan (D2018/116921). 	 Completed

Anticipated completion date

Not applicable – recommendation has been addressed.

Evidence sighted

Refer Appendix C (C.4.2).

Summary of findings/reasons for assessed status

WaterNSW has fully revised the Fish River DWQMS using the Modelpedia Program, which has created an online version with live links to relevant documents. The DWQMS follows the ADWG framework of 12 Elements, 32 Components and 76 actions.

The *Operations and Maintenance Manual - Duckmaloi Water Treatment Plant* has been reviewed, updated, and approved. The O&M Manual contains 16 operating procedures and a large number (72) of maintenance plans.

Standard Operating Procedures have been developed, reviewed, and approved. These are referenced in the O&M Manual.

Fish River Water Supply Scheme Incident Management Plan (D2018/116921) was replaced with CD2021/83 *Fish River Incident Management Plan*. It is noted that the document has a review date of June 2022 and is currently under review. It was noted by WaterNSW that the document is required by the EPA to be reviewed by 14 October each year as a condition of its Environment Protection Licence (EPL). WaterNSW stated in the questionnaire that in future the review dates will align with the EPL licence requirements to remove inconsistency. However, the audit found that the IMP has been reviewed.

On this basis, this previous recommendation is considered to have been addressed.


Further recommendations

There are no further recommendations arising in respect of this previous recommendation.


Opportunities for improvement

No opportunities for improvement have been identified in respect of this previous recommendation.

3.2.2.2 Previous Recommendation 2021-02

Reference	Requirement	Status
2021-02	<p><i>Water Quality Management System (sub-clauses 2.1.1, 2.1.2 and 2.1.4):</i></p> <p>By 31 August 2022, WaterNSW should review the process for updating the water quality contact list (including the version attached to the WQ Incident Response Protocols) to ensure that the list is current, this should include all stakeholders, not just those relevant to the JOG.</p>	 Completed
<p>Anticipated completion date</p> <p>Not applicable – recommendation has been addressed.</p>		
<p>Evidence sighted</p> <p>Refer Appendix C (C.4.2).</p>		
<p>Summary of findings/reasons for assessed status</p> <p>The <i>Water Quality Contact Directory</i> has been updated during the audit period. The contact list has been revised to state it is to be reviewed six monthly or following any significant changes.</p> <p>The new review date is listed in the footer as November 2022. The contacts list contains a wide range of stakeholders. Emails about the review of the list were also provided as evidence.</p> <p>On this basis, this previous recommendation is considered to have been addressed.</p>		
<p>Further recommendations</p> <p>There are no further recommendations arising in respect of this previous recommendation.</p>		
<p>Opportunities for improvement</p> <p>No opportunities for improvement have been identified in respect of this previous recommendation.</p>		

3.2.2.3 Previous Recommendation 2021-03

Reference	Requirement	Status
2021-03	<p><i>Water Quality Management System (sub-clauses 2.1.1 and 2.1.2):</i></p> <p>By 31 August 2022, WaterNSW should document the process and responsibility for scheduling major WQMS risk reviews.</p>	 Completed

Anticipated completion date

Not applicable – recommendation has been addressed.

Evidence sighted

Refer Appendix C (C.4.2).

Summary of findings/reasons for assessed status

The process for scheduling regular risk reviews was agreed by the working group and presented at the Greater Sydney JOG and Fish River JOG in August.

The DWQMP in Modelpedia states that risks arising from any new hazards, hazardous events and process changes will be prioritised for review on an ongoing basis by a working group. In Greater Sydney, reviews for Sydney Water supply systems are conducted on a rolling cycle, covering around two systems per year as agreed by the working group, which schedules the reviews.

For the Fish River System and other major customers, WaterNSW schedules the reviews, which will be undertaken at approximately 5-yearly intervals, in consultation with stakeholders. Interim targeted risk assessments are conducted as required.

The C2C schedule for 2023 to 2026 outlines the system schedule for major reviews in Greater Sydney. It also notes targeted reviews can be undertaken at any time.

On this basis, this previous recommendation is considered to have been addressed.


Further recommendations

There are no further recommendations arising in respect of this previous recommendation.


Opportunities for improvement

No opportunities for improvement have been identified in respect of this previous recommendation.


3.2.2.4 Previous Recommendation 2021-04

Reference	Requirement	Status
2021-04	<p><i>Water Quality Management System (sub-clauses 2.1.1 and 2.1.2):</i></p> <p>By 31 August 2022, WaterNSW should finalise the operation and maintenance manuals for the dams in the Declared Catchment.</p>	 Completed
Anticipated completion date Not applicable – recommendation has been addressed.		
Evidence sighted Refer Appendix C (C.4.2).		
Summary of findings/reasons for assessed status <p>Operations and Maintenance Manuals (O&M Manuals) have been finalised for all Dams in the Declared Catchments and are being managed, reviewed, and updated in accordance with the WaterNSW Controlled Documents Framework.</p> <p>WaterNSW provided 21 O&M Manuals as evidence, which were all within the specified due date in the footer.</p> <p>Accordingly, this previous recommendation is considered to have been addressed.</p>		
Further recommendations There are no further recommendations arising in respect of this previous recommendation.		
Opportunities for improvement No opportunities for improvement have been identified in respect of this previous recommendation.		

3.2.2.5 Previous Recommendation 2021-05

Reference	Requirement	Status
2021-05	<p><i>Water Quality Management System (sub-clauses 2.1.1, 2.1.2 and 2.1.3):</i></p> <p>By 31 August 2022, WaterNSW should ensure that the WaterNSW Incident Management Procedure (CD2017/180) has been updated and implemented.</p>	 Completed
<p>Anticipated completion date</p> <p>Not applicable – recommendation has been addressed.</p>		
<p>Evidence sighted</p> <p>Refer Appendix C (C.4.2).</p>		
<p>Summary of findings/reasons for assessed status</p> <p>The <i>Incident Management Procedure</i> CD2022/72 was approved in June 2022, replacing CD2017/180. The WaterNSW <i>Incident Management Procedure</i> and 30 supporting documents including incident management templates, user guides and reference material have been reviewed, updated and published as control documents in ARK.</p> <p>WaterNSW provided evidence of the document structure recorded in ARK, incident management structure and teams, a pocket guide for managing incidents under the procedures, samples of presentations for operational teams on the implementation of the new procedures, and snapshots of new forms being used in live incidents.</p> <p>Accordingly, this previous recommendation is considered to have been addressed.</p>		
<p>Further recommendations</p> <p>There are no further recommendations arising in respect of this previous recommendation.</p>		
<p>Opportunities for improvement</p> <p>No opportunities for improvement have been identified in respect of this previous recommendation.</p>		

3.2.2.6 Previous Recommendation 2021-06

Reference	Requirement	Status
2021-06	<p><i>Water Quality Management System (sub-clause 2.1.3):</i></p> <p>By 31 August 2022, WaterNSW should update the Water Quality Data Review and Reporting Procedure to explicitly cover the Fish River Supply reporting requirements.</p>	 Completed

Anticipated completion date

Not applicable – recommendation has been addressed.

Evidence sighted

Refer Appendix C (C.4.2).

Summary of findings/reasons for assessed status

WaterNSW provided evidence that the *Water Quality Data Review and Reporting Procedure* was revised to include more detail on the Fish River Supply reporting requirements (in section 1.2.6 of the procedure). The procedure was approved on 9 July 2022. An example routine report for the Fish River Supply was provided for May 2022.

On this basis, this previous recommendation is considered to have been addressed.


Further recommendations

There are no further recommendations arising in respect of this previous recommendation.

Opportunities for improvement

No opportunities for improvement have been identified in respect of this previous recommendation.

3.2.2.7 Previous Recommendation 2021-07

Reference	Requirement	Status
2021-07	<p><i>Water Quality Management System (sub-clause 2.1.3):</i></p> <p>By 31 August 2022, WaterNSW should document the process to revalidate treatment process when a change condition occurs, including defining triggers for when this would occur.</p>	 Completed

Anticipated completion date

Not applicable – recommendation has been addressed.

Evidence sighted

Refer Appendix C (C.4.2).

Summary of findings/reasons for assessed status

The validation requirements are described in Modelpedia under Element 9 (Section 9.9.2).

The process requires that when there are any material changes to existing processes and procedures in the water supply system, the Water Quality Services Team should be engaged to determine the need for revalidation of processes and need for a targeted Catchment to Customer Risk Assessment. The Water Quality Services Team will specify the nature of the evidence required to re-validate the process and how ongoing performance will be monitored.

The CCP tables include details of validation of CCPs and requirements for ongoing monitoring of performance. An example revalidation report was provided for the Fish River Critical Control Points.

Accordingly, this previous recommendation is considered to have been addressed.


Further recommendations

There are no further recommendations arising in respect of this previous recommendation.

Opportunities for improvement

No opportunities for improvement have been identified in respect of this previous recommendation.

3.2.2.8 Previous Recommendation 2021-08

Reference	Requirement	Status
2021-08	<p><i>Water Quality Management System (sub-clause 2.1.3):</i></p> <p>By 31 August 2022, WaterNSW should document the requirement for chlorine analyser reagent levels for the chlorine analyser to be included in operational checks at Duckmaloi WTP.</p>	 Completed

Anticipated completion date

Not applicable – recommendation has been addressed.

Evidence sighted

Refer Appendix C (C.4.2).

Summary of findings/reasons for assessed status

Reagent levels for the chlorine analyser been included in operational checks at Duckmaloi WTP. The activity is included in the weekly job to undertake daily checks. The Work Order (2021-08 - D2022 70008 Duckmaloi WTP Operations – Daily Tasks – JT20000003) includes the wording “On a weekly basis: check chlorine analyser reagent levels and stock on hand. Place order for reagent if stocks are low”.

During the audit, a completed work order (WO00172688 26/9/22) was shown which confirmed that the chlorine reagents were checked on 28/9/22, with a photo of the reagent dates (6/9/22).

Accordingly, this previous recommendation is considered to have been addressed.


Further recommendations

There are no further recommendations arising in respect of this previous recommendation.

Opportunities for improvement

No opportunities for improvement have been identified in respect of this previous recommendation.

3.2.2.9 Previous Recommendation 2021-09

Reference	Requirement	Status
2021-09	<p><i>Water Quality Management System (sub-clause 2.1.4):</i></p> <p>By 31 August 2022, WaterNSW should develop processes to ensure that regulatory requirements associated with new or emerging obligations, are identified and documented within the compliance system.</p>	 Completed

Anticipated completion date

Not applicable – recommendation has been addressed.

Evidence sighted

Refer Appendix C (C.4.2).

Summary of findings/reasons for assessed status

WaterNSW provided a new version of the *Legal & Other Requirements Register* (CD2013/26[v2]) that was updated as part of the *Compliance Management Improvement Action Plan* (CD2021/160). The register showed that the obligations were reviewed in 2022.

Accountability for obligations has been identified at portfolio level and by Relevant Executive Manager.

WaterNSW explained that the approach to confirming requirements has been documented. A PowerPoint presentation dated 26 May 2022 shows the process for confirming Compliance Obligations.

On this basis, this previous recommendation is considered to have been addressed.


Further recommendations

There are no further recommendations arising in respect of this previous recommendation.

Opportunities for improvement

No opportunities for improvement have been identified in respect of this previous recommendation.

3.2.2.10 Previous Recommendation 2021-10

Reference	Requirement	Status
2021-10	<p><i>Water Quality Management System (sub-clause 2.1.4):</i></p> <p>By 30 June 2022, WaterNSW should develop and implement a process (e.g. audit) to ensure that work orders for calibration of critical limit analysers are undertaken.</p>	 Completed

Anticipated completion date

Not applicable – recommendation has been addressed.

Evidence sighted

Refer Appendix C (C.4.2).

Summary of findings/reasons for assessed status

WaterNSW provided evidence of an annual work order that has been created for the Maintenance Team Leader to verify that CCP instruments have been calibrated, whether by internal or external resources. WaterNSW provided a work order (WO00176116) that had been completed during the audit period, which shows that an external person had completed the calibrations. The external report was included as an attachment (Maintenance and calibration report 28/9/22) to the work order.

Instruments maintained under contract by ALS for the Water Monitoring team are calibrated as per contract schedule (D2021/107801) and records of completed calibrations are maintained in calibration worksheets. An email of the worksheets was provided, which indicated that the instruments were being calibrated regularly.

On this basis, this previous recommendation is considered to have been addressed.


Further recommendations

There are no further recommendations arising in respect of this previous recommendation.

Opportunities for improvement

No opportunities for improvement have been identified in respect of this previous recommendation.

3.2.2.11 Previous Recommendation 2021-11

Reference	Requirement	Status
2021-11	<p><i>Water Quality Management System (sub-clause 2.1.4):</i></p> <p>By 30 June 2022, WaterNSW should review monitoring processes to ensure mandatory water quality awareness training is undertaken.</p>	 Completed

Anticipated completion date

Not applicable – recommendation has been addressed.

Evidence sighted

Refer Appendix C (C.4.2).

Summary of findings/reasons for assessed status

WaterNSW provided an assessment of training compliance (2021-11 - D2022 60824 *Water Quality Awareness Training Compliance Assessment*).

During the audit WaterNSW demonstrated the updated report that was developed to more accurately reflect the compliance status. WaterNSW provided evidence of a reminder email that was issued to executives of the need to complete mandatory training; the email detailed the non-compliance of each department.

Water Quality training is a KPI that is reported to the WQHCP (Water Quality, Health and Catchment Protection) Board committee quarterly. WaterNSW provided the April to June 2022 report. It was discussed that individuals are responsible for completing mandatory training and completion is tied to annual performance-based bonuses.

On this basis, this previous recommendation is considered to have been addressed.

Further recommendations


There are no further recommendations arising in respect of this previous recommendation.

Opportunities for improvement

No opportunities for improvement have been identified in respect of this previous recommendation.

3.2.3 Reviewing the model for System Yield (clause 2.6)

3.2.3.1 Previous Recommendation 2021-12

Reference	Requirement	Status
2021-12	<p><i>Reviewing the model for the System Yield (sub-clause 2.6.1):</i></p> <p>By 30 September 2022, WaterNSW should conduct a lessons learned review for the system yield review project. The review should consider why consultants were not engaged in a timely manner.</p> <p>The outcomes of the lessons learned review should be documented and used to inform the approach for obtaining future reviews of System Yield.</p>	 Completed
<p>Anticipated completion date</p> <p>Not applicable – recommendation has been addressed.</p>		
<p>Evidence sighted</p> <p>Refer Appendix C (C.4.3).</p>		
<p>Summary of findings/reasons for assessed status</p> <p>WaterNSW demonstrated that it had undertaken a lessons learned review in respect of the System Yield review project, and that the lessons learned review included consideration of the time delays attributed to the engagement of the consultants as one element of delays in meeting the required timeline for the model review. A series of six (6) recommendations that are to be used to inform the approach for obtaining future reviews of the model for System Yield were identified; these include recommendations that address the process and timelines for engagement of consultants (independent experts(s)).</p> <p>On this basis, this previous recommendation is considered to have been addressed.</p>		
<p>Discussion and notes</p> <p>It is noted that Licence sub-clause 2.6.1, in respect of which this recommendation was made, requires WaterNSW to engage a suitably qualified expert to undertake a review of the model for System Yield by the first quarter of 2021. The independent expert was not engaged until the end of the first quarter of 2021.</p> <p>WaterNSW demonstrated that it had undertaken a lessons learned review, which included consideration of the time delays attributed to the engagement of the consultants as one element of a broader review of the delays in meeting the required timeline for the model review (as required to address Recommendation 2021-14 (refer Section 3.2.3.3)). Minutes of an internal meeting held to discuss the audit recommendations (2021-12, 13 & 14) in relation to review of the model for System Yield, and the actions proposed in response, were provided.⁴¹⁸</p> <p>The findings of the lessons learned review, which was conducted internally, are presented in the report <i>Wathnet Model Independent Review 2021: Lessons Learnt and Recommendations for Future Reviews</i>.⁴¹⁹</p>		

⁴¹⁸ Document: D2022 122150 Minutes 2 May 22.docx.

⁴¹⁹ WaterNSW, *Wathnet Model Independent Review 2021: Lessons Learnt and Recommendations for Future Reviews*, August 2022 (file: 2021-12 - D2022 99996 Lesson learnt Wathnet Independent Review 2021.docx).

The lessons learned review, which took the form of a “root cause analysis”, focussed on aspects including:

- Project planning and project management;
- Contract documentation; and
- Final report documentation and comment tracking.

Factors contributing to the delays in meeting timelines were identified to be as follows:

- Unprecedented impacts of the COVID-19 pandemic;
- Key dates were not specified in the contract and request for quote;
- Tracking against project planning was limited;
- No steering committee was established to monitor the progress of the review; and
- Project timeline submitted in the tender documentation included a final submission timeline of 27 August 2021; this was not reviewed and adjusted to correlate with key deadlines prior to award of a contract.

Whilst noting that “...*unprecedented times resulted in minor delays in the delivery of the Wathnet Model Review 2021*”, the lessons learned review resulted in a series of six (6) recommendations that collectively address the abovementioned contributing factors. These recommendations are to be used to inform the approach for obtaining future reviews of the model for System Yield.

A process flowchart *Procedure for review of model for System Yield*⁴²⁰ provides a high-level timeline (activity by quarter) for use in conducting future reviews. Whilst this flowchart does provide guidance in respect of the timing of process steps, as an opportunity for improvement (**OFI-WNSW-2022-12**), it is suggested that WaterNSW develops a more detailed timeline for the conduct of future reviews of the model for System Yield, similar to that developed for the stakeholder engagement component of the review.

Further recommendations

There are no further recommendations arising in respect of this previous recommendation.

Opportunities for improvement


The following opportunity for improvement has been identified in respect of this previous recommendation:

- **OFI-WNSW-2022-12:** it is suggested that WaterNSW develops a more detailed timeline for the conduct of future reviews of the model for System Yield, similar to that developed for the stakeholder engagement component of the review.

Note: this opportunity for improvement is also applicable in respect of Recommendation 2021-14.

⁴²⁰ Document: *OL Audit 2022 Clause 2.6.1-3 Recommendations 12-14.ppt* (PowerPoint presentation: *Operational Audit 2021-2022; Reviewing the model for System Yield*).

3.2.3.2 Previous Recommendation 2021-13

Reference	Requirement	Status
2021-13	<p><i>Reviewing the model for the System Yield (sub-clause 2.6.2):</i></p> <p>By 30 September 2022, WaterNSW should undertake a stakeholder identification and engagement review to:</p> <ol style="list-style-type: none"> a) identify stakeholders (to include broadly customers, stakeholders, regulators and interested parties) b) the appropriate level of engagement for each stakeholder for: <ol style="list-style-type: none"> i) updating System Yield, ii) use of System Yield. c) identify engagement strategies for the stakeholders for updating and using System Yield. 	 Completed

Anticipated completion date

Not applicable – recommendation has been addressed.

Evidence sighted

Refer Appendix C (C.4.3).

Summary of findings/reasons for assessed status

WaterNSW demonstrated it had undertaken a stakeholder identification and engagement review to address the issues identified in this recommendation. The outcomes of the review are detailed in a *Community and Stakeholder Engagement Plan*, which outlines the proposed communication approach, identifies key stakeholders and the proposed type of engagement/communication tools, and provides a detailed *Communication Action Plan*.

On this basis, this previous recommendation is considered to have been addressed.

Discussion and notes

It is noted that Licence sub-clause 2.6.2, in respect of which this recommendation was made, requires WaterNSW to consult with customers, stakeholders and regulators, and any other persons reasonably expected to have an interest when undertaking a review of the model for System Yield; the results of such consultation are to be provided to the independent expert undertaking the review. WaterNSW was found not to have consulted with all required stakeholders.

WaterNSW demonstrated that it had undertaken a stakeholder identification and engagement review to address the issues identified in this recommendation. Minutes of an internal meeting held to discuss the audit recommendations (2021-12, 13 & 14) in relation to review of the model for System Yield, and the actions proposed in response, were provided.⁴²¹

⁴²¹ Document: D2022 122150 Minutes 2 May 22.docx.

The outcomes of the review, which was conducted internally, are detailed in the document *Wathnet model review; Community and Stakeholder Engagement Plan 2022*.⁴²² This Plan:

- Outlines the proposed communication approach, which is to be “...targeted and appropriate to the level of interest and engagement preferences of the stakeholders”.
- Notes that, given that the model review is an infrequent activity, the plan will be reviewed in the six-months prior to a review commencing and stakeholders engaged to ensure that preferences and interest have not changed. This review is also to include an analysis of any new or emerging stakeholders.
- Identifies key stakeholders and the type of engagement and communication tools to be used for each.
- Lists the key messages to be provided to stakeholders through the engagement process.
- Provides a detailed *Communication Action Plan*, which identifies the required communication activities and their timing, together with responsibilities for coordination and approval.
- Includes contact details for key stakeholders.

In reviewing the *Community and Stakeholder Engagement Plan*, it is noted that:

- The communication tool “Letter” is nominated for the Department of Planning and Environment (DPE). Given the department’s key role in water planning (including responsibility for the *Greater Sydney Water Strategy*), and reflective of its level of engagement in previous reviews, as an opportunity for improvement (**OFI-WNSW-2022-13**), it is suggested that communication with the DPE for the purposes of the System Yield model review should include “Targeted Briefing and/or Workshop” in addition to “Letter” as communication tools.
- Licence sub-clause 2.6.2 requires WaterNSW to consult with “... stakeholders and regulators as agreed with, or directed by, IPART”. This requirement is not reflected in the *Communication Action Plan*; accordingly, as an opportunity for improvement (**OFI-WNSW-2022-14**), it is suggested that WaterNSW should include the agreement of stakeholders and regulators to be consulted for the purposes of the System Yield model review with IPART as an additional communication activity.

Further recommendations

There are no further recommendations arising in respect of this previous recommendation.


Opportunities for improvement

The following opportunities for improvement have been identified in respect of this previous recommendation:

- **OFI-WNSW-2022-13:** It is suggested that communication with the DPE for the purposes of the System Yield model review should include “Targeted Briefing and/or Workshop” in addition to “Letter” as communication tools.
- **OFI-WNSW-2022-14:** It is suggested that WaterNSW should include the agreement of stakeholders and regulators to be consulted for the purposes of the System Yield model review with IPART as an additional communication activity.

