PART Independent Pricing and Regulatory Tribunal | NSW

Sydney Water 2022 operational audit

Report to the Minister

February 2023

Water≫

Tribunal Members

The Tribunal members for this review are: Carmel Donnelly PSM, Chair Deborah Cope Sandra Gamble

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

 Christine Allen
 (02) 9290 8412

 Robert Aposhian
 (02) 9290 8406

 Sachin Singh
 (02) 9113 7784

The Independent Pricing and Regulatory Tribunal

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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

This is our operational report to the Minister for Lands and Water on Sydney Water Corporation's (Sydney Water) compliance with its 2019-2023 Operating Licence (Licence) between 1 July 2021 to 30 June 2022. Compliance was tested by an operational audit as required under section 31 of the *Sydney Water Act 1994* (Act).

Sydney Water's operational performance in 2022

Sydney Water was forthcoming and cooperative throughout the audit process, demonstrating a strong culture and commitment to compliance. The quality of water produced by Sydney Water continues to be of a high standard that meets public health requirements. We note however, that Sydney Water's compliance with asset management needs improvement, notably regarding planned maintenance for major assets.

Key findings

Sydney Water demonstrated a high level of compliance in 2021-22 with the audited licence clauses and was fully compliant with 38 of the 44 audited Licence clauses.

However, Sydney Water was non-compliant (material) with 1 clause relating to its implementation of its asset management system (clause 5.5.2). This is a repeat non-compliance, and we are concerned about Sydney Water's failure to attend to maintenance of critical assets.

Sydney Water was also non-compliant (non-material) with 2 clauses because it:

- did not fully implement its Drinking Water Quality Management System (DWQMS) and control measures to consistently manage potential risks to water quality (clause 4.1.3)
- did not fully implement its Recycled Water Quality Management System (RWQMS) with deferred maintenance items, and minor errors in identifying and controlling risks (clause 4.2.3).

While these non-compliances must be attended to ensure ongoing delivery of safe drinking water, the auditor noted that other additional controls were in place and Sydney Water had maintained a high level of compliance with water quality standards.

Sydney Water was compliant with, but had minor shortcomings with 3 clauses relating to:

- how it documents the method used to calculate the economic level of water conservation (ELWC) (clause 3.1.4)
- the family violence policy, which does not fully reflect actual practice relating to "processes that minimise the reliance on individuals to disclose their family violence" (clause 6.5.2)
- not fully implementing some of the controls relating to its Cyber Security Management System (clause 9.1.2).

The auditors have made 11 recommendations to Sydney Water relating to the operational audit to rectify the issues that resulted in the audit findings. There are no new recommendations relating to cyber security, with 2 ongoing recommendations to be completed.

29 licence clauses were not audited in 2022.

Audit findings and recommendations are further discussed in Chapter 2.

Previous audit findings

This audit also followed up on Sydney Water's progress in addressing 28 outstanding recommendations related to non-compliances or shortcomings identified in previous audits. Sydney Water has:

- Fully closed out 11 previous non-compliances (4 minor shortcomings, 7 non-material) by completing the 18 related recommendations.
- Partially closed out 4 previous non-compliances (3 minor shortcomings and one nonmaterial) with 6 of the remaining 10 recommendations completed. The remaining 4 recommendations are to be checked in the next audit.

Our discussion of Sydney Water's progress with previous recommendations is presented in Chapter 3.

1 Introduction

Sydney Water is a publicly owned monopoly supplier of essential water and wastewater services to customers in NSW. It operates under the NSW Government issued Sydney Water 2019-2023 Operating Licence (Licence), which outlines obligations and standards for the provision of safe and reliable services.

We conduct annual audits on Sydney Water's compliance with its licence to assess that Sydney Water is meeting its obligations.

This report summarises the findings and recommendations of the audit.

1.1 Annual statement of compliance

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

This year Sydney Water reported that it had no non-compliances with the Licence.

1.2 Audit scope

In 2022, we audited Sydney Water's compliance with 44 clauses of the Sydney Water 2019-2023 Operating Licence (Licence). We engaged a specialist auditing firm, Viridis Consultants Pty Ltd (Viridis), to audit 26 Licence clauses and we checked the other 15 clauses.

Sydney Water has also provided a report from GHD, an IPART approved auditor, assessing Sydney Water's compliance with clauses 9.1, 9.2 and 9.3 of the Licence.¹

The audit covered the period from 1 July 2021 to 30 June 2022. Appendix C describes the audit process and Appendix D includes the detailed audit scope.

¹ Section 7 of the Reporting Manual contains auditing and reporting obligations for Sydney Water – to provide an audit report from an independent auditor that assesses the adequacy of its Cyber Security Management System (CSMS).

2 Audit findings and recommendations

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

Where we found Sydney Water non-compliant with a clause, we have made a recommendation as to how to address the non-compliance. The auditor also identified some opportunities for improvement in Sydney Water's operational audit report, provided in Appendix E.

Our assessment of the Licence clauses that we checked is in Appendix F.

Clause 8.1 of our Reporting Manual requires Sydney Water to report on its progress in implementing these recommendations by 31 March 2023.²

The 2022 audit is the third operational audit of Sydney Water's compliance with the requirements of the current Licence. Table 2.1 provides a comparison of non-compliant and minor shortcomings audit findings across each of the previous audit years during the 2019-2023 Licence term. Table 2.1 does not include Licence clauses where Sydney Water has been fully compliant when audited during the Licence term.

Table 2.1 Comparative record of non-compliant findings and identified shortcomings for the 2019-2023 Operating Licence

Licence clause	Requirement C	Compliance gra	de		
		2019-20 ^a	2020-21 ^b	2021-22	2022-23
1.7.1	Licence context - pricing	\mathbf{S}	I	-	-
3.1.1	Sydney Water must maintain a water conservation program consistent with the Current Economic Method.	8	O	\bigcirc	-
3.1.2	Water Conservation and Planning – economic approach for water conservation	\mathbf{S}	\bigcirc	\bigcirc	-
3.1.4	Water Conservation and Planning – Update economic level of water conservation using Current Economic Method	-	-	\bigcirc	
3.2.4	Water Conservation and Planning – water planning	8			-
4.1.1	Performance Standards for Water Quality – drinking water – consistent with ADWG	~		\bigcirc	-
4.1.3	Performance Standards for Water Quality – drinking water – implementation	~	8	8	-
4.2.1	Performance Standards for Water Quality – recycled water – consistent with AGWR	~		\bigcirc	-

² We may agree to receive the progress report later than the date in the reporting manual.

Licence clause	Requirement	Compliance grad	de		
		2019-20 ^a	2020-21 ^b	2021-22	2022-23
4.2.3	Performance Standards for Water Quality – recycled water – implementation	~		8	-
5.1.1	Performance Standards for Service Interruptions – water continuity standard	8	0	-	-
5.2.5	Performance Standards for Service Interruptions – water pressure standa	ard	-	-	-
5.5.2	Performance Standards for Service Interruptions – asset management	8	8	8	-
9.1.1 ^{c, d, e}	Cyber Security Management System maintain	- 🔀	O	\bigcirc	
9.1.2 ^{c, d, e}	Cyber Security Management System implement	- 😢	⊘		
10.2.2	Performance Monitoring and Reportir - reporting	ng 🔀	\mathbf{S}	-	-
10.2.4	Performance Monitoring and Reportir – record systems	ng 📀	8	-	-
Sources:					

Sydney Water Corporation Operational Audit 2020 – Report to the Minister, March 2021 a)

b) Sydney Water Corporation Operational Audit 2021 – Report to the Minister, February 2022

C)

Certitude Technology Risk Services, Licence Conditions Audit – Cyber Security Management System for Sydney Water, August d) 2021

GHD Digital, Operating Licence Conditions Audit - Critical Infrastructure Security - Sydney Water Corporation, August 2022. e)

Note: This table does not include clauses of the Licence where Sydney Water has been fully compliant.

Note: Each of Sydney Water's audit periods is for the period from 1 July to 30 June.

Note: 🗢 = Compliant; 🗢 = Compliant (minor shortcomings); 🔯 = Non-Compliant (non-material); 😢 = Non-Compliant (material).

Audit findings and recommendations summary 2.1

Table 2.2 provides details of non-compliances and minor shortcomings identified in the audit. Recommendations to address the inadequacies are also detailed.

Table 2.2 Non-compliances and minor shortcomings identified in Sydney Water's 2022 audit

Licence clause	Requirement	Compliance grade	Audit finding	Recommendations
3.1.4	Sydney Water must update the economic level of water conservation using the Current Economic Method: a) for the purposes of clause 3.1.1 and 3.1.2— annually; and b) for the purposes of clause 3.1.3(c)—monthly.	Compliant (minor shortcomings)	We have assigned Sydney Water a Compliant (minor shortcomings) grade for clause 3.1.4. This agrees with the auditor's findings. Sydney Water demonstrated that the economic level of water conservation was updated during the audit period for the purposes of maintaining and implementing the water conservation program and monthly for the purposes of public reporting. It is noted that, for the purposes of clause 3.1.3(c), the economic level of water conservation (ELWC) is to be expressed both as the value of water in dollar per kilolitre and as the quantity of savings in megalitres per day. Sydney Water were not able to provide evidence of the procedure used to determine the ELWC expressed as the quantity of water savings in ML/day. The process is derived from its ELWC workbook models but they acknowledged that this process is not formally documented.	REC-2022-01: By 30 June 2023, Sydney Water should formally document a procedure for updating and reporting the current economic level of water conservation, which is to be expressed both as the value of water in dollars per kilolitre (\$/kL) and as the quantity of savings in megalitres per day (ML/day) as required by paragraph 3.1.3(c) of the <i>Operating Licence</i> .
4.1.3	Sydney Water must ensure that the Drinking Water Quality Management System is fully implemented and that all relevant activities are carried out in accordance with the Drinking Water Quality Management System and to the satisfaction of NSW Health.	Non-Compliant (Non-Material)	 We have assigned Sydney Water a Non-compliant (non-material) grade for clause 4.1.3. This agrees with the auditor's finding. Shortcomings identified for this clause include: Not all of the Risk Descriptions in the Network operational risk register align with hazardous events in the Risk and Hazard Library. Hazards are identified in the Risk and Hazard Library and without a linkage to the risk line items in the risk register the water quality hazard identification is incomplete. This was considered a minor issue in terms of risk management. Inconsistency between the inspection frequency and process/procedure between the reservoirs within the water Filtration Plant (WFP) compound and in the Network. 	 REC-2022-02: By 30 June 2023, check the North Richmond Network risk assessment to ensure that all risks align with a hazardous event in the Hazard and Risk Library document. A check should be made at the completion of future risk assessments to ensure that all risks in the risk register correspond to a hazardous event in the Hazard and Risk Library. This could be done by including the hazardous event reference number in the risk assessment spreadsheet. REC-2022-03: By 30 June 2023, develop a procedure to track and respond to exceptions to the reservoir roof inspection program, including a process to prioritise delayed inspections and provide alternate inspection arrangements if reservoir roof access is unsafe. Appropriate alternative inspection arrangements and timeframes for implementation should be included in the procedure and agreed to by NSW Health. Performance reporting to NSW Health is to be reviewed as part of this action, including reporting against the Drinking Water Quality Specification reservoir inspection target (90% of six monthly and three yearly inspections being completed annually) and in

Licence clause	Requirement	Compliance grade	Audit finding	Recommendations
			 Continuing issues with reservoirs inspections – defects were identified in 2015 and had not been repaired, with inspections not possible due to roof corrosion; another reservoir reported an issue with vermin protection, with foam seals missing in some parts of the roof. The issue was still not rectified 5 months after being reported. Some of the issues identified in the audit affect Sydney Water's ability to monitor and ensure controlled processes, with the main issue being reservoir integrity with regard to water quality protection. Maintaining reservoir integrity through regular inspections and implementing timely actions on findings is a critical component of providing safe quality water. The non-compliance is identified as non-material over the audit period because the verification monitoring showed high compliance with water quality standards. However, the risk of unsafe water being delivered increases the longer that the deficiencies with reservoir asset management are left unaddressed. 	addition reservoirs that have not been inspected for over 12 months should also be reported. REC-2022-04: By 30 June 2023, review the process for actioning priority (P1-P6) findings from reservoir inspections, especially related to water quality contamination barriers (e.g. vermin proof breach), to ensure verifiable audit evidence is maintained to demonstrate that the work is completed as required within a reasonable timeframe. Consider consulting with NSW Health to solicit their input.
4.2.3	Sydney Water must ensure that the Recycled Water Quality Management System is fully implemented and that all relevant activities are carried out in accordance with the Recycled Water Quality Management System and to the satisfaction of NSW Health.	Non-Compliant (Non-Material)	 We have assigned Sydney Water a Non-compliant (non-material) grade for clause 4.2.3. This agrees with the auditor's finding. Shortcomings identified for this clause include: Gaps in the process flow diagram for the Richmond Water Resource Facility Risk assessment missing site-specific risks Critical Control Point 1 had not been implemented correctly as the turbidity meter was installed at a different location to what had been documented. Maintenance of tertiary filters had been deferred for several years Detailed validation process misses wet weather flows that are potentially within the recycled scheme operational range. 	 REC-2022-05: By 30 June 2023, review the Process Flow Diagram (PFD) and undertake field verification of the revised diagram. The Richmond Water Resource Recovery Facility (WRRF) PFD must include all processes that could impact water quality, including the stormwater first flush and the alum dosing into the Equalisation Basin. REC-2022-06: By 31 December 2023, review the risk assessment process for the Richmond WRRF. The Recycled Water Risk Assessment Workshop Standard Operating Procedure (SOP) requires all hazardous events that can compromise recycled water quality are considered in the risk assessment process. The Richmond WRRF risk assessment did not include a risk assessment of the supernatant return or stormwater first flush system. Sydney Water must ensure that the Recycled Water Hazard Library has appropriate hazardous event documentation to cover these processes and that they are considered at the

Licence clause	Requirement	Compliance grade	Audit finding	Recommendations
			The non-compliance is considered non-material due to other existing controls that were in place during the audit period.	Richmond WRRF. The Richmond WRRF risk assessment was conducted using the recently developed risk assessment process, this should also be reviewed to understand how these were missed and the Recycled Water Risk Assessment Workshop SOP revised as necessary.
				REC-2022-07 : By 31 December 2023, CCP 1 turbidity monitoring at the Richmond WRRF is to be moved to monitor combined filter effluent. The status of recycled water tertiary filter turbidity monitoring is ambiguous across a number of Sydney Water recycled water plants, in relation to the use of individual online filter turbidity monitoring. A decision should be made for all plants, based on risk, and a program of implementation developed and agreed to by NSW Health.
				REC-2022-08: By 30 June 2023, the sampling process for the Recycled Water Treatment Detailed Verification Monitoring for Pathogen Reduction procedure is to be reviewed. This should ensure that wet weather flows within the operating envelope of recycled water schemes are not systematically omitted from being sampled. The monitoring program should ensure that over a number of monitoring cycles that all operating conditions are included in the sampling program. This may also need to consider some targeted event monitoring.
5.5.2	Sydney Water must ensure that the Asset Management System is fully implemented and that all relevant activities are carried out in accordance with the Asset Management System.	Non-Compliant (Material)	We have assigned Sydney Water a Non-compliant (material) grade for clause 5.5.2. This agrees with the auditor's finding. Sydney Water demonstrated that it had, in most respects, continued to fully and effectively implement its Asset Management System during the audit period.	 REC-2022-09: By 30 June 2023, Sydney Water should implement processes to ensure that all corrective maintenance is managed through the maintenance management/work order system, prioritised on the basis of assessed risk and any delay to implementation is justified and clearly documented. REC-2022-10: By 30 June 2023, Sydney Water should implement processes to ensure that major periodic maintenance is prioritised on the basis of assessed risk, any deferment from the planned timeline should be based on condition/performance assessment and be clearly documented

Licence clause	Requirement	Compliance grade	Audit finding	Recommendations
			Sydney Water demonstrated that it has managed its asset portfolio in accordance with the Asset Management System through the provision of example documentation and records related to the strategy and planning; asset creation; maintenance; and asset renewal phases of the asset lifecycle. Evidence of ongoing asset management awareness training and internal audit of the Strategic Asset Management Plan was also provided.	
			There were, however, some examples identified during the audit site inspections where maintenance inspection regimes had not always been implemented and identified issues had not always been dealt with in a timely and effective manner. Issues identified at the South Windsor Reservoirs and North Richmond Water Filtration Plant (for example) present a risk to water quality and potentially public health. It was not apparent that all programmed maintenance had been completed or evidence that recommendations arising from condition assessments in respect of the tertiary filters at the Richmond Water Resource Recovery Facility had been implemented in a timely manner.	
			from NSW Health, which raised concerns regarding Sydney Water's process for prioritising and addressing outstanding issues with water filtration plant and network assets.	
			In view of the identified deficiencies and the potential impacts, it is assessed that Sydney Water has not demonstrated full compliance with this obligation. Given that the resultant risks have the potential to be significant, and there appears to be reoccurring failure to address identified maintenance issues, the non-compliance is considered to be material.	
6.5.2	The family violence policy must, at a minimum, provide for: a) the protection of private and confidential information;		We have assigned Sydney Water a Compliant (minor shortcomings) grade for clause 6.5.2. This agrees with the auditor's findings.	REC-2022-11 By 30 June 2023, Sydney Water should include additional practice-based guidance in respect of "processes that minimise the reliance on individuals to disclose their family violence" in its Family Violence Policy.

Licence clause	Requirement	Compliance grade	Audit finding	Recommendations
	 b) access to payment difficulty programs; c) processes that minimise the reliance on individuals to disclose their family violence; and d) processes for referrals to specialist services. 	Compliant (minor shortcomings)	Sydney Water demonstrated that its Family Violence Policy addresses the identified minimum requirements in respect of privacy and confidentiality, access to payment difficulty programs, and processes for referrals to specialist services. However, processes that minimise the reliance on individuals to disclose their family violence are not clearly documented. Whilst this aspect may be considered to be broadly covered under the privacy and confidentiality provisions, there is scope to include and implement guidance that is reflective of actual practice.	
9.1.2	From the Commencement Date (or another date approved by IPART in writing), Sydney Water must ensure that the Cyber Security Management System is fully implemented and that all relevant activities are carried out in accordance with the Cyber Security Management System.	Compliant (minor shortcomings)	The Auditor did not raise any new recommendations for Sydney Water. The auditor noted that the ongoing actions in progress from the previous Cyber Security Audit in 2020 and 2021 are expected to address the minor shortcomings identified in the Cyber Security Management System: Note: these recommendation numbers differ from the operational audit numbering system.	Confidential

3 Progress on previous audit findings

The previous operational audits identified areas where Sydney Water did not achieve compliance with its Licence obligations. We made recommendations to address these issues.¹ Table 3 outlines Sydney Water's progress in implementing the recommended actions.

Of the 28 recommendations to be completed by Sydney Water, 27 were required to be completed within the audit period. Sydney Water:

- completed 24 out of the 27 outstanding recommendations
- made progress in addressing the outstanding 3 recommendations for this audit period but did not complete these by the target dates
- one recommendation was due for completion outside the audit period and will be assessed at the next audit.

The 3 overdue recommendations relate to compliant (minor shortcomings) grades and are considered low risk.

These 3 overdue recommendations, and the recommendation that is due for completion after the 2022 audit period, will be audited in the 2023 audit period.

Table 3 Sydney Water's progress in 2022 to address our recommendations from the previous audits³

Licence clause	Compliance Grade	Recommendation	Progress
3.1.1 Economic approach for water conservation (water conservation program)	Non-Compliant (Non-Material)	2020-02: Sydney Water must update the Water Conservation Report to include more information on the development, delivery and monitoring of the program. This should include more information on how projects are first identified from the wide range of potential options, assessment of project effectiveness and monitoring of benefits. Sydney Water must develop the structure of this report and content to be included in time for the next water conservation report for the 2020-21 year.	Complete
4.1.1 Water Quality Management System (Drinking water)	Compliant (minor shortcomings)	2020-06: By 30 June 2021, Sydney Water must review the Corporate Risk Matrix to rectify inconsistencies between Public Health and Injury / Illness consequence descriptors, including liaison with NSW Health.	Complete
		2020-07: By 31 March 2021, Sydney Water must formalise the process for how the updated risk matrix and risk procedure is being implemented across water supply systems, including resolving inconsistencies in superseded documentation references, particularly noting the IMS-Operational Risk Assessment Workshop (KnowRisk Review) SOP for Drinking Water procedures.	Complete
		2020-08: By 30 June 2021, Sydney Water must establish processes for identifying and actioning improvement items identified in risk assessments to ensure timely resolution. After Sydney Water has established these processes, update the Product Management Improvement Framework.	Complete
4.2.1 Water Quality Management System (Recycled water)	Compliant (minor shortcomings)	2020-11: By 30 September 2021, Sydney Water must update critical control point documentation for the audited WRP to document the basis for the CCT low flow critical control point.	Complete. It is noted that the low flow rate is still in the Recycled Water Product Specification. New recommendation – By 30 June 2023 update the Recycled Water Product Specification to remove the low flow on the West

³ Note that this table does not address progress on Recommendations from the Cyber Security Management System audit conducted in 2020.

Licence clause	Compliance Grade	Recommendation	Progress
		2020-12: By 31 December 2021, Sydney Water must update scheme specific referencing in recycled water quality management plans that are scheduled for review in the next audit period to include reference to scheme specific documentation, including the audited Recycled Water Quality Management Plan. Include an action in the Recycled Water Improvement Register to update all scheme specific plans with this information at their scheduled review.	Complete
		2020-13: By 31 December 2021, Sydney Water must update the recycled water audit schedule to ensure an annual review of high risk AGWR elements at a number of recycled water schemes each year (as agreed with NSW Health). The schedule should be risk-based and consider locations and exposures. All recycled water schemes should be audited within a 3-year cycle.	Ongoing Sydney Water provided an updated audit plan for the 2022-23 audit period that shows that high risk elements are being prioritised annually. However, the audit plan does not demonstrate how the audit program will achieve the auditing of all schemes over a 3-year period. To complete the recommendation, a 3-year audit plan is required. This recommendation remains open and will be checked for completion at the next operational audit.
4.2.3 Water Quality Management System (Recycled water)	Compliant (minor shortcomings)	2020-15: By 30 June 2021, Sydney Water must review permissions and limits in SCADA to ensure that changes outside critical limits can only be made in accordance with an appropriate change management procedure and that critical limits align with the critical control point documentation for all plants.	Complete
5.1.1 Water continuity standard	Non-Compliant (Non-Material)	2020-18: By 31 December 2021, Sydney Water must complete lessons learned reports for the five largest unplanned water supply interruption events that occurred in 2019-20 and identify what measures could be implemented in future to reduce the number of properties impacted by future interruptions at these locations. Sydney Water should demonstrate how it has considered the application of these lessons learned across its entire network.	Complete
5.5.2 Asset management	Non-Compliant (Non-Material)	 2020-20: By 31 December 2021, Sydney Water must review its inspection programs for all asset classes to incorporate lessons learned from its current inspection program for sewage pumping stations. The output should be an updated condition assessment strategy (or similar) document(s) that specifies the desired approach to condition assessments for all major asset classes including (but not limited to): consideration of risk of asset failure and consequence of failure frequency of inspection 	Complete

Licence clause	Compliance Grade	Recommendation	Progress
		 level of inspection (visual v detailed inspection) and situations where more detailed inspections are warranted inspection techniques resourcing and support considerations such as access and shutdowns. 	
10.2.2 Reporting	Non-Compliant (Non-Material)	2020-22: Sydney Water must include detailed and quantitative discussion regarding the drivers for observed performance and variances to historical performance for all Performance Standards in the Performance Standards Report. This should be implemented for the next Performance Standards Report which will be for the 2020-21 year. Under Sydney Water's Reporting Manual, the Performance Standards Report is due for submission by 1 September following the end of the relevant financial year (i.e., 1 September 2021).	Complete
10.2.4 Reporting	Compliant (minor shortcomings)	2020-23: By 30 June 2021, Sydney Water must improve document control of the records held in its systems by ensuring that information such as the version date, version number, change history and document author are included in all records.	Complete, but new recommendation made: REC-2022-13 By 30 June, Sydney Water should take action to ensure that the currency of controlled documents complies with its Key Performance Indicator (KPI) target of 5% for expired documents
4.1.1 Drinking water	Compliant (minor shortcomings)	 2021-1: By 30 June 2022 Sydney Water establish processes, accountabilities and schedules for the review of the DWQMP including descriptive text in Helix, accurate links within Helix, updating of the Drinking Water Management Manual. The review frequency should reflect the frequency with which each aspect changes. Processes to ensure the reviews are conducted must be established. Sydney Water must prioritise the review aspects noted in this audit report including Element 8 and the documentation of how Sydney Water meets its obligations to prepare an annual report to customers and stakeholders (element 10) so the DWQMP accurately reflects Sydney Water's practices. By 30 June 2023 Sydney Water ensures that the water quality management system and supporting procedures are current and do not rely solely on the specified review period but also consider non time-based triggers. 	Complete

Licence clause	Compliance Grade	Recommendation	Progress
		2021-02 : By 30 June 2022 the Macarthur Drinking Water Quality Management Plan be updated to address all the relevant actions in the Framework for drinking water quality management. There is also further opportunity for improvement to document the ADWG actions that are only addressed by Sydney Water's DWQMS.	Complete
4.1.3 Drinking water	Non-Compliant	2021-03: By 30 June 2022 Sydney Water reviews its process to ensure NSW Health is invited to all risk assessments which consider public health risks (across all relevant risk assessments, including operational, incident management, projects).	Complete
		2021-04: By 30th June 2022 Sydney Water completes its current improvement project on incident investigations and its current review cycle of preventative aspects of the Incident Management and Emergency Management Procedures, such as business impact assessments and continuity plans and have evidence of implementation of the project outcomes.	Complete
		2021-05: By 30 June 2022 Sydney Water has evidence to demonstrate that the operational risk assessment workshop procedure (D0000799) has been fully implemented for both the WFP and networks. This includes the identification of all recycle streams in the PFD as per D0000685.	Complete
		2021-06: By 30th June 2022 Sydney Water undertake a formal risk assessment on the residual lagoon at Macarthur WFP to identify circumstances where chemical spills and other contaminants may enter the lagoon and be returned to the head of the works and ensure processes and procedures for monitoring and managing these risks are adequate and implemented. This risk assessment may be undertaken as part of the annual risk review.	Complete
		2021-07: By 30th June 2022 Sydney Water review the instrument calibration and checks for the Hach Pocket Colorimeter to ensure the requirements are clarified, documented and implemented.	Complete
4.2.1 Recycled water	Compliant (minor shortcomings)	2021-08: By 30 June 2022, Sydney Water resolve or remove the discrepancies between the monitoring plans in the Liverpool RWQMP and the annual Recycled Water Monitoring Plan.	Complete
		2021-09: By 31 December 2022, Sydney Water must update Work Instruction for Creation of PFDs (D0000685) to include specific instructions and examples for recycled water. Update all recycled water flow diagrams to be consistent with the updated work instruction. Update the Liverpool RWQMP to only include one flow diagram.	Ongoing. Not due for completion during the audit period. Not all PFD have been updated yet. Also, the recycled water PFD example is inconsistent with the work instruction and should be revised. This recommendation remains open and will be checked for completion at the next operational audit.

Licence clause	Compliance Grade	Recommendation	Progress
		2021-10: By 30 June 2022, Sydney Water must incorporate management review requirements for recycled water and drinking water management systems into the Management Review Procedure.	Complete
		2021-11: By 30 June 2022, Sydney Water must incorporate audit requirements for recycled water and drinking water management systems into the 2LOA Audit Procedure.	Complete
4.2.3 Recycled water	Compliant (minor shortcomings)	2021-12: By 31 March 2022, Sydney Water must update Irrigation Scheme Monthly Reports to include explanations when fewer samples are required in the period than the frequency in the monitoring plan (e.g. if there are four weeks in the month why are less than four weekly samples required).	Complete
5.5.2 Asset management	Non-Compliant (Non-Material)	2021-13: By 30 June 2022 Sydney Water reviews its project development and assurance approach (i.e. business case and gateway process and documents) to determine whether the mitigation measures identified in project risks assessments are recorded and their implementation tracked.	Complete
		2021-14: By 30 June 2022 Sydney Water reviews any public health related project risks to determine whether the management of these risks is in accordance with its risk management framework.	Ongoing. To demonstrate that the issue (essentially assessment of risk relative to varying conditions, for example status pre and post implementation of capital works) has been effectively addressed, examples showing the progressive assessment of public health related risks throughout a project lifecycle should be provided. This recommendation remains open and will be checked for completion at the next operational audit.
9.1.2 Cyber security	Compliant (minor shortcomings)	The Auditor did not raise any new recommendations for Sydney Water. The auditor noted that the ongoing actions in progress from the previous Cyber Security Audit in 2020 and 2021 are expected to address the minor shortcomings identified in the Cyber Security Management System. Note: these recommendation numbers differ from the operational audit numbering system.	Confidential

Licence clause	Compliance Grade	Recommendation	Progress
10.2.2 Reporting	Non-Compliant (Non-Material)	2021-15: By 30th June 2022 Sydney Water, ensures the Quarterly – Water Quality Monitoring Report – Drinking Water (the public water quality reports) meets the requirements of the Reporting Manual to report each quarter on their performance against all health and aesthetic water characteristics and raw water operational characteristics identified in the Drinking Water Quality Management System.	Complete
10.2.3 Reporting	Non-Compliant (Non-Material)	2021-16: By 30 June 2022, Sydney Water conduct an internal audit of its reported environmental data to provide assurance that the data is accurate and in accordance with the reporting definitions.	Complete
Source:			

a) Sydney Water Corporation Operational Audit 2020 – Report to the Minister – Compliance Report, March 2021.

b) Sydney Water Corporation Operational Audit 2021 – Report to the Minister – Compliance Report, March 2022.

c) Viridis Consultants, Sydney Water 2022 Operational Audit Report, January 2022.

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.
\bigcirc	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.
8	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 Sydney Water's statement of compliance

Statement of Compliance 2022

For 2021/22

Submitted by Sydney Water Corporation

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

Sydney Water Corporation reports as follows:

- 1. This statement documents compliance during 2021-22 with all obligations to which Sydney Water Corporation is subject by virtue of its Operating Licence.
- 2. This report has been prepared by Sydney Water Corporation with all due care and skill, including to ensure that all information provided is true and correct, in full knowledge of conditions to which Sydney Water Corporation is subject under the Sydney Water Act 1994.
- 3. Schedule A provides information on all obligations with which Sydney Water Corporation did not comply during 2021-22.
- 4. Other than the information provided in Schedule A, Sydney Water Corporation has complied with all conditions to which it is subject.
- 5. This compliance reports have been approved by the Managing Director and the Chairman of the Board of Directors of Sydney Water Corporation.

DATE: 30 August 2022

DATE: 26 August 2022

Signed:

Signed: Grant King

Sydney ŴĂŤ~R

Name: Roch Cheroux

Name:

Designation: Managing Director

Designation: Chairman

Sydney Water Corporation ABN 49 776 225 038

1 Smith St Parramatta 2150 | PO Box 399 Parramatta 2124 | DX 14 Sydney | T 13 20 92 | www.sydneywater.com.au Delivering essential and sustainable water services for the benefit of the community



Schedule A - Non Compliances 2021-22

Nil return for 2021-22				
i. Date or period of non-compliance Not applicable				
ii. Nature and extent of non-compliance (including whether and how many customers have been affected) Not applicable				
iii. Results of any monitoring (where applicable) Not applicable				
iv. Reasons for non-compliance Not applicable				
v. Remedial action taken Not applicable				
vi. Actual/anticipated date of achieving compliance Not applicable				

C Audit process

C.1 Audit programme

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

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

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

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

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

C.2 2022 audit scope

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

The audit scope for Sydney Water's 2022 audit included obligations on:

- Licence context (Part 1) requirements on pricing and licence availability.
- Obligations to make services available (Part 2) supply of drinking water and disposal of wastewater.
- Water conservation and planning (Part 3) requirements on water conservation and water planning activities.
- Performance standards for water quality (Part 4) requirements on drinking water, recycled water and fluoridation.
- Performance standards for service interruptions (Part 5) requirements on service continuity and system performance standards, and asset management systems.

- Customers and consumers (Part 6) requirements on providing information, assistance options for payments, family violence policy, customer engagement, internal complaints handling, and external dispute resolution.
- Information and services for competitors (Part 8) publishing service information.
- Performance monitoring and reporting (Part 10) requirements on operational audits, information provision and reporting.

The audit scope is in Appendix D.

We also consulted with NSW Health, Environment Protection Authority (EPA), Fire and Rescue NSW (FRNSW), and Department of Planning, Industry and Environment (DPIE) and sought public submissions to determine the scope of the audit. We received submissions from NSW Health, EPA, FRNSW, and DPIE. We did not receive any public submissions.

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

- NSW Health suggested the following be considered:
 - Review the plans and procedures for operation of filtration plants in manual mode.
 - Review policies and procedures around timely and appropriate information sharing during incidents, with a focus on recommendations from the October 2021 taste and odour incident.
 - Review the installation and operation of the Nepean package membrane (water treatment) plant.
 - Review progress on actions to mitigate risks from unplanned outages including review of the notification protocols for outages.
 - Review the consistency of controls for critical processes.
 - Review the process for prioritising and addressing outstanding issues with water filtration plant and network assets.
- FRNSW provided comments on Sydney Water's commitment and actions in relation to their joint MOU, particularly in areas where FRNSW are not completely satisfied.
- EPA commented on occasions where Sydney Water had not met dry weather sewage overflow requirements in its environment protection licences, and in relation to sewer rising main failures during the audit period. EPA noted that it intends to impose a mandatory environmental audit on Sydney Water, focusing on preventing sewage overflows from sewer rising mains and pump stations.

C.3 2022 audit plan

We engaged Viridis Consulting to undertake the 2022 Sydney Water 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 Sydney Water and the auditor on the first day of the audit interviews, on 13 September 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 6 weeks before the audit interviews commenced).
- 3. Review reports and documents provided by Sydney Water in response to the questionnaire.
- 4. Conduct interviews with Sydney Water staff as appropriate.
- 5. conduct field verification to assess the implementation of Sydney Water's systems and procedures.
- 6. Assess the level of compliance (in line with our compliance grades) Sydney Water achieved for each of the identified Licence obligations and provide supporting evidence for this assessment.
- 7. Assess and report on progress by Sydney Water 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 reports to us and address comments from Sydney Water and us regarding draft audit findings.
- 10. Prepare and submit a final report outlining audit findings (Appendix D).

The auditor adopted a methodology consistent with IPART's *Audit Guideline Public Water Utilities* (July 2019). This 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* and from *ISO 55001:2014 Asset management system – Requirements.*

Where we support an auditor's recommendation, we make a recommendation based on the auditor's recommendation. Our recommendations are summarised in Table 2 of this report.

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

The auditor conducted audit interviews from 13 September 2022 to 15 September 2022. On 14 September 2022, the auditor undertook an in-person site visit to the following locations:

- Richmond WRRF
- South Windsor Reservoirs
- North Richmond WFP

• St Mary's Maintenance Depot.