⁴²² WaterNSW, *Wathnet model review; Community and Stakeholder Engagement Plan 2022* (Reference: D2022/79637) (Revision 1.2)), 1 August 2022 (file: 2021-13 - D2022 105867 *Wathnet model review - Community and Stakeholder Engagement Plan 2022*).

3.2.3.3 Previous Recommendation 2021-14

Reference	Requirement	Status
2021-14	<p><i>Reviewing the model for the System Yield (sub-clause 2.6.3):</i></p> <p>By 30 September 2022, WaterNSW should conduct a lessons learned review for the System Yield review project to identify:</p> <ul style="list-style-type: none"> What led to delays in meeting milestones and providing deliverables on time, How to ensure that key deliverables include all the requirements of the project. <p>The outcomes of the lessons learned review should be documented and used to inform the approach for obtaining and reporting on future reviews of System Yield.</p> <p><i>(We note that this review may be conducted in parallel with that for Recommendation 2020–12).</i></p>	 Completed
<p>Anticipated completion date</p> <p>Not applicable – recommendation has been addressed.</p>		
<p>Evidence sighted</p> <p>Refer Appendix C (C.4.3).</p>		
<p>Summary of findings/reasons for assessed status</p> <p>WaterNSW demonstrated that it had undertaken a lessons learned review in respect of the System Yield review project, and that the lessons learned review included consideration of the delays in meeting the required timeline for the model review. A series of six (6) recommendations that are to be used to inform the approach for obtaining future reviews of the model for System Yield were identified.</p> <p>On this basis, this previous recommendation is considered to have been addressed.</p>		
<p>Discussion and notes</p> <p>It is noted that Licence sub-clause 2.6.3, in respect of which this recommendation was made, requires WaterNSW to complete a review of the model for System Yield by 30 June 2021, and to report to IPART in accordance with the <i>Reporting Manual</i>. The review of the model was not completed until 9 August 2021.</p> <p>WaterNSW demonstrated that it had undertaken a lessons learned review, which considered reasons for the delays in meeting the required timeline for the model review (as also required to address Recommendation 2021-12 (refer Section 3.2.3.1)). Minutes of an internal meeting held to discuss the audit recommendations (2021-12, 13 & 14) in relation to review of the model for System Yield, and the actions proposed in response, were provided.⁴²³</p>		

⁴²³ Document: D2022 122150 Minutes 2 May 22.docx.

The findings of the lessons learned review, which was conducted internally, are presented in the report *Wathnet Model Independent Review 2021: Lessons Learnt and Recommendations for Future Reviews*.⁴²⁴

The lessons learned review, which took the form of a “root cause analysis”, focussed on aspects including:

- Project planning and project management;
- Contract documentation; and
- Final report documentation and comment tracking.

Factors contributing to the delays in meeting timelines were identified to be as follows:

- Unprecedented impacts of the COVID-19 pandemic;
- Key dates were not specified in the contract and request for quote;
- Tracking against project planning was limited;
- No steering committee was established to monitor the progress of the review; and
- Project timeline submitted in the tender documentation included final submissions timeline of 27 August 2021; this was not reviewed and adjusted to correlate with key deadlines prior to award of a contract.

Whilst noting that “...*unprecedented times resulted in minor delays in the delivery of the Wathnet Model Review 2021*”, the lessons learned review resulted in a series of six (6) recommendations that collectively address the abovementioned contributing factors. These recommendations are to be used to inform the approach for obtaining future reviews of the model for System Yield.

A process flowchart *Procedure for review of model for System Yield*⁴²⁵ provides a high-level timeline (activity by quarter) for use in conducting future reviews. Whilst this flowchart does provide guidance in respect of the timing of process steps, as an opportunity for improvement (**OFI-WNSW-2022-12**), it is suggested that WaterNSW develop a more detailed timeline for the conduct of future reviews of the model for System Yield, similar to that developed for the stakeholder engagement component of the review.

Further recommendations

There are no further recommendations arising in respect of this previous recommendation.

Opportunities for improvement

The following opportunity for improvement has been identified in respect of this previous recommendation:

- **OFI-WNSW-2022-12:** it is suggested that WaterNSW develop a more detailed timeline for the conduct of future reviews of the model for System Yield, similar to that developed for the stakeholder engagement component of the review.


Note: this opportunity for improvement is also applicable in respect of Recommendation 2021-12.

⁴²⁴ WaterNSW, *Wathnet Model Independent Review 2021: Lessons Learnt and Recommendations for Future Reviews*, August 2022 (file: 2021-12 - D2022 99996 Lesson learnt Wathnet Independent Review 2021.docx).

⁴²⁵ Document: *OL Audit 2022 Clause 2.6.1-3 Recommendations 12-14.ppt* (PowerPoint presentation: *Operational Audit 2021-2022; Reviewing the model for System Yield*).

3.2.4 Bulk Water released to Local Water Utilities for Drinking Water purposes (clause 3.4)

3.2.4.1 Previous Recommendation 2021-15

Reference	Requirement	Status
2021-15	<p><i>Bulk Water released to Local Water Utilities for Drinking Water purposes (sub-clause 3.4.2):</i></p> <p>By 31 August 2022, WaterNSW should review processes for maintaining registers (maintained in excel) to ensure accuracy of contacts in the Local Water Utilities Contact Details spreadsheet (DOC13 29697).</p>	 Completed

Anticipated completion date

Not applicable – recommendation has been addressed.

Evidence sighted

Refer Appendix C (C.4.4).

Summary of findings/reasons for assessed status

WaterNSW advised that it had conducted a review of the process for maintaining and ensuring the accuracy of the LWU Register and demonstrated that it had prepared/updated a *Procedure for Maintaining Contact Details on the Local Water Utilities Register*, which incorporates process changes identified by the review.

On this basis, this previous recommendation is considered to have been addressed.

Discussion and notes

WaterNSW advised that it had conducted a review of the process for maintaining and ensuring the accuracy of the LWU Register in late 2021. It further advised that, as a result:

- the drag/drop errors identified during the previous audit were corrected;
- an internal third-party (another Customer Experience team member) data check, to be undertaken prior to the release of the annually updated register, has been added to the annual review/update process;
- earlier versions of the register have been hidden;
- the register is now password protected (restricted access for editing purposes) and published on the intranet for internal stakeholders;
- the process for maintaining the register has been documented in a procedure *Maintaining the LWU Register Contact Details* (reference: CD2021/106).

Review of the *Procedure for Maintaining Contact Details on the Local Water Utilities Register*⁴²⁶ reveals that the abovementioned actions/process changes have been incorporated into the documented procedure. For example:

⁴²⁶ WaterNSW, *Procedure for Maintaining Contact Details on the Local Water Utilities Register* (ARK Ref: CD2021/106[v2]), undated (file: CD2021_106v2_LWU_register_procedure.docx).

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- Item 1.8 of the procedure requires the annually updated register to be referred “... *for a line-by-line review to ensure data is complete*”.
 - Item 1.9 of the procedure requires that “*Prior to publishing all older versions of the register are to be hidden, the register is to be password protected and the date the update was completed is to be added*”.

It is noted that the annual review/update process is managed through the RACS (Risk Assurance and Compliance System), thereby providing a mechanism that ensures that it is completed in a timely manner in accordance with the *Procedure*.

Further recommendations


There are no further recommendations arising in respect of this previous recommendation.

Opportunities for improvement

No opportunities for improvement have been identified in respect of this previous recommendation.

3.2.5 Water Supplied Performance Standards (clause 4.2)

3.2.5.1 Previous Recommendation 2020-09

Reference	Requirement	Status
2020-09	<p><i>Water Supplied Performance Standards (sub-clause 4.2.2) and Water Supply (sub-clause 3.2.1):</i></p> <p>By 30 June 2021, WaterNSW should review the appropriateness of CCP analysers at Duckmaloi Water Treatment Plant to ensure that they provide a reliable measurement of turbidity and chlorine residual.</p>	 Completed

Anticipated completion date

Not applicable – recommendation has been addressed.

Evidence sighted

Refer Appendix C (C.4.5).

Summary of findings/reasons for assessed status

WaterNSW demonstrated that an external consultant/service provider was engaged to conduct a review of the appropriateness of instrumentation at the Duckmaloi Water Treatment Plant. As a result, analysers and associated equipment (e.g. sample lines) have subsequently been installed, replaced and/or upgraded in accordance with the recommendations arising from the review.

On this basis, this previous recommendation is considered to have been addressed.

Discussion and notes

WaterNSW advised that it had engaged an external consultant/service provider to conduct a review of the appropriateness of CCP analysers at Duckmaloi Water Treatment Plant. More specifically, the consultant/service provider was engaged to “... *assess the current instrument arrangement and provide a solution that will improve instrument reliability and operator serviceability*”.⁴²⁷

Further details of the initial assessment undertaken by the consultant/service provider are documented in the report *Water Quality Instrumentation for Duckmaloi WTP*,⁴²⁸ (Commissioning Report) which “... *provides an overview of the water quality instrumentation installation and commissioning project that was undertaken to address issues raised during the 2020 IPART Audit and subsequent 2021 HunterH2O Process and Asset Review ...*”.

This report indicates that the initial review identified six (6) key points to address identified operational issues in respect of water quality instrumentation. As a result, new instrumentation and associated equipment was procured, installed, and subsequently commissioned.

In respect of CCP analysers:

- CCP8 – Membrane Filtrate Turbidity – a new turbidity meter and new sample water lines were installed; the SCADA mimic page was also updated to include this new instrument.

⁴²⁷ hunterh2o, *Water Quality Instrumentation for Duckmaloi WTP*, undated [Project proposal] (file: 2020-09 - D2021 106291 Hunter H2O Proposal WQ Instruments Duckmaloi WTP Instal and Comm).

⁴²⁸ Beca hunterh2o, *Water Quality Instrumentation for Duckmaloi WTP*, 5 September 2022 [Commissioning report] (file: D2022 121207 Duck WQ commissioning.pdf).

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- CCP9 – CWT (Clear Water Tank) Free Chlorine – the existing analyser was retained, and the existing sample lines optimised, with a focus on removing flow restrictions, equipment redundancies and the provision of line flushing arrangements.

Completed Inspection and Test Plans for the upgrade works were included in the *Commissioning Report*, thereby providing verification that they had been appropriately completed.

Further recommendations


There are no further recommendations arising in respect of this previous recommendation.

Opportunities for improvement

No opportunities for improvement have been identified in respect of this previous recommendation.

3.2.6 Asset management system (clause 5.1)

3.2.6.1 Previous Recommendation 2021-16

Reference	Requirement	Status
2021-16	<p><i>Asset Management System (sub-clause 5.1.2):</i></p> <p>By 31 August 2022, WaterNSW should deliver the recommendations included in the asset maintenance internal audit report (D2021/117683) dated January 2021.</p>	 Completed

Anticipated completion date

Not applicable – recommendation has been addressed.

Evidence sighted

Refer Appendix C (C.4.6).

Summary of findings/reasons for assessed status

WaterNSW demonstrated that it had implemented the ten (10) agreed actions proposed in response to findings/recommendations identified in the *Internal Audit Report*. These recommendations and actions related primarily to maintenance/work order management.

Evidence that the actions have been implemented included (for example) review of the EAMS (Enterprise Asset Management System) asset hierarchy; review and update of Work Order procedures; taking action to ensure that Work Order status is progressed from “completed” to “closed” in a timely manner; and routine review of performance KPI data at AM&S leadership meetings.

On this basis, this previous recommendation is considered to have been addressed.

Discussion and notes

The *Internal Audit Report*⁴²⁹ referenced in this recommendation identifies ten (10) agreed actions to be implemented in response to findings/recommendations arising from an audit undertaken by an external consultant on behalf of WaterNSW. The audit was focussed on the planning, scheduling and execution of maintenance tasks carried out by the Asset Maintenance and Services (AM&S) team; accordingly, the recommendations and response actions were similarly focussed.

WaterNSW provided an *Action Report* from its RACS (Risk Assurance and Compliance System),⁴³⁰ which detailed the action taken (feedback) in respect of each action together supporting evidence. These responses are as discussed in the following:

- Action 2.1.a (RACS ID 2919) – this required development of a plan to review EAMS (Enterprise Asset Management System) asset hierarchy, validation/update of asset listings, and capture of missing asset data. The asset hierarchy was demonstrated, and previous deficiencies explained. It is noted that EAMS asset hierarchy has been compiled from two separate legacy maintenance management systems, the merging of which has necessitated rationalisation of terminology and other aspects.

⁴²⁹ Aurecon, *WaterNSW; Internal Audit Report; Asset Maintenance (Final)*, January 2021 (file: D2021117683 *Asset maintenance internal audit report*).

⁴³⁰ Document: 2021-16 - D2022 100637 RACS action report - asset maintenance audit.pdf.

WaterNSW has developed a plan to validate the EAMS hierarchy and upload data including missing object and associated data. It further advised that a data capture tool has been developed for field assembly of asset information, which has been used at a number of sites to date.

As an example of the updated hierarchy and to demonstrate that the hierarchy is periodically reviewed, WaterNSW provided:⁴³¹

- Screenshots of the fully expanded EAMS hierarchy of active assets at the Duckmaloi Water Treatment Plant; and
 - A report downloaded from EAMS showing all objects at the Duckmaloi Water Treatment Plant, which identified whether they are “operational” (i.e. remain active for asset management activities) or “disposedrem” (i.e. records remain but the object is inactive for asset management activities).
- Action 2.1.b (RACS ID 2920) – this required testing of the Field Services mobility application to ensure information accessibility. WaterNSW advised that accessibility was assessed during the user acceptance testing of the mobility application; this testing demonstrated that support documents could be accessed provided online connection was available.

It is noted that the Field Service mobility training module includes instruction for downloading of data in preparation for offline use of the mobility application, thereby ensuring that applicable information is accessible when required if online connection is not available.

- Action 2.1.c (RACS ID 2921) – this required undertaking a review of EAMS job type instructions to identify the potential benefit of more site-specific or asset-specific detail. Identified improvement opportunities included potential time savings in the administration of routine work orders that are based on generic rather than site specific checklists; and more effective site-focussed maintenance.

These improvement opportunities are to be realised through the EAMS change request process, under which potential changes are reviewed by the Engineering (Asset Capability) team. Examples of change requests were provided, as follows:

- EAMS change request (Reference: RITM023567)⁴³² – details a proposed change to the maintenance plan and checklist for maintenance activity *EAMS - FCDV - Minor Test - JT00000011*. The change, which related to an unachievable condition under which the test was to be undertaken, was approved.
 - Asset change request (Reference: RITM023567)⁴³³ – details the proposed installation of an actuator to a fine screen winch at Warragamba Dam to eliminate the need for time consuming hand operation. The change was approved.
- Action 2.1.d (RACS ID 2922) – this related to work order time forecasts and capture. WaterNSW noted that:
- For PM (Programmed Maintenance) type work orders, more than 99% have time forecasts generated by the underlying maintenance sequence; no further action has been taken.
 - There has been a significant improvement in that less than 10% of non-PM type work orders are now being scheduled with zero time forecasts. Forecasts are to be set by Maintenance Planners in consultation with Maintenance Team Leaders; the forecast field could be set as mandatory in the planning software to ensure that it is populated.

⁴³¹ Document: *D2022 121256 Duck Asset Hierarchy.pdf*.

⁴³² Document: *D2022 121281 EAMS change request.pdf*.

⁴³³ Document: *D2022 121282 Asset change request.pdf*.

Performance data and guidance in respect of work order planning has been circulated to relevant personnel, as evidenced by email and attachments appended to the *Action Report* (refer email regarding *Scheduled work orders with zero hours forecast*).

- Approximately 20% of completed work orders still have zero actual time posted. Performance data and guidance in respect of entering actuals has been circulated to relevant personnel together with a requirement for all maintenance teams to conduct a mandatory team review of the EAMS instructions for entering actuals in a completed work order; this is also evidenced by email and attachments appended to the *Action Report* (refer email regarding *Completed work orders with zero hours posted*).
 - The issue is compounded by duplicate work orders for the same issue, which need to be actively cancelled or deferred to eliminate false reporting. This issue is being addressed as part of Action 2.2.d.
- Action 2.2.a (RACS ID 2923) – this required a review of Work Order procedures. Copies of all work order related procedures were provided (appended to the *Action Report*). Review of the *Initiate Work Order* (Ref: CD2017/76), *Plan Work Order* (Ref: CD2017/77), *Schedule Work Order* (Ref: CD2017/80) and *Execute Work Order* (Ref: CD2017/75) procedures (for example) found them to be clear and all encompassing.

- Action 2.2.b (RACS ID 2924) – this required documentation of the criteria for reviewing Work Orders prior to changing status from “completed” to “closed”, and to present the requirements to Maintenance Team Leaders.

WaterNSW advised that “*An extensive review of Work Management Procedures has yielded significantly updated requirements for the management of Work Orders as they progress from the completed and deferred stages to closed*”. It further noted that the changes have been encapsulated in the *Execute Work Order* (Ref: CD2017/75) and *Review Work Order Procedure* (Ref: CD2015/468[v6]) procedures, copies of which were provided (appended to the *Action Report*).

- Action 2.2.c (RACS ID 2925) – this required action to ensure that Work Order status is progressed from “completed” to “closed” in a timely manner; there were a significant number of work orders at the “complete” status that had not been closed out for long periods of time. WaterNSW advised that the situation had improved, noting that “*At 03 Feb 2021 there were 4,641 work orders at “complete” status but not yet “closed”. By 12 Mar 2021 that number had reduced to 1,336.*”

Further follow up action was taken in May 2021 with specifically targeted requests issued to responsible team leaders, as evidenced by an email and attachment appended to the *Action Report* (refer email regarding *FOR ACTION PLEASE - WO completion and closure review*).

- Action 2.2.d (RACS ID 2926) – this requires the development of routine reporting in respect of cancelled and deferred Work Orders. WaterNSW advised that problems with the EAMS dataset had to be addressed by the software supplier to facilitate the proposed reporting; this work was completed in November 2021 and new reporting subsequently developed. A new KPI was developed and added to the standard monthly KPI report issued to the AM&S Leadership Team. A sample of dashboard reporting showing the percentage of cancelled and deferred work orders by region and in total for the period May 2021 to April 2022 was provided as evidence.⁴³⁴
- Action 2.3.a (RACS ID 2927) – this required the documentation of training needs in respect of work order related procedures. WaterNSW advised that:
 - training requirements in respect of these procedures have been documented; and

⁴³⁴ Document: D2022 121217 cancelled deferred WO.pdf.

-
- a working group has commenced a review of the AM&S training matrix; the new training requirements are to be incorporated as part of that review.

This was evidenced by an email appended to the *Action Report* (refer email regarding *AM&S training matrix review*). A list detailing available training material (to be reviewed and updated) and target audience by role code for training in respect of each procedure.

Evidence of training undertaken in respect of the Field Services mobility application, which covers all aspects of the work order management process, was provided. This included:

- a training module detailing the setup and use of Field Services mobility application for work order management;⁴³⁵
 - ‘How to Guides’ for the various stages of work order management;⁴³⁶ and
 - training records/register identifying who had completed the training.⁴³⁷
- Action 2.3.b (RACS ID 2928) – this required the routine review of performance KPI data at AM&S leadership meetings. WaterNSW demonstrated that the review of KPI data is now included in the standard meeting agenda (copy appended to the *Action Report*). In practice this involves review of the maintenance KPI report; discussion to highlight aspects that stand out (good or bad) in current performance; discussion about priorities, taking into account current performance; and linking agreed actions to the AM&S action planner.

Further recommendations

There are no further recommendations arising in respect of this previous recommendation.

Opportunities for improvement

No opportunities for improvement have been identified in respect of this previous recommendation.


⁴³⁵ Document: *D2022 122904 Mobility training.pdf* (PowerPoint training presentation).

⁴³⁶ Document: *D2022 122928 Field Services HiG.pdf* (includes a series of ten (10) embedded ‘How to Guides’).


⁴³⁷ Document: *D2022 123109 Mobility user training.pdf* (training register).

3.2.7 Environmental Management System (clause 5.2)

3.2.7.1 Previous Recommendation 2021-17


Reference	Requirement	Status
2021-17	<p><i>Environmental Management System (sub-clause 5.2.1):</i></p> <p>By 31 August 2022, WaterNSW should ensure the fluoridation requirements are included in the Safety and Environment compliance obligations register.</p>	 Completed
<p>Anticipated completion date</p> <p>Not applicable – recommendation has been addressed.</p>		
<p>Evidence sighted</p> <p>Refer Appendix C (C.4.7).</p>		
<p>Summary of findings/reasons for assessed status</p> <p>WaterNSW provided 2021-17 - D2021 28649 <i>Safety and Environment Compliance Obligations Register</i> that includes the <i>Fluoridation of Public Water Supplies Act 1957</i> and <i>Code of Practice for the Fluoridation of Public Water Supplies</i>.</p> <p>Accordingly, this previous recommendation is considered to have been addressed.</p>		
<p>Further recommendations</p> <p>There are no further recommendations arising in respect of this previous recommendation.</p>		
<p>Opportunities for improvement</p> <p>No opportunities for improvement have been identified in respect of this previous recommendation.</p>		

3.2.7.2 Previous Recommendation 2021-18

Reference	Requirement	Status
2021-18	<p><i>Environmental Management System (sub-clause 5.2.2):</i></p> <p>Prior to operation of the fluoride plant at Duckmaloi WTP, WaterNSW must show satisfactory progress and completion of the actions from the Duckmaloi WTP Assurance report (D2020/60963) with regards to fluoridation.</p>	 Completed
<p>Anticipated completion date</p> <p>Not applicable – recommendation has been addressed.</p>		
<p>Evidence sighted</p> <p>Refer Appendix C (C.4.7).</p>		
<p>Summary of findings/reasons for assessed status</p> <p>The Duckmaloi fluoride plant is commissioned and operational but not in service as WaterNSW is waiting on final approval to operate from NSW Health. The actions from D2020/60963 <i>Duckmaloi WTP Assurance report</i> are completed and the RACS Completion report, which included evidence that the actions were completed, was shown during the audit; photographs were attached to the RACS action to confirm this.</p>		
<p>Further recommendations</p> <p>There are no further recommendations arising in respect of this previous recommendation.</p>		
<p>Opportunities for improvement</p> <p>No opportunities for improvement have been identified in respect of this previous recommendation.</p>		

3.2.8 Online portal for lodgement of documents relating to metering equipment (clause 6.18)

3.2.8.1 Previous Recommendation 2021-19

Reference	Requirement	Status
2021-19	<p><i>Online portal for lodgement of documents relating to metering equipment (sub-clause 6.18.3):</i></p> <p>By 31 August 2022, WaterNSW should develop, document and implement a data retention protocol to ensure that certificates, reports and other documents lodged in the portal are protected against loss. The data retention protocol should be developed in consultation with the Department of Planning and Environment and the Natural Resource Access Regulator and be supported by a risk assessment.</p>	 Completed

Anticipated completion date

Not applicable – recommendation has been addressed.

Evidence sighted

Refer Appendix C (C.4.8).

Summary of findings/reasons for assessed status

WaterNSW demonstrated that it has developed a *DQP Document Retention Protocol*, which has been agreed with both the Department of Planning and Environment and the Natural Resource Access Regulator. WaterNSW further demonstrated that development of the *Protocol* was supported by a cyber security review; mitigation measures arising from the review are incorporated into the *Protocol*.

On this basis, this previous recommendation is considered to have been addressed.

Discussion and notes

WaterNSW provided a copy of a *DQP Document Retention Protocol*,⁴³⁸ which describes:

- “... the *DQP data retention protocol to ensure that certificates, reports and other documents lodged in the DQP [Duly Qualified Person] portal are protected against loss and damage (both intentional and unintentional)*”; and
- “... the *adopted database back-up procedures for the DQP database*”.

The *Protocol* was developed in consultation with both the Department of Planning and Environment (DPE) and the Natural Resources Access Regulator (NRAR). In each case an applicable retention schedule for DQP records was agreed, as evidenced by email correspondence.^{439,440}

⁴³⁸ WaterNSW, *DQP Document Retention Protocol and Back-Up Procedures* (ARK Ref: D2022/100059), undated (file: 2021-19 - D2022 100059 *DQP Data Retention Protocol and Back-Up Procedures.docx*).

⁴³⁹ Email correspondence between WaterNSW and DPE with entries dated 5 July 2022, 11 July 2022, 13 July 2022, 18 July 2022, 22 July 2022 and 25 July 2022 (re: *DQP docs and certificates - Document Retention*) (file: 2021-19 - D2022 93861 *Email confirmation from DPE.msg*).

⁴⁴⁰ Email correspondence between WaterNSW and NRAR with entries dated (re: *Email reply to NRAR on DQP docs and certificates - Document Retention*) (file: 2021-19 - D2022 93852 *Email confirmation from NRAR.msg*).

WaterNSW demonstrated that it had engaged an external consultant to undertake a security risk assessment in accordance with an approved *Scope of Requirements*.⁴⁴¹ The report *DQP Portal - Cyber Security Review*⁴⁴² details the approach adopted in undertaking the security review, positive observations, a gap and risk analysis, and risk assessment based on the requirements of the NSW *State Records Act*. A total of seven (7) risks, rated either medium or low were identified; these related to:

- Privileged Access Management;
- Access and Authorisation;
- Encryption configuration;
- Solution documentation; and
- Data backup and replication.

The report *DQP Portal - Risk Assessment*⁴⁴³ details WaterNSW's further assessment and identifies agreed mitigation actions in response to the findings of the external cyber security review, taking into account WaterNSW's risk appetite. This showed that the proposed mitigation measures would reduce residual risk levels to "low" for the identified risks/gaps.

Review of the *DQP Document Retention Protocol* reveals that mitigation measures in respect of (for example) privileged access and data encryption are included.

Further recommendations

There are no further recommendations arising in respect of this previous recommendation.

Opportunities for improvement

No opportunities for improvement have been identified in respect of this previous recommendation.

⁴⁴¹ Document: 2021-19 - D2022 32267 *Approved ATS.docx* (titled: *Duly Qualified Person (DQP) Portal; Scope of Requirements*).

⁴⁴² KPMG, WaterNSW; *DQP Portal – Cyber Security Review* (Final Report) (file: 2021-19 - D2022 100010 *WaterNSW - DQP Portal - Cyber Security Review.ppt*).

⁴⁴³ WaterNSW, *DQP Portal - Risk Assessment*, July-August 2022 (file: 2021-19 -D2022 100012 *DQP Portal - Risk Assessment Treatment Report*).

Appendix A Audit Scope

The audit scope, as defined by IPART, is included in this Appendix.

2022 operational audit scope Water NSW

2022 audit scope

This document sets out the 2022 operational audit scope for Water NSW. Auditors should note any directions in the 'comments for the auditor' column in Table 2.

Audit period

The audit period is 1 September 2021 to 31 August 2022. We expect that audit interviews will be held in September 2022. However, this is subject to change depending on auditor availability.

We note the current WaterNSW Licence will expire on 30 June 2022, we anticipate a new licence will be in place on 1 July 2022. Any changes to the audit scope will be discussed with the appointed auditor.

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 our 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-compliance with licence clauses during the previous financial year. It 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 to be reviewed if necessary.

Interpretation

In the case of any discrepancies between the *Water NSW Operating Licence 2017-2022* (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 Water NSW, we will determine the locations that we will visit in the 2022 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 2022 audit
SC	Audit of this clause not required in the 2022 audit unless the utility's Statement of Compliance identifies a non-compliance, or we become aware of other reasons to audit the clause.
NR	No requirement for audit.

Table 2 2022 Audit scope for Water NSW

Licence clause	Operating Licence obligation	2022 audit requirement	Comments for the auditor
1	Licence Context and authorisation		
1.1	Objectives of this Licence		
1.1.1	<p>This licence aims to:</p> <ul style="list-style-type: none"> a) provide transparent and auditable terms and conditions for Water NSW to lawfully undertake its activities to industry good-practice; b) recognise the interests of stakeholders within its Area of Operations; and c) impose the minimum regulatory burden on Water NSW by avoiding duplication or conflict with other regulatory instruments. <p><i>Note: Consistent with the Act, the purpose of this Licence is to:</i></p> <ul style="list-style-type: none"> a) specify the listed functions and other functions conferred upon Water NSW to which this Licence relates; b) authorise Water NSW to carry out the listed functions specified in this Licence and Conferred Functions; c) specify the areas and circumstances in which Water NSW is authorised to carry out the specified Listed Functions and Conferred Functions; d) set out the terms and conditions which apply to the conduct of the functions authorised by this Licence; e) make provision for the preparation of Operational Audits; 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; 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; 	NR	Objective clause - does not require audit.

Licence clause	Operating Licence obligation	2022 audit requirement	Comments for the auditor
	<p><i>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 Water NSW'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</i></p> <p><i>i) specify other requirements as required and allowed for under the Act</i></p> <p><i>In addition to sections 11 and 12 of the Act which specify matters that must be included in this Licence, sections 7, 15, 16, 21, 25, 31 and 60 of the Act provide for other terms and conditions to be included in the Licence</i></p> <p><i>This Licence does not reproduce Water NSW's statutory obligations in full. Water NSW's licence obligations may be subject to other laws including the Water Management Act 2000 (NSW) and the Water Act 1912 (NSW).]</i></p>		
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"> a) to capture and store water and to release water: <ul style="list-style-type: none"> i) to persons entitled to take the water, including release to regional towns; and ii) for any other lawful purpose, including the release of environmental water; b) to supply water to Sydney Water; c) to supply water to water supply authorities and to local councils or county councils prescribed by the Regulations; d) to supply water to persons referred to in section 7(1)(d) of the Act; 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; f) to construct, maintain and operate Water Management Works (including providing or constructing systems or services for supplying water); g) to protect and enhance the quality and quantity of water in Declared Catchment Areas; 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; i) to undertake research on catchments generally, and in particular on the health of Declared Catchment Areas; and j) to undertake an educative role within the community. 	NR	Licence authorisation clause – does not require audit.

Licence clause	Operating Licence obligation	2022 audit requirement	Comments for the auditor
	<i>[Note: Clause 1.2.1 authorises all of Water NSW's listed functions referred to in section 7(1) of the Act, except for its listed function under section 7(1)(i) of the Act: to undertake flood mitigation and management. As a consequence, Water NSW may undertake flood mitigation and management only if it is authorised to do so under a different operating licence, a provision of the Act other than section 7, or under any other Act or law.]</i>		
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"> a) provide facilities or services that are necessary, ancillary or incidental to its Listed Functions; and b)) conduct any business or activity (whether or not related to its Listed Functions) that it considers will further its objectives. 	NR	Licence 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	Licence 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	Licence authorisation 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	Licence authorisation 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	Licence authorisation 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. <i>[Note: The intention behind clause 1.2.7 is that clauses 2.1.3-2.1.5, 3.1.1, 3.2.1, 4.2.1-4.2.3, 5.1.1, 5.1.2, 5.2.1, 5.2.2, 6.1.1-6.1.3, 6.3.1, 6.3.2, 6.5.1-6.5.5, 6.6.1-6.6.4, 6.8.1-6.8.4, 6.9.1-6.9.4, 6.10.1 and 6.10.2 apply in respect of the Fish River Water Supply Scheme, to the maximum extent permissible by law. See section 293(2) of the Water Management Act 2000 (NSW).]</i>	NR	Information clause – does not require audit.
1.3	Term of this Licence		
1.3.1	The term of this Licence is 5 years from the Commencement Date.	NR	
1.4	Non-exclusive Licence		

Licence clause	Operating Licence obligation	2022 audit requirement	Comments for the auditor				
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					
1.5	Making copies of this Licence available						
1.5.1	Water NSW must make this Licence available free of charge on its website for downloading by any person.	Internal IPART check	Auditor to check for completion of recommendation 2021-01.				
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 2021 to investigate: <ul style="list-style-type: none"> a) whether this Licence is fulfilling its objectives; and b) any issues which have arisen during the term of this Licence, which may affect the effectiveness of this Licence. (End of Term Review)	NR	Information clause – does not require audit.				
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.	Internal IPART check	This clause is not included in the auditor's scope.				
1.7	Notices						
1.7.1	Any notice or other communication given under this Licence must be made in writing addressed to the intended recipient at the address shown below or the last address notified by the recipient. <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>Water NSW</th> <th>IPART</th> </tr> </thead> <tbody> <tr> <td>The Chief Executive Officer Water NSW Level 14, 161-169 Macquarie St Parramatta NSW 2150</td> <td>The Chief Executive Officer Independent Pricing and Regulatory Tribunal of NSW Level 15, 2-24 Rawson Place Sydney NSW 2000</td> </tr> </tbody> </table>	Water NSW	IPART	The Chief Executive Officer Water NSW Level 14, 161-169 Macquarie St Parramatta NSW 2150	The Chief Executive Officer Independent Pricing and Regulatory Tribunal of NSW Level 15, 2-24 Rawson Place Sydney NSW 2000	NR	Information clause – does not require audit.
Water NSW	IPART						
The Chief Executive Officer Water NSW Level 14, 161-169 Macquarie St Parramatta NSW 2150	The Chief Executive Officer Independent Pricing and Regulatory Tribunal of NSW Level 15, 2-24 Rawson Place Sydney NSW 2000						
2	Water Source protection and conservation						
2.1	Water Quality Management System						
2.1.1	Water NSW must maintain a Water Quality Management System in accordance with this clause 2.1.	SC	IPART will contact NSW Health to comment on WaterNSW's performance against this clause. Auditor to check for completion of recommendations: <ul style="list-style-type: none"> • 2021-02 • 2021-03 • 2021-04 • 2021-05 				

Licence clause	Operating Licence obligation	2022 audit requirement	Comments for the auditor
2.12	<p>With respect to Declared Catchment Areas, Water NSW must maintain a Water Quality Management System that is consistent with either:</p> <ul style="list-style-type: none"> a) the Australian Drinking Water Guidelines; or 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 c) any other requirements specified or approved by NSW Health or IPART. <p><i>[Note: It is generally expected that for the Declared Catchment Areas Water NSW will develop a Water Quality Management System consistent with the Australian Drinking Water Guidelines. However, where NSW Health considers appropriate, the application of those Guidelines may be amended or added to, to take account of Water NSW's circumstances and/or policy and practices within New South Wales regarding Drinking Water quality.</i></p> <p><i>It is generally expected that Water NSW will manage the Declared Catchment Areas and the associated Catchment Infrastructure Works in light of its knowledge of the whole system for the Supply of Drinking Water (including the Bulk Water Supply System associated with Declared Catchment Areas together with each system for treating, storing and supplying Drinking Water of each Customer to whom Water NSW Supplies water which is sourced from Declared Catchment Areas). That is, Water NSW should have adequate systems and processes in place to manage Bulk Water quality to its water Supply Customers, taking into account the implementation of planning and risk management across the whole Drinking Water Supply system.]</i></p>	Audit	<p>This clause was audited every year of the licence and received the following compliance grades: 2018 NC – M 2019 Compliant 2020 Compliant 2021 Comp - MS</p> <p>This audit should include elements 1-12</p> <p>IPART will contact NSW Health to comment on WaterNSW's performance against this clause.</p> <p>Auditor to check for completion of recommendations:</p> <ul style="list-style-type: none"> • 2021–02 • 2021–03 • 2021–04 • 2021–05
2.13	<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> <ul style="list-style-type: none"> a) in the case of water with the final end use as Drinking Water: <ul style="list-style-type: none"> i) a relevant quality assurance program under section 25 of the Public Health Act 2010 (NSW); ii) the Australian Drinking Water Guidelines; or iii) any other requirements as specified or approved by NSW Health or IPART, 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 2.13(a): <ul style="list-style-type: none"> i) the Australian Guidelines for Water Recycling; or ii) any other requirements as specified or approved by NSW Health or IPART. <p><i>[Note: It is generally expected that Water NSW will manage the water under its control in light of its knowledge of the downstream water supply system, including that of its Customers. Therefore the Water Quality Management System should be developed in consultation with the relevant Customers to whom it Supplies water.]</i></p>	Audit	<p>This clause was audited every year of the licence and received the following compliance grades: 2018 NC – M 2019 Comp – MS 2020 NC- M 2021 NC-NM</p> <p>This audit should include elements 1-12</p> <p>IPART will contact NSW Health to comment on WaterNSW's performance against this clause.</p> <p>Auditor to check for completion of recommendations:</p> <ul style="list-style-type: none"> • 2020–02 • 2021–05

Licence clause	Operating Licence obligation	2022 audit requirement	Comments for the auditor
			<ul style="list-style-type: none"> 2021-06 2021-07 2021-08
2.14	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	<p>This clause was audited every year of the licence and received the following compliance grades:</p> <p>2018 Comp - MS 2019 Comp - MS 2020 NC- M 2021 NC-NM</p> <p>This audit should include elements 1-12</p> <p>IPART will contact NSW Health to comment on WaterNSW's performance against this clause.</p> <p>Auditor to check for completion of recommendations:</p> <ul style="list-style-type: none"> 2021-02 2021-09 2021-10 2021-11
2.15	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	IPART will contact NSW Health to comment on WaterNSW's performance against this clause.
2.2	Catchment management		
2.21	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		
2.31	Water NSW must: <ul style="list-style-type: none"> a) reasonably cooperate with the Appointed Auditor; b) publish information collected by Water NSW on water quality relevant to Declared Catchment Areas in accordance with the Reporting Manual; 	SC	

Licence clause	Operating Licence obligation	2022 audit requirement	Comments for the auditor
	<p><i>[Note: For the avoidance of doubt, the above reference to information collected in accordance with the Reporting Manual is a reference to Water NSW's obligations in respect of the IPART water quality H1 and H2 indicators and water quality monitoring reports in the Reporting Manual]</i></p> <p>c) provide data in relation to the Catchment Health Indicators to the Appointed Auditor, in accordance with the Reporting Manual;</p> <p>d) monitor, record and compile data on the Environmental Indicators relevant to Declared Catchment Areas; and</p> <p>report on the Environmental Indicators in accordance with the Reporting Manual.</p>		
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.	SC	
2.4.2	Water NSW must, in accordance with the Reporting Manual make the Design Criteria available to the public free of charge on its website for downloading by any person.	SC	
2.5	Calculating System Yield		
2.5.1	<p>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:</p> <p>a) the conclusion of any drought event affecting the Declared Catchment Area;</p> <p>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;</p> <p>c) any material change to the operating rules of the Catchment Infrastructure Works in respect of the Declared Catchment Area; or</p> <p>d) any material change to the Design Criteria in respect of the Declared Catchment Area.</p>	SC	
2.5.2	<p>In accordance with the Reporting Manual, Water NSW must advise the Minister:</p> <p>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</p> <p>b) if Water NSW considers that future demand for Bulk Water may exceed the System Yield and when this exceedance might occur.</p>	SC	
2.5.3	As soon as practicable after advising the Minister of any changes to the System Yield under clause 2.5.2, Water NSW must, in accordance with the Reporting Manual, make details of those changes and the reasons for those changes available free of charge on its website for downloading by any person.	SC	
2.6	Reviewing the model for the System Yield		

Licence clause	Operating Licence obligation	2022 audit requirement	Comments for the auditor
2.6.1	By the first quarter of 2021, Water NSW must engage a suitably qualified independent expert to: <ul style="list-style-type: none"> a) review its modelling and procedures for calculating the System Yield to ensure that it reflects good industry practice; b) test the robustness of the modelling, the key assumptions used in the modelling, and the process for calculating the System Yield, including the appropriate frequency of yield re-calculation and the appropriateness of the trigger events in clause 2.5.1; and c) advise Water NSW on whether it should re-calculate the System Yield based on the findings of the test conducted under clause 2.6.1(b). 	NR	Auditor to check for progress against recommendation 2021-12.
2.6.2	Water NSW must consult with: <ul style="list-style-type: none"> a) Customers who are Supplied water from the Declared Catchment Area, including Sydney Water; b) stakeholders and regulators as agreed with, or directed by, IPART; and c) any other persons that Water NSW reasonably expects to have an interest in the review of the modelling under clause 2.6.1. d) regarding the review of the modelling under clause 2.6.1 and provide the results of the consultation to the suitably qualified independent expert. 	NR	Auditor to check for progress against recommendation 2021-13.
2.6.3	The review of the model for the System Yield must be completed by 30 June 2021 and reported to IPART in accordance with the Reporting Manual.	NR	Auditor to check for progress against recommendation 2021-14.
2.7	Water conservation		
2.7.1	By 1 November 2018, or by a later date as approved by IPART, Water NSW must submit to IPART, a report outlining Water NSW's water conservation strategy in relation to its operations under this Licence (Water Conservation Strategy).	NR	Fixed deadline requirement (only required to be audited in year of deadline).
2.7.2	The Water Conservation Strategy must include: <ul style="list-style-type: none"> a) identification and documentation of existing water conservation activities; b) a process for identifying additional options for conserving water; c) a process for comparing these options; and d) a process for selecting options for implementation. 	NR	Information clause – does not require audit.
2.7.3	By 1 September 2019, or by a later date as approved by IPART, Water NSW must develop and submit to IPART a water conservation work program using the process set out in the Water Conservation Strategy	NR	Fixed deadline requirement (only required to be audited in year of deadline).
2.8	Research on catchments		
2.8.1	Water NSW must maintain a program of research for each Declared Catchment Area which: <ul style="list-style-type: none"> a) relates to catchments within that Declared Catchment Area generally and in particular their health; b) is consistent with its objectives under section 6 of the Act; and c) assists Water NSW to discharge its functions under sections 7(1)(g) and 7(1)(h) of the Act. 	Audit	We audited this clause in 2020 WaterNSW received a compliant grade at that audit. We audited this clause in 2018, WaterNSW received a compliant – MS grade at the audit.