The auditor assessed Sydney Water's compliance with the relevant requirements of the Licence per the compliance grades outlined in Appendix A.

D 2021 audit scope

2022 operational audit scope Sydney Water Corporation

2022 audit scope

This document sets out the 2022 operational audit scope for Sydney Water Corporation (Sydney Water). Auditors should note any directions in the comment's column of Table 2.

Audit period

The audit period is 1 July 2021 to 30 June 2022. Sydney Water will be audited for the full period against the 2019-2023 operating licence. We expect that interviews for the audit will be held in September 2022. However, this is subject to change depending on auditor availability.

Outstanding audit recommendations

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

Statement of compliance

The utility is required to provide a Statement of Compliance (SC), signed by the CEO and a Board Member, by 1 September. The SC is an exception-based report that outlines any non-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 Sydney Water Operating Licence 2019-2023 (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 Sydney Water, 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 Sydney Water Corporation

Licence clause	Operating Licence obligation	2022 audit requirement	Comments for the auditor
1	Licence and licence authorisation		
1.1.1	The objectives of this Licence are to:	NR	Information clause – does not require
	 authorise and require Sydney Water, within its Area of Operations, to: 		auun.
	i. store or supply water		
	ii. provide sewerage services		
	iii. provide Stormwater Drainage Systems; and		
	iv. dispose of Wastewater; and		
	 b) set efficient and effective terms and conditions, including quality and performance standards, that require Sydney Water to provide services in a way that: 		
	 supports its principal objectives under the Act to protect public health and the environment; 		
	ii. supports its principal objective under the Act to be a successful business, including by having regard to the interest of the community; and		
	iii. does not prevent or hinder competition.		
1.2	Area of operations		
1.2.1	This Licence applies to the Area of Operations specified in Schedule A.	NR	Information clause – does not require audit.
1.2.2	Sydney Water must publish on its website a map of its Area of Operations by 31 December 2019 (or another date approved by IPART in writing). Sydney Water must update the map within 30 days of any change to its Area of Operations.	Internal IPART check	This clause is not included in the auditor's scope.
1.3	Term of this licence		
1.3.1	The term of this Licence is four years from the Commencement Date.	NR	Information clause – does not require audit.
	[Note: On and from the Commencement Date, this Licence replaces any previous version of the operating licence granted to Sydney Water under section 12 of the Act.]		
1.4	Licence amendment	ND	
1.4.1	amend or substitute this Licence by notice in the New South Wales Government Gazette.	NR	audit.
1.4.2	Before notice of a proposed amendment to this Licence is tabled in Parliament under section 16 of the Act, the Minister must provide Sydney Water with reasonable notice of the proposed amendment to enable it to comply with the amendment if it takes effect.	NR	Information clause – does not require audit.
	[Note: The Customer Contract may be varied in accordance with section 59 of the Act and clause 14.2 of the Customer Contract. Such a variation is not an amendment to this Licence for the purpose of section 16 of the Act.].		

Licence clause	Орег	rating Licence ob	ligation	2022 audit requirement	Comments for the auditor
1.5	Non-exclusive lic	ence		•	
1.5.1	This Licence does providing service same as, or simila entitled to do so.	s not prohibit any oth s in the Area of Opera ar to, the Services, if t	er person from ations that are the he person is lawfully	NR	Information clause – does not require audit.
1.6	Availability of lice	nce			
1.6.1	Sydney Water mu to any person, fre	ust make a copy of th e of charge:	nis Licence available	Internal IPART check	This clause is not included in the auditor's scope.
	a) on its webs	iite; and			
	b) upon reque	est made to the Conta	act Centre.		
1.7	Pricing				
1.7.1	Sydney Water mu other amounts pa	ust set the level of fea ayable for its Services	es, charges, and in accordance with:	SC	No audit required this year. Technical non-compliance being addressed through the pricing determination
	a) the terms c	of the Licence;			through the pricing determination.
	b) the Act; and	b			
	c) any applica for fixing m IPART Act.	ble maximum prices aximum prices deter	or methodologies mined under the		
1.8	End of Term Revi	ew			
1.8.1	IPART intends to investigate:	review this Licence ir	n its final year to	NR	Information clause – does not require audit.
	a) whether th	is Licence is fulfilling	its objectives; and		
	b) any issues Licence tha	that have arisen durir at may impact its effe	ng the term of this ectiveness,		
	(the End of Term	Review).			
1.8.2	To assist IPART with the End of Term Review, Sydney Water must provide IPART with such information as IPART reasonably requires. Sydney Water must provide IPART with such information as IPART requests within a reasonable time.			NR	Information clause – does not require audit.
1.9	Notices				
1.9.1	Any notice or othe Licence must be:	er communication giv	ven under this	NR	Information clause – does not require audit.
	a) in writing a	ddressed to the inter	nded recipient; and		
	b) delivered o below (or th unless othe	r sent to one of the a ne last address notifie erwise specified in the	ddresses specified ed by the recipient), e Reporting Manual.		
	Sydney Water	Minister	IPART		
	Sydney Water The Managing Director Sydney Water 1 Smith Street Parramatta NSW 2150	The Hon. Melinda Pavey MP GPO Box 5341 Sydney NSW 2001	The Chief Executive Officer Independent Pricing and Regulatory Tribunal Level 15, 2-24 Rawson Place Sydney NSW 2000		
1.9.2	Any requests for a must be made by 3.1.7, 3.2.1, 3.2.6, 6 9.3.1.	approval under the fo Sydney Water's Mar .5.1, 6.6.6, 8.2.2, 8.2.3,	ollowing clauses naging Director: 1.2.2, 8.2.5, 8.2.6, 9.1.1, 8 or	NR	Information clause – does not require audit.

Licence clause	Operating Licence obligation	2022 audit requirement	Comments for the auditor
2.1	Licence authorisations		
2.1.1	This Licence authorises and requires Sydney Water to provide, construct, operate, manage and maintain efficient, co-ordinated and commercially viable systems and services for providing the following Services within the Area of Operations:	NR	Licence authorisation clause – does not require audit.
	a) storing and supplying water;		
	b) providing sewerage services; and		
	c) disposing of Wastewater.		
2.1.2	This Licence authorises and requires Sydney Water to provide, operate, manage and maintain a Stormwater Drainage System as described in section 14(1)(b) of the Act, except to the extent that the Minister is satisfied under sections 14(4) and 14(5) of the Act that satisfactory arrangements have been made for the applicable Service to be provided by another appropriate body.	NR	Licence authorisation clause– does not require audit.
2.1.3	This Licence authorises (but does not require) Sydney Water to provide, construct, operate, manage and maintain efficient, co-ordinated and commercially viable Stormwater Drainage Systems (and Services for providing those Stormwater Drainage Systems) within the Area of Operations in excess of the Stormwater Drainage System it is required to provide, operate, manage and maintain under clause 2.1.2. This includes increasing the capacity of the Stormwater Drainage System included in the business undertaking transferred under Part 3 of the Act from the Water Board to Sydney Water as at the date of the transfer of the business undertaking. <i>INote: For the avoidance of doubt, the provision, management and maintenance of Stormwater Drainage Systems (and Services for providing those Stormwater Drainage Systems) under clause 2.1 may include stormwater quality management and other measures as necessary to manage impacts of stormwater on waterway health.</i>]	NR	Licence authorisation clause – does not require audit.
2.2	Obligation to make services available		
2.2.1	Sydney Water must ensure that Services for the supply of Drinking Water and disposal of Wastewater are available on request for connection to any Property situated in the Area of Operations for which a connection is available.	SC	
2.2.2	Sydney Water must provide Services for the supply of Drinking Water and disposal of Wastewater on request to any licensee under the WIC Act, where that licensee is connected to (or where a connection is available in respect of that licensee to) Sydney Water's water supply system or sewerage system.	SC	
2.2.3	Connection to Sydney Water's systems for the provision of Services for the supply of Drinking Water and disposal of Wastewater is subject to any reasonable conditions that Sydney Water may determine to ensure the safe, reliable and financially viable supply of Drinking Water and disposal of Wastewater to Properties.	NR	Authorisation clause – does not require audit.

Licence clause	Operating Licence obligation	2022 audit requirement	Comments for the auditor
3.1	Economic approach for water conservation		
3.1.1	Sydney Water must maintain a water conservation program consistent with the Current Economic Method.	Audit	In the 2021 audit we assigned a Compliant grade for this clause. However, the auditor assessed that the Recommendation 2020-02 was not completed, noting that not all of the detail outlined in the Reporting Manual was captured by the Water Conservation Report.
3.1.2	Sydney Water must implement water conservation measures that have been assessed as economic as determined by the Current Economic Method.	Audit	In the 2021 audit we assigned a Compliant grade to this clause.
3.1.3	Sydney Water must make:	Internal IPART check	This clause is not included in the auditor's scope.
	a) a copy of the Current Economic Method;		
	 b) a plain English summary of the Current Economic Method; and 		
	c) the economic level of water conservation (expressed as the value of water in dollars per kilolitre and as the quantity of savings in megalitres per day) determined in accordance with the Current Economic Method, available:		
	d) to any person, free of charge upon request made to the Contact Centre; and		
	e) on Sydney Water's website.		
3.1.4	Sydney Water must update the economic level of water conservation using the Current Economic Method:	Audit	Audit for completeness with cl 3.1.1 and 3.1.2.
	a) for the purposes of clause 3.1.1 and 3.1.2—annually; and		
	b) or the purposes of clause 3.1.3(c)—monthly.		
3.1.5	The Minister may, at any time during the term of this Licence and in writing, direct Sydney Water to revise the Current Economic Method in any way the Minister requires.	NR	Information clause – does not require audit.
	[Note: The Minister may request IPART to undertake a review of the Current Economic Method during the term of this Licence. Such review may precede a direction given under clause 3.1.5.]		
3.1.6	Sydney Water must submit to the Minister the Current Economic Method revised in accordance with the written direction within:	SC	
	a) 30 days of receipt of that direction; or		
	b) any other timeframe agreed by the Minister.		
3.1.7	If the Minister approves the revised Current Economic Method, he or she will give written notice of the approval to Sydney Water.	NR	Information clause – does not require audit.
3.2	Water Planning	ND	Fixed deedline are with the state
3.2.1	By 1 December 2020 (or another date approved by the Minister in writing), Sydney Water must develop, and submit to the Minister:	NR	Fixed deadline requirement (only required to be audited in year of deadline).
	a) a long-term capital and operational plan; and		
	b) an emergency drought response plan.		

Licence clause	Operating Licence obligation	2022 audit requirement	Comments for the auditor
3.2.2	The plans referred to in clause 3.2.1 must address any written guidance that the Minister provides to Sydney Water	NR	Information clause – does not require audit.
3.2.3	Sydney Water must use its best endeavours to develop the plans referred to in clause 3.2.1 in cooperation with Water NSW.	NR	Information clause – does not require audit.
3.2.4	Sydney Water must implement any action that:	Audit	In the 2021 audit we assigned a
	 a) Sydney Water is responsible for delivering under the Metropolitan Water Plan; or 		Recommendation 2020-04 is complete and addresses the
	 b) the Minister directs, in writing, Sydney Water to implement. 		the water conservation program.
3.2.5	Sydney Water must participate cooperatively in any review of the Metropolitan Water Plan.	SC	
3.2.6	Sydney Water must develop and enter into a data sharing agreement with DPE by the Commencement Date (or another date approved by the Minister in writing) to assist in the development and review of the Metropolitan Water Plan (the Data Sharing Agreement)	SC	
3.2.7	In addition to any other matters agreed by Sydney Water and DPE, the Data Sharing Agreement must:	SC	
	 a) set out the roles and responsibilities of Sydney Water and DPE under the Data Sharing Agreement; 		
	 b) set out the types of data that are covered by the Data Sharing Agreement; 		
	 set out the purposes for the sharing of data and information; 		
	 d) set out the requirements that shared data and information must meet; 		
	 e) identify agreed timelines and the format for sharing data and information; and 		
	 f) identify procedures for resolving matters of conflict in providing data and information. 		
3.2.8	Once Sydney Water has entered into the Data Sharing Agreement it must comply with the Data Sharing Agreement.	SC	
3.2.9	Sydney Water must provide any data or information requested by the Minister in writing:	NR	Information clause – does not require audit.
	a) by the date specified by the Minister; and		
	b) to the Minister or, if the Minister so directs, to DPE.		
3.3	Priority Sewerage Program	60	
3.3.1	Sydney Water must participate cooperatively in any NSW Government review of the Priority Sewerage Program.	SC	
3.3.2	If required by the Minister, Sydney Water must implement and comply with any outcomes (including timeframes) of any NSW Government review of the Priority Sewerage Program.	SC	
	[Note: The areas to which the Priority Sewerage Program applies are Austral, Menangle, Menangle Park, Nattai, Scotland Island and Yanderra as listed in Schedule B of this Licence.]		
Licence clause	Operating Licence obligation	2022 audit requirement	Comments for the auditor
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4.1	Drinking Water	-	
4.1.1	Sydney Water must maintain a Management System that is consistent with the Australian Drinking Water Guidelines and any requirements relating to Drinking Water specified by NSW Health (the Drinking Water Quality Management System)	Audit	In the 2021 audit, we assigned Sydney Water a Compliant (Minor Shortcomings) grade for this clause. We audited elements 1-6, 8-10. This year we will audit elements 2-7, 11 and 12. The auditor will check completion of shortcomings found in the WQMS against some of these elements in previous audits.
			We sought comment from NSW Health on Sydney Water's performance against this clause and for input into the elements of the ADWG that should be audited. Refer to the submission from NSW Health for further information. Auditor should refer to Recommendations 2021-01, and 2020-02.
4.1.2	In the event of inconsistency between the requirements specified by NSW Health referred to in clause 4.1.1 and the Australian Drinking Water Guidelines, the requirements specified by NSW Health prevail.	NR	Information clause – does not require audit.
4.1.3	Sydney Water must ensure that the Drinking Water Quality Management System is fully implemented and that all relevant activities are carried out in accordance with the Drinking Water Quality Management System and to the satisfaction of NSW Health. <i>[Note: Sydney Water is to apply the Drinking Water Quality Management System to the Drinking Water system under its control, having regard to the entire Drinking Water supply system – from the water catchment to the Consumer.]</i>	Audit	In the 2021 audit, we assigned Sydney Water a Non-compliant (Non- material) grade for this clause. We audited elements 1-6, 8, 9 and 10. This year we will audit implementation of Sydney Water's DWQMS consistent with elements 2- 7, 11 and 12. The auditor will check completion of non-compliances found in the WQMS against some of these elements in previous audits.
			We sought comment from NSW Health on Sydney Water's performance against this clause and for input into the elements of the ADWG that should be audited. Refer to the submission from NSW Health for further information.
			Auditor should refer to Recommendations 2022-03 to 2021- 07

Licence clause	Operating Licence obligation	2022 audit requirement	Comments for the auditor
4.2	Recycled Water Sydney Water must maintain a Management System that is consistent with the Australian Guidelines for Water Recycling and any requirements relating to water recycling specified by NSW Health (the Recycled Water Quality Management System).	Audit	In the 2021 audit, we assigned Sydney Water a Compliant (Minor Shortcomings) grade for this clause. We audited elements 1-6 , 10 , 11 and 12 . This year we will audit elements 2 to 9 . The auditor will check close out of shortcomings found in the WQMS against some of these elements in previous audits. We sought comment from NSW Health on Sydney Water's performance against this clause and for input into the elements of the AGWR that should be audited. Refer to the submission from NSW Health for further information.
122		ND	Auditor should refer to Recommendations 2021-08 to 2021- 11.
4.2.2	In the event of inconsistency between the requirements specified by NSW Health referred to in clause 4.2.1 and the Australian Guidelines for Water Recycling, the requirements specified by NSW Health prevail.	NR	Information clause – does not require audit.
4.2.3	Sydney Water must ensure that the Recycled Water Quality Management System is fully implemented and that all relevant activities are carried out in accordance with the Recycled Water Quality Management System and to the satisfaction of NSW Health.	Audit	In the 2021 audit, we assigned Sydney Water a Compliant (Minor Shortcomings) grade for this clause. We audited elements 1-6 , 10 , 11 and 12 . This year we will audit implementation of Sydney Water's RWQMS consistent with elements 2 to 9 . The auditor will check completion of shortcomings found in the WQMS against some of these elements in previous audits. We sought comment from NSW Health on Sydney Water's performance against this clause and for input into the elements of the AGWR that should be audited. Refer to the submission from NSW Health for further information. Auditor should refer to Recommendations 2021-12
4.3	Fluoridation Code		
4.3.1	Sydney Water must comply with the Fluoridation Code and any requirements for fluoridation specified by NSW Health.	SC	
4.3.2	In the event of inconsistency between the requirements specified by NSW Health referred to in clause 4.3.1 and the Fluoridation Code, the requirements specified by NSW Health prevail.	NR	Information clause – does not require audit.