Licence clause	Operating Licence obligation	2022 audit requirement	Comments for the auditor
2.8.2	Water NSW must report on its research programs referred to in clause 2.8.1 in accordance with the Reporting Manual.	SC	
3	Bulk Water storage and transmission		
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.	SC	
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.	Audit	This clause was audited in 2018 and 2020 and received a Compliant – MS grade for the clause and in 2021 received a compliant grade for this clause. Auditor to check for completion of recommendation 2020-09.
3.3	CSR Water		
3.3.1	For CSR Water, Water NSW must take all reasonable steps to: a) process all Water Orders promptly and efficiently; and b) manage Water Orders to ensure water is Delivered to its Customers in a timely manner.	SC	
3.4	Bulk Water released to Local Water Utilities for Drinking Water purposes		
3.4.1	Water NSW must maintain a register of all Local Water Utilities: a) for which Water NSW maintains a Water Allocation Account; and b) to which Water NSW releases water that will be used for the purposes of Drinking Water (Local Water Utility Customers), (LWU Register).	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	Auditor to check for completion of recommendation 2021-15.
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: a) describe how a Local Water Utility is to request information;	SC	

Licence clause	Operating Licence obligation	2022 audit requirement	Comments for the auditor
	<p>b) describe how Water NSW will respond to the request in a timely manner; and</p> <p>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.</p>		
3.4.5	Water NSW must make details of the LWU Information Request Procedure available free of charge on its website for downloading by any person.	SC	
3.4.6	By 31 December 2018, Water NSW must, in consultation with NSW Health, the Local Water Utility Customers on the LWU Register and its customer advisory groups established under clause 6.5, complete a review of its water quality monitoring, of water released by Water NSW to Local Water Utilities.	NR	Fixed deadline requirement (only required to be audited in year of deadline).
3.4.7	<p>By 30 June 2019, Water NSW must provide IPART with a report detailing the outcomes of the review referred to in clause 3.4.6. The report should describe measures that were identified and the timing by which they could be implemented. Any barriers to immediate implementation of identified measures, including limitations to funding, should be outlined in the report.</p> <p><i>[Note: The purpose of clause 3.4 is to ensure that there are mechanisms in place for Water NSW to share information which it currently has, or is best placed to collect with interested Local Water Utilities, where that information could usefully inform a Local Water Utility's Drinking Water quality assurance program.]</i></p>	NR	Fixed deadline requirement (only required to be audited in year of deadline).
4	Performance Standards		
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 2.1.2 or 2.1.3 (Supply Water Quality Performance Standard).	Audit	Auditor to check for completion of recommendation 2020-09.
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 - 4.3.7 apply to Water NSW with respect to CSR Water.	NR	Information clause – does not require audit.
4.3.2	<p>CSR Water Delivery Performance Standard A</p> <p>Water NSW must ensure that:</p> <p>a) 99% of Customers who place a Non-complying Water Order are contacted within one working day to rectify that order; and</p> <p>b) this is calculated as a percentage of all Non-complying Water Orders placed in the financial year.</p>	SC	

Licence clause	Operating Licence obligation	2022 audit requirement	Comments for the auditor
4.3.3	<p>CSR Water Delivery Performance Standard B</p> <p>Water NSW must ensure that:</p> <p>a) 99% of Water Orders are Delivered within one day of the scheduled day of Delivery; and</p> <p>b) this is calculated as a percentage of all complying Water Orders placed in the financial year.</p> <p><i>[Note: The scheduled day of Delivery takes into account the period of required notice specified in Water Management Work approvals, licences, or entitlements. This is measured by Complaints and/or if Water NSW identifies a Delivery delay, e.g. through its staff, systems or otherwise identifies or becomes aware of a Delivery delay.]</i></p>	SC	
4.3.4	<p>CSR Water Service Interruptions Performance Standard</p> <p>Water NSW must ensure that:</p> <p>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</p> <p>b) this is calculated as a percentage of all Water Orders rescheduled in the financial year due to an expected shortage or Delivery delay.</p>	SC	
4.3.5	<p>CSR Water Account Processing Performance Standard A</p> <p>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.</p>	SC	
4.3.6	<p>CSR Water Account Processing Performance Standard B</p> <p>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.</p>	SC	
4.3.7	<p>CSR Water Account Processing Performance Standard C</p> <p>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.</p>	SC	
5	Organisational systems management		
5.1	Asset Management System		
5.1.1	Water NSW 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 on request by Water NSW (the Asset Management System).	SC	
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.	SC	Auditor to check for completion of recommendation 2021–16.
5.2	Environmental Management System		

Licence clause	Operating Licence obligation	2022 audit requirement	Comments for the auditor
5.2.1	Water NSW must at all times maintain an Environmental Management System for carrying out the functions authorised under this Licence 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 (the Environmental Management System).	Audit	This clause was audited in 2019 and received a Compliant grade and in 2021 and received a Compliant – MS grade for this clause. Auditor to check for completion of recommendation 2021–17.
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	This clause was audited in 2019 and received a Compliant grade and in 2021 and received a Compliant – MS grade for this clause. Auditor to check for progress against recommendation 2021–18.
6	Customer and stakeholder relations		
6.1			
6.1.1	Water NSW must establish and maintain agreements with each of its Customers to whom it Supplies water (except Sydney Water), which agreements must set out the terms and conditions for the Supply of water (Customer Supply Agreements). <i>[Note: Under section 25 of the Act, Water NSW is required to enter into arrangements with Sydney Water regarding the Supply of water by Water NSW to Sydney Water. Therefore, this Licence does not regulate the Supply arrangements with Sydney Water under section 25 of the Act.]</i>	SC	
6.1.2	Water NSW must only Supply water to these Customers in accordance with the terms and conditions of these Customer Supply Agreements.	SC	
6.1.3	The terms and conditions of the Customer Supply Agreements must, at a minimum, include provisions addressing: a) the standard of water quality Supplied by Water NSW; b) the continuity of the water Supplied by Water NSW (that is, provisions relating to interruptions, disconnections and reconnections to Supply); c) any metering arrangements; d) the fees and charges to be paid by the Customers for the Supply of water to them; e) dispute resolution and Complaints handling procedures; and	SC	

Licence clause	Operating Licence obligation	2022 audit requirement	Comments for the auditor
	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.		
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. <i>[Note: In accordance with section 31(1) of the Act and clause 1.2.5 of this Licence, Water NSW is authorised to operate, replace, repair, maintain, remove, connect, disconnect or modify Metering Equipment that Water NSW does not own. Water NSW must only exercise this authority in accordance with this condition.]</i>	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		
6.5.1	Water NSW must establish and maintain area-based advisory groups representing a broad cross-section of its Customers for those areas (Customer Advisory Group).	SC	
6.5.2	Water NSW must regularly consult with the area-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 area and include at least one Customer representing each of the following categories (where there are Customers in this category for the area associated with the Customer Advisory Group): a) stock and domestic water users;	SC	

Licence clause	Operating Licence obligation	2022 audit requirement	Comments for the auditor
	<ul style="list-style-type: none"> b) Regulated River water users; c) Unregulated River water users; d) groundwater users; e) environmental water users; f) industrial and commercial water users; g) Local Water Utilities; h) Major Utilities; i) small water users based on their Water Licence volume; j) medium water users based on their Water Licence volume; k) large water users based on their Water Licence volume; and l) Aboriginal cultural heritage water users. 		
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		
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	<p>The Customer Advisory Group Charter must address all of the following issues:</p> <ul style="list-style-type: none"> a) the role of the Customer Advisory Group; b) how members and the chair of the Customer Advisory Group will be appointed; c) the term for which members are appointed; d) information on how the Customer Advisory Group will operate; e) a description of the type of matters that will be referred to the Customer Advisory Group and how those matters will be referred; f) procedures for communicating the outcomes of the Customer Advisory Groups' work to the public; g) procedures for monitoring issues raised at meetings of the Customer Advisory Groups and ensuring appropriate follow-up of those issues; h) procedures for amending the charter; and i) funding and resourcing of the Customer Advisory Groups by Water NSW. 	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	
6.6.4	Water NSW must make the Customer Advisory Group Charter available free of charge on its website for downloading by any person.	Internal IPART check	This clause is not included in the auditor's scope.
6.7	Customer Service Charter		

Licence clause	Operating Licence obligation	2022 audit requirement	Comments for the auditor
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 2000 (NSW), the Water Act 1912 (NSW) and any other applicable law.	SC	
6.7.3	Water NSW must make the Customer Service Charter available free of charge on its website for downloading by any person.	SC	
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"> 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; 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); 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 d) include procedures for self-identification, identification by community welfare organisations and identification by Water NSW of Customers experiencing financial hardship. 	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. <i>[Note: This requirement does not apply to any arrangements with Sydney Water under section 25 of the Act.]</i>	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"> a) to Customers, except Sydney Water, at least once annually with their Bills; and 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 	SC	

Licence clause	Operating Licence obligation	2022 audit requirement	Comments for the auditor
	c) on its website for downloading by any person.		
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 (AS/NZS 10002:2014) or other standard approved by IPART on request by Water NSW (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	
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 to any person, free of charge, on its website for downloading.	SC	
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	Water NSW must: <ul style="list-style-type: none"> 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; 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 c) make the information prepared under clause 6.10.2(a) available to any person, free of charge, on its website for downloading. 	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 Act, and report on its 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	

Licence clause	Operating Licence obligation	2022 audit requirement	Comments for the auditor
6.12.2	Where the Minister administering the WIC Act has established a code of conduct under clause 25 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: a) maintain a memorandum of understanding with the Secretary of the Ministry of Health entered into under section 21(1) of the Act; and b) comply with the memorandum of understanding maintained under clause 6.13.1(a). <i>[Note: Clause 6.13.1 does not limit the persons with whom Water NSW may enter into a memorandum of understanding.]</i>	SC	IPART will contact NSW Health to comment on WaterNSW's performance against this clause.
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. <i>[Note: Clause 6.13.2 does not limit the matters which may be included in the memorandum of understanding with NSW Health.]</i>	SC	IPART will contact NSW Health to comment on WaterNSW's performance against this clause.
6.13.4	Water NSW must publish on its website for downloading by any person, the memorandum of understanding maintained with NSW Health under clause 6.13.1(a).	SC	
6.14	Memorandum of Understanding with Environment Protection Authority		
6.14.1	Water NSW must: a) maintain the memorandum of understanding with the Environment Protection Authority entered into under section 21(1) of the Act; and b) comply with the memorandum of understanding maintained under clause 6.14.1(a). <i>[Note: Clause 6.14.1 does not limit the persons with whom Water NSW may enter into a memorandum of understanding.]</i>	SC	IPART 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 6.14.2 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. <i>[Note: Clause 6.14.2 does not limit the matters which may be included in the memorandum of understanding with the Environmental Protection Agency.]</i>	NR	Information clause – does not require audit.

Licence clause	Operating Licence obligation	2022 audit requirement	Comments for the auditor
6.14.3	Water NSW must publish on its website, for downloading by any person, the memorandum of understanding maintained with the Environmental Protection Authority under clause 6.14.1(a).	Internal IPART check	This clause is not included in the auditor's scope.
6.15	Memorandum of Understanding with Department of Planning and Environment		
6.15.1	Water NSW must: a) use its best endeavours to establish and maintain a memorandum of understanding with the Department of Planning and Environment; and b) comply with the memorandum of understanding maintained under clause 6.15.1(a). <i>[Note: Clause 6.15.1 does not limit the persons with whom Water NSW may enter into a memorandum of understanding.]</i>	SC	IPART will contact Department of Planning and Environment to comment on WaterNSW's performance against this clause.
6.15.2	The purpose of the memorandum of understanding referred to in clause 6.15.1 is to form the basis for a cooperative relationship between the parties to the memorandum regarding the role of Water NSW for the review and implementation of the Metropolitan Water Plan. <i>[Note: Clause 6.15.2 does not limit the matters which may be included in the memorandum of understanding with the Department of Planning and Environment.]</i>	NR	Information clause – does not require audit.
6.16	Roles and Responsibilities with Department of Industry		
6.16.1	Water NSW must: a) agree in writing with the Department of Industry the roles and responsibilities regarding the conduct of Conferred Functions specified in Schedule A of this Licence; and b) comply with the agreement established under clause 6.16.1(a). <i>[Note: Clause 6.16.1 does not limit the persons with whom Water NSW may enter into an agreement or the matters which may be contained in the agreement.]</i>	SC	IPART will contact Department of Planning and Environment to comment on WaterNSW's performance against this clause.
6.16.2	By 30 June 2018, Water NSW must publish on its website, for downloading by any person, a statement setting out the roles and responsibilities required under clause 6.16.1(a). <i>[Note: The statement may also include roles and responsibilities agreed with the Water Administration Ministerial Corporation or any other relevant Government departments or agencies.]</i>	SC	
6.17	Memorandum of Understanding with Natural Resources Access Regulator		
6.17.1	Water NSW must: a) use its best endeavours to establish and maintain a memorandum of understanding with the Natural Resources Access Regulator; and b) comply with the memorandum of understanding maintained under clause 6.17.1(a). <i>[Note: Clause 6.17.1 does not limit the persons with whom Water NSW may enter into a memorandum of understanding.]</i>	SC	IPART will contact NRAR to comment on WaterNSW's performance against this clause.

Licence clause	Operating Licence obligation	2022 audit requirement	Comments for the auditor
6.17.2	The purpose of the memorandum of understanding referred to in clause 6.17.1 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. <i>[Note: Clause 6.17.2 does not limit the matters which may be included in the memorandum of understanding with the Natural Resources Access Regulator.]</i>	NR	Information clause – does not require audit.
6.18	Online portal for lodgement of documents relating to metering equipment		
6.18.1	Water NSW must develop, operate and maintain an on-line portal to allow for the electronic lodgement of the following: a) a certificate provided under clause 237(1) or (2) of the Water Management (General) Regulation 2018, as required by clause 238(2) of that Regulation, b) a report by a person who intends to rely on clause 8 of Schedule 8 of the Water Management (General) Regulation 2018 setting out the steps taken in relation to the metering equipment, as required by clause 8(3) of that Regulation, c) written certification as to the matter set out in clause 9(2)(b) of Schedule 8 of the Water Management (General) Regulation 2018, d) a report from a person who intends to rely on clause 9 of Schedule 8 of the Water Management (General) Regulation 2018, setting out the steps taken in relation to the metering equipment, as required by clause 9(5) of that Regulation.	SC	
6.18.2	The portal must be operational by 1 December 2020.	NR	Fixed deadline requirement (only required to be audited in year of deadline).
6.18.3	Water NSW must ensure that certificates, reports and other documents lodged in the portal are retained.	SC	Auditor to check for progress against recommendation 2021–19.
6.18.4	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 (General) Regulation 2018 and "duly qualified person" has the same meaning as in the Water Management Act 2000.	SC	
6.18.5	Water NSW must provide DPIE and NRAR with access to the portal, all data held in the portal and any systems related to the portal.	SC	
6.19	Downloading of data from certain metering equipment		
6.19.1	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 (General) Regulation 2018.	NR	Information clause – does not require audit.
6.19.2	Water NSW must, at least once a year, download all data from the metering equipment to which this clause applies.	Audit	This clause was added to the licence in 2020. This is the first audit of this clause.

Licence clause	Operating Licence obligation	2022 audit requirement	Comments for the auditor
6.19.3	All such data must be entered into and retained in Water NSW's data systems.	SC	
6.19.4	Prior to 1 December 2021, Water NSW, DPIE and NRAR are to agree on protocols for requests for data to which this clause applies.	Audit	This clause was added to the licence in 2020. This is the first audit of this clause.
6.19.4	All such data must be made available to DPIE and NRAR on request, provided such requests are made in accordance with the protocols agreed between Water NSW, DPIE and NRAR.	Audit	This clause was added to the licence in 2020. This is the first audit of this clause.
6.19.5	The obligations imposed by this clause take effect from 1 December 2021.	NR	Information clause – does not require audit.
6.20	Data sharing and services agreement with DPIE and NRAR – NSW non-urban water metering framework		
6.20.1	Water NSW must use its best endeavours to develop and enter into a data sharing and services agreement with DPIE and NRAR as soon as practicable after 1 July 2020 or by a date approved by the Minister in writing (the Metering Data Sharing and Services Agreement). If such an agreement has been entered into before 1 July 2020, this subclause does not apply. <i>[Note: The Metering Data Sharing and Services Agreement is in addition to the MWP Data Sharing Agreement described in clause 2.9.6.]</i>	SC	IPART will contact Department of Planning and Environment and NRAR to comment on WaterNSW's performance against the clauses in this part of the licence.
6.20.2	The Metering Data Sharing and Services Agreement is 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 DPIE and to the NRAR.	SC	
6.20.3	Once Water NSW has entered into the Metering Data Sharing and Services Agreement, Water NSW must: a) provide access to the data and services under that Agreement to DPIE and NRAR, in accordance with that Agreement, and b) comply with any cure plan that applies to Water NSW under that Agreement.	SC	
6.20.4	If by 1 July 2020, Water NSW, DPIE and NRAR have entered into an agreement as required by this clause, clause 6.20.3 applies to that agreement.	NR	Fixed deadline requirement (only required to be audited in year of deadline).
7	Performance monitoring and reporting		
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: a) this Licence; b) the Reporting Manual; or c) any other matters required by the Minister. (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	This clause is not included in the auditor's scope.

Licence clause	Operating Licence obligation	2022 audit requirement	Comments for the auditor
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	This clause is not included in the auditor's scope.
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"> a) access any Works, premises or offices occupied by Water NSW; b) carry out inspections, measurements and tests on, or in relation to, any such Works, premises or offices; 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; 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 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. <i>[Note: Water NSW is required under section 60 of the Act to pay to the Treasurer the cost (as certified by IPART) involved in and in connection with carrying out the Operational Audit of Water NSW.]</i>	Internal IPART check	This clause is not included in the auditor's scope.
7.2	Reporting in accordance with this Licence and the Reporting Manual		
7.2.1	Water NSW must comply with its reporting obligations set out in this Licence and in the Reporting Manual, including in relation to: <ul style="list-style-type: none"> a) water source protection and conservation; b) Bulk Water storage and transmission; c) Performance Standards; d) organisational systems management; e) Customer and stakeholder relations; and f) performance monitoring and reporting including: <ul style="list-style-type: none"> i) IPART performance indicators; and ii) the National Water Initiative Performance Indicators. 	IPART check	Auditor to check for completion of recommendation 2021-01.
7.2.2	Water NSW must maintain sufficient record systems that enable it to report accurately in accordance with clause 7.2.1.	SC	
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. <i>[Note: The Reporting Manual identifies the details of when, what, to whom and how Water NSW must report to IPART and NSW Health. The Reporting Manual also specifies what and how reports and other information must be made publicly available.]</i>	NR	Information clause – does not require audit.
7.3	Provision of information to IPART and Auditor		

Licence clause	Operating Licence obligation	2022 audit requirement	Comments for the 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	This clause is not included in the auditor's scope.
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	This clause is not included in the auditor's scope.
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	This clause is not included in the auditor's scope.
7.3.4	Where this Licence requires Water NSW to provide information to IPART or an Auditor that is information to which: a) section 24FF of the IPART Act applies; or 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.	Internal IPART check	This clause is not included in the auditor's scope.

Source: IPART, Water NSW Operational Audit 2021 - Report to the Minister – Compliance Report, March 2022.

Table 3 Recommendations / outstanding items from previous audits

Recommendation number	Operational issue (licence reference where applicable)	IPART's recommendation to the Minister	Audit findings (Water NSW will provide a status update in the status against audit recommendations report on 6 June 2022 ^a)	Guidance for 2022 audit
2020-02	Water Quality Management System (clause 2.1.3)	By 31 July 2021, review and, where appropriate, amend the Fish River Water Supply Scheme Drinking Water Quality Management System against each of the 12 elements, 32 components and 76 actions of the Framework for Management of Drinking Water Quality. WaterNSW should document reviews and internal audits in the updated system at intervals appropriate to ensure effective implementation of the system. WaterNSW should review and update supporting documentation for currency, including: - Fish River Water Supply System operations and maintenance manual - Operating Protocols for Fish River Water Supply (CD2017/173) - Fish River Water Supply Scheme Incident Management Plan (D2018/116921).	At the 2021 audit, the auditor found that WaterNSW had partially completed the requirements of this recommendation. However, the auditor noted that the finalisation of the Fish River Water Supply System operations and maintenance manual including the supporting SOPs and maintenance requirements was outstanding.	Auditor to check for completion.
2020-09	Clauses 4.2.2 and 3.2.1	By 30 June 2021, WaterNSW should review the appropriateness of CCP analysers at Duckmaloi Water Treatment Plant to ensure that they provide a reliable measurement of turbidity and chlorine residual.	WaterNSW had not closed out this recommendation in the 2021 audit period. The work to resolve this recommendation was delayed by the COVID-19 travel restrictions imposed on the Greater Sydney and Hunter Valley local government areas.	Auditor to check for completion.
2021-01	15.1	By 30 June 2022, WaterNSW must establish processes to ensure that documents to be made publicly on the website are current, uploaded in a timely manner and, where relevant, meet the date requirements in the Reporting Manual.	New recommendation from the 2021 audit.	Auditor to check for completion.
2021-02	2.11 2.12 2.14	By 31 August 2022, WaterNSW should review the process for updating the water quality contact list (including the version attached to the WQ Incident Response Protocols) to ensure that the list is current, this should include all stakeholders, not just those relevant to the JOG.	New recommendation from the 2021 audit.	Auditor to check for completion.

Recommendation number	Operational issue (licence reference where applicable)	IPART's recommendation to the Minister	Audit findings (Water NSW will provide a status update in the status against audit recommendations report on 6 June 2022^a)	Guidance for 2022 audit
2021-03	2.11 2.12	By 31 August 2022, WaterNSW should document the process and responsibility for scheduling major WQMS risk reviews.	New recommendation from the 2021 audit.	Auditor to check for completion.
2021-04	2.11 2.12	By 31 August 2022, WaterNSW should finalise the Operation & Maintenance manuals for the dams in the Declared Catchment.	New recommendation from the 2021 audit.	Auditor to check for completion.
2021-05	2.11 2.12 2.13	By 31 August 2022, WaterNSW should ensure that the WaterNSW Incident Management Procedure (CD2017/180) has been updated and implemented.	New recommendation from the 2021 audit.	Auditor to check for completion.
2021-06	2.13	By 31 August 2022, WaterNSW should update the Water Quality Data Review and Reporting Procedure to explicitly cover the Fish River Supply reporting requirements	New recommendation from the 2021 audit.	Auditor to check for completion.
2021-07	2.13	By 31 August 2022, WaterNSW should document the process to revalidate treatment process when a change condition occurs, including defining triggers for when this would occur.	New recommendation from the 2021 audit.	Auditor to check for completion.
2021-08	2.13	By 31 August 2022, WaterNSW should document the requirement for chlorine analyser reagent levels for the chlorine analyser to be included in operational checks at Duckmaloi WTP.	New recommendation from the 2021 audit.	Auditor to check for completion.
2021-09	2.14	By 31 August 2022, WaterNSW should develop processes to ensure that regulatory requirements associated with new or emerging obligations, are identified and documented within the compliance system.	New recommendation from the 2021 audit.	Auditor to check for completion.
2021-10	2.14	By 30 June 2022, WaterNSW should develop and implement a process (e.g. audit) to ensure that work orders for calibration of critical limit analysers are undertaken	New recommendation from the 2021 audit.	Auditor to check for completion.
2021-11	2.14	By 30 June 2022, WaterNSW should review monitoring processes to ensure mandatory water quality awareness training is undertaken.	New recommendation from the 2021 audit.	Auditor to check for completion.