Licence clause	Operating Licence obligation	2022 audit requirement	Comments for the auditor
5.1	Water Continuity Standard		
5.1.1	Sydney Water must ensure that, in each financial year, at least 9,800 Properties per 10,000 Properties (in respect of which Sydney Water provides a Drinking Water supply service) receive a Drinking Water supply service unaffected by an Unplanned Water Interruption (the Water Continuity Standard).	SC	
5.1.2	Sydney Water must use:	SC	
	a) the Water Continuity Optimal Level; and		
	b) the Water Continuity Tolerance Band,		
	as inputs to decisions regarding the design, construction, operation and maintenance of its water supply system.		
5.1.3	For the purposes of clause 5.1.2:	NR	Information clause – does not require
	 a) the Water Continuity Optimal Level is 9,840 Properties per 10,000 Properties (in respect of which Sydney Water provides a Drinking Water supply service) in each financial year receiving a Drinking Water supply service unaffected by an Unplanned Water Interruption; and 		audit.
	 b) the Water Continuity Tolerance Band is the band of deviations from the Water Continuity Optimal Level between: 		
	i. the mandatory Water Continuity Standard (specified in clause 5.1.1 above); and		
	 an upper bound of 9,880 Properties per 10,000 Properties (in respect of which Sydney Water provides a Drinking Water supply service) in each financial year receiving a Drinking Water supply service unaffected by an Unplanned Water Interruption. 		
	[Note: Clause 5.1.2 requires Sydney Water to use the Water Continuity Optimum Level and Water Continuity Tolerance Band as inputs into certain decisions. If Sydney Water complies with clause 5.1.2, it will be compliant with this clause 5.1 even if the number of Properties unaffected by an Unplanned Water Interruption exceeds the upper bound of the Water Continuity Tolerance Band. However, IPART may consider the prudency and efficiency of any expenditure related to this level of performance at the next review of Sydney Water's prices.]		
5.1.4	Sydney Water must use the best available data (taking account of water pressure data, where available) to determine whether a Property has experienced an Unplanned Water Interruption.	SC	
5.1.5	If a Property experiences an Unplanned Water Interruption that was caused by a Third Party or a power failure, the Property is taken not to have experienced an Unplanned Water Interruption for the purposes of this clause 5.	NR	Information clause – does not require audit.

Licence clause	Operating Licence obligation	2022 audit requirement	Comments for the auditor
5.1.6	For the purpose of the Water Continuity Standard, Water Continuity Optimal Level and Water Continuity Tolerance Band:	NR	Information clause – does not require audit.
	 a) each separately billed part of a Multiple Occupancy Property is to be counted as a separate Property; and 		
	[Note: For example, a complex of five townhouses where each townhouse receives a separate Bill from Sydney Water is to be counted as five separate Properties. However, a block of five flats that only receives one Bill from Sydney Water is to be counted as a single Property.]		
	 b) each separate instance, in a financial year, of a single Property experiencing an Unplanned Water Interruption is to be counted as a separate Property that has experienced an Unplanned Water Interruption. 		
5.2	Water Pressure Standard		
5.2.1	Sydney Water must ensure that, in each financial year, at least 9,999 Properties per 10,000 Properties (in respect of which Sydney Water provides a Drinking Water supply service) receive a Drinking Water supply service affected by fewer than 12 Water Pressure Failures (the Water Pressure Standard).	SC	
5.2.2	A Property is taken to have experienced a Water Pressure Failure when:	NR	Information clause – does not require audit.
	 a) a person notifies Sydney Water that the Property has experienced a Water Pressure Failure and Sydney Water confirms that the Property has experienced a Water Pressure Failure; or 		
	 b) Sydney Water identifies that the Property has experienced a Water Pressure Failure (including through its data collection systems and hydraulic analysis). 		
5.2.3	A Property will not be taken to have experienced a Water Pressure Failure if that Water Pressure Failure occurred only because of:	NR	Information clause – does not require audit.
	 a) water usage in the case of a fire or other abnormal demand; or 		
	 b) a short term or temporary operational problem (such as a main break), including where caused by a Third Party, that is remedied within four days of its commencement. 		

Licence clause	Operating Licence obligation	2022 audit requirement	Comments for the auditor
5.2.4	For the purpose of the Water Pressure Standard:	NR	Information clause – does not require
	 a) where a Property experiences multiple Water Pressure Failures in a day, only one of those Water Pressure Failures is to count as a Water Pressure Failure experienced by that Property; 		audit.
	 b) where a Property experiences a Water Pressure Failure that affects more than one day, each day affected is to be counted as a separate Water Pressure Failure; 		
	 c) each separately billed part of a Multiple Occupancy Property is to be counted as a separate Property; 		
	[Note: For example, a complex of five townhouses where each townhouse receives a separate Bill from Sydney Water is to be counted as five separate Properties. However a block of five flats that only receives one Bill from Sydney Water is to be counted as a single Property.]		
	 a) each Property that is affected by 12 or more Water Pressure Failures in a financial year is to be counted once only as a Property that has been affected by 12 or more Water Pressure Failures in that financial year; and 		
	b) after 30 June 2020, where a Property in, or in the vicinity of, a Property Cluster, is connected for the first time to Sydney Water's Drinking Water supply system and Sydney Water has informed the owner (at the time of connection) of:		
	i. the risk of recurring Water Pressure Failures should the Property be connected to that system; and		
	ii. options to reduce that risk;		
	that Property is not to be counted for the purposes of the Water Pressure Standard.		
5.2.5	For each Property Cluster, Sydney Water must:	SC	Auditor to check for progress against
	 a) by 30 June 2020, review its business processes to ensure that no Property at risk of being affected by recurring Water Pressure Failures from the same cause is connected to Sydney Water's Drinking Water supply system, unless the owner (at the time of connection) is: 		Recommendation 2020-19.
	i. informed of that risk; and		
	ii. provided with options to reduce that risk; and		
	 b) by 31 October 2022, take steps to minimise or eliminate the risk of recurring Water Pressure Failures from that cause, in a manner that takes into account its Customers' willingness to pay for Drinking Water supply services. 		

Licence clause	Operating Licence obligation	2022 audit requirement	Comments for the auditor
5.3	Dry Weather Wastewater Overflow Standard		
5.3.1	Sydney Water must ensure that, in each financial year, at least:	SC	
	 a) 9,928 Properties per 10,000 Properties (in respect of which Sydney Water provides a sewerage service but excluding Public Properties) receive a sewerage service unaffected by an Uncontrolled Wastewater Overflow; and 		
	 b) 9,999 Properties per 10,000 Properties (in respect of which Sydney Water provides a sewerage service but excluding Public Properties) receive a sewerage service affected by fewer than three Uncontrolled Wastewater Overflows, 		
	(the Dry Weather Wastewater Overflow Standard).		
5.3.2	A Property is taken to have experienced an Uncontrolled Wastewater Overflow when:	NR	Information clause – does not require audit.
	 a) a person notifies Sydney Water that a Property has experienced a sewage overflow, where Sydney Water later confirms that the sewage overflow is an Uncontrolled Wastewater Overflow; or 		
	 b) Sydney Water's systems identify that a Property has experienced an Uncontrolled Wastewater Overflow. 		
5.3.3	For the purpose of the Dry Weather Wastewater Overflow Standard:	NR	Information clause – does not require audit.
	 a) each Multiple Occupancy Property is to be counted as a single Property; 		
	[Note: For example, a complex of five townhouses where each townhouse receives a separate Bill from Sydney Water is to be counted as a single Property.]		
	 b) for the purpose of clause 5.3.1(a), each separate instance, in a financial year, of a single Property experiencing an Uncontrolled Wastewater Overflow is to be counted as a separate Property that has experienced, in that financial year, an Uncontrolled Wastewater Overflow; and 		
	c) for the purpose of clause 5.3.1(b), each Property that experiences three or more Uncontrolled Wastewater Overflows in a financial year is to be counted once only as a Property that has experienced three or more Uncontrolled Wastewater Overflows in that financial year.		
5.4	Interpretation of standards		
5.4.1	In the case of any ambiguity in the interpretation or application of the Water Continuity Standard, the Water Pressure Standard, the Dry Weather Wastewater Overflow Standard or clause 5.2.5, IPART's interpretation or assessment of the standard or clause will prevail.	NR	Information clause – does not require audit.
5.5	Asset Management		
5.5.1	Sydney Water must maintain a Management System in relation to Sydney Water's Assets that is consistent with the Australian Standard AS ISO 55001:2014 Asset management – Management systems – Requirements (the Asset Management System).	SC	

Licence clause	Operating Licence obligation	2022 audit requirement	Comments for the auditor
5.5.2	Sydney Water must ensure that the Asset Management System is fully implemented and that all relevant activities are carried out in accordance with the Asset Management System.	Audit	In the 2021 audit, we assigned Sydney Water a Non-Compliant (Non Material) grade for this clause. The auditor assigned a material non- compliance grade.
			Auditor to check for progress against Recommendations 2021-13 and 14.
6.1	Customer contract		
6.1.1	The Customer Contract sets out the rights and obligations of Customers and Sydney Water in relation to the Services provided in accordance with this Licence. The Customer Contract is set out in Schedule C of this Licence.	NR	Information clause – does not require audit.
6.1.2	Sydney Water must make a copy of the Customer Contract available to any person, free of charge:	Internal IPART check	This clause is not included in the auditor's scope.
	a) on its website; and		
	b) upon request made to the Contact Centre.		
6.2	Providing information to Customers	Audit	This is the first time this clause has
0.2.1	that:	Audit	been audited under the 2019-2023 licence.
	 a) provide a brief explanation of the Customer Contract; 		
	 b) summarise the key rights and obligations of Customers under the Customer Contract; 		
	 c) refer to the types of account relief available for Customers experiencing financial hardship; 		
	 d) outline the rights of Customers to claim a rebate and the conditions that apply to those rights; 		
	 e) contain information regarding how to contact Sydney Water by telephone, email or post; and 		
	f) contain information regarding the ability of a Customer to enter into agreements with Sydney Water separate to the Customer Contract for the provision of Services by Sydney Water to the Customer.		
6.2.2	Sydney Water must update the communication or communications to reflect any variations made to the Customer Contract.	SC	
6.2.3	Sydney Water must:	Audit	This is the first time this clause has
	 a) provide the communication or communications and any updates, free of charge to: 		been audited under the 2019-2023 licence.
	i. Customers at least annually with their Bills; and		
	ii. any person upon request made to the Contact Centre; and		
	b) make the communication or communications and any updates publicly available on its website, free of charge, within 60 days of the commencement of the Customer Contract or any communication update.		

Licence clause	Operating Licence obligation	2022 audit requirement	Comments for the auditor
6.2.4	Sydney Water must publish on its website and advertise at least annually in a manner that Sydney Water is satisfied is likely to come to the attention of members of the public, information as to:	Audit	This is the first time this clause has been audited under the 2019-2023 licence.
	 a) the types of account relief available for Customers experiencing payment difficulty; and 		
	 b) rights of Customers to claim rebates and the conditions that apply to those rights 		
6.3	Consumers		
6.3.1	Sydney Water's obligations under the following clauses of the Customer Contract are extended to Consumers as though the Consumers were parties to the Customer Contract:	Audit	This is the first time this clause has been audited under the 2019-2023 licence.
	 a) clause 5.1 (Payment difficulties and assistance options for all customers); 		
	b) clause 6.5 (Occupiers (tenants) may pay charges to avoid restriction or disconnection);		
	 c) clause 12 (If I am unhappy with the service provided by Sydney Water what can I do?); 		
	d) clause 13 (Consultation, information and privacy); and		
	e) clause 14 (When does this contract with Sydney Water terminate?).		
6.4	Assistance Options for Payment Difficulties and Actions for I	Non-Payment	
6.4.1	Sydney Water must maintain and fully implement:	Audit	This clause was audited in 2020 and
	 a payment difficulty policy that assists residential Customers experiencing payment difficulty to better manage their current and future Bills; 		was assigned a compliant grade.
	 b) procedures relating to a payment plan for residential Customers who are responsible for paying their Bills and who are, in Sydney Water's reasonable opinion, experiencing payment difficulty; 		
	 c) procedures for identifying the circumstances under which Sydney Water may disconnect or restrict the supply of water to a Customer's Property; and 		
	 d) provisions for self-identification, identification by community welfare organisations and identification by Sydney Water of residential Customers experiencing payment difficulty, 		
	(the Assistance Options for Payment Difficulties and Actions for Non-Payment).		
6.4.2	Sydney Water must provide, free of charge, an explanation of the Assistance Options for Payment Difficulties and Actions for Non-Payment on its website and to:	Audit	This clause was audited in 2020 and was assigned a compliant grade.
	a) all residential Customers, at least annually with their Bills;		
	 b) residential Customers who Sydney Water identifies as experiencing payment difficulty on the date that Sydney Water first identifies that the Customer is experiencing payment difficulty; and 		
	any other person upon request made to the Contact Centre.		

Licence clause	Operating Licence obligation	2022 audit requirement	Comments for the auditor
6.5	Family Violence	-	
6.5.1	Sydney Water must develop and implement a family violence policy by 1 July 2020 (or another date approved by IPART in writing).	Audit	This clause was audited in 2020 and was assigned a compliant grade.
6.5.2	The family violence policy must, at a minimum, provide for:	Audit	This clause was audited in 2020 and
	 a) the protection of private and confidential information; 		was assigned a compliant grade.
	b) access to payment difficulty programs;		
	 c) processes that minimise the reliance on individuals to disclose their family violence; and 		
	d) processes for referrals to specialist services.		
6.6	Customer engagement		
6.6.1	Sydney Water must undertake customer engagement to understand its customers' preferences and willingness to pay for service levels. The customer engagement must be relevant, representative, proportionate, objective, clearly communicated and accurate.	Audit	This is the first time this clause has been audited under the 2019-2023 licence.
6.6.2	Sydney Water must establish and regularly consult with its Customer Council.	Audit	This is the first time this clause has been audited under the 2019-2023 licence.
6.6.3	Sydney Water must provide the Customer Council with information in Sydney Water's possession or under its custody or control necessary to enable the Customer Council to discharge the tasks assigned to it, other than information or documents that are confidential or privileged.	Audit	This is the first time this clause has been audited under the 2019-2023 licence.
6.6.4	Sydney Water must keep minutes of proceedings of the Customer Council and make a copy of the minutes available to any person, free of charge, upon request made to the Contact Centre.	Audit	This is the first time this clause has been audited under the 2019-2023 licence.
6.6.5	Sydney Water must undertake a review of the operation of the Customer Council. The review must include an assessment of the Customer Council's role, objectives, outcomes and membership, including whether the Customer Council could be used to better support customer engagement, as required by clause 6.6.1.	Audit	This is the first time this clause has been audited under the 2019-2023 licence.
6.6.6	Sydney Water must report to IPART on the completed review and its outcomes by 30 June 2020 (or another date approved by IPART in writing).	NR	Fixed deadline requirement (only required to be audited in year of deadline).
6.7	Internal complaints handling		
6.7.1	Sydney Water must maintain a procedure for receiving, responding to and resolving Complaints. The procedure must be consistent with Australian Standard AS/NZS 10002:2014 – Guidelines for complaint management in organizations (the Internal Complaints Handling Procedure).	Audit	This is the first time this clause has been audited under the 2019-2023 licence.
6.7.2	Sydney Water 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	Audit	This is the first time this clause has been audited under the 2019-2023 licence.
6.7.3	Sydney Water must provide to Customers, at least annually with their Bills, information concerning internal Complaints handling. The information must explain how to make a Complaint and how Sydney Water will receive, respond to and resolve Complaints.	Audit	This is the first time this clause has been audited under the 2019-2023 licence.

Licence clause	Operating Licence obligation	2022 audit requirement	Comments for the auditor
6.7.4	Sydney Water must make the information concerning internal Complaints handling referred to in clause 6.7.3 available to any person, free of charge:	Internal IPART check	This clause is not included in the auditor's scope.
	a) on its website; and		
	b) upon request made to the Contact Centre.		
6.8	External dispute resolution scheme		
6.8.1	Sydney Water must be a member of the Energy & Water Ombudsman NSW to facilitate the resolution of disputes between Sydney Water and its Customers and Consumers.	Internal IPAR I check	I his clause is not included in the auditor's scope.
6.8.2	Sydney Water must:	Audit	This is the first time this clause has
	a) prepare a communication that:		licence.
	 lists the dispute resolution services provided by the Energy & Water Ombudsman NSW, including any right to have a Complaint or dispute referred to the Energy & Water Ombudsman NSW; and 		
	ii. explains how a Consumer can contact the Energy & Water Ombudsman NSW;		
	 b) provide a copy of that communication, free of charge to Customers at least once a year with their Bills; and 		
	c) make a copy of that communication available to any person, free of charge:		
	i. on its website; and		
	ii. upon request made to the Contact Centre.		
7.1	Memoranda of Understanding with WAMC, NSW Health and	d EPA	
/.1.1	Sydney Water must maintain the memoranda of understanding entered into under section 35 of the Act with:	SC	
	 a) the Water Administration Ministerial Corporation (WAMC); 		
	b) the Secretary of the Ministry of Health (NSW Health); and		
	c) the Environment Protection Authority (EPA).		
7.1.2	The purpose of the memoranda of understanding referred to in clause 7.11 is to form the basis for cooperative relationships between the parties. In particular:	NR	Information clause – does not require audit.
	 a) the purpose of the memorandum of understanding with WAMC is to recognise the role of WAMC in regulating water access, use and management and Sydney Water's right to use water vested in WAMC; 		
	 b) the purpose of the memorandum of understanding with NSW Health is to recognise the role of NSW Health in providing advice to the NSW Government in relation to Drinking Water quality standards and the supply of water which is safe to drink; and 		
	c) the purpose of the memorandum of understanding with EPA is to recognise the role of EPA as the environment regulator of New South Wales and to commit Sydney Water to environmental obligations.		