Recommendation number	Operational issue (licence reference where applicable)	IPART's recommendation to the Minister	Audit findings (Water NSW will provide a status update in the status against audit recommendations report on 6 June 2022^a)	Guidance for 2022 audit
2021-12	2.6.1	By 30 September 2022, WaterNSW should conduct a lessons learned review for the system yield review project. The review should consider why consultants were not engaged in a timely manner. The outcomes of the lessons learned review should be documented and used to inform the approach for obtaining future reviews of System Yield.	New recommendation from the 2021 audit.	Auditor to check for progress.
2021-13	2.6.2	By 30 September 2022, WaterNSW should undertake a stakeholder identification and engagement review to: a) identify stakeholders (to include broadly customers, stakeholders, regulators and interested parties) b) the appropriate level of engagement for each stakeholder for i) updating System Yield ii) use of System Yield c) identify engagement strategies for the stakeholders for updating and using System Yield.	New recommendation from the 2021 audit.	Auditor to check for progress.
2021-14	2.6.3	By 30 September 2022, WaterNSW should conduct a lessons learned review for the System Yield review project to identify: • What led to delays in meeting milestones and providing deliverables on time. • How to ensure that key deliverables include all the requirements of the project. The outcomes of the lessons learned review should be documented and used to inform the approach for obtaining and reporting on future reviews of System Yield. (We note that this review may be conducted in parallel with that for Recommendation 2020-12).	New recommendation from the 2021 audit.	Auditor to check for progress.
2021-15	3.4.2	By 31 August 2022, WaterNSW should review processes for maintaining registers (maintained in excel) to ensure accuracy of contacts in the Local Water Utilities Contact Details spreadsheet (DOC13 29697).	New recommendation from the 2021 audit.	Auditor to check for completion.
2021-16	5.1.2	By 31 August 2022, WaterNSW should deliver the recommendations included in the asset maintenance internal audit report (D2021/117683) dated January 2021.	New recommendation from the 2021 audit.	Auditor to check for completion.
2021-17	5.2.1	By 31 August 2022, WaterNSW should ensure the fluoridation requirements are included in the Safety and Environment compliance obligations register.	New recommendation from the 2021 audit.	Auditor to check for completion.

Recommendation number	Operational issue (licence reference where applicable)	IPART's recommendation to the Minister	Audit findings (Water NSW will provide a status update in the status against audit recommendations report on 6 June 2022 ^a)	Guidance for 2022 audit
2021-18	5.2.2	Prior to operation of the fluoride plant at Duckmaloi WTP, WaterNSW must show satisfactory progress and completion of the actions from the Duckmaloi WTP Assurance report (D2020/60963) with regards to fluoridation.	New recommendation from the 2021 audit.	Auditor to check for progress/completion.
2021-19	6.18.3	By 31 August 2022, WaterNSW should develop, document and implement a data retention protocol to ensure that certificates, reports and other documents lodged in the portal are protected against loss. The data retention protocol should be developed in consultation with the Department of Planning and Environment and the Natural Resource Access Regulator and be supported by a risk assessment.	New recommendation from the 2021 audit.	Auditor to check for completion.

a Water NSW is required to provide a report on progress by 31 March 2021 or a later date agreed by IPART. Due to the timing of the 2021 audit, the Tribunal has agreed to a later date of 6 June 2022 for Water NSW to report on its progress with the audit recommendations

Note: Licence references are to the Water NSW's Operating Licence 2017-2022 unless otherwise stated.

Source: IPART, Water NSW Operational Audit 2021 – Report to the Minister, March 2022.

Table 4 Previous field verification locations for Water NSW

Audit year	Location	Facility
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 ^a	Warragamba Dam	Warragamba Dam and W5 fire trail to the north of the dam
	Duckmaloi	Water treatment plant
2019 ^b	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
Water NSW (State Water Corporation) Operating Licence 2013-2018		
2017	Griffith - Murrumbidgee, Beavers Creek, Tombullen Creek	Weirs, Outlet
2016	Burrinjuck Dam	Infrastructure
2015	Fish River	Water Supply
2014	Warren	Marebone Weir fishway
	Dubbo	Burrindong Dam floating curtain
Previous Licence		
2013	Dubbo	Burrindong 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)
2013	Broughton's Pass to Prospect Reservoir	Upper Canal
	Prospect Reservoir	Prospect Reservoir

a. In 2020, audit interviews were conducted remotely using online video conferencing, and site visits were made to 2 facilities.

b. 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.

Appendix B Field Verification Report

B.1 Overview

As part of this audit, field verification site visits to a number of sites/facilities were planned to verify how effectively WaterNSW is implementing the requirements of the *Operating Licence* in practice. These visits were to involve inspection of activities being undertaken within the declared catchments and discussions with field personnel.

As indicated in **Section 1.2.3**, due to the closure of catchments following heavy rainfall, the proposed site visits were replaced by a briefing session/presentation provided at WaterNSW's Parramatta offices. For the purposes of reporting, the briefing session is documented as a series of site visits addressing the following:

- Swamp monitoring (research) being undertaken in the Avon catchment;
- Fire management activities including
 - Fire trail maintenance;
 - Mechanical fuel reduction/vegetation control; and
 - a Hazard Reduction Burn undertaken in the Cataract catchment;
- Nepean Dam;
 - Water quality monitoring; and
 - Destratification system; and
- Oberon water quality monitoring.

A summary of the information presented is set in the following sections.

B.2 Avon Catchment – Swamp Monitoring (Research)⁴⁴⁴

B.2.1 Overview

WaterNSW has been undertaking research monitoring of upland swamps in the Avon catchment. Upland swamps are 'Temperate Highland Peat Swamps on Sandstone' (THPSS), which consist of both temporary and permanent swamps developed in peat overlying Triassic Sandstone formations at high elevations, generally between 400 and 1200 metres above sea level. These swamps are endangered ecological communities that are threatened by habitat destruction and modification of groundwater and hydrology.

Upland swamps are important from a catchment management perspective as they filter and store (through their "sponge-like" characteristics) catchment flows, thereby enhancing water quality and providing storm mitigation by preventing or reducing runoff. These benefits are being impacted by mining operations within the catchment; research is being undertaken to assess the extent of these impacts.

⁴⁴⁴ Document: 2022 OL Audit - Swamp Monitoring – AD.ppt (PowerPoint presentation: *Operational Audit 2021-2022; Site Visit – Cordeaux, Avon and Nepean*, Alec Davie – Water Quality Scientist, 12 October 2022).

B.2.2 Mining Impact

Long wall mining activity extends to areas below the mapped swamps and has been associated with water losses and significant impacts to ecological communities by changing the hydraulic regime.

WaterNSW noted that maintaining the integrity of bedrock underlying upland swamps is critical to their development and persistence, and further noted that mining-induced surface cracking in upland swamps can be severe and can lead to:

- a reduction in groundwater levels or desaturation of sediments;
- transition to a drier vegetation type;
- desaturation of soil particles exposing the swamp to peat desiccation;
- exposure to greater bushfire intensity due to loss of inundation and moisture; and
- increased scour and erosion events.

An inquiry completed in 2008 noted that “... *it would appear that there is a distinct possibility that undermining of valley infill swamps has or will cause drainage, water table drop and consequent degradation to swamp water quality and associated vegetation. Further research is required before a definitive conclusion can be reached*”.⁴⁴⁵ WaterNSW has subsequently advocated for enhanced recognition and protection of swamps in the Declared Catchment and has highlighted the need for improved monitoring and research, to which it has contributed.

B.2.3 Monitoring Activities

WaterNSW provided an overview of swamp monitoring activities that it has been undertaking, noting that monitoring has taken place at several swamps over the past 30-40 years; however, there is not a lot of pre-mining data.

Recent monitoring work has been focussed on:

- installing piezometers to measure water levels in swamps;
- soil moisture levels;
- rainfall;
- evaporation; and
- discharge or flow across a v-notch weir at end of the swamps.

Photographs illustrating these monitoring installations were presented, together with evidence of observed change in (for example) flow rates at swamp discharge points.

Current monitoring and research are being undertaken in conjunction with the University of NSW’s Water Research Laboratory. New monitoring equipment has been installed in three swamps: Swamp 7, Swamp 14 and Leech Swamp, the objective of which is to “... *quantify the water balance within the sediments of at least one upland swamp before and after mining, to provide an accurate and credible estimate of mining-induced water losses*”. Monitoring observations showing apparent mining impact in each of these areas was presented.

⁴⁴⁵ NSW Government, *Impacts of Underground Coal Mining on Natural Features in the Southern Coalfield*, July 2008.

Key findings of WaterNSW's research, which is currently being finalised (final report being prepared), were summarised as follows:

- *There is now data to support the WaterNSW claims over the past several years that mining is having an adverse impact on swamps.*
- *There is data which indicates hydrological remediation of swamps is unlikely to be successful.*
- *These claims are supported by the findings of the IEPMC.⁴⁴⁶*
- *WaterNSW will continue to monitor and conduct research in the upland swamps of Special Areas.⁴⁴⁷*

B.3 Fire Management⁴⁴⁷

B.3.1 Overview

WaterNSW undertakes fire management activities within the declared catchments, and specifically within the Special Areas. The Special Areas are large areas of mostly unspoilt bushland surrounding the reservoirs that provide drinking water for Sydney, the Blue Mountains and the Illawarra. Special Areas are vital to the protection of Sydney's drinking water because they help filter out unsafe nutrients and other substances before the water reaches the reservoirs. The Special Areas are divided into Schedule 1 areas, to which no access is allowed, and Schedule 2 areas, to which access is limited.

WaterNSW has fire management obligations under the *Rural Fires Act*, which requires land managers to:

- prevent the occurrence of bush fire;
- minimise the danger of a bush fire spreading from the land; and
- undertake prevention works in line with BFMC (Bush Fire Management Committee) risk management plans.

Fire management is also a key land management activity in ensuring source water protection for water quality and ecological integrity of the catchment.

Fire management activities undertaken by WaterNSW are guided by:

- *Source Water Protection Strategy*, which sets out a 20-year plan for management of the declared catchments. Fulfilling land management responsibilities is one of the six key priorities over the 20-year period ending 2040.
- *Bushfire Management Framework*, which details key strategies for bushfire management over the 5-year period 2022-2027. This identifies the key assets at risk of fire (built, ecological and cultural); fire mitigation actions, including fuel reduction through mechanical and prescribed burning activities; and fire suppression actions. Annual hazard reduction activities are derived from these 5-year strategies.
- *Annual Catchment Protection Work Program*, which comprises a series of *Fire Management Plans* addressing each phase of the fire management process. Nine (9) separate plans cover the whole of the Declared Catchments.

⁴⁴⁶ Independent Expert Panel for Mining in the Catchment.

⁴⁴⁷ Document: *OL Audit 2022 Presentation Fire Trail maintenance.ppt* (PowerPoint presentation: *Fire Management; Operational Audit – 2022*, Lead presenter: Mary Knowles and Alan Benson).

Fire management activities undertaken by WaterNSW in accordance with these strategic plans and frameworks include:

- Prescribed burning (hazard reduction burns);
- Fire trails maintenance;
- Mechanical fuel reduction; and
- Early detection and suppression.

These activities are described in more detail in the following.

B.3.2 Hazard Reduction Burn – Cataract Catchment

As noted above, prescribed burning/hazard reduction burns are one of the fire management activities undertaken by WaterNSW. These are undertaken in conjunction with other agencies, with which the timing of burns is negotiated. WaterNSW noted that the windows of time during which burns can be undertaken are becoming very tight.

Factors impacting management decisions in respect of hazard reduction burns include (for example) state of the vegetation, ecological impacts (plants need fire to reproduce), ground slopes, and proximity to assets. The aim of hazard reduction burns is to reduce the fuel load to protect assets (dam, recreational area assets, etc.) and the quality of water in the lake.

Hazard reduction burns are undertaken in defined fire management blocks; WaterNSW's catchments are very well set up in this respect. As an example, WaterNSW described (with the aid of photographic records) a hazard reduction burn undertaken in part of Block Ca25 in the Cataract Catchment during the audit period; only part of the block was burnt on this occasion due to its waterfront position and concerns about the impact of runoff on water quality.

The burn was undertaken over two days:

- Day 1 – control lines along a fire trail, survey track and the spillway edge were lit using drip torches. These control lines are aimed at reducing fuel around the perimeter of the burn area, thereby containing the fire. The fire is allowed to cool before proceeding to the second phase on Day 2.

The aim is to have a cold burn, which is more natural. Hot/cold burning is managed by the manner in which the fire is lit, and by time/heat of the day.

- Day 2 – involves burning of infill areas, which are ignited using aerial deployed incendiaries. These are typically dropped along ridge lines, following which the fire is allowed to run (trickle) down the slope; this results in the fire burning cooler.

WaterNSW noted that during this phase, it did not actively introduce fire along the waterfront, which would have resulted in the fire running up hill (and burning hotter). Provision is also made for animal welfare and refuge.

WaterNSW also explained that, in undertaking this burn, it had trialled the use of a drone which enabled better placement of incendiaries. The drone also has thermal imaging capability; examples of imagery showing fire spread from incendiary placement were presented. The trial was considered successful, resulting in more accurate placement of incendiaries at less cost than using helicopters; however, there were limitations associated with operational distance and the impact of wind.

Hazard reduction burns are delivered through a combination of internal (WaterNSW) and contracted Rural Fire Service (RFS) teams, and the engagement of RFS volunteers and Fire and Rescue NSW.

B.3.3 Fire Trail Maintenance

WaterNSW manages approximately 500 kilometres of fire trails within the Special Areas. During the audit period, 236 kilometres of trail were inspected and maintenance of 36.8 kilometres of trail completed.

Fire trail inspection is undertaken cyclically, either annually or every three years, based on importance of the trail. Inspections are managed through WaterNSW's EAMS (Enterprise Asset Management System).

Trail maintenance involves grading and compaction to provide the correct camber to the road formation, thereby ensuring that all water is shed formation and the trails remain navigable. The completion of maintenance work has been hampered by wet weather, which has resulted in repairs having to be undertaken within short windows to ensure that soil moisture limits are suitable for grading and compaction.

WaterNSW noted that there are regulations in respect of trail formation and maintenance under the *Rural Fires Act*, with which it must comply. It further noted that some trails have additional roles, such as providing access to monitoring equipment, which also necessitates that they are well maintained.

WaterNSW provided a series of before and after photographs, which demonstrated fore trail maintenance activities that had been undertaken during the audit period. These included:

- Repair of scouring (which often occurs along wheel tracks) and the reinstatement of road surface drainage.
- Repair of drainage culverts.
- Covering of exposed bedrock with road material (crushed rock or gravel) and re-establishment of effective drainage.
- Removal of asbestos pipe culverts.
- Repair of erosion at creek/waterway crossings.
- Grading and compaction of road formations.

WaterNSW noted that creek/waterway crossing present some challenges. For example, fish passage requirements impact repair plans which must be adapted to ensure that these obligations are met. Due to their impact under flood conditions, removable guard railing is now being installed on some culvert crossing; these are removed in the event of impending rainfall, thereby eliminating these flow impediments and their impact.

WaterNSW also note that, as part of its trail management activities, it implements active measures to prevent unauthorised access (which is an issue in some locations). This includes the use of security cameras, active surveillance (patrolling), and barrier systems.

B.3.4 Mechanical Fuel Reduction/Vegetation Control

Vegetation control involves trimming of vegetation to maintain the edges of fire breaks; slashing of grass along land boundaries and key access roads; and trimming of vegetation to ensure that minor trails remain accessible.

Overhanging trees are trimmed to clear lines to ensure that fire breaks are maintained; before and after photographs demonstrated the improvement realised by undertaking this work.

Photographs of minor trail overgrowth demonstrated potential restriction to access of typical maintenance vehicles, let alone fire fighting equipment. WaterNSW noted that access is now required for larger appliances involved in hazard reduction burns, wildfire backburning and mop up activities.

Vegetation control works completed during the audit period included inspection of 414 kilometres of fire trails, slashing along 205 kilometres of access roads and boundaries, and tree maintenance along 30 kilometres of trails.

Wet weather has had an impact in recent years due to vegetation regrowth/encroachment; it has also hampered access to undertake maintenance work. Growth rates have resulted in grass slashing of key areas being increased from once per year to two-three times per year. As a result, there is a constant need to re-prioritise activities (and funding) to ensure that obligations are met in view of the prevailing conditions.

WaterNSW noted that maintenance of access roads designed as 'RFS Strategic Roads' must be completed as required; it cannot be deferred.

B.4 Nepean Dam/Lake Nepean Water Quality Management

B.4.1 Overview

Nepean Dam is located approximately 100 kilometres south of Sydney. The lake has a storage capacity of approximately 81,400 megalitres (ML), drawing water from a catchment area of approximately 320 square kilometres (km²). The maximum depth of storage at full supply is approximately 69 metres.

Water from Lake Nepean is supplied to Sydney Water for treatment at its Nepean Water Filtration Plant (WFP) in accordance with the *Raw Water Supply Agreement*. Any water quality issues are managed in accordance with the *Water Quality Incident Response Protocol*.

B.4.2 Water Quality Monitoring

Water quality monitoring is undertaken at catchment streams, within the lake, and on the raw water supply to the Nepean WFP. Monitoring includes both grab sample analysis and in-situ instruments.

Vertical Profiling Systems (VPS) are installed both at the dam wall and upstream in the lake at Long Creek. These VPS installations measure temperature, conductivity, turbidity, dissolved oxygen, and pH; monitoring of dissolved organic matter (fDOM, i.e. fluorescent Dissolved Organic Matter) has recently been added.

Following a review of monitoring, the following changes have been implemented:

- an additional monitoring site (E603) at Little Burke River has been added;
- fDOM sensors have been added to the vertical profilers (as noted above); and
- UV absorbance at all depths, total coliforms, and a conditional trigger for algal toxins, etc. have been added.

High organics levels have been causing issues for treatment processes at the Nepean WFP. In response, WaterNSW has undertaken a research project to better understand the presence of Natural Organic Matter (NOM) in the catchment and storage. Extensive datasets have been collected, including from 20 sampling locations within the Nepean catchment, and fDOM probes temporarily installed in the catchment from 2019 to 2021.

The final report on the NOM study revealed that:

- NOM (DOC, i.e. Dissolved Organic Carbon, and TOC, i.e. Total Organic Carbon) was shown to be statistically increasing.
- Intensive rainfall events, which increase soil interflow, disproportionately increase carbon flux, thereby driving a regime shift.
- Fractions remain proportionally the same in lakes.
- Correction algorithms to account for pH, temperature, turbidity and inner-filter effects have been identified.

B.4.3 Destratification System

Lake Nepean is fitted with a bubble plume destratification system. The aeration system is typically operated during the summer, but also during times of significant rainwater intrusion.

The destratification system is operated in accordance with the *Operate Destratification Systems Procedure* (not sighted). The operational protocol with Sydney Water is based on a preference for the lake to remain destratified; the timing of aeration is determined through interaction with Sydney Water.

In response to operational issues, a health check was undertaken in respect of the destratification system, with the result that a new compressor unit was installed during the audit period. The new unit is a modern technology unit of higher efficiency; the system is fitted with in-line filters and has the capability to be connected via the SCADA system to enable real-time monitoring of operation and performance.

B.5 Oberon Water Quality Monitoring⁴⁴⁸

Information in respect of enhancements to water quality monitoring associated with the supply of water to Oberon Shire Council was requested to support assessment of the implementation of water quality monitoring practices. It was understood that some monitoring enhancements had been implemented during the audit period.

⁴⁴⁸ Document: *OPERAT~3.ppt* (PowerPoint presentation: *Clauses 2.1.102.1.4; Water Quality Management System; Operational Audit – 2022*, Lead presenter: Louise Parsons), slides 30-32.

Oberon Shire Council is supplied with raw water sourced from Oberon Dam, via the Fish River Water Supply Scheme. Water is chlorinated prior to supply, but not otherwise treated by WaterNSW. Raw water is treated by Oberon Council using a conventional microfiltration process prior to supply to consumers.

The Oberon Dam catchment is approximately 143 square kilometres (km²); land use within the catchment is primarily grazing, state forest, and rural and low density residential. The dam has a maximum height of 35 metres and storage capacity of the lake is approximately 45,000 megalitres (ML).

A risk assessment is being undertaken to review land use and the use of pesticides within the catchment. Risk assessments are undertaken in conjunction with relevant stakeholders; emerging hazards are also discussed with customers and NSW Health at quarterly JOG (Joint Operations Group) meetings.

Water quality monitoring comprises monthly monitoring in the lake (sample point DOBR01) and at the Oberon Pumping Station (point of discharge to Oberon Council) (DOBR06). A full suite of water quality parameters is monitored;⁴⁴⁹ *Cryptosporidium* and *Giardia* at Oberon have recently been added to increase understanding of pathogen risk. Specific additional parameters are also monitored quarterly or annually; additional monitoring may also be undertaken for pesticides and synthetic organics in response to trigger events such as wet weather or the identification of an algal bloom.

Water quality enhancements have included:

- The *Water Quality Data Review and Reporting Procedure*⁴⁵⁰ has been updated to include the Oberon Dam/Fish River Water Supply Scheme.
- The intake tower has offtakes at nine (9) levels which enables selective extraction of water based on CCP parameters changes. A Vertical Profiling System (VPS) provides continuous reporting via the SCARMS (WaterNSW's Reservoir Management System) of water quality parameters in the lake, including temperature, conductivity, turbidity, dissolved oxygen, and pH. WaterNSW noted that there is minimal change to the offtake levels due to generally uniform temperatures throughout the storage; the windy location promotes natural 'turnover' of the lake.
- Pre-chlorination at the dam outlet decreases the level of algae, metals and organics in the raw water supplied to Oberon Council.

⁴⁴⁹ A detailed listing of parameters is provided in the notes to the presentation⁴⁴⁸ (slide 31).

⁴⁵⁰ WaterNSW, *Water Quality Data Review and Reporting Procedure* (CD2016/130[v6]), undated (file: 2021-06 - CD2012 130 v7 WQ Data Review and Reporting Procedure.docx).

Appendix C List of Evidence

C.1 Introduction

A list of the evidence sighted in undertaking the audit is presented in this Appendix.

Evidence initially provided is as referenced in WaterNSW's response to the *Audit Questionnaire* (filename: *2022 WaterNSW Operational Audit - Questionnaire - FINAL 060922.pdf*). This evidence is listed by document title and/or filename for each audited clause in the following sections.

Evidence provided:

- subsequent to the audit interviews, which is as referenced in the document *2022 Operational Audit - Interview evidence request management sheet* (filename: *WaterNSW Additional Evidence Log - October 2022.pdf*); and
- in response to the *Summary of Audit Findings Report*, which is referenced in the document *Summary Response* (filename: *Summary response.pdf*);

is also listed in the following sections but is not specifically identified.

C.2 Audit Inception Meeting

Presentation not provided as evidence.

C.3 Detailed Audit Findings

C.3.1 Water Quality Management System (clause 2.1)

- Document: *OPERAT~3.ppt* (PowerPoint presentation: *Clauses 2.1.102.1.4; Water Quality Management System; Operational Audit – 2022*, Lead presenter: Louise Parsons).

Sub-clause 2.1.2:

- CD2001/113 Cataract Dam Operations and Maintenance Manual Version 3 9/06/2022.
- CD2001/116 Nepean Dam Operations and Maintenance Manual Version 2 29/10/2021.
- CD2001/122 Avon Dam Operations and Maintenance Manual Version 2 29/10/2021.
- CD2004/183 Water Quality Incident Response Protocol Version 4 Jun-21.
- CD2007/13 Feedback Compliments and Complaints Handling Procedure Version 6 Jul-21.
- CD2007/2 Raw Water Supply Protocols Version 3 5/05/2017.
- CD2011/179 Water Monitoring Program Version 7 Aug-21.
- CD2012/130 Water Quality Data Analysis and Reporting Procedure Version 7 Jul-22.
- CD2013/26 Legal and Other Requirements Register Version 2 9/08/2022.
- CD2014/5 Water Quality Policy Version 6 24/11/2021.
- CD2015/281 Customer Advisory Groups Charter Version 5.
- CD2019/123 Controlled Documents Framework Version 2 Jun-21.
- CD2019/36 Procedure for Materials and Chemicals in contact with Drinking Water Supplies Version 4 Oct-21.
- CD2021/119 Update Operations and Maintenance Manuals Version 2 Feb-22.
- CD2021/121 Compliance Management Procedure Nov-21.

- CD2021/128 Critical and Operational Control Points for Greater Sydney Water Supply System Jan-22.
- CD2021/92 Conduct Catchment-to-Customer (C2C) Risk Assessment Aug-21.
- CD2022 70 Asset Class Strategy Cranes and Lifting Assets Version 0 2022.
- CD2022/72 Incident Management Procedure Jun-22.
- D2013/101721 Executed Raw Water Supply Agreement 24/10/2013.
- D2013/94543 WaterNSW Water Quality Contact Directory May-22.
- D2017/50060 Water Quality Management System Annual Review and continual improvement cycle.
- D2017/58449 Water Quality Awareness eLearning Module.
- D2017/87415 Water Quality Management System Audit Program.
- D2018/77988 Water Quality Incident Response - Training Package.
- D2018/78477 Community and Stakeholder Engagement Plan - Long Form.
- D2019 27969 WaterNSW Declared Catchment Induction NA.
- D2019/26923 Joint Communication Responsibilities Mar-19.
- D2019/29701 Community and Stakeholder Engagement Plan - Short Form.
- D2019/37750 Recruitment Process Flowchart For Hiring Leaders 3/08/2020.
- D2019/37752 Contractor Engagement Flowchart For Leaders 16/02/2021.
- D2019/48488 Materials and Chemicals in contact with Drinking Water.
- D2019/53719 WQ Improvement Plan 2019.
- D2020/39211 Checklist of Matters to be Considered for Inclusion in the Catchment Protection Work Program FY21 in accordance with CD2019/30 (Prepare Catchment Protection Work Program Procedure) and CD2019/171 (Catchment Protection Work Plan Initiative Template) 2020.
- D2021/103279 How to Guide -Supply Schematics 2021.
- D2021/106423 Screen print - WaterNSW SpendWise eProcurement Portal - procurement risk questionnaire.
- D2021/107801 Hydrometric Program 2021.
- D2021/109453 Wingecarribee Reservoir Water Quality Review 2021.
- D2021/110919 Warragamba Geosmin Incident Monitoring Oct 2021 Version 18 14/02/2022.
- D2021/115777 Water Quality, Health and Catchment Protection Board Committee Work Plan 2022 2021.
- D2021/121483 Version 2 of C2C Working Group Minutes 27 Sept Version 2 21/10/2021.
- D2021/124453 Annual Water Quality Research & Development Update 7/12/2021.
- D2021/130449 2021 Memorandum of Understanding WaterNSW and NSW Health 24/12/2021.
- D2021/130651 Special Request for Field Services/Analysis Version 2 4/05/2022.
- D2021/131949 Catchment Outlook Report Version 1 28/09/2022.
- D2021/22294 Raw Water Supply Agreement Version 1 23/09/2020.
- D2021/25494 Catchment Protection Work Program 2022.

- D2021/63819 2021-2025 Science Program 18/11/2020.
- D2021/64991 Annual Water Quality Monitoring Report 2021.
- D2021/78515 Warragamba to Prospect Supply Schematic Version 1.4 23/02/2021.
- D2021/78516 Blue Mountains Supply Schematic Version 1.4 23/02/2021.
- D2021/78517 Shoalhaven Water Supply Schematic Version 1.4 20/07/2021.
- D2021/78518 Upper Nepean Supply Schematic Version 1.4 20/07/2021.
- D2021/78521 Woronora Supply Schematic Version 1.4 23/02/2021.
- D2021/84624 Annual Catchment Management Report 7/10/2021.
- D2021/86608 Annual Water Quality Monitoring Report 2020-21 Appendices 2021.
- D2021/89407 Funding and Performance Agreement 9/08/2021.
- D2022 61325 Greater Sydney C2C Risk Register 30/06/2022.
- D2022/100040 Back to Basics - Cascade Aug-22.
- D2022/100081 Water Quality Awareness.
- D2022/100211 Screenshot from JOG presentation Item 3.2 May 2022 JOG meeting May-22.
- D2022/100306 WQ Mandatory Training Export from MyLearning 5/08/2022.
- D2022/100327 Catchment to Customer Drinking Water Issues Register 22/11/2021.
- D2022/100356 Screenshot of exception report in PowerBI Water Quality Database (all sites, last month) 23/08/2022.
- D2022/100491 WaterNSW review schedule 2023/24-2025/26 FY 2022.
- D2022/100511 RE: RESULTS & EDD for ALS Workorder : ES2211624 | Your Reference: MN214392 SR F2022/1617 6/04/2022.
- D2022/100512 IMT - Rain Blast - Lake Cordeaux/Lake Avon update 21/07/2022 21/07/2022.
- D2022/100520 RE: [External] Content Manager Document : D2022/84364 : NOCTSO - Nepean Dam Screen Change 16 August 2022 10/08/2022.
- D2022/100563 Screenshot from Continuous Improvement page on The Source showing live controlled documents dashboard Aug-22.
- D2022/100563 Screenshot from Continuous Improvement page on The Source showing live controlled documents dashboard Aug-22.
- D2022/100606 NOCTSO - Switch on Nepean Dam Destratification 21/03/2022.
- D2022/100607 Nepean aeration - mixing calculations 21/03/2022.
- D2022/105411 Screenshot of Modelpedia WQMS content relating to validation of processes 2022.
- D2022/105437 Proposed Water Quality, Health and Catchment Protection Board Committee meetings 2022 2022.
- D2022/105455 RE: July Comms Kit 2/08/2022.
- D2022/106011 Prospect/ Orchard Hills Supply Risk Assessment 27/07/2022.
- D2022/106016 RE: GMC Operating Protocols (Draft) 2 11 2021 29/11/2021.
- D2022/106017 FW: Record Number: D2019/104035 - ARK Notification - Action Attached: For Action 12/05/2022.

- D2022/119835 Mandatory Training by Role - Export from MyLearning Version NA.
- D2022/1278 Upper Canal Geosmin Investigation Jan 2022 17/02/2022.
- D2022/15144 Special Request for Field Services/Analysis Version 9 4/04/2022.
- D2022/32234 Spreadsheet lists the triggers for Reportable to Health exception 20/07/2022.
- D2022/35731 Resolving spatial and temporal NOM characteristics 9/05/2022.
- D2022/49314 Annual System Health Check – Water Quality Management 2/06/2022.
- D2022/50095 Lake Nepean Water Quality Report 30/04/2022.
- D2022/53104 Lake Cataract Water Quality Report 31/05/2022.
- D2022/57548 Extract from CEO Blog Monday 20 June 2022 20/06/2022.
- D2022/58684 Lake Avon Water Quality Report 22/06/2022.
- D2022/60350 Source Water Protection Strategy 2022.
- D2022/60824 Water Quality Awareness Training Compliance Assessment 2022.
- D2022/66958 RAIN BLAST Cryptosporidium Catchment Assessment - 10 July 2022 10/07/2022.
- D2022/74445 Compliance Management - Legal & Other Requirements Register Update 26/05/2022.
- D2022/74622 Recreational access policy implementation working group meeting - minutes 25/07/2022.
- D2022/75895 Water Quality Management System Trend Analysis 1/09/2022.
- D2022/81721 Special Request for Field Services/Analysis 4/08/2022.
- D2022/84364 Notification of Change to System Operation - Raw Water Nepean Dam 9/08/2022.
- D2022/84572 Annual Report to IPART on the Water Quality Management System 1/09/2022.
- D2022/84819 Technology trial: the use of chl-a and phycocyanin sensors in Lake Burragorang Version Final 2022.
- D2022/84925 Science Program Quarterly Progress report July 2022 Jul-22.
- D2022/94123 Terms of Reference for Public Health Strategic Liaison Group and Joint Operational Group Version 5 15/06/2022.
- D2022/94168 Strategic Liaison Group 15 June 2022– Agenda item 5.1 15/06/2022.

Sub-clause 2.1.3:

- CD2004/183 Water Quality Incident Response Protocol Version 4 Jun-21.
- CD2011/179 Water Monitoring Program Version 7 Aug-21.
- CD2012/130 Water Quality Data Analysis and Reporting Procedure Version 7 Jul-22.
- CD2013/26 Legal and Other Requirements Register Version 2 9/08/2022.
- CD2014/5 Water Quality Policy Version 6 24/11/2021.
- CD2015/281 Customer Advisory Groups Charter Version 5 2.1.2.
- CD2015/38 Hypochlorite Purchasing Procedure for Drinking Water Supply Chlorination Facilities Version 3 Aug-21.
- CD2017/173 Operating Protocols for the Fish River Water Supply Version 2 Jun-21.
- CD2019/123 Controlled Documents Framework Version 2 Jun-21.

- CD2019/36 Procedure for Materials and Chemicals in contact with Drinking Water Supplies Version 4 Oct-21.
- CD2021/107 Duckmaloi Water Treatment Plant Operations and Maintenance Manual Version 2 29/07/2022.
- CD2021/114 Rydal Dam Operations and Maintenance Manual 25/10/2021.
- CD2021/127 Critical and Operational Control Points for Fish River Water Supply System 2021.
- CD2021/151 Oberon Dam Operations and Maintenance Manual 31/10/2021.
- CD2021/83 Fish River Incident Management Plan Jun-21.
- D2013/94543 WaterNSW Water Quality Contact Directory May-22.
- D2017/50060 Water Quality Management System Annual Review and continual improvement cycle.
- D2017/58449 Water Quality Awareness eLearning Module.
- D2017/87415 Water Quality Management System Audit Program 2017.
- D2018/77988 Water Quality Incident Response - Training Package.
- D2018/78477 Community and Stakeholder Engagement Plan - Long Form.
- D2019/27969 WaterNSW Declared Catchment Induction.
- D2019/29701 Community and Stakeholder Engagement Plan - Short Form.
- D2019/37750 Recruitment Process Flowchart For Hiring Leaders 3/08/2020.
- D2019/37752 Contractor Engagement Flowchart For Leaders 16/02/2021.
- D2019/48488 Materials and Chemicals in contact with Drinking Water 2019.
- D2019/53719 WQ Improvement Plan 2019.
- D2021/106240 LMS Report - Water Treatment Operator - Learning Report.
- D2021/106294 Screen print - WaterNSW SpendWise eProcurement Portal - procurement risk questionnaire.
- D2021/106376 Operation and Maintenance Manual - Wallerawang Re-Chlorination 2021.
- D2021/121651 Duckmaloi Water Filtration Plant - Chlorine Control Validation Report Nov-21.
- D2021/122020 JOG Meeting NSW Health, WNSW, LCC and Oberon Council - minutes 11/11/2021.
- D2021/126673 Special Request for Field Services/Analysis Version 8 21/01/2022.
- D2021/130449 Memorandum of Understanding 24/12/2021.
- D2021/52068 Fish River Supply and Duckmaloi Water Filtration Plant Schematic Version 2.28 23/09/2021.
- D2021/52068 Fish River Supply and Duckmaloi Water Filtration Plant Schematic Version 2.28 23/09/2021.
- D2021/89413 Fish River System C2C Risk Assessment Workshop - minutes 31/05/2021.
- D2022/100026 Land Uses: Oberon and Duckmaloi catchments 2022.
- D2022/100040 Questions for Cascade – About Water Quality. August 2022. Aug-22.
- D2022/100081 Water Quality Awareness.
- D2022/1001 Fish River Annual Drinking Water Report Health Check 22/12/2021.

- D2022/100233 FW: FR THM mitigation - C2C risk assessment & minutes 22/08/2022.
- D2022/100244 Duckmaloi WFP – Site visit photos Jul-22.
- D2022/100306 WQ Mandatory Training Report MyLearning 5/08/2022.
- D2022/100349 Operational audit questions 23/08/2022.
- D2022/100356 Screenshot of exception report in PowerBI Water Quality Database (all sites, last month) 23/08/2022.
- D2022/100405 Duckmaloi Water Treatment Plant - Daily Data 23/08/2022.
- D2022/100434 Delivery Docket Oberon Duckmaloi 19th July 2022 19/07/2022.
- D2022/100491 WaterNSW C2C Review Schedule 2023/24-2025/26 FY 2022.
- D2022/100501 RE: NSW Health feedback 18/08/2021.
- D2022/100563 Screenshot from Continuous Improvement page on The Source showing live controlled documents dashboard Aug-22.
- D2022/100597 Pre-Health discussion 22/12/2021.
- D2022/100598 Screenshot of content in Modelpedia Water Quality Management System – content specifically relevant to the Fish River System is annotated with an orange circle 2022.
- D2022/100621 FW: EXCEEDANCE NOTIFICATION for ALS Workorder: ES2124555 | Your Reference: Exceedance reporting 24/08/2022.
- D2022/100623 JOG Meeting NSW Health, WNSW, LCC and Oberon Council - minutes 17/08/2022.
- D2022/101536 Tax Invoice 11/02/2022.
- D2022/101607 Chlorinator - Minor Inspection.
- D2022/101759 Duckmaloi WTP work orders 01-09-21 to 31-08-22 31/08/2022.
- D2022/105174 Situation Report (SITREP) – Fish River Water Supply Incident March/April 2022 Version 16 27/07/2022.
- D2022/105193 Situation Report (SITREP) – Fish River Water Supply Incident Mar 2022 Version 7 9/03/2022.
- D2022/105411 Screenshot of Modelpedia WQMS content relating to validation of processes 2022.
- D2022/105437 Proposed Water Quality, Health and Catchment Protection Board Committee meetings 2022 2022.
- D2022/105455 RE: July Comms Kit 2/08/2022.
- D2022/105991 Nov 2021 - Fish River good practice guide - site visit elements Dec-21.
- D2022/106015 FW: Lithgow City Council - Amendment to the Supply Agreement 18/10/2021.
- D2022/106896 Fish River Water Supply Scheme 2022.
- D2022/110932 Fish River Water Supply 2022.
- D2022/15742 Proposed CWT Aeration - Minutes and amended Risk Register 7/03/2022.
- D2022/23684 Fish River C2C Risk Register 2022.
- D2022/23684 C2C 5-year Review – Lithgow Oberon 2022 – updated after 2nd aerator risk review 2022.
- D2022/23686 Fish River System C2C Risk Assessment Workshop - minutes 17/03/2022.
- D2022/49314 Annual System Health Check – Water Quality Management 2/06/2022.

- D2022/54856 JOG Meeting NSW Health, WNSW, LCC and Oberon Council - minutes 11/05/2022.
- D2022/60824 Water Quality Awareness Training Compliance Assessment 2022.
- D2022/71031 Fish River Drinking Water Quality Report 19/07/2022.
- D2022/74717 Lake Oberon and Duckmaloi Weir Water Quality Report 25/07/2022.
- D2022/75895 Water Quality Management System Trend Analysis 1/09/2022.
- D2022/84572 Annual Report to IPART on the Water Quality Management System 1/09/2022.
- D2022/9609 Fish River Drinking Water Quality Report 10/02/2022.
- DOC12/32669 Agreement Concerning the Supply of Water from the Fish River Water Supply - Oberon Council.
- D2022/94123 Terms of Reference for Public Health Strategic Liaison Group and Joint Operational Group Version 5 15-Jun-22.
- WaterNSW Response to Summary of Grades Report Nov-22.

Sub-clause 2.1.4:

- CD2001/113 Cataract Dam Operations and Maintenance Manual Version 3 9/06/2022.
- CD2001/116 Nepean Dam Operations and Maintenance Manual Version 2 29/10/2021.
- CD2001/122 Avon Dam Operations and Maintenance Manual Version 2 29/10/2021.
- CD2004/183 Water Quality Incident Response Protocol Version 4 Jun-21.
- CD2007/13 Feedback Compliments and Complaints Handling Procedure Version 6 Jul-21.
- CD2011/179 Water Monitoring Program Version 7 Aug-21.
- CD2012/130 Water Quality Data Analysis and Reporting Procedure Version 7 Jul-22.
- CD2013/26 Legal and Other Requirements Register Version 2 9/08/2022.
- CD2014/5 Water Quality Policy Version 6 24/11/2021.
- CD2017/178 Situation Report (SITREP) – Warragamba Water Supply Incident Version 1 14/10/2021.
- CD2019/123 Controlled Documents Framework Version 2 Jun-21.
- CD2021 92 Conduct Catchment-to-Customer (C2C) Risk Assessment Jul-21.
- CD2021/107 Duckmaloi Water Treatment Plant Operations and Maintenance Manual Version 2 29/07/2022.
- CD2021/114 Rydal Dam Operations and Maintenance Manual 25/10/2021.
- CD2021/127 Critical and Operational Control Points for Fish River Water Supply System 2021.
- CD2021/128 Critical and Operational Control Points for Greater Sydney Water Supply System Jan-22.
- CD2021/151 Oberon Dam Operations and Maintenance Manual 31/10/2021.
- CD2022 70 Asset Class Strategy Cranes and Lifting Assets Version 0 2022.
- D2013/94543 WaterNSW Water Quality Contact Directory May-22.
- D2015/111077 Adapting water catchment and treatment of natural organic matter (NOM) to maximise water production in water treatment plants with a changing climate Version 21/10/2015.

- D2017/87415 Water Quality Management System Audit Program.
- D2018/77988 Water Quality Incident Response - Training Package.
- D2019/53719 WQ Improvement Plan.
- D2020 132093 Technology Trial: Operational use of chl-a/phycoyanin sensors in Lake Burragorang All-in-One Business Case Version v1 26/10/2022.
- D2020 132094 Operational use of chlorophyll-a sensors in Lake Burragorang - Project Management Plan Version v1 NA.
- D2020/39211 Checklist of Matters to be Considered for Inclusion in the Catchment Protection Work Program FY21 in accordance with CD2019/30 (Prepare Catchment Protection Work Program Procedure) and CD2019/171 (Catchment Protection Work Plan Initiative Template) 2020.
- D2021/103279 How to Guide -Schematics 2021.
- D2021/106240 LMS Report - Water Treatment Operator - Learning Report.
- D2021/106376 Operation and Maintenance Manual - Wallerawang Re-Chlorination 2021.
- D2021/107613 WQ Team Qualifications and Experience Register 2021.
- D2021/107801 Hydrometric Program 2021.
- D2021/108913 Strategic Liaison Group – Agenda item 4.1 Catchment to Customer Annual Update 21/09/2021.
- D2021/109453 Wingecarribee Reservoir Water Quality Review 2021.
- D2021/109659 NOCTSO - Reconfiguration of the Warragamba Dam Outlet Version 8/10/2021.
- D2021/110919 Warragamba Geosmin Incident Monitoring Oct 2021 Version 18 14/02/2022.
- D2021/110932 Fish River Water Supply - Annual Review of the Drinking Water Quality Management System 2020 – 2021.
- D2021/110932 Fish River Water Supply - Annual Review of the Drinking Water Quality Management System 2020 – 2021.
- D2021/121651 Duckmaloi Water Filtration Plant - Chlorine Control Validation Report Nov-21.
- D2021/126673 Special Request for Field Services/Analysis Version 8 21/01/2022.
- D2021/130651 Burragorang Bacterial Genetic Monitoring Dec 2021 4/05/2022.
- D2021/25494 Catchment Protection Work Program 2022.
- D2021/52068 Fish River Supply and Duckmaloi Water Filtration Plant Schematic Version 2.28 23/09/2021.
- D2021/64991 Annual Water Quality Monitoring Report 2020-21.
- D2021/78515 Warragamba to Prospect Supply Schematic Version 1.4 23/02/2021.
- D2021/78516 Blue Mountains Supply Schematic Version 1.4 23/02/2021.
- D2021/78517 Shoalhaven Water Supply Schematic Version 1.4 20/07/2021.
- D2021/78518 Upper Nepean Supply Schematic Version 1.4 20/07/2021.
- D2021/78521 Woronora Supply Schematic Version 1.4 23/02/2021.
- D2021/84624 Annual Catchment Management Report 7/10/2021.
- D2021/86608 Annual Water Quality Monitoring Report 2020-21 Appendices.