Licence clause	Operating Licence obligation	2022 audit requirement	Comments for the auditor
7.2	Memorandum of Understanding with FRNSW		
7.2.1	Sydney Water must use its best endeavours to maintain a memorandum of understanding with Fire and Rescue NSW (FRNSW).	SC	
7.2.2	Sydney Water must use its best endeavours to comply with the memorandum of understanding with FRNSW.	SC	FRNSW notes that Sydney Water has not provided sufficient resource commitment to provide a comprehensive data set detailing the performance of the entire Sydney Water network (as per cl 7.2.4 (b)(ii).
7.2.3	The purpose of the memorandum of understanding with FRNSW is to form the basis for cooperative relationships between the parties. In particular, the purpose is to:	NR	Information clause – does not require audit.
	 a) develop the roles and responsibilities of the parties as they relate to each other; 		
	b) identify the needs and constraints of the parties as they relate to each other; and		
	 c) identify and develop strategies for efficient and effective provision of firefighting water consistent with the goals of each party. 		
7.2.4	The memorandum of understanding with FRNSW must require the maintenance of a working group and must provide that:	SC	
	 a) the working group must include representatives from Sydney Water and FRNSW and may include representatives from other organisations such as the NSW Rural Fire Service; and 		
	 b) the working group is to consider the following matters (at a minimum): 		
	i. information sharing arrangements between Sydney Water and FRNSW;		
	 agreed timelines and a format for Sydney Water to provide a report to FRNSW detailing the network performance with regard to availability of water for firefighting (taking into account the minimum available flow and pressure in localised areas of the network); 		
	iii. arrangements for Sydney Water to consult with FRNSW in the design of new assets and planning of system maintenance, where planning indicates that minimum available flow and pressure may unduly impact firefighting in the network section under consideration; and		
	iv. other matters as agreed by both Sydney Water and FRNSW		
8.1	Negotiations with WIC Act licensees and Potential Competit	ors	
8.1.1	Sydney Water must negotiate the provision of Services to WIC Act licensees and Potential Competitors in Good Faith.	SC	

Licence	Operating Licence obligation	2022 audit	Comments for the auditor
82	Publications of servicing information	requirement	
8.2.1	Sydney Water must, by the dates specified in this clause 8.2, publish electronically (in a form accessible from its website) at least ten years of servicing information for each major water system and wastewater system. The servicing information for each major water system and wastewater system must, at a minimum, include information on:	NR	Information clause – does not require audit.
	a) current and projected demand;		
	b) current and projected capacity constraints;		
	 c) indicative costs of alleviating or deferring capacity constraints; 		
	d) locations where further investigation is needed; and		
	 key sources of information used to develop the servicing information where those sources are publicly available, 		
	(the Servicing Information).		
8.2.2	Sydney Water must, by 30 September 2020 (or another date approved by IPART in writing), publish electronically the Servicing Information for each major water system and wastewater system that it has available by that date that is in a form suitable for publication.	Internal IPART check	This clause is not included in the auditor's scope.
8.2.3	Sydney Water must continue to publish Servicing Information for each major water system and wastewater system as it becomes available. Sydney Water must publish all Servicing Information by 30 June 2021 (or another date approved by IPART in writing).	Internal IPART check	This clause is not included in the auditor's scope.
8.2.4	Sydney Water must publish updated Servicing Information for each major water system and wastewater system as soon as practicable after any such updated Servicing Information becomes available in a form suitable for publication.	SC	
8.2.5	Sydney Water must review and update the Servicing Information for each major water system and wastewater system at least once between:	NR	Fixed deadline requirement (only required to be audited in year of deadline).
	 a) The date that is 12 months after the initial publication of the Servicing Information for that major water system or wastewater system under clause 8.2.2; and 		
	b) 30 June 2023 (or another date approved by IPAR I in writing).		
8.2.6	Sydney Water is not required to comply with clauses 8.2.1 to 8.2.5 in relation to a particular major water system or wastewater system to the extent approved by IPART in writing. Sydney Water may apply to IPART for approval under this clause only where there are critical infrastructure security concerns in relation to a particular major water system or wastewater system.	NR	Information clause – does not require audit.
8.3	Code of Conduct		
8.3.1	Sydney Water must use its best endeavours to cooperate with each WIC Act licensee to establish a code of conduct required by a WIC Act licence where Sydney Water has received a written request from the WIC Act licensee to establish such a code.	SC	

Licence clause	Operating Licence obligation	2022 audit requirement	Comments for the auditor
8.3.2	Where the Minister administering the WIC Act has established a code of conduct under clause 25 of the WIC Regulation, Sydney Water will be taken to have satisfied its obligation under clause 8.3.1 by applying the code of conduct to the relevant licensee under the WIC Act.	NR	
9.1 9.1.1	Cyber Security Management System From the Commencement Date (or another date approved by IPART in writing), Sydney Water must maintain a Management System for cyber security of Sydney Water's Assets (the Cyber Security Management System) that covers:	NR	Audited separately by Cyber Security specialist auditor.
	 a) information technology environments, hardware and systems; and b) operational technology environments, hardware and systems 		
9.1.2	From the Commencement Date (or another date approved by IPART in writing), Sydney Water must ensure that the Cyber Security Management System is fully implemented and that all relevant activities are carried out in accordance with the Cyber Security Management System.	NR	Audited separately by Cyber Security specialist auditor.
9.2 9.2.1	Critical infrastructure Compliance manager Sydney Water must nominate, by notice in writing to IPART and the Commonwealth Representative, an executive level employee as Critical Infrastructure Compliance Manager.	NR	Audited separately by Cyber Security specialist auditor.
	[Note: The reference to an executive level employee is a reference to a Level 3 employee or above under Sydney Water's structure at the Commencement Date.]		
9.2.2	Sydney Water's Critical Infrastructure Compliance Manager must be responsible for compliance with clause 9 of the Licence and Sydney Water's obligations under the <i>Security of Critical Infrastructure Act 2018</i> (Cth), and must act as the contact person for the Commonwealth Representative.	NR	Audited separately by Cyber Security specialist auditor.
9.3 9.3.1	National Security Clearances From 1 January 2020 (or another date approved by IPART in writing), Sydney Water must ensure that National Security Clearances are held by its Critical Infrastructure Compliance Manager, two board members and the executive level employees responsible for each of the following matters:	NR	Audited separately by Cyber Security specialist auditor.
	 a) operational technology security (including cyber security strategy, managing remote access to Assets and delivery of SCADA capability); 		
	 b) network operations security (including operation, maintenance and physical security of Assets); and c) Personnel security operations (including security of Personnel and security risks posed by Personnel). 		
	[Note: The responsibilities at (a) to (c) above may be held by a single employee or shared between multiple employees. To ensure compliance with this clause when employees resign or are on leave, Sydney Water should ensure that National Security Clearances are held by alternates with relevant experience.]		

Licence clause	Operating Licence obligation	2022 audit requirement	Comments for the auditor
10.1	Operational Audits		
10.1.1	Sydney Water must cooperate with an audit undertaken by IPART or an Auditor of Sydney Water's compliance with any of the following:	Internal IPART check	This clause is not included in the auditor's scope.
	a) this Licence (including the Customer Contract);		
	b) the Reporting Manual; and		
	any matters specified by the Minister, (the Operational Audit).		
10.1.2	For the purpose of any Operational Audit or verifying a report on an Operational Audit, Sydney Water must, within a reasonable period of receiving a request from IPART or an Auditor, provide IPART or the Auditor with all the information in Sydney Water's possession, custody or control that is necessary to conduct the Operational Audit, including any information that is reasonably requested by IPART or an Auditor.	Internal IPART check	This clause is not included in the auditor's scope.
10.1.3	For the purpose of any Operational Audit or verifying a report on an Operational Audit, Sydney Water must permit IPART or the Auditor to:	Internal IPART check	This clause is not included in the auditor's scope.
	 access any works, premises or offices occupied by Sydney Water; 		
	 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 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 Sydney Water that are maintained in relation to the performance of Sydney Water'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 Sydney Water, including Sydney Water's officers and employees.		
10.2	Reporting		
10.2.1	IPART has the function of determining Sydney Water's reporting and auditing obligations and publishing these obligations in a reporting manual (the Reporting Manual).	NR	Information clause – does not require audit.
10.2.2	Sydney Water must comply with all of its reporting and auditing obligations set out in the Reporting Manual, including in relation to:	SC	Auditor to check for progress against Recommendation 2021-15.
	a) water conservation and planning;		
	 b) performance standards for water quality; 10 Performance Monitoring and Reporting 26 Operating Licence 2019-2023 		
	c) performance standards for service interruptions;		
	d) Customers and Consumers;		
	e) information and services for competitors;		
	f) critical infrastructure security; and		
	g) performance monitoring and reporting.		

Licence clause	Operating Licence obligation	2022 audit requirement	Comments for the auditor
10.2.3	Sydney Water must:	SC	Auditor should check progress
	 a) compile indicators of the direct impact on the environment of Sydney Water's activities (the Environment Performance Indicators). The Environment Performance Indicators must be consistent with the performance indicators specified in the Reporting Manual with an indicator number starting with 'E'; 		against recommendation 2021-16.
	 b) monitor and compile data on the Environment Performance Indicators, including data that allows a year to year comparison of the Environment Performance Indicators; and 		
	c) report on the Environment Performance Indicators in accordance with the Reporting Manual.		
10.2.4	Sydney Water must maintain sufficient record systems to enable Sydney Water to report accurately in accordance with this clause 10.2.	SC	Auditor should check progress against recommendation 2020-23.
10.2.5	In the case of any disagreement between IPART and Sydney Water regarding the interpretation or application of any requirements of the Reporting Manual, IPART's interpretation or assessment of the application of the requirements will prevail.	NR	Information clause – does not require audit.
10.3	Provision of information for performance monitoring		
10.3.1	Sydney Water must provide IPART information relating to the performance of any of Sydney Water's obligations under clause 10.2 (including providing IPART physical and electronic access to the records required to be kept under clause 10.2) within a reasonable time of Sydney Water's receiving a request from IPART for that information.	Internal IPART check	This clause is not included in the auditor's scope.
10.3.2	Sydney Water must provide IPART such information as is reasonably required to enable IPART to conduct any review or investigation of Sydney Water's obligations under this Licence within a reasonable time of Sydney Water receiving a request from IPART for that information.	Internal IPART check	This clause is not included in the auditor's scope.
10.3.3	If Sydney Water engages any person (including a subsidiary) to undertake any activities on its behalf, it must take all reasonable steps to ensure that, if required by IPART or an Auditor, any such persons provide information and do the things specified in clause 10.1 as if that person were Sydney Water.	Internal IPART check	This clause is not included in the auditor's scope.
10.3.4	If IPART or an Auditor requests information that is confidential, the information must be provided to IPART or the Auditor, subject to IPART or the Auditor entering into reasonable arrangements to ensure that the information remains confidential.	Internal IPART check	This clause is not included in the auditor's scope.
10.3.5	Sydney Water must provide NSW Health with information relating to water quality in the manner and form specified by NSW Health within a reasonable time of receiving NSW Health's request.	Internal IPART check	This clause is not included in the auditor's scope.
	[Note: Under section 19 of the Public Health Act 2010 (NSW), the Secretary of NSW Health may require Sydney Water to produce certain information.]		

Source: IPART, Sydney Water Corporation five year audit program.

Recommendation number	Operational issue (licence reference where applicable)	IPART's recommendation to the Minister	Audit findings (Status will be reported by Sydney Water in audit recommendations update on 31 May 2022ª)	Guidance for 2022 audit
2020-02	Economic approach for water conservation (water conservation program) clause 3.1.1	Sydney Water must update the Water Conservation Report to include more information on the development, delivery and monitoring of the program. This should include more information on how projects are first identified from the wide range of potential options, assessment of project effectiveness and monitoring of benefits. Sydney Water must develop the structure of this report and content to be included in time for the next water conservation report for the 2020-21 year.	Ongoing Sydney Water has not provided all of the detail expected in the Reporting Manual within the Water Conservation Report. Therefore, while Sydney Water has made progress, the recommendation has not been fully addressed at this time. The next appropriate date to test this recommendation is submission of the 2021/22 Water Conservation Report.	Auditor to check for completion.
2020-06	Drinking water Clause 4.1.1	By 30 June 2021, Sydney Water must review the Corporate Risk Matrix to rectify inconsistencies between Public Health and Injury /Illness consequence descriptors, including liaison with NSW Health.	Ongoing	Auditor to check for completion.
2020-07:	Drinking water Clause 4.1.1	By 31 March 2021, Sydney Water must formalise the process for how the updated risk matrix and risk procedure is being implemented across water supply systems, including resolving inconsistencies in superseded documentation references, particularly noting the IMS-Operational Risk Assessment Workshop (KnowRisk Review) SOP for Drinking Water procedure.	Ongoing We are satisfied that Sydney Water has been progressing this recommendation, however as there is a requirement in the recommendation for implementing the updated risk matrix, we consider this recommendation open.	Auditor to check for completion.
2020-08:	Drinking water Clause 4.1.3	By 30 June 2021, Sydney Water must establish processes for identifying and actioning improvement items identified in risk assessments to ensure timely resolution. After Sydney Water has established these processes, update the Product Management Improvement Framework.	Ongoing Sydney Water is progressing the development of a Consolidated Action Plan to collate the actions from the risk assessments and track their progress.	Auditor to check for completion.

Table 3Recommendations / outstanding items from previous audits

Recommendation number	Operational issue (licence reference where applicable)	IPART's recommendation to the Minister	Audit findings (Status will be reported by Sydney Water in audit recommendations update on 31 May 2022 ^a)	Guidance for 2022 audit
2020-11:	Recycled water Clause 4.2.1	By 30 September 2021, Sydney Water must update critical control point documentation for the audited WRP to document the basis for the CCT low flow critical control point.	Ongoing Sydney Water advised it planned to review the CCT low flow setpoint during the review of the West Camden RWQMP. This was originally scheduled to be completed by 30 September 2021. However, the impact of COVID-19 restrictions has delayed this review particularly the sampling required to verify the log reduction values (LRVs). Sydney Water's revised timeframe for review of the West Camden RWQMP is December 2021. Sydney Water advised that the CCT low flow setpoint is to protect pumps and should not be a critical control point (CCP). It is not related to recycled water quality and Sydney Water propose to remove it as a CCP.	Auditor to check for completion.
2020-12:	Recycled water Clause 4.2.1	By 31 December 2021, Sydney Water must update scheme specific referencing in recycled water quality management plans that are scheduled for review in the next audit period to include reference to scheme specific documentation, including the audited Recycled Water Quality Management Plan. Include an action in the Recycled Water Improvement Register to update all scheme specific plans with this information at their scheduled review.	Ongoing Sydney Water advised that no RWQMP updates have been completed in the audit period. The review of Rouse Hill RWQMP is in progress and West Camden RWQMP review is on hold due to the need for repeat sampling that cannot be completed due to COVID-19 restrictions. Sydney Water advised that Rouse Hill RWQMP will be the first to be updated with scheme specific referencing. Action RW128 to streamline the RWQMPs in the Sydney Water Recycled Water Improvement Plan on 1 July 2021.	Auditor to check for completion.

Recommendation number	Operational issue (licence reference where applicable)	IPART's recommendation to the Minister	Audit findings (Status will be reported by Sydney Water in audit recommendations update on 31 May 2022 ^a)	Guidance for 2022 audit
2020-13:	Recycled water Clause 4.2.1	By 31 December 2021, Sydney Water must update the recycled water audit schedule to ensure an annual review of high risk AGWR elements at a number of recycled water schemes each year (as agreed with NSW Health). The schedule should be risk-based and consider locations and exposures. All recycled water schemes should be audited within a 3-year cycle.	 Ongoing Sydney Water have developed a spreadsheet with the following criteria for prioritising recycled water scheme audits: Number and priority of improvement plan actions that are open Number and priority of residual risk from recycled water risk assessments Number of incidents and hazards in 2020-21 Based on these criteria a judgement was made to prioritise the scheme audits and they were scheduled with all other audits in Sydney Water's quality management system. The criteria and proposed audit program presented to JOG in May 2021 While Sydney Water were able to explain the process to prioritise audits in the interviews, there is currently no procedure for how the criteria are applied. 	Auditor to check for completion.
2020-15:	Recycled water Clause 4.2.3	By 30 June 2021, Sydney Water must review permissions and limits in SCADA to ensure that changes outside critical limits can only be made in accordance with an appropriate change management procedure and that critical limits align with the critical control point documentation for all plants.	Ongoing Sydney Water has advised this action was not completed by 30 June 2021 due to underestimation of the approvals required and the timing needed to complete SCADA changes.	Auditor to check for completion.

Recommendation number	Operational issue (licence reference where applicable)	IPART's recommendation to the Minister	Audit findings (Status will be reported by Sydney Water in audit recommendations update on 31 May 2022ª)	Guidance for 2022 audit
2020-18:	Water Continuity Standard Clause 5.1.1	By 31 December 2021, Sydney Water must complete lessons learned reports for the five largest unplanned water supply interruption events that occurred in 2019-20 and identify what measures could be implemented in future to reduce the number of properties impacted by future interruptions at these locations. Sydney Water should demonstrate how it has considered the application of these lessons learned across its entire network.	Ongoing The auditor found sufficient works had been undertaken to ensure completion by the due date of 31 Dec 2021.	Auditor to check for completion.
2020-20:	Asset management Clause 5.5.2	By 31 December 2021, Sydney Water must review its inspection programs for all asset classes to incorporate lessons learned from its current inspection program for sewage pumping stations. The output should be an updated condition assessment strategy (or similar) document(s) that specifies the desired approach to condition assessment for all major asset classes including (but not limited to): - consideration of risk of asset failure and consequence of failure - frequency of inspection - level of inspection (visual v detailed inspection) and situations where more detailed inspections are warranted - inspection techniques resourcing and support considerations such as access and shutdowns.	Ongoing The auditor found sufficient works had been undertaken to ensure completion by the due date of 31 Dec 2021.	Auditor to check for completion.