- D2021/89407 Funding and Performance Agreement 9/08/2021.
- D2021/97936 Visitor Information and Education Printable Documents 2021.
- D2022 119532 MIB and geosmin Data Extract 2022.
- D2022 119533 Cryptosporidium and Giardia Data Extract 2022.
- D2022 119659 RACS records relating to Taste and Odour event in Lake Burragarang October 2021 6/10/2021.
- D2022 119660 RACS Incidents Extract 2022.
- D2022 119720 Inspection condition Report - Nepean Crest House Crane Version 1/06/2022.
- D2022 120085 ARC Linkage NOM project outcomes Version 2022.
- D2022 120098 Proposed CWT Aeration - Minutes and amended Risk Register Version 7/03/2022.
- D2022 121193 WaterNSW Declared Catchment Completed Induction Certificates Version NA.
- D2022 121207 Duckmaloi WTP Water Quality Instrumentation Project. Version 5/09/2022.
- D2022 61325 Greater Sydney C2C Risk Register 30/06/2022.
- D2022 941187 WQMS Change Request Version 18/08/2022.
- D2022/100040 Questions for Cascade – About Water Quality. August 2022. Aug-22.
- D2022/100211 Screenshot from JOG presentation Item 3.2 May 2022 JOG meeting May-22.
- D2022/100233 FW: FR THM mitigation - C2C risk assessment & minutes 22/08/2022.
- D2022/100244 Duckmaloi WFP – Site visit photos Jul-22.
- D2022/100306 WQ Mandatory Training Report MyLearning 5/08/2022.
- D2022/100356 Screenshot of exception report in PowerBI Water Quality Database (all sites, last month) 23/08/2022.
- D2022/100405 Duckmaloi Water Treatment Plant - Daily Data 23/08/2022.
- D2022/100434 Delivery Docket Oberon Duckmaloi 19/07/2022.
- D2022/100491 WaterNSW C2C Review Schedule 2023/24-2025/26 FY 2022.
- D2022/100563 Screenshot from Continuous Improvement page on The Source showing live controlled documents dashboard Aug-22.
- D2022/100606 NOCTSO - Switch on Nepean Dam Destratification 21/03/2022.
- D2022/100623 JOG Meeting NSW Health, WNSW, LCC and Oberon Council - minutes 17/08/2022.
- D2022/102481 Screenshots of Special Request – Lake Oberon monitoring due to persistent metal loads 2022 31/05/2022.
- D2022/105118 Incident Action Plan Fish River 25/02/2022.
- D2022/105174 Situation Report (SITREP) – Fish River Water Supply Incident March/April 2022 Version 16 27/07/2022.
- D2022/105193 Situation Report (SITREP) – Fish River Water Supply Incident Mar 2022 Version 7 9/03/2022.
- D2022/105455 RE: July Comms Kit 2/08/2022.
- D2022/105518 WaterNSW Warragamba Pipeline Upgrade – Flora Study 10/08/2021.

- D2022/105519 Bendeela Wombat Treatment Program – Stakeholder Project Update 11/05/2022.
- D2022/105523 Response to Joel Matherson re Prospect Reservoir bridge Feb2022 24/02/2022.
- D2022/105529 Screenshot from Water Quality Database showing recent results for bacteriological (verification) sampling 25/08/2022.
- D2022/105531 Screenshot from ARK records management system showing example of updated controlled document with approvals in notes 12/07/2022.
- D2022/105701 Example of bookmark in WQDB showing Oberon sites 25/08/2022.
- D2022/105734 RACS example CIP Duckmaloi - Incident 2113 - Duckmaloi high turbidity 5/05/2022.
- D2022/105751 RE: Lithgow water quality incident debrief workshop scheduling 25/09/2022.
- D2022/105785 Prospect Reservoir Spillway Bridge upgrade – Update on construction works 9/12/2021.
- D2022/105786 Prospect Reservoir Spillway Bridge upgrade – Update on construction works 22/06/2022.
- D2022/105788 Tallowa Dam access road 7/04/2022.
- D2022/105791 Situation Report (SITREP) - Rainfall Greater Sydney Version 21 4/08/2022.
- D2022/105792 Situation Report (SITREP) – Greater Sydney Rain Boom Version 3 3/03/2022.
- D2022/105882 Lake Burragorang operational report WQDB screenshot 22/08/2022.
- D2022/105896 Sites Central Region Fish River Valley WTP Duckmaloi WTP Plant Areas Water Quality Instruments ATU3004 Variables HMI Indication - Process Variable 27/04/2022.
- D2022/105984 Strategic Liaison Group – Agenda item 4.1 - Catchment to Customer working group annual report 14/09/2022.
- D2022/105987 Ultraturb Turbidimeter Maintenance and Calibration Report 11/08/2022.
- D2022/106006 Water Treatment Product Specification - Chlorine Gas 2022.
- D2022/106011 Prospect/ Orchard Hills Supply Risk Assessment 27/07/2022.
- D2022/106207 ALS EXO calibration worksheets 29/08/2022.
- D2022/106324 Screenshot of Notes in ARK showing how the CCP table was converted from an uncontrolled document to a controlled document, approved, finalised and published to the intranet 14/01/2022.
- D2022/107166 2022 Flood Event - Incident Management Mar-22.
- D2022/110932 Fish River Water Supply 2022.
- D2022/119628 Modelpedia update Version 2022.
- D2022/119835 Mandatory Training by Role - Export from MyLearning Version NA.
- D2022/12032 Lake Oberon and Duckmaloi Weir Water Quality Report 21/02/2022.
- D2022/122345 Investigation of incident at Prospect Reservoir Spillway Channel (SCA-108) 27/01/2021 23/02/2022.
- D2022/1278 Upper Canal Geosmin Investigation Jan 2022 17/02/2022.

- D2022/13285 2022 Q1 JOG Minutes and Papers Combined 10/11/2021.
- D2022/15742 Proposed CWT Aeration - Minutes and amended Risk Register 7/03/2022.
- D2022/23684 C2C 5-year Review – Lithgow Oberon 2022 – updated after 2nd aerator risk review 2022.
- D2022/23686 Fish River System C2C Risk Assessment Workshop - minutes 17/03/2022.
- D2022/31857 NOCTSO - LCC Back Feed- due to elevated Manganese in RW 26/04/2022.
- D2022/31936 Operating destratification systems Health Check - 5 May 2022 5/05/2022.
- D2022/33343 Source Water Quality Update: Feb - Apr 2022 Version May-22.
- D2022/34990 Special Request for Field Services/Analysis Version 1 May-22.
- D2022/35731 Resolving spatial and temporal NOM characteristics 9/05/2022.
- D2022/48942 Annual Catchment to Customer Risk Review 2/06/2022.
- D2022/49314 Annual System Health Check – Water Quality Management 2/06/2022.
- D2022/5001 Schools Program Monthly Reporting Mid Year 2021/2022.
- D2022/50095 Lake Nepean Water Quality Report 30/04/2022.
- D2022/53104 Lake Cataract Water Quality Report 31/05/2022.
- D2022/54856 JOG Meeting NSW Health, WNSW, LCC and Oberon Council - minutes 11/05/2022.
- D2022/58684 Lake Avon Water Quality Report 22/06/2022.
- D2022/60350 Source Water Protection Strategy 2022.
- D2022/60824 Water Quality Awareness Training Compliance Assessment 2022.
- D2022/61372 NOCTSO - Implement Orchard Hills Contingency Pipeline Configuration 2/07/2022.
- D2022/61372 Notification of Change to System Operation - Raw Water 2/07/2022.
- D2022/71031 Fish River Drinking Water Quality Report - June 2022 19/07/2022.
- D2022/71246 Warragamba Visitor Centre Numbers 2021-2022 Version Final 2022.
- D2022/74717 Lake Oberon and Duckmaloi Weir Water Quality Report 25/07/2022.
- D2022/7734 The Impact of Oxidants on Cellular Integrity during Cyanobacterial Blooms Version Final Nov-21.
- D2022/84113 Long-Term Water Quality Trends Aug-22.
- D2022/84364 Notification of Change to System Operation - Raw Water Nepean Dam 9/08/2022.
- D2022/84572 Annual Report to IPART on the Water Quality Management System 1/09/2022.
- D2022/84819 Technology trial: the use of chl-a and phycocyanin sensors in Lake Burragorang Version Final Jul-22.
- D2022/84925 Science Program Quarterly Progress report July 2022 Jul-22.
- D2022/94168 Strategic Liaison Group 15 June 2022– Agenda item 5.1 15/06/2022.
- EAMS Nepean crest house crane maintenance Object: OB000736262 Version 2022.
- Fire Management Operational Audit Version 2022.
- D2022 157091 Email: RE Chopper Sites 25/03/2022.
- D2022/119662 Controls list extract.

- D2022/163554 C2C reviews and updates - email from AB 24/11/2022.
- CD2007/17 Flood Prediction Procedure Version 4 2019.

C.3.2 Research on catchments (clause 2.8)

- Document: *Clause 2.8.1 - Research on Catchments OL 2022.ppt* (PowerPoint presentation: *Clause 2.8; Research on Catchments; Operational Audit – 2022*, Lead presenter: Lisa Hamilton).
- CD2020/97 WaterNSW Approved Fire Fighting Chemicals 2020-21 2020
- D2020/102291 Declared SDW Catchment Area 3/09/2020
- D2020/39211 Checklist of Matters to be Considered for Inclusion in the Catchment Protection Work Program FY21 in accordance with CD2019/30 (Prepare Catchment Protection Work Program Procedure) and CD2019/171 (Catchment Protection Work Plan Initiative Template) 2020
- D2021/103764 Annual Science Program Review 7/10/2021
- D2021/109453 Wingecarribee Reservoir Water Quality Review 2021
- D2021/117763 Water Quality Programs – Science Advice 3/11/2021
- D2021/119137 Mining Research Roadmap 2021-2025 Version 2 2021
- D2021/131949 Catchment Outlook Report Version 1 28/09/2022
- D2021/25494 Catchment Protection Work Program 2022
- D2021/60496 Risks to water quality and ecology from evaporative reduction technologies 2021
- D2021/63819 2021-2025 Science Program 18/11/2020
- D2021/76050 Catchment health indicator review Version Final 2021
- D2021/84624 Annual Catchment Management Report 7/10/2021
- D2022/48894 Science Program - Quarterly Progress Report May 2022 2/06/2022
- D2022/60350 Source Water Protection Strategy 2022
- D2022/61662 "Upland Peat Swamps of the Woronora Plateau – Hydrological Monitoring and Water Balance Modelling" Version Draft 30/06/2022
- D2022/84113 Long-Term Water Quality Trends Aug-22
- D2022/84819 Technology trial: the use of chl-a and phycocyanin sensors in Lake Burragorang Version Final 2022
- D2022/9149 Algae and Cyanobacteria Research Roadmap 2022
- D2022/91494 Major inflow WQ data for Lake Burragorang 2021-22 21/07/2022
- D2022/91499 RE: [External] Warragamba WQ for recent inflow & mixing estimates 2/06/2022
- D2022/91501 RE: Colour calcs. 3/05/2022
- D2021 78040 Technical Working Group Meeting – Upland Swamp Research

C.3.3 Water Supply (clause 3.2)

- Document: *OL Audit Presentation Oct 2022 3.2.1 and 4.2.2.ppt* (PowerPoint presentation: *Clauses 3.2.1 and 4.2.2; Water Supply and Water Supplied Performance Standards; Operational Audit – 2022*, Lead presenters: Dave Tomlinson and Ramen Charan).
- SCA/SWC, *Raw Water Supply Agreement*, dated 14 October 2013 (file: *2.1.2 - E8 - D2013 101721 Sydney Water - Executed RWS Agreement.pdf*).
- WaterNSW/Sydney Water, *Raw Water Supply Protocols; Operational Protocol* (Revision 02), 8 December 2016 (file: *3.2.1 - CD2007 2 v3 Sydney Water operating protocols.pdf*).
- Oberon Council/State Water, *Agreement Concerning the Supply of Water from the Fish River Water Supply* between Oberon Council and State Water Corporation, undated (file: *2.1.3 - E1 - DOC12 32669 Oberon Council Water Supply Contract.pdf*).
- WaterNSW, *Raw Water Supply Agreement* between WaterNSW and Wingecarribee Shire Council (Version 1.0), June 2020 (file: *D2020 80599 Wingecarribee Council.pdf*).
- WaterNSW/SCC, *Raw Water Supply Agreement* between WaterNSW and Shoalhaven City Council (Ref: CD2013/16), undated (file: *CD2013 16v1 Shoalhaven council.pdf*).
- WaterNSW/GMC, *Raw Water Supply Agreement* between WaterNSW and Goulburn Mulwaree Council (Version 1.0), July 2020 (file: *2.1.2 - E8 - D2021 22294 Goulburn Mulwaree Supply Agreement September 2020 replaced D2012 97095.pdf*).
- WaterNSW, *Water Monitoring Program* (Ref: CD2011/179[v7]), August 2021 (file: *3.2.1 - CD2011 179 v7 Water Monitoring Program.docx*).
- WaterNSW, *Water Quality Incident Response Protocol* (Ref: CD2004/183[v4]), June 2021 (file: *3.2.1 - CD2004 183 v4 WQ Incident Response Protocol.pdf*).
- Document: *3.2.1 - D2022 53923 Compliance report SWC April.docx*.
- MS Excel workbook: *3.2.1 - D2022 33406 Compliance report WSC April.xlsx*.
- MS Excel workbook: *3.2.1 - D2022 33367 Compliance report SCC April.xlsx*.
- Email correspondence between WaterNSW and Wingecarribee Shire Council with entries dated 10 May 2022, 23 May 2022 and 24 May 2022 (re: *Iron?*) (file: *D2022 119961 resp email Wingec iron.msg*).
- WaterNSW, *Water Quality Management System; Trend Analysis* (Ref: D2022/75895), September 2022 (file: *3.2.1 - D2022 75895 MC WQHCP – 010922 – WQ Performance and Trend Analysis – Item 3.2.3.docx*).
- WaterNSW, *Annual Report to IPART on the Water Quality Management System* (Ref: D2022/94114), 1 September 2022 (file: *Annual Water Quality Management System report 1 September 2022.pdf*).
- WaterNSW, *Fish River Incident Management Plan* (Ref: CD2021/83), undated (file: *2.1.3 - E6 - CD2021 83 Fish River Incident Management Plan.docx*).
- Lithgow City Council/WaterNSW, *Lithgow City Council and Water NSW; Agreement Concerning the Supply of Water from the Fish River Water Supply*, 3 October 2019 (file: *D2019 108997 LCC WNSW.pdf*).
- Document: *2.1.4 - E6 - D2022 105193 FRWS Situation Report #7 09-Mar-22 - Imported from SharePoint.docx*.

C.3.4 Water Supplied Performance Standards (clause 4.2)

- Document: *OL Audit Presentation Oct 2022 3.2.1 and 4.2.2.ppt* (PowerPoint presentation: *Clauses 3.2.1 and 4.2.2; Water Supply and Water Supplied Performance Standards; Operational Audit – 2022*, Lead presenters: Dave Tomlinson and Ramen Charan).
- WaterNSW, *Annual Performance Standards Report 2021-2022*, undated (file: *Part 4 - Compliance and Performance report - Performance Standards - 2021 to 2022 - WaterNSW Operating Licence.pdf*).
- WaterNSW, *Annual Report to IPART on the Water Quality Management System* (Ref: D2022/94114), 1 September 2022 (file: *Annual Water Quality Management System report 1 September 2022.pdf*).
- WaterNSW, *Water Quality Management System; Trend Analysis* (Ref: D2022/75895), September 2022 (file: *3.2.1 - D2022 75895 MC WQHCP – 010922 – WQ Performance and Trend Analysis – Item 3.2.3.docx*).
- WaterNSW, *Fish River Incident Management Plan* (Ref: CD2021/83), undated (file: *2.1.3 - E6 - CD2021 83 Fish River Incident Management Plan.docx*).
- WaterNSW, *Water Quality Incident Response Protocol* (Ref: CD2004/183[v4]), June 2021 (file: *3.2.1 - CD2004 183 v4 WQ Incident Response Protocol.pdf*).
- Document: *2.1.3 – E6 – D2022 105193 FRWS Situation Report #7 09-Mar-22.docx*.
- Document: *3.2.1 - D2022 53923 Compliance report SWC April.docx*.
- MS Excel workbook: *3.2.1 - D2022 33406 Compliance report WSC April.xlsx*.
- MS Excel workbook: *3.2.1 - D2022 33367 Compliance report SCC April.xlsx*.
- WaterNSW, *Water Quality Management System; Trend Analysis* (Ref: D2022/75895), September 2022 (file: *3.2.1 - D2022 75895 MC WQHCP – 010922 – WQ Performance and Trend Analysis – Item 3.2.3.docx*).

C.3.5 Environmental Management System (clause 5.2)

- Document: *EMS-IN~1.ppt* (PowerPoint presentation: *2022 IPART Operational Audit; Environmental Management System (5.2)*).
- WaterNSW, *Environmental Management System Manual* (Reference: CD2015/445), undated (file: *5.2.2 - CD2015 445 v6 Environmental Management System Manual.docx*).
- BSI, *Certificate of Registration; Environmental Management System – ISO 14001:2015* (file: *5.2.1 - D2021 30800 WaterNSW Certificate EMS 659131*).
- Standards Australia, Standards Catalogue, available at: <https://www.standards.org.au/standards-catalogue/sa-snz/other/ev-021/as-slash-nzs--iso--14001-colon-2016>.
- BSI, *Assessment Report; WaterNSW*, 31 May 2021 to 26 June 2021 (file: *5.2.1 - D2021 102541 WNSW-Assessment Report-Surveillance May - June 2021.pdf*).
- CD2015/445 Environmental Management System Manual Version 6 2022.
- CD2016/6 Environmental Incident Management Protocol Version 3.
- CD2017/86 Environmental Operational Site Checklist Version 3.
- CD2021/85 Corporate Risk Management Plan FY 2020-2021 May-21.
- D2018/1524 Work Site Environmental Inspection Checklist Version 2.
- D2021/106800 Environmental Objectives and Targets 2021/2022 2021.
- D2021/107347 Agenda Item: 3.5 - EMS Annual Management Review 6/09/2021.

- D2021/108352 Work Site Environmental Inspection Checklist 17/09/2021.
- D2021/28649 Safety and environment compliance obligations register 30/08/2022.
- D2021/30800 Certificate of Registration - Environmental Management System ISO14001:2015 16/03/2021.
- D2021/76259 BR4 – Environment - 2021-2022 Risk Event Summaries Version 5 May-22.
- D2022/106213 Training Matrix workers report 2022.
- D2022/106226 Agenda Item: 3.2 - EMS Quarterly Performance and Trend Analysis Report 7/03/2022.
- D2022/106262 Notifiable Incident NSW EPA Elevated levels of lead Prospect 2022.
- D2022/106267 FW: REF-NO-9859 Report to NSW EPA 16/02/2022 29/08/2022.
- D2022/11898 Assurance Activity Report - Upper Cordeaux Moran Road Culvert/Wing Wall Repair 21/01/2022.
- D2022/72925 Assurance Activity Report - Environmental Objectives and Targets 2021/2022 Audit 5/08/2022.
- D2022/122345 Investigation of incident at Prospect Reservoir Spillway Channel (SCA-108) 27/01/2021 23/02/2022.
- D2022/122342 FW: REF-NO-9859 Report to NSW EPA 16/02/2022 29/08/2022.
- D2022 122339 Agenda Item: 6.2 EMS Performance and Trend Analysis Report 14/09/2022.
- D2022/106262 FW: Elevated levels of lead to the south of the Prospect Reservoir 29/08/2022.

C.3.6 Downloading of data from certain metering equipment (clause 6.19)

- Document: *Clause 6.19 - Data Download - OL Audit 2022_Final.ppt* (PowerPoint Presentation: *6.19 - Downloading of data from certain metering equipment*).
- MS Excel workbook: *6.19.2 - D2022 106948 Extract from the DQP Portal identifying those sites that need downloading.xlsx*.
- MS Excel workbook: *D2022 123170 Clause 6.19 - applicable sites.xlsx*.
- WaterNSW/NRAR, *Data Sharing Agreement* (Ref: D2020/126232), dated 1/3 December 2020 (file: *6.19.4 - D2020 126232 Data Sharing Agreement - WaterNSW and NRAR 2020.pdf*).
- WaterNSW/DPIE, *Data Sharing Agreement* (Ref: D2021/038294), dated 31 March 2021 /5 July 2021 (file: *6.19.4 - D2021 38294 Data Sharing Agreement - WaterNSW and DPIE 2021.pdf*).
- DPIE/NRAR/WaterNSW, *Roles and Responsibilities Agreement*, dated 30 June 2021.
- Email correspondence between WNSW and NRAR with entries dated 19 July 2021, 1 August 2021, 3 August 2021, 4 August 2021, 5 August 2021 and 11 August 2021 (re: *Feedback Session – Updated DQP Portal Reports Available for User Test*).
- Email correspondence between WNSW and NRAR with entries dated 2 September 2021 and 14 September 2021 (re: *Tamper seals management – proposed way for NRAR staff*).
- Email correspondence between WNSW and NRAR with entries dated 30 June 2022, 11 July 2022 and 19 July 2022 (re: *Feedback Session 1 – Updated DQP Portal Reports Available for User Test*).
- MS Excel workbook: *NRAR_RECsLIST_04102022.xlsx*.
- MS Excel workbook: *NRAR_INCsList_04102022.xlsx*.

C.4 Recommendations

C.4.1 Making copies of this Licence available (clause 1.5)

- Document: *Clause 1.5 and 7.2 – Reporting.ppt* (PowerPoint presentation: *Operational Audit 2021-2022; Previous Recommendations: Clause 1.5.1 and 7.2*, Presentation Lead: Clarita Imperial (Manager Risk, Compliance and Audit)).
- Document: *2021-01 D2022 61582 Operating Licence - Annual Reporting approval and submission process.ppt*.
- Document: *2021-01 D2022 68956 BU Lookahead - Operating Licence 2022.ppt*.
- WaterNSW internal email with entries dated 13 January 2022 and 18 January 2022 (re: *Operating licence - flood mitigation and management amendment*) (file: *2021-01 D2022 61235 Confirmation of updated licence on Internet.msg*).
- WaterNSW internal email with entries dated 5 July 2022 (re: *WaterNSW Operating Licence 2022-2024 Reporting Manual*) (file: *2021-01 D2022 62782 FW WaterNSW Operating Licence 2022-2024 Reporting Manual.msg*).
- WaterNSW internal email dated 13 July 2022 (re: *Audit Recommendations supporting evidence*) (file: *2021-01 D2022 69088 Audit Recommendations supporting evidence*).

C.4.2 Water Quality Management System (clause 2.1)

- Document: *OPERAT~3.ppt* (PowerPoint presentation: *Clauses 2.1.102.1.4; Water Quality Management System; Operational Audit – 2022*, Lead presenter: Louise Parsons).

Recommendation 2020-02:

- CD2021/107 Duckmaloi Water Treatment Plant Operations and Maintenance Manual Version 3 29/07/2022.
- D2017/112312 First Aid Kits - Check And Make Replacements If Required.
- D2017/112413 Defibrillators - Check - General – Compliance.
- D2017/135679 Butterfly Valve - Minor Inspection.
- D2017/149065 Roads - Minor Inspection.
- D2018/135827 Gate Valve - Minor Inspection.
- D2018/16660 Distribution Boards - Minor Inspection.
- D2018/16665 Distribution Boards - Thermographic – 2 Yearly Major Inspection.
- D2018/16695 Anti-Vacuum Valve - Minor Inspection.
- D2018/16697 Anti-Vacuum Valve - Major Inspection.
- D2018/16984 Bridge, Gantry & Jib - Minor Test.
- D2018/16992 Bridge, Gantry & Jib - Minor Inspection.
- D2018/16994 Bridge, Gantry & Jib - Major Inspection.
- D2018/16996 Bridge, Gantry & Jib - Structural Inspection.
- D2018/17018 Lifting Beams & Devices - Minor Inspection.
- D2018/17021 Lifting Beams & Devices - Major Inspection.
- D2018/17024 Lifting Beams & Devices - Major Structural Inspection.
- D2018/17235 Concrete - Minor Inspection.
- D2018/17360 Steel Components Access-Minor Inspection.

- D2018/25206 Fire Fighting Extinguishers Hoses - Check Certify.
- D2018/25436 Emergency Eye Wash Shower - Operational Test.
- D2018/25439 Emergency Eye Wash Shower - Test and Maintain.
- D2018/26002 RCD - Fixed Push Button Test.
- D2018/26003 RCD - Fixed Operational Time Test.
- D2018/26206 Fencing - Major Inspection.
- D2018/26243 Operational Lands - Minor Service Operational.
- D2018/26245 Operational Lands - Minor Inspection.
- D2018/26248 Operational and Passive Lands - Major Inspection.
- D2018/29258 Fixed Lighting Electrical-Minor Test.
- D2018/38959 Site Signage-Minor Inspection.
- D2018/42502 Buildings Pest Inspection Treatment-Minor Service.
- D2018/48278 Hazardous Material Hazmat – Inspection.
- D2018/9031 Buildings, Cottages & Workshops - Major Inspection.
- D2019/61068 Generators <10KVA- Minor Test.
- D2019/61071 Generators <10KVA - Minor Service.
- D2019/99628 PLC - Battery Replacement.
- D2019/99632 UPS – Inspection.
- D2019/99638 Cabinet – Minor Service.
- D2019/99639 Air Conditioner – Inspection.
- D2020/106941 Operational and Passive Lands - Minor Inspection.
- D2020/60775 Emergency and Evacuation Exercise.
- D2021/102696 Spill Kit Containment Equipment Bins/Bags - Contents Check.
- D2021/113014 Portable Ladder - Yearly Inspection.
- D2021/117529 Duckmaloi WTP Membrane – Six Monthly Inspection.
- D2021/87945 Soft Slings - Test and Inspection.
- D2021/91758 Distribution Boards – 5 Yearly Major Inspection (Criticality 4 and 5).
- D2021/92052 Distribution Boards – 25 Yearly Major Inspection (Criticality 4 and 5).
- D2022/100013 Turbidity Online Analyser – HACH ultraturb Version 0 30/08/2022.
- D2022/105332 Chlorine Leak Detector Test Clear Water Tank Version 0 30/08/2022.
- D2022/105337 Chlorine Leak Detector Test Chlorine Room - Monthly Version 0 30/08/2022.
- D2022/105558 Water Pump and Motor Unit - Critical Spares Service.
- D2022/105569 Pressure Transmitter – Calibration.
- D2022/105572 Inline Y Strainer - Minor Inspection.
- D2022/105573 Self-Contained Breathing Apparatus (SCBA) – Yearly Service.
- D2022/54133 Test and Tag Machine – Calibration.
- D2022/6789 PLC Modicon M580 – Minor Inspection (For Duckmaloi WTP).
- D2022/6791 Electromagnetic Flowmeters – 12 Monthly Service (For Duckmaloi WTP).
- D2022/6793 Magelis Box iPC Modular Display - Minor Inspection (For Duckmaloi WTP).

- D2022/68903 Air Compressors – Major Service.
- D2022/68904 Chlorine Gas System – Major Service.
- D2022/68910 CMF Air Blowers – Major Service.
- D2022/68915 CMF Air Receiver – Major Inspection.
- D2022/68922 CMF Air Receiver – Minor Inspection.
- D2022/68931 Lifting Equipment – Inspection and Tagging.
- D2022/68933 Online Water Quality Analysers – Major Service.
- D2022/68960 Pneumatic Valve Actuator – Minor Inspection.
- D2022/68964 Electric Valve Actuator – Minor Inspection.
- D2022/68972 Electric Valve Actuator – Major Service.
- D2022/70008 Duckmaloi WTP Operations – Daily Tasks.
- D2022/70013 Chlorine Leak Detector – Weekly Test.
- D2022/70018 Chlorine Leak Detector – Monthly Test.
- D2022/70256 Altitude Valve – Major Service.
- D2022/70260 Portable/Lab Water Quality Instruments – Major Service.
- D2022/70264 CMF Membranes – Major Service.
- D2022/71801 Apparent and True Colour Measurement Version 0 30/08/2022.
- D2022/71805 Online Free Chlorine Analyser Version 0 30/08/2022.
- D2022/71807 Fluoride Measurement Version 0 30/08/2022.
- D2022/71808 Iron Soluble Measurement Version 0 30/08/2022.
- D2022/71811 pH Measurement Version 0 30/08/2022.
- D2022/71813 Total and Free Chlorine Measurement - HACH DR300 Version 0 30/08/2022.
- D2022/71814 Total and Free Chlorine Measurement - Pocket Colormeter II Version 0 30/08/2022.
- D2022/71816 Total and Soluble Manganese Measurement Version 0 30/08/2022.
- D2022/71820 Turbidity Measurement Version 0 30/08/2022.
- D2022/74576 pH Online Analyser Version 0 30/08/2022.
- D2022/74577 Turbidity Online Analyser – Lovibond PTV 1000 Version 0 30/08/2022.
- D2022/74578 Chlorine Leak Detector Test Chlorine Room - Weekly Version 0 30/08/2022.
- D2022/74579 Membrane Clean in Place (CIP) Version 0 30/08/2022.
- D2022/74660 Safety Equipment – Change of Shift Checks.
- D2022/77363 Altitude Valve – Minor Service.
- PL2022/296 Duckmaloi WTP - FRWSS - Process Flow Diagram Version Final 30/06/2022.
- PL2022/302 Duckmaloi WTP - FRWSS - P ID - CMF Cell 004A Version Final 30/06/2022.
- PL2022/304 Duckmaloi WTP - FRWSS - P ID - CMF Cell Asset Location Codes Version Final 30/06/2022.
- PL2022/316 Duckmaloi WTP - FRWSS - P ID - Building Services System 010 Version Final 8/07/2022.
- PL2022/330 FRWSS - P ID - Legend Sheet 1 - General P-ID Symbology Version Final 30/06/2022.

Recommendation 2021-02:

- D2013/94543 WaterNSW Water Quality Contact Directory May-22.
- D2022/105898 Water Quality Contact list review 27/07/2022.
- D2022/105900 RE: Water Quality Contact list review - ALS contacts 24/08/2022.
- D2022/106057 Screenshot of element 1.3 of Modelpedia Water Quality Management System showing process for identifying stakeholders and reviewing contact list.
- D2022/94187 WQMS Change Request 25/08/2022.

Recommendation 2021-03:

- CD2019/123 Controlled Documents Framework Version 2 Jun-21.
- D2022/100491 WaterNSW review schedule 2023/24-2025/26 FY.
- D2022/100623 JOG Meeting NSW Health, WNSW, LCC and Oberon Council - minutes 17/08/2022.
- D2022/105984 Strategic Liaison Group – Agenda item 4.1 - Catchment to Customer working group annual report 14/09/2022.
- D2022/106056 Screenshot of element 2.3 of Modelpedia Water Quality Management System showing process for scheduling major C2C risk reviews 2022.
- D2022/94187 WQMS Change Request 25/08/2022.

Recommendation 2021-04:

- CD2001/112 Avon Dam Operations and Maintenance Manual Version 2 29/10/2021.
- CD2001/113 Cataract Dam Operations and Maintenance Manual Version 3 9/06/2022.
- CD2001/114 Cataract Dam Operations and Maintenance Manual Version 3 9/06/2022.
- CD2001/115 Prospect Dam Operations and Maintenance Manual Version 3 21/07/2022.
- CD2001/116 Nepean Dam Operations and Maintenance Manual Version 2 29/10/2021.
- CD2001/117 Tallowa Dam Operations and Maintenance Manual Version 3 21/07/2022.
- CD2001/118 Woronora Dam Operations and Maintenance Manual Version 2 29/10/2021.
- CD2002/10 Glenquarry Cut Control Structure Operations and Maintenance Manual Version 2 25/10/2021.
- CD2002/11 Fitzroy Falls Dam Operations and Maintenance Manual Version 2 28/10/2021.
- CD2002/12 Bendeela Pondage Operations and Maintenance Manual Version 2 27/10/2021.
- CD2002/13 Kangaroo Pipeline Control Structure Operations and Maintenance Manual Version 2 25/10/2021.
- CD2002/6 Greaves Creek Dam Operations and Maintenance Manual Version 2 28/10/2022.
- CD2002/7 "Middle Cascade (No 1) Dam. Operations and Maintenance Manual" Version 2 8/10/2021.
- CD2002/8 "Upper Cascade (No 3) Dam. Operations and Maintenance Manual" Version 2 10/09/2021.
- CD2002/9 Wingecarribee Dam Operations and Maintenance Manual Version 2 27/10/2021.
- CD2004/126 Warragamba Dam Operations and Maintenance Manual Version 3 9/06/2022.
- CD2009/62 Woodford Creek Dam Operations and Maintenance Manual Version 2 22/09/2021.

- CD2021/118 Upper Cordeaux 2 Dam Operations and Maintenance Manual 22/09/2021.
- CD2021/136 Broughton Pass Weir Operations and Maintenance Manual 20/10/2021.
- CD2021/149 Pheasants Nest Weir Operations and Maintenance 29/10/2021.
- CD2021/60 Lake Medlow Dam Operations and Maintenance Manual 10/09/2021.

Recommendation 2021-05:

- CD2022/100 Aide Memoire - Administration 2022.
- CD2022/101 Aide Memoire – Legal 2022.
- CD2022/102 Aide Memoire - Safety/Investigations 2022.
- CD2022/72 Incident Management Procedure Jun-22.
- CD2022/73 Incident Assessment Checklist 2022.
- CD2022/74 Incident Action Plan 2022.
- CD2022/75 Situation Report [EVENT Title] 2022.
- CD2022/76 Incident Team Shift Handover Guide 2022.
- CD2022/77 Incident Communications Log 2022.
- CD2022/78 Team Briefing Guide 2022.
- CD2022/79 Incident De-escalation Guide 2022.
- CD2022/80 Incident Debrief Report 2022.
- CD2022/81 Crisis Management - Aide Memoire / Pocket Guide Dec-21.
- CD2022/82 Aide Memoire - Incident Controller 2022.
- CD2022/83 Aide Memoire - Liaison Officer 2022.
- CD2022/84 Aide Memoire - Planning Cycle 2022.
- CD2022/85 Aide Memoire - Incident Control - Safety 2022.
- CD2022/86 Aide Memoire - Incident Action Plan 2022.
- CD2022/87 Aide Memoire - Planning 2022.
- CD2022/88 Aide Memoire - Planning - Communications Planning Unit 2022.
- CD2022/89 Aide Memoire - Planning - Management Support Unit 2022.
- CD2022/90 Aide Memoire - Planning - Plans Unit 2022.
- CD2022/91 Aide Memoire - Planning - Resources Unit 2022.
- CD2022/92 Aide Memoire - Public Information 2022.
- CD2022/93 Aide Memoire - Public Information - Community Liaison 2022.
- CD2022/94 Aide Memoire - Public Information - Information & Warnings Unit 2022.
- CD2022/96 Aide Memoire - Operations 2022.
- CD2022/97 Aide Memoire - Investigations 2022.
- CD2022/98 Aide Memoire - Logistics 2022.
- CD2022/99 Aide Memoire - Finance 2022.

Recommendation 2021-06:

- CD2012/130 Water Quality Data Analysis and Reporting Procedure Version 7 Jul-22.
- D2022/71028 Fish River Drinking Water Quality Report 14/06/2022.

Recommendation 2021-07:

- CD2021/127 Critical and Operational Control Points for Fish River Water Supply System 2021.
- D2021/121651 Duckmaloi Water Filtration Plant - Chlorine Control Validation Report Nov-21.
- D2022/105411 Screenshot of Modelpedia WQMS content relating to validation of processes 2022.
- D2022/94001 FW: validation 11/07/2022.

Recommendation 2021-08:

- D2022/70008 Duckmaloi WTP Operations – Daily Tasks 2022.

Recommendation 2021-09:

- D2022/74445 Compliance Management 26/05/2022.

Recommendation 2021-10:

- D2021/107801 Hydrometric Program 2021.
- D2022/100562 Action Selection 2022.
- D2022/106207 ALS EXO calibration worksheets 29/08/2022.

Recommendation 2021-11:

- D2022/100306 WQ Mandatory Training Report 5/08/2022.
- D2022/100609 Screenshot of Modelpedia WQMS content relating to validation of processes 2022.
- D2022/60824 Water Quality Awareness Training Compliance Assessment 2022.

C.4.3 Reviewing the model for System Yield (clause 2.6)

- Document: *OL Audit 2022 Clause 2.6.1-3 Recommendations 12-14.ppt* (PowerPoint presentation: *Operational Audit 2021-2022; Reviewing the model for System Yield*).
- Document: *D2022 122150 Minutes 2 May 22.docx*.
- WaterNSW, *Wathnet Model Independent Review 2021: Lessons Learnt and Recommendations for Future Reviews*, August 2022 (file: *2021-12 - D2022 99996 Lesson learnt Wathnet Independent Review 2021.docx*).
- WaterNSW, *Wathnet model review; Community and Stakeholder Engagement Plan 2022* (Reference: D2022/79637) (Revision 1.2)), 1 August 2022 (file: *2021-13 - D2022 105867 Wathnet model review - Community and Stakeholder Engagement Plan 2022*).

C.4.4 Bulk Water released to Local Water Utilities for Drinking Water purposes (clause 3.4)

- WaterNSW, *Procedure for Maintaining Contact Details on the Local Water Utilities Register* (ARK Ref: CD2021/106[v2]), undated (file: *CD2021 106v2 LWU register procedure.docx*).

C.4.5 Water Supplied Performance Standards (clause 4.2)

- hunterh₂O, *Water Quality Instrumentation for Duckmaloi WTP*, undated [Project proposal] (file: *2020-09 - D2021 106291 Hunter H2O Proposal WQ Instruments Duckmaloi WTP Instal and Comm*).
- Beca hunterh₂O, *Water Quality Instrumentation for Duckmaloi WTP*, 5 September 2022 [Commissioning report] (file: *D2022 121207 Duck WQ commissioning.pdf*).

C.4.6 Asset Management System (clause 5.1)

- Aurecon, *WaterNSW; Internal Audit Report; Asset Maintenance* (Final), January 2021 (file: *D2021117683 Asset maintenance internal audit report*).
- Document: *2021-16 - D2022 100637 RACS action report - asset maintenance audit.pdf*.
- Document: *D2022 121256 Duck Asset Hierarchy.pdf*.
- Document: *D2022 121281 EAMS change request.pdf*.
- Document: *D2022 121282 Asset change request.pdf*.
- Document: *D2022 121217 cancelled deferred WO.pdf*.
- Document: *D2022 122904 Mobility training.pdf* (PowerPoint training presentation).
- Document: *D2022 122928 Field Services HitG.pdf* (includes a series of ten (10) embedded 'How to Guides').
- Document: *D2022 123109 Mobility user training.pdf* (training register).

C.4.7 Environmental Management System (clause 5.2)

- D2021/28649 Safety and environment compliance obligations register 30/08/2022.
- D2022/106044 RACS action completion - Duckmaloi WTP assurance report 2022.

C.4.8 Online portal for lodgement of documents relating to metering equipment (clause 6.18)

- Document: *DQPONL~1.ppt* (PowerPoint presentation: *Online portal for lodgement of documents relating to metering equipment – 2022*, Lead presenter: Ian Robinson).
- WaterNSW, *DQP Document Retention Protocol and Back-Up Procedures* (ARK Ref: D2022/100059), undated (file: *2021-19 - D2022 100059 DQP Data Retention Protocol and Back-Up Procedures.docx*).
- Email correspondence between WaterNSW and DPE with entries dated 5 July 2022, 11 July 2022, 13 July 2022, 18 July 2022, 22 July 2022 and 25 July 2022 (re: *DQP docs and certificates - Document Retention*) (file: *2021-19 - D2022 93861 Email confirmation from DPE.msg*).
- Email correspondence between WaterNSW and NRAR with entries dated (re: *Email reply to NRAR on DQP docs and certificates - Document Retention*) (file: *2021-19 - D2022 93852 Email confirmation from NRAR.msg*).
- Document: *2021-19 - D2022 32267 Approved ATS.docx* (titled: *Duly Qualified Person (DQP) Portal; Scope of Requirements*).
- KPMG, WaterNSW; *DQP Portal – Cyber Security Review* (Final Report) (file: *2021-19 - D2022 100010 WaterNSW - DQP Portal - Cyber Security Review.ppt*).
- WaterNSW, *DQP Portal - Risk Assessment*, July-August 2022 (file: *2021-19 -D2022 100012 DQP Portal - Risk Assessment Treatment Report*).

C.5 Site Visit Presentations






- Document: *2022 OL Audit - Swamp Monitoring – AD.ppt* (PowerPoint presentation: *Operational Audit 2021-2022; Site Visit – Cordeaux, Avon and Nepean*, Alec Davie – Water Quality Scientist, 12 October 2022).
- Document: *OL Audit 2022 Presentation Fire Trail maintenance.ppt* (PowerPoint presentation: *Fire Management; Operational Audit – 2022*, Lead presenter: Mary Knowles and Alan Benson).
- Document: *2022 OL Audit Nepean Monitoring and Destratification.ppt* (PowerPoint presentation: *Operational Audit 2021-2022; Nepean - Monitoring and Destratification*, Fiona Loadsman, 12 October 2022).
- Document: *OPERAT~3.ppt* (PowerPoint presentation: *Clauses 2.1.102.1.4; Water Quality Management System; Operational Audit – 2022*, Lead presenter: Louise Parsons).


F IPART's checks for the 2021-22 operational audit



In our audit scope we identified several licence conditions that IPART would audit without the assistance of a specialist auditor. Our assessment of both the 2017-2022 and 2022-2024 Licence conditions that we audited is in Table F.1 below.

Table F.1 Conditions that we audited as part of the 2021-22 operational audit

2017-2022 Licence condition	2022-2024 Licence condition	Compliance grade
1.5.1 Water NSW must make this Licence available free of charge on its website for downloading by any person.	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.	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	
6.6.4 Water NSW must make the Customer Advisory Group Charter available free of charge on its website for downloading by any person.	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.	
6.13.4 Water NSW must publish on its website for downloading by any person, the memorandum of understanding maintained with NSW Health under clause 6.13.1(a).	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, for downloading by any person, the memorandum of understanding maintained with the Environmental Protection Authority under clause 6.14.1(a).	6.14.3 Water NSW must publish on its website, the memorandum of understanding maintained with the Environmental 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.	7.1.2 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.	7.1.3 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.	

2017-2022 Licence condition	2022-2024 Licence condition	Compliance grade
<p>7.14 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:</p> <ul style="list-style-type: none"> a) access any Works, premises or offices occupied by Water NSW; b) carry out inspections, measurements and tests on, or in relation to, any such Works, premises or offices; 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; 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 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. <p><i>[Note: Water NSW is required under section 60 of the Act to pay to the Treasurer the cost (as certified by IPART) involved in and in connection with carrying out the Operational Audit of Water NSW.]</i></p>	<p>7.14 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:</p> <ul style="list-style-type: none"> a) access any Works, premises or offices occupied by Water NSW; b) carry out inspections, measurements and tests on, or in relation to, any such Works, premises or offices; 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; 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 e) discuss matters relevant to the Operational Audit or any report on t 	
<p>7.21 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"> a) water source protection and conservation; b) Bulk Water storage and transmission; c) Performance Standards; d) organisational systems management; e) Customer and stakeholder relations; and f) performance monitoring and reporting including: <ul style="list-style-type: none"> i) IPART performance indicators; and ii) the National Water Initiative Performance Indicators. 	<p>7.21 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"> a) water source protection and conservation; b) Bulk Water storage and transmission; c) Performance Standards; d) organisational systems management; e) Customer and stakeholder relations; and f) performance monitoring and reporting including: <ul style="list-style-type: none"> i) IPART performance indicators; and ii) the National Performance Report Indicators 	
<p>7.31 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.</p>	<p>7.31 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.</p>	
<p>7.32 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.</p>	<p>7.32 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.</p>	
<p>7.33 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.</p>	<p>7.33 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.</p>	

2017-2022 Licence condition	2022-2024 Licence condition	Compliance grade
<p>7.3.4 Where this Licence requires Water NSW to provide information to IPART or an Auditor that is information to which:</p> <p>a) section 24FF of the IPART Act applies; or</p> <p>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.</p>	<p>7.3.4 Where this Licence requires Water NSW to provide information to IPART or an Auditor that is information to which:</p> <p>a. section 24FF of the IPART Act applies; or</p> <p>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.</p>	

Note:  = Compliant;  = Not Required.

¹ Water NSW Act 2014, section 57.

² IPART, *Water NSW operating licence review – Final report*, May 2022

³ IPART, *Water NSW operational audit 2021 – Report to the Minister*, March 2022.

⁴ IPART, *Compliance and Enforcement Policy*, December 2017.

⁵ IPART, *Audit Guideline – Public Water Utilities*, July 2019.

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