Recommendation number	Operational issue (licence reference where applicable)	IPART's recommendation to the Minister	Audit findings (Status will be reported by Sydney Water in audit recommendations update on 31 May 2022 ^a)	Guidance for 2022 audit
2020-22:	Reporting Clause 10.2.2	Sydney Water must include detailed and quantitative discussion regarding the drivers for observed performance and variances to historical performance for all Performance Standards in the Performance Standards Report. This should be implemented for the next Performance Standards Report which will be for the 2020/21 year. Under Sydney Water's Reporting Manual, the Performance Standards Report is due for submission by 1 September following the end of the relevant financial year (i.e., 1 September 2021).	Ongoing The auditor found that Sydney Water has increased the discussion included within this report of factors that have influence the observed performance. However, the discussion is generally at a high level. The Reporting Manual also requires Sydney Water to discuss factors that are within and beyond its control and this discussion is lacking. The auditor found that Sydney Water has not yet adequately addressed the requirements of this recommendations and nor the requirements of the reporting manual for the performance standards report. The report contains little critical analysis regarding the potential or actual influence of its listed initiatives on performance and appear to distract from the intention of the performance standards report.	Auditor to check for completion.

Recommendation number	Operational issue (licence reference where applicable)	IPART's recommendation to the Minister	Audit findings (Status will be reported by Sydney Water in audit recommendations update on 31 May 2022 ^a)	Guidance for 2022 audit
2020-23:	Reporting Clause 10.2.4	By 30 June 2021, Sydney Water must improve document control of the records held in its systems by ensuring that information such as the version date, version number, change history and document author are included in all records.	Ongoing At the whole of enterprise, management system level, Sydney Water identified that it is realigning and simplifying its various management system into a "One Management System" (1MS) approach. This approached was endorsed by Sydney Water's executive in September 2020 and a detailed implementation plan was endorsed in March 2021. This high level move to consolidate management systems is relevant to this recommendation as it will likely result in a reduction and refresh of system records. Sydney Water detailed that as part of this 1MS initiative, it has established a dashboard for reporting on the currency of controlled documents and management system actions. At our audit in September 2021, this dashboard showed that from the "Level 3 business area' perspective, there is currently 372 expired controlled documents, i.e. 15% of controlled documents. While we recognise that there will always be some expired controlled documents in a well- managed management system (or systems), the auditor considers that 15% of all documents being expired is inadequate to demonstrate that Sydney Water has addressed this recommendation.	Auditor to check for completion.

Recommendation number	Operational issue (licence reference where applicable)	IPART's recommendation to the Minister	Audit findings (Status will be reported by Sydney Water in audit recommendations update on 31 May 2022 ^a)	Guidance for 2022 audit
2021-1	Drinking water Clause 4.1.1	By 30 June 2022 Sydney Water establish processes, accountabilities and schedules for the review of the DWQMP including descriptive text in Helix, accurate links within Helix, updating of the Drinking Water Management Manual. The review frequency of review should reflect the frequency with which each aspect changes. Processes to ensure the reviews are conducted must be established. Sydney Water must prioritise the review aspects noted in this audit report including Element 8 and the documentation of how Sydney Water meets its obligations to prepare an annual report to customers and stakeholders (element 10) so the DWQMP accurately reflects Sydney Water's practices. By 30 June 2023 Sydney Water ensures that the water quality management system and supporting procedures are current and do not rely solely on the specified review period but also consider non time-based triggers.	TBA	Auditor to check for completion.
2021-2	Drinking water Clause 4.1.1	By 30 June 2022 the Macarthur Drinking Water Quality Management Plan be updated to address all the relevant actions in the Framework for drinking water quality management. There is also further opportunity for improvement to document the ADWG actions that are only addressed by Sydney Water's DWQMS.	ТВА	Auditor to check for completion.
2021-3	Drinking water Clause 4.1.3	By 30 June 2022 Sydney Water reviews its process to ensure NSW Health is invited to all risk assessments which consider public health risks (across all relevant risk assessments, including. operational, incident management, projects).	ТВА	Auditor to check for completion.

Recommendation number	Operational issue (licence reference where applicable)	IPART's recommendation to the Minister	Audit findings (Status will be reported by Sydney Water in audit recommendations update on 31 May 2022ª)	Guidance for 2022 audit
2021-4	Drinking water Clause 4.1.3	By 30th June 2022 Sydney Water completes its current improvement project on incident investigations and its current review cycle of preventative aspects of the Incident Management and Emergency Management Procedures, such as business impact assessments and continuity plans and have evidence of implementation of the project outcomes.	ТВА	Auditor to check for completion.
2021-5	Drinking water Clause 4.1.3	By 30 June 2022 Sydney Water has evidence to demonstrate that the operational risk assessment workshop procedure (D0000799) has been fully implemented for both the WFP and networks. This includes the identification of all recycle streams in the PFD as per D0000685.	ТВА	Auditor to check for completion.
2021-6	Drinking water Clause 4.1.3	By 30th June 2022 Sydney Water undertake a formal risk assessment on the residual lagoon at Macarthur WFP to identify circumstances where chemical spills and other contaminants may enter the lagoon and be returned to the head of the works and ensure processes and procedures for monitoring and managing these risks are adequate and implemented. This risk assessment may be undertaken as part of the annual risk review.	ТВА	Auditor to check for completion.
2021-7	Drinking water Clause 4.1.3	By 30th June 2022 Sydney Water review the instrument calibration and checks for the Hach Pocket Colorimeter to ensure the requirements are clarified, documented and implemented.	ТВА	Auditor to check for completion.

Recommendation number	Operational issue (licence reference where applicable)	IPART's recommendation to the Minister	Audit findings (Status will be reported by Sydney Water in audit recommendations update on 31 May 2022ª)	Guidance for 2022 audit
2021-8	Recycled water Clause 4.2.1	By 30 June 2022, Sydney Water resolve or remove the discrepancies between the monitoring plans in the Liverpool RWQMP and the annual Recycled Water Monitoring Plan.	ТВА	Auditor to check for completion.
2021-9	Recycled water Clause 4.2.1	By 31 December 2022, Sydney Water must update Work Instruction for Creation of Process Flow Diagrams (D0000685) to include specific instructions and examples for recycled water. Update all recycled water flow diagrams to be consistent with the updated work instruction. Update the Liverpool RWQMP to only include one flow diagram.	TBA	Auditor to check for progress
2021-10	Recycled water Clause 4.2.1	By 30 June 2022, Sydney Water must incorporate management review requirements for recycled water and drinking water management systems into the Management Review Procedure.	ТВА	Auditor to check for completion.
2021-11	Recycled water Clause 4.2.1	By 30 June 2022, Sydney Water must incorporate audit requirements for recycled water and drinking water management systems into the 2LOA Audit Procedure.	ТВА	Auditor to check for completion.
2021-12	Recycled water Clause 4.2.3	By 31 March 2022, Sydney Water update Irrigation Scheme Monthly Reports to include explanations when fewer samples are required in the period than the frequency in the monitoring plan (e.g. if there are four weeks in the month why are less than four weekly samples required).	ТВА	Auditor to check for completion.

Recommendation number	Operational issue (licence reference where applicable)	IPART's recommendation to the Minister	Audit findings (Status will be reported by Sydney Water in audit recommendations update on 31 May 2022ª)	Guidance for 2022 audit
2021-13	Asset management Clause 5.5.2	By 30 June 2022 Sydney Water reviews its project development and assurance approach (i.e. business case and gateway process and documents) to determine whether the mitigation measures identified in project risks assessments are recorded and their implementation tracked.	ТВА	Auditor to check for completion.
2021-14	Asset management Clause 5.5.2	By 30 June 2022 Sydney Water reviews any public health related project risks to determine whether the management of these risks is in accordance with its risk management framework.	ТВА	Auditor to check for completion.
2021-15	Reporting Clause 10.2.2	By 30th June 2022 Sydney Water, ensures the Quarterly – Water Quality Monitoring Report – Drinking Water (the public water quality reports meets the requirements of the Reporting Manual to report each quarter on their performance against all health and aesthetic water characteristics and raw water operational characteristics identified in the Drinking Water Quality Management System.	ТВА	Auditor to check for completion.
2021-16	Reporting Clause 10.2.3	By 30 June 2022, Sydney Water conduct an internal audit of its reported environmental data to provide assurance that the data is accurate and in accordance with the reporting definitions.	ТВА	Auditor to check for completion.

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

Source: IPART, Report to the Minister - Sydney Water Corporation Operational audit 2020-21, February 2022

Audit year	Location	Facility
2021	NA	Pipe repair
	Macarthur	Water Filtration Plant
	Liverpool	Water Recycling Plant
2020	Nepean	Water Filtration Plant
	West Camden	Water Recycling Plant
	Prospect	Water and sewer pump stations - maintenance
	Camellia	Sewer pump station - maintenance
2019	Oak Flats	Re-chlorination Plant
	Wollongong	Water Recycling Plant
	Helensburgh	Reservoir
	Woronora	Water Filtration Plant
2018	Cascade	Water Filtration Plant
	Parklea	Drinking and Recycled Water Reservoirs, and rechlorination station
	Rouse Hill	Water Recycling Plant and network
2017	Nepean	Water Filtration Plant
	Prospect	Water Filtration Plant
	Campbelltown	Reservoir
	Liverpool	Water Recycling Plant
	Guildford	Water main renewal - maintenance
2016	Orchard Hill	Water Filtration Plant
	Prestons	Maintenance Depot
	Cronulla	Wastewater Treatment Plant
2015	Parklea	Reservoir
	Box Hill	Pumping Station
	North Richmond	Water Filtration Plant
	Rouse Hill	Water Recycling Plant
2014		
2014	West Camden	Water Recycling Plant
	Warragamba	Water Filtration Plant
		South West Growth Area
2012	Magarthur	Water Eiltration Diant
2013		
	Liverpool	Customer Service Centre
	Liverpool	Water Recycling Plant

Table 4 Previous field verification locations for Sydney Water Corporation

Audit year	Location	Facility
	West Hoxton	Priority Sewage Project
2012	Wollongong	Water Recycling Plant
	Woronora	Water Filtration Plant
	Heathcote	Reservoir
2011	N/A	Three treated water reservoirs
	Orchard Hills	Water Filtration Plant
	Drummoyne	Mains flushing

E Auditor's report



Operational Licence Audit 2022

Sydney Water Corporation

IPART January 2023





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EXECUTIVE SUMMARY

Summary of Compliance with Sydney Water's Operating Licence 2019-2023

The auditors in general were pleased with Sydney Water Corporation's (Sydney Water) level of compliance. Throughout the audit, staff were forthcoming with information and showed a high level of dedication and knowledge of processes and systems.

There were three clauses that were non-compliant. Each of these non-compliances were in relation to the implementation of a management system, i.e. drinking water, recycled water and asset management. The main driver for the grades is the failure to implement maintenance, inspections and plans. It is recognised that the audit period included a number of flood events that placed an additional load on resources. This was taken into context, but well designed and implemented risk management systems are essential during times of stress, and this report reflects compliance against the licence.

The asset management clause was considered a material non-compliance as the evidence identified a failure of the asset management system to adequately maintain drinking water reservoirs. Identified high-risk issues have not been addressed over a number of years. The condition of reservoir roofs has impacted the ability to undertake inspections that are a preventive measure for water quality. This was a factor in the non-material non-compliance for the implementation of the Drinking Water Quality Management System (DWQMS). In addition, the renewal of assets at the Water Resource Recovery Facility (WRRF) audit was also identified as an issue and contributed to the non-compliant non-material finding for the implementation of the Recycled Water Quality Management System (RWQMS).

There were two compliant clauses with minor short comings; these issues were mainly in relation to improvement of documentation.

Auditor Declaration

Viridis Consultants Pty Ltd (Viridis) has been engaged by the Independent Pricing and Regulatory Tribunal of NSW (IPART) to undertake an operational audit of Sydney Water Corporation's *Operating Licence 2019-2023* for the period of 1 July 2021 to 30 June 2022. The audit was undertaken in partnership with Cobbitty Consulting Pty Ltd (Cobbitty).

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 July 2019* and IPART's *Request for Quote*.
- the audit findings have not been unduly influenced by the utility and/or any of its associates.

Findings and Recommendations

The auditors assessed Sydney Water's compliance for 26 clauses from its Operating Licence. There were 21 clauses that were fully Compliant, two clauses that were Compliant (minor shortcomings), two clauses that were Non-Compliant (Non-Material) and one clause was Non-Compliant (Material).

The audit interviews and site visits were undertaken from the 13th to 15th September 2022. During the site visit the following locations were inspected:

- Richmond WRRF
- Windsor South Reservoirs WS0197 & WS0294



- North Richmond Water Filtration Plant (WFP)
- St Marys Depot

A summary of the audit findings is in the table below.

Licence Clause	Grade	Audit Finding	Recommendation/s
3.1.1	Compliant	The requirements of the clause were met.	None
3.1.2	Compliant	The requirements of the clause were met.	None
3.1.4	Compliant (minor shortcomings)	The economic level of water conservation is to be expressed both as the value of water in dollar per kilolitre and as the quantity of savings in megalitres per day. Whilst the model determines the value of water, it is not apparent from the evidence provided how this is transposed into the quantity of water savings.	REC-2022-01 By 30 June 2023, Sydney Water should formally document a procedure for updating and reporting the current economic level of water conservation, which is to be expressed both as the value of water in dollars per kilolitre (\$/kL) and as the quantity of savings in megalitres per day (ML/day) as required by paragraph 3.1.3(c) of the <i>Operating Licence</i> .
3.2.4	Compliant	The requirements of the clause were met.	None
4.1.1	Compliant	The requirements of the clause were met.	None
4.1.3	Non-compliant (non-material)	Some of the issues identified affect Sydney Water's ability to monitor and ensure controlled processes, with the main one being reservoir integrity with regard to water quality protection. Maintaining reservoir integrity through regular inspections and implementing timely actions on findings is a critical component of providing safe quality water.	REC-2022-02 By 30 June 2023, check the North Richmond Network risk assessment to ensure that all risks align with a hazardous event in the Hazard and Risk Library document. A check should be made at the completion of future risk assessments to ensure that all risks in the risk register correspond to a hazardous event in the Hazard and Risk Library. This could be done by including the hazardous event reference number in the risk assessment spreadsheet. REC-2022-03 By 30 June 2023, develop a procedure to track and respond to exceptions to the reservoir roof inspection program, including a process to prioritise delayed inspections and provide alternate inspection arrangements if reservoir roof access is unsafe. Appropriate alternative inspection arrangements and timeframes for implementation should be included in the procedure and agreed to by NSW Health. Performance reporting to NSW Health is to be reviewed as part of this action, including reporting against the Drinking Water Quality Specification reservoir inspection target (90% six monthly and three yearly inspections completed) and in addition reservoirs that have not been inspected for over 12 months should also be reported. REC-2022-04 By 30 June 2023, review the process for actioning P1-P6 findings from reservoir inspections, especially related to water quality contamination barriers (e.g. vermin proof breach), to ensure verifiable audit evidence is maintained to demonstrate that the work is completed as required within a reasonable timeframe. Consider consulting with NSW Health to solicit their input.
4.2.1	Compliant	clause were met.	NOTE



Licence Clause	Grade	Audit Finding	Recommendation/s
4.2.3	Non-compliant (non-material)	There were three main drivers for this grade. Critical Control Point (CCP) 1 has not been implemented correctly, maintenance of the tertiary filter has been deferred for a number of years and the detailed validation process misses wet weather flows that are potentially within the recycled scheme operational range.	REC-2022-05 By 30 June 2023, review the Process Flow Diagram (PFD) and undertake field verification of the revised diagram. The Richmond WRRF PFD must include all processes that could impact water quality, including the stormwater first flush and the alum dosing into the Equalisation Basin. REC-2022-06 By 31 December 2023, review the risk assessment process for the Richmond WRRF. The Recycled Water Risk Assessment Workshop SOP requires all hazardous events that can compromise recycled water quality are considered in the risk assessment process. The Richmond WRRF risk assessment did not include a risk assessment of the supernatant return or stormwater first flush system. Sydney Water must ensure that the Recycled Water Hazard Library has appropriate hazardous event documentation to cover these processes and that they are considered at the Richmond WRRF. The Richmond WRRF risk assessment process, this should also be reviewed to understand how these were missed and the Recycled Water Risk Assessment Workshop SOP revised as necessary. REC-2022-07 By 31 December 2023, CCP 1 turbidity monitoring at the Richmond WRRF is to be moved to monitor combined filter effluent. The status of recycled water tertiary filter turbidity monitoring is ambiguous across a number of Sydney Water recycled water plants, in relation to the use of individual online filter turbidity monitoring. A decision should be made for all plants, based on risk, and a program of implementation developed and agreed to by NSW Health. REC-2022-08 By 30 June 2023, the sampling process for the Recycled Water Treatment Detailed Verification Monitoring for Pathogen Reduction procedure is to be reviewed. This should ensure that wet weather flows within the operating envelope of recycled water schemes are not systematically omitted from being sampled. The monitoring program should ensure that over a number of monitoring cycles that all operating conditions are included in the sampling program. This may also need to consider some targeted event monitoring.
5.5.2	Non-compliant (material)	There were examples identified during the audit site inspections where maintenance inspection regimes had not always been implemented and identified issues had not always been dealt with in a timely and effective manner.	REC-2022-09 By 30 June 2023, Sydney Water should implement processes to ensure that all corrective maintenance is managed through the maintenance management/work order system, prioritised on the basis of assessed risk and any delay to implementation is justified and clearly documented. REC-2022-10 By 30 June 2023, Sydney Water should implement processes to ensure that major periodic maintenance is prioritised on the basis of assessed risk, any deferment from the planned timeline should be based on condition/performance assessment and be clearly documented.
6.2.1	Compliant	The requirements of the clause were met.	None
6.2.3	Compliant	The requirements of the clause were met.	None
6.2.4	Compliant	The requirements of the clause were met.	None
6.3.1	Compliant	The requirements of the clause were met.	None



Licence Clause	Grade	Audit Finding	Recommendation/s
6.4.1	Compliant	The requirements of the clause were met.	None
6.4.2	Compliant	The requirements of the clause were met.	None
6.5.1	Compliant	The requirements of the clause were met.	None
6.5.2	Compliant (minor short comings)	It was considered that having people disclose domestic violence is a barrier to them seeking help.	REC-2022-11 By 30 June 2023, Sydney Water should include additional practice-based guidance in respect of "processes that minimise the reliance on individuals to disclose their family violence" in its Family Violence Policy.
6.6.1	Compliant	The requirements of the clause were met.	None
6.6.2	Compliant	The requirements of the clause were met.	None
6.6.3	Compliant	The requirements of the clause were met.	None
6.6.4	Compliant	The requirements of the clause were met.	None
6.6.5	Compliant	The requirements of the clause were met.	None
6.7.1	Compliant	The requirements of the clause were met.	None
6.7.2	Compliant	The requirements of the clause were met.	None
6.7.3	Compliant	The requirements of the clause were met.	None
6.8.2	Compliant	The requirements of the clause were met.	None

Status of previous audit recommendations

Reference No.	Audit Finding	Status
2020-02	All of the recommendation actions have been completed.	Completed
2020-06	All of the recommendation actions have been completed.	Completed
2020-7	All of the recommendation actions have been completed.	Completed
2020-08	All of the recommendation actions have been completed.	Completed
2020-11	All of the recommendation actions have been completed, however, the recycled water product specification still includes the low chlorine set point.	Completed REC-2022-12 By 30 June 2023, update the <i>Recycled Water</i> <i>Product Specification</i> to remove the low flow on the West Camden chlorine disinfection CCP.
2020-12	All of the recommendation actions have been completed.	Completed
2020-13	The evidence must demonstrate that all plants would be included within three years.	Ongoing Three-year audit plan required to close out.



Reference No.	Audit Finding	Status
2020-15	Checking of the CCPs and Supervisory Control and Data Acquisition (SCADA) has been delayed due to COVID.	Completed
2021-1	All of the recommendation actions have been completed.	Completed
2021-2	All of the recommendation actions have been completed.	Completed
2021-3	All of the recommendation actions have been completed.	Completed
2021-4	All of the recommendation actions have been completed.	Completed
2021-5	All of the recommendation actions have been completed.	Completed
2021-6	All of the recommendation actions have been completed.	Completed
2021-7	All of the recommendation actions have been completed.	Completed
2021-8	All of the recommendation actions have been completed.	Completed
2021-9	Not all PFD have been updated yet. Also, the recycled water PFD example is inconsistent with the work instruction and should be revised.	Ongoing
2021-10	All of the recommendation actions have been completed.	Completed
2021-11	All of the recommendation actions have been completed.	Completed
2021-12	All of the recommendation actions have been completed.	Completed
2020-18	All of the recommendation actions have been completed.	Completed
2020-20	All of the recommendation actions have been completed.	Completed
2021-13	All of the recommendation actions have been completed.	Completed
2021-14	Evidence is required to demonstrate that public health related risks are progressively being assessed throughout a project lifecycle.	Ongoing
2020-22	All of the recommendation actions have been completed.	Completed
2020-23	All of the recommendation actions have been completed.	Completed, but new recommendation made: REC-2022-13 By 30 June, Sydney Water should take action to ensure that the currency of controlled documents complies with its Key Performance Indicator (KPI) target of 5% for expired documents.
2021-15	All of the recommendation actions have been completed.	Completed
2021-16	All of the recommendation actions have been completed.	Completed


Opportunities for improvement from the audit:

- OFI-2022-01 Establish a process for the periodic testing of critical limits, time delays and interlocks set in SCADA. This should ensure that they are set correctly in the first instance and then that the appropriate interlocks work (e.g. filters backwash on 0.1 Nephelometric Turbidity Unit (NTU) and that fluoride stops dosing at 1.5 mg/L)
- OFI-2022-02 Establish regular field audits to confirm adherence to hygienic work practices during mains/pipes repairs. Consider if this can be integrated with the Safety Audit undertaken by Supervisors/Team Leaders.
- OFI-2022-03 Insert the correct link to NSW Health web page on response protocols in section 6.1 of the Drinking Water Quality Management Plan (DWQMP).
- OFI-2022-04 Include the name of the field verifiers and date of verification at the bottom of the PFDs to ensure that the Work Instruction (WI) for Creation of Process Flow Diagram is being fully implemented.
- OFI-2022-05 Ensure that the risk matrix, when included in the Briefing Paper, is current and accurate.
- OFI-2022-06 Consider a consistent layout of the Excel risk registers between WFPs and Networks.
- OFI-2022-07 Ensure that the Field Dosing Calculator is a controlled document with periodic reviews. It was last reviewed and updated on 27/3/13.
- OFI-2022-08 Investigate use of drones to complete the regular reservoir inspections (six monthly) where there is a safety concern to undertake it from the top.
- OFI-2022-09 Complete the action plan for implementation of the recommendations from the October 2021 Taste and Odour incident review, including assigning appropriate timeframes and tracking implementation status.
- OFI-2022-10 Include sub-actions and estimated sub-timeframes for multifaceted improvements with long timeframes in the Drinking Water Improvement Plan (DWIP). For example, Action #DW45.2 which is a 'High' priority action, has a five-year timeframe for completion and a number of steps.
- OFI-2022-11 The schematic in the Richmond WRRF Recycled Water Quality Management Plan (RWQMP) identifies Ultraviolet (UV) as the disinfection process rather than chlorine. Update the schematic to reflect the processes onsite.
- OFI-2022-12 Key procedures such the Recycled Water Risk Assessment Workshop Standard Operating Procedure (SOP) would benefit from being referenced in the RWQMP.
- OFI-2022-13 Consider including contractor competency requirements in contract agreements such as the Picton Regional Sewerage Scheme Operational Interface Protocol.
- OFI-2022-14 Consider combining the Environment Protection Licence (EPL) and recycled water PFDs into one that contains all of the required information. If there is one point of truth it may assist in maintaining accuracy.
- OFI-2022-15 Consider minuting NSW Health's agreement to the detail verification and risk assessment program for recycled water. This is especially important where there are deviations from the planned program, regardless of the circumstances.
- OFI-2022-16 The Recycled Water Hazard Library was overdue a review at the time of the audit. Consider reviewing the document and revising Business Management Information System (BMIS) as soon as possible. When reviewed, consider how changes to the hazard library may impact risk assessments. There should be a process to roll out changes if it is considered it could



change the risk profile. Waiting until the next scheduled risk assessment may not be appropriate as it could be a number of years away.

- OFI-2022-17 Environmental monitoring is undertaken by recycled water customers. The current process requires customers to undertake appropriate monitoring, Sydney Water does not currently receive any of these monitoring results or feedback from customers. It would be beneficial for Sydney Water to be aware of any potential impacts on the environment. This could be done using an informal process, such as a point to raise at the six-monthly meeting (e.g. have they noticed, or has monitoring shown, an adverse impact on the environment or soil) and space to note the response on the Recycled Water Customer Meeting Minutes form.
- OFI-2022-18 It was noted that the RWQMP training has been delivered outside of the suggested time period. Consider if there needs to be an adjustment to the induction program.
- OFI-2022-19 It is suggested that Sydney Water review its processes and capacity (including resources) for managing its business-as-usual commitments in parallel with major incidents.
- OFI-2022-20 It is suggested that Sydney Water considers providing a link to the "Service rebates" webpage instead of the link to the Customer Contract for accessing information regarding service rebates in future editions of Waterwrap.
- OFI-2022-21 It is suggested that Sydney Water may wish to consider including information regarding the actions taken for non-payment in the Waterwrap newsletter or directly on customers' bills (in addition to in the Our contract with you communication).
- OFI-2022-22 It is suggested that Sydney Water considers implementing changes to make information about the Energy and Water Ombudsman NSW (EWON) services (and the internal complaint process) more readily and transparently available on its website.



1. INTRODUCTION

1.1. Objectives

The objective of this audit was to conduct an operational audit of Sydney Water Corporation's (Sydney Water) performance against specified clauses of its Operating Licence 2019-2023 and any ministerial requirements for the period from 1 July 2021 to 30 June 2022.

1.2. Audit Method

1.2.1. Audit Scope

The audit scope was determined by the IPART using a risk-based approach to identify the *Operating Licence* 2019-2023 clauses to be audited during the 2021/22 audit period. The clauses within the scope of this audit period are identified in Table 1. Sydney Water was required to provide a Statement of Compliance for all licence clauses regardless of whether they were included in the scope of this audit.

Stakeholder submissions were received from Fire & Rescue NSW, Environmental Protection Authority and NSW Health. The main points to consider from these submissions are shown below and these were all discussed and reviewed during the audit interview process and were considered in the assessment of the auditable clauses:

- Review the plans and procedures for operation of filtration plants in manual mode.
- Review policies and procedures around timely and appropriate information sharing during incidents, with a focus on recommendations from the October 2021 taste and odour incident.
- Review the installation and operation of the Nepean package plant.
- Review progress on actions to mitigate risks from unplanned outages including review of the notification protocols for outages.
- Review the consistency of controls for critical processes.
- Review the process for prioritising and addressing outstanding issues with WFP and network assets.

Outstanding items/recommendations from previous audits were also reviewed and the status of the required actions determined.



Table 1 Audit Scope

Licence Part	Clause/Obligation	IPART's comments made prior to audit commencing			
Economic approach for water	3.1.1	In the 2021 audit we assigned a Compliant grade for this clause. However, the auditor assessed that the Recommendation 2020-02 was not completed, noting that not all of the detail outlined in the Reporting Manual was captured by the Water Conservation Report.			
conservation	3.1.2	In the 2021 audit we assigned a Compliant grade to this clause.			
	3.1.4	Audit for completeness with clause 3.1.1 and 3.1.2.			
Water Planning	3.2.4	the 2021 audit we assigned a Compliant grade to this clause. Recommendation 2020-04 complete and addresses the deficiency related to implementing the water conservation rogram.			
Drinking Water	4.1.1	 In the 2021 audit, we assigned Sydney Water a Compliant (Minor Shortcomings) grade for this clause. We audited elements 1-6, 8-10. This year we will audit elements 2-7, 11 and 12. The auditor will check completion of shortcomings found in the WQMS against some of these elements in previous audits. IPART Secretariat will contact NSW Health to comment on Sydney Water's performance against this clause and for input into the elements of the ADWG that should be audited. Auditor should refer to Recommendations 2021-01, and 2020-02. 			
	4.1.3	In the 2021 audit, we assigned Sydney Water a Non-compliant (Nonmaterial) grade for this clause. We audited elements 1-6, 8, 9 and 10. This year we will audit implementation of Sydney Water's DWQMS consistent with elements 2-7, 11 and 12. The auditor will check completion of non-compliances found in the WQMS against some of these elements in previous audits. IPART Secretariat will contact NSW Health to comment on Sydney Water's performance against this clause and for input into the elements of the ADWG that should be audited. Auditor should refer to Recommendations 2022-03 to 2021-07			
Recycled Water	4.2.1	In the 2021 audit, we assigned Sydney Water a Compliant (Minor Shortcomings) grade for this clause. We audited elements 1-6, 10, 11 and 12. This year we will audit elements 2 to 9. The auditor will check close out of shortcomings found in the WQMS against some of these elements in previous audits. IPART Secretariat will contact NSW Health to comment on Sydney Water's performance against this clause and for input into the elements of the AGWR that should be audited. Auditor should refer to Recommendations 2021-08 to 2021-11 In the 2021 audit, we assigned Sydney Water a Compliant (Minor Shortcomings) grade for this clause. We audited elements 1-6, 10, 11 and 12. This year we will audit implementation of Sydney Water's RWQMS consistent with elements 2 to 9. The auditor will check completion of shortcomings found in the WQMS against some of these elements in previous audits.			
Asset Management System	5.5.2	IPART Secretariat will contact NSW Health to comment on Sydney Water's performance against this clause and for input into the elements of the AGWR that should be audited. Auditor should refer to Recommendations 2021-12 In the 2021 audit, we assigned Sydney Water a Non-Compliant (Non-Material) grade for this clause. The auditor assigned a material noncompliance grade.			
Providing 6.2.1 This is the first time this clause has been audited under the 2020-2024 licence					
information	6.2.3	This is the first time this clause has been audited under the 2020-2024 licence.			
to Customers	6.2.4	This is the first time this clause has been audited under the 2020-2024 licence.			
Consumers	6.3.1	This is the first time this clause has been audited under the 2020-2024 licence.			
	6.4.1	This clause was audited in 2020 and was assigned a compliant grade.			



Licence Part	Clause/Obligation	IPART's comments made prior to audit commencing
Assistance Options for Payment Difficulties and Actions for Non- Payment	6.4.2	This clause was audited in 2020 and was assigned a compliant grade
Family	6.5.1	This clause was audited in 2020 and was assigned a compliant grade
Violence	6.5.2	This clause was audited in 2020 and was assigned a compliant grade
Customer	6.6.1	This is the first time this clause has been audited under the 2020-2024 licence.
engagement	6.6.2	This is the first time this clause has been audited under the 2020-2024 licence.
	6.6.3	This is the first time this clause has been audited under the 2020-2024 licence.
	6.6.4	This is the first time this clause has been audited under the 2020-2024 licence.
	6.6.5	This is the first time this clause has been audited under the 2020-2024 licence.
Internal	6.7.1	This is the first time this clause has been audited under the 2020-2024 licence.
complaints	6.7.2	This is the first time this clause has been audited under the 2020-2024 licence.
handling	6.7.3	This is the first time this clause has been audited under the 2020-2024 licence.
External	6.8.2	This is the first time this clause has been audited under the 2020-2024 licence.
dispute		
scheme		
Previous Recor	nmendations	
2020-02	Economic approach	Auditor to check for completion
	for water conservation (water conservation program) clause 3.1.1	
2020-06	Drinking water Clause 4.1.1	Auditor to check for completion
2020-07:	Drinking water Clause 4.1.1	Auditor to check for completion
2020-08:	Drinking water Clause 4.1.3	Auditor to check for completion
2020-11:	Recycled water Clause 4.2.1	Auditor to check for completion
2020-12:	Recycled water Clause 4.2.1	Auditor to check for completion
2020-13:	Recycled water Clause 4.2.1	Auditor to check for completion
2020-15:	Recycled water Clause 4.2.3	Auditor to check for completion
2020-18:	Water Continuity Standard Clause 5.1.1	Auditor to check for completion
2020-20:	Asset management Clause 5.5.2	Auditor to check for completion
2020-22:	Reporting Clause 10.2.2	Auditor to check for completion



Licence Part	Clause/Obligation	IPART's comments made prior to audit commencing
2020-23:	Reporting Clause 10.2.4	Auditor to check for completion
2021-1	Drinking water Clause 4.1.1	Auditor to check for completion
2021-2	Drinking water Clause 4.1.1	Auditor to check for completion
2021-3	Drinking water Clause 4.1.3	Auditor to check for completion
2021-4	Drinking water Clause 4.1.3	Auditor to check for completion
2021-5	Drinking water Clause 4.1.3	Auditor to check for completion
2021-6	Drinking water Clause 4.1.3	Auditor to check for completion
2021-7	Drinking water Clause 4.1.3	Auditor to check for completion
2021-8	Recycled water Clause 4.2.1	Auditor to check for completion
2021-9	Recycled water Clause 4.2.1	Auditor to check for progress
2021-10	Recycled water Clause 4.2.1	Auditor to check for completion
2021-11	Recycled water Clause 4.2.1	Auditor to check for completion
2021-12	Recycled water Clause 4.2.3	Auditor to check for completion
2021-13	Asset management Clause 5.5.2	Auditor to check for completion
2021-14	Asset management Clause 5.5.2	Auditor to check for completion
2021-15	Reporting Clause 10.2.2	Auditor to check for completion
2021-16	Reporting Clause 10.2.3	Auditor to check for completion

1.2.2. Audit Standard

The IPART Audit Guideline - Public Water Utilities (PWU) – July 2019 (Audit Guideline) formed the standard for the Operational Audit. In addition, audit grades have been clarified in *IPART instructions for assigning grades and reporting on audits* memo (the Memo).

ISO 19011 Guidelines for Auditing Management Systems was also relied upon to ensure good audit practice.

1.2.3. Audit Steps

The Audit Guideline process was followed for this audit, except on the points that were superseded by the *PWU Audit 2022 – Scope of Works*. The basic steps of the audit process are in Table 2.



Table 2 Audit Steps

Step	Description	Responsibility
1	Audit scoping	IPART
2	Appointment of auditor	IPART
3	Audit preparation	Auditor/Utility/IPART
4	Audit interviews	Auditor/Utility
5	Field verification site visits	Auditor/Utility
6	Wrap up and close out meetings	Auditor/Utility
7	Summary of Reasons for Audit Grades Report	Auditor
8	Review and provide feedback on audit grades	Utility/IPART
9	Draft Report	Auditor
10	Review and provide feedback on draft	Utility/IPART
11	Final Report	Auditor
12	Reporting to Minister	IPART
13	Reporting on recommendations	Utility

The audit included three days of staff interviews and site inspections. The timetable and sites visited were as follows:

- 13 September 2022 staff interviews
- 14 September 2022 site inspections:
 - Richmond WRRF
 - Windsor South Reservoirs WS0197 & WS0294
 - North Richmond WFP
 - St Marys Depot
- 15 September 2022 staff interviews
 - 1.2.4. Audit Team

The audit team was co-led by James Howey from Viridis Consultants Pty Ltd (Viridis) and Jim Sly from Cobbitty Consulting Pty Ltd (Cobbitty). Roles for each team member are detailed in Table 3.

Team member	Organisation	Certifications	Role	
James Howey	Viridis	Lead Water Quality Management Systems Auditor – Drinking and Recycled Water (Exemplar Global) Associate Environment Management Systems Auditor (Exemplar Global) Technical Services and Water Licencing Audit Panel: Drinking Water Quality Recycled Water Quality	Project Manager Lead Auditor – Water Quality	
Tasleem Hasan	Viridis	Lead Water Quality Management Systems Auditor – Drinking Water (Exemplar Global) Technical Services and Water Licencing Audit Panel: Drinking Water Quality	Audit Support – Water Quality	
Jim Sly	Cobbitty	Technical Services and Water Licencing Audit Panel: Infrastructure performance Retail supply	Lead Auditor – Assets, Performance, National Water Initiative (NWI) Indicators	
Mark Favetta	Cobbitty	Technical Services and Water Licencing Audit Panel: Infrastructure performance Retail supply Environment and catchment management	Audit Support – Assets, Performance, NWI Indicators	

Table 3 Audit Team Details



1.2.5. Audit Grades

Compliance grades are identified in the Audit Guidelines, have been subsequently clarified in the Memo and are reproduced in Table 4.

Table 4 Compliance Grades

Grade 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 is no requirement for the utility to meet this criterion within the audit period.

1.3. Regulatory Regime

Sydney Water is a State-Owned Corporation, wholly owned by the NSW State Government. Sydney Water's principal functions are to provide water, sewerage and stormwater services and dispose of wastewater in its area of operations.

These roles and responsibilities, as well as Sydney Water's objectives, are prescribed by the *State Owned Corporations Act 1989* (NSW), the *Sydney Water Act 1994* (NSW) (the Act) and the current operating licence (Operating Licence 2019-2023) issued to Sydney Water under Part 5, section 12 of the Act.

1.4. Quality Assurance Process

This audit was carried out in accordance with the Viridis Quality Manual, which is accredited under ISO 9001:2015. The audit team leader James Howey was the Project Manager for the audit and responsible for ensuring the quality of the deliverables. Quality assurance activities undertaken during the audit comprised of:

- compliance with the Viridis Quality Manual
- internal peer review of the report by a suitably qualified Lead Auditor
- document control and approval processes.



2. AUDIT FINDINGS

2.1. Audit Schedule

The audit was conducted between 13 September – 15 September 2022, the agenda is shown in Table 5.

Time	Session	Items		
Day 1 - Tuesday 13th September				
9:00 - 9:30	Inception meeting	Introductions IPART audit expectations Audit process and formalities		
Stream 1				
9:30 - 10:30	Economic approach to water conservation	3.1.1; 3.1.2; 3.1.4 Recommendation 2020-02		
10:30 - 11:00	Water Planning	3.2.4		
11:00 - 11:30	Reporting	Recommendations 2020-22; 2020-23; 2021- 15; 2021-16		
12:00 - 12:30	Water Continuity Standard	Recommendation 2020-18		
13:30 - 16:00	Asset management	5.5.2 Recommendations 2020-20; 2021-13; 2021-14		
16:00 - 16:30	Wrap up/Site inspection briefing	Items on notice and review of additional evidence		
Stream 2				
9:30 - 10:30	Drinking water, ADWG elements 2 & 3	4.1.1; 4.1.3		
10:30 - 11:30	Drinking water, ADWG element 4	4.1.1; 4.1.3		
11:30 - 12:30	Drinking water, ADWG element 5	4.1.1; 4.1.3		
13:30 - 14:00	Drinking water, ADWG element 6	4.1.1; 4.1.3		
14:00 - 14:30	Drinking water, ADWG element 7	4.1.1; 4.1.3		
14:30 - 15:00	Drinking water, ADWG elements 11 & 12	4.1.1; 4.1.3		
15:00 - 16:00	Drinking water quality	Recommendations 2020-06; 2020-7; 2020-08, 2021-1; 2021-2; 2021-3; 2021-4; 2021-5; 2021- 6; 2021-7;2021-12		
16:00 - 16:30	Wrap up/Site inspection briefing	Items on notice and review of additional evidence		
Day 2 - Wednesday 14t	h September			
8:30 – 10:00	Richmond WRRF	 Site walk through Review of CCPs Review of onsite records Maintenance activities and work orders Operator competency Onsite systems such as SCADA Operational monitoring Interview operational staff 		
10:30 - 11:15	Windsor South Res WS0197 & WS0294	 Inspection of site Inspection of reservoir roofs Review of re-chlorination process Review of reservoir mixing Inspection of pump station 		



Time	Session	Items	
11:30 - 14:00	North Richmond WFP	 Site walk through Review of CCPs Review of onsite records Maintenance activities and work orders Operator competency Onsite systems such as SCADA Operational monitoring Interview operational staff 	
14.30 - 16.00	St Marys Depot	 Inspection of maintenance vehicle Interview maintenance staff Review of material stores and critical spares Procurement processes 	
0.20 0.00	Site inspections follow-up (if required)	Scheduled but not used	
6.50 - 9.00	Site inspections follow-up (in required)	Scheduled but not used	
9.00 - 9.30	Providing information to Customers	621.623.624	
9:30 - 10:00	Consumers	631	
10.00 - 10.30	Assistance Ontions for Payment Difficulties and	641:642	
10.00 10.00	Actions for Non-payment	0.4.2	
10:30 - 11:00	Family Violence	6.5.1; 6.5.2	
11:00 - 11:45	Customer engagement	6.6.1; 6.6.2; 6.6.3; 6.6.4; 6.6.5	
11:45 - 12:15	Internal complaints handling	6.7.1; 6.7.2; 6.7.3	
12:15 - 12:30	External dispute resolution scheme	6.8.2	
1:30 - 4:00	NWI Indicators	W7, W8; W11, W18, W18.5; W26; W28.4; W28.5; W29, W30, W31 P7; P8 F1; F2; F3; F4; F8; F9; F10; IF11; IF12; F14; F15; F16; F20; F21; F22; F23; F24; F25; F26; F27; F30	
4:00 - 4:30	Wrap up	Items on notice and review of additional evidence	
Stream 2			
9:00 - 10:00	Recycled water, ADWG elements 2 & 3	4.2.1; 4.2.3	
10:00 - 11:00	Recycled water, ADWG element 4	4.2.1; 4.2.3	
11:00 - 12:00	Recycled water, ADWG element 5	4.2.1; 4.2.3	
12:00 - 12:30	Recycled water, ADWG element 6	4.2.1; 4.2.3	
1:30 - 2:00	Recycled water, ADWG element 7 & 8	4.2.1; 4.2.3	
2:00 - 2:30	Recycled water, ADWG element 9	4.2.1; 4.2.3	
2:30 - 3:30	Recommendations	2020-11; 2020-12; 2020-13; 2020-15; 2021-8; 2021-9; 2021-10; 2021-11; 2021-12	
3:30 - 4:00	Catch-up time/Auditor preparation time	n/a	
4:00 - 4:30	Wrap up	Items on notice and review of additional evidence	
Wednesday 21 Septem	ber 2022		
3:00 - 4:00	Onsite interview and inspection close out meeting via MS Teams	Summary of observations and items under consideration	

2.2. Auditees

Participants of the audit are identified in Table 6.



Table 6 Audit Attendees

Day	Session	Name	Role/Job Title	Organisation	Attendance
13/09/2022	Inception Meeting	James Howey	Auditor	Viridis	In Person
9:00am –		Tasleem Hasan	Auditor	Viridis	In Person
9:30am		Sachin Singh	Observer	IPART	Online
		Jim Sly	Auditor	Cobbitty	In Person
		Mark Favetta	Auditor	Cobbitty	In Person
		Robert Aposhian	Observer	IPART	Online
		Peter Nedelkovski	Facilitator	Sydney Water	In Person
		Sandra Spargo	Facilitator	Sydney Water	In Person
13/09/2022	Economic approach	Jim Sly	Auditor	Cobbitty	In Person
9.30am -	to water conservation	Mark Favetta	Auditor	Cobbitty	In Person
10.30am	conscivation	Robert Aposhian	Observer	IPART	Online
		Darryl Foster		Sydney Water	In Person
		Liz Gough		Sydney Water	In Person
		Shosh Fogerlman		Sydney Water	In Person
		Suhanti Thirunavukarasu		Sydney Water	In Person
		George Castline		Sydney Water	In Person
		Sherryn Cabardo- Oclarit		Sydney Water	In Person
		Michael English		Sydney Water	In Person
		Peter Nedelkovski		Sydney Water	In Person
		Jignesh Chudasama	Scribe	Sydney Water	In Person
		Marcia Dawson		Sydney Water	In Person
		Melanie Warner		Sydney Water	In Person
13/09/2022	Water Planning	Jim Sly	Auditor	Cobbitty	In Person
10.30am -	0am - 0am	Mark Favetta	Auditor	Cobbitty	In Person
11.00am		Robert Aposhian	Observer	IPART	Online
		Ben Harris		Sydney Water	In Person
		Ahsan Raza		Sydney Water	In Person
		Veronica Leonardo		Sydney Water	In Person
		John El-Badawi		Sydney Water	In Person
		George Castline		Sydney Water	In Person
		Deirdre Burt		Sydney Water	In Person
		Shaohua Ye		Sydney Water	In Person
		Melissa Skrgatich		Sydney Water	In Person
		Aneeta Bidkar		Sydney Water	In Person
		Peter Nedelkovski		Sydney Water	In Person
		Jignesh Chudasama	Scribe	Sydney Water	In Person
13/09/2022	Water Planning	Jim Sly	Auditor	Cobbitty	In Person
		Mark Favetta	Auditor	Cobbitty	In Person



Day	Session	Name	Role/Job Title	Organisation	Attendance
11.00am - 11.30am		Robert Aposhian	Observer	IPART	Online
		Ben Harris		Sydney Water	In Person
		Ahsan Raza		Sydney Water	In Person
		Veronica Leonardo		Sydney Water	In Person
		John El-Badawi		Sydney Water	In Person
		George Castline		Sydney Water	In Person
		Deirdre Burt		Sydney Water	In Person
		Shaohua Ye		Sydney Water	In Person
		Melissa Skrgatich		Sydney Water	In Person
		Aneeta Bidkar		Sydney Water	In Person
		Peter Nedelkovski	Facilitator	Sydney Water	In Person
		Jignesh Chudasama	Scribe	Sydney Water	In Person
13/09/2022	Reporting	Jim Sly	Auditor	Cobbitty	In Person
11.00am -		Mark Favetta	Auditor	Cobbitty	In Person
11.30am		Robert Aposhian	Observer	IPART	Online
		Ben Harris		Sydney Water	In Person
		Ahsan Raza		Sydney Water	In Person
		Veronica Leonardo		Sydney Water	In Person
		John El-Badawi		Sydney Water	In Person
		George Castline		Sydney Water	In Person
		Deirdre Burt		Sydney Water	In Person
		Shaohua Ye		Sydney Water	In Person
		Melissa Skrgatich		Sydney Water	In Person
		Aneeta Bidkar		Sydney Water	In Person
		Peter Nedelkovski	Facilitator	Sydney Water	In Person
		Jignesh Chudasama	Scribe	Sydney Water	In Person
13/09/2022	Water Continuity	Jim Sly	Auditor	Cobbitty	In Person
12.00am -	Standard	Mark Favetta	Auditor	Cobbitty	In Person
12.30am		Robert Aposhian	Observer	IPART	Online
		Ben Harris		Sydney Water	In Person
		Ahsan Raza		Sydney Water	In Person
		Veronica Leonardo		Sydney Water	In Person
		John El-Badawi		Sydney Water	In Person
		George Castline		Sydney Water	In Person
		Deirdre Burt		Sydney Water	In Person
		Shaohua Ye		Sydney Water	In Person
		Melissa Skrgatich		Sydney Water	In Person
	· ·	Aneeta Bidkar		Sydney Water	In Person
		Peter Nedelkovski	Facilitator	Sydney Water	In Person
		Jignesh Chudasama	Scribe	Sydney Water	In Person
13/09/2022	Asset management	Jim Sly	Auditor	Cobbitty	In Person
		Mark Favetta	Auditor	Cobbitty	In Person



Day	Session	Name	Role/Job Title	Organisation	Attendance
1.30pm -		Robert Aposhian	Observer	IPART	Online
4.00pm		Ahsan Raza		Sydney Water	In Person
		Sen Vigneswaran		Sydney Water	In Person
		Darryl Foster		Sydney Water	In Person
		Louise Beer		Sydney Water	In Person
		Norbert Schaeper		Sydney Water	In Person
		Jack Barnett		Sydney Water	In Person
		Nandu Marathe		Sydney Water	In Person
		Mahen		Sydney Water	In Person
		George Castline		Svdnev Water	In Person
		Peter Nedelkovski	Facilitator	Svdnev Water	In Person
		Jignesh Chudasama	Scribe	Sydney Water	In Person
13/09/2022		James Howey	Auditor	Viridis	In Person
Drinking Water		Tasleem Hasan	Auditor	Viridis	In Person
_		Sachin Singh	Observer	IPART	Online
		Carolyn Haupt		Sydney Water	In Person
		Katie Shield		Sydney Water	In Person
		Corinna Doolan		Sydney Water	In Person
		Emma Demo		Sydney Water	In Person
		Sandra Spargo	Facilitator	Sydney Water	In Person
		Nathan Ragel	Scribe	Sydney Water	In Person
		Peter Cox		Sydney Water	Online
		Ben Blayney		Sydney Water	Online
		ASM Mohiuddin		Sydney Water	Online
		Michael Easton		Sydney Water	Online
		Mark Murphy		Sydney Water	Online
		Lachlan Joyner		Sydney Water	Online
		Tim Fisher		Sydney Water	Online
		Caleb Furner		Sydney Water	Online
		Dierdre Burt		Sydney Water	Online
		Norbert Schaeper		Sydney Water	Online
		Adnan Luqman		Sydney Water	Online
		Penny Joseph		Sydney Water	Online
		Kevin Singh	Observer	Sydney Water	Online
14/09/2022	Richmond WRRF	James Howey	Auditor	Viridis	In Person
8.30am –		Tasleem Hasan	Auditor	Viridis	In Person
10.00am		Jim Sly	Auditor	Cobbitty	In Person
		Mark Favetta	Auditor	Cobbitty	In Person
		Robert Aposhian	Observer	IPART	In Person
		Peter Nedelkovski	Senior Compliance Analyst	Sydney Water	In Person



Day	Session	Name	Role/Job Title	Organisation	Attendance
		Jignesh Chudasama	Senior Compliance Analyst	Sydney Water	In Person
		George Castline	Product & Asset Management System Manager	Sydney Water	In Person
		Darryl Foster	Manager Asset and System Management	Sydney Water	In Person
		Yasir Shami	Production Manager	Sydney Water	In Person
		Rex D'Mello	Process Controller	Sydney Water	In Person
		Jason Sylvester	Product Optimisation Manager RW	Sydney Water	In Person
		Rebecca Lockett	Process Engineer	Sydney Water	In Person
		Chintan Patel	Snr Reliability Engineer	Sydney Water	In Person
14/09/2022	022 Windsor South Res WS0197 & WS0294	James Howey	Auditor	Viridis	In Person
10.30am - 11.15am		Tasleem Hasan	Auditor	Viridis	In Person
		Jim Sly	Auditor	Cobbitty	In Person
		Mark Favetta	Auditor	Cobbitty	In Person
		Robert Aposhian	Observer	IPART	In Person
		Peter Nedelkovski	Senior Compliance Analyst	Sydney Water	In Person
		Jignesh Chudasama	Senior Compliance Analyst	Sydney Water	In Person
		George Castline	Product & Asset Management System Manager	Sydney Water	In Person
		Darryl Foster	Manager Asset and System Management	Sydney Water	In Person
		Marek Wojnarowski	Water Quality	Sydney Water	In Person
		Ujjaval Mehta	Reliability Engineer	Sydney Water	In Person
		Chintan Patel	Snr Reliability Engineer	Sydney Water	In Person
14/09/2022	North Richmond WFP	James Howey	Auditor	Viridis	In Person
11.30am -		Tasleem Hasan	Auditor	Viridis	In Person
2.00pm		Jim Sly	Auditor	Cobbitty	In Person
		Mark Favetta	Auditor	Cobbitty	In Person
		Robert Aposhian	Observer	IPART	In Person
		Lachlan Joyner	Water Hub Manager Western	Sydney Water	In Person



Day	Session	Name	Role/Job Title	Organisation	Attendance
		Tim Fisher	Process Controller	Sydney Water	In Person
		Adnan Luqman	Reliability Engineer	Sydney Water	In Person
		Chintan Patel	Snr Reliability Engineer	Sydney Water	In Person
14/09/2022	St Marys Depot	James Howey	Auditor	Viridis	In Person
2.30pm -		Tasleem Hasan	Auditor	Viridis	In Person
4.00pm		Jim Sly	Auditor	Cobbitty	In Person
		Mark Favetta	Auditor	Cobbitty	In Person
		Robert Aposhian	Observer	IPART	In Person
		Russell McLean	Warehouse and Logistics Manager	Sydney Water	In Person
		Greg Bourke	Maintenance Leader West	Sydney Water	In Person
15/09/2022	Providing	Jim Sly	Auditor	Cobbitty	In Person
9.00am -	information to Customers	Mark Favetta	Auditor	Cobbitty	In Person
9.30am		Robert Aposhian	Observer	IPART	Online
		Melanie Werner		Sydney Water	In Person
		Rebecca Reid		Sydney Water	In Person
		Gus Garbers		Sydney Water	In Person
		Nicole McCarthy		Sydney Water	In Person
		Rada Djokic		Sydney Water	In Person
		Vedah Panuccio		Sydney Water	In Person
		Peter Nedelkovski	Facilitator	Sydney Water	In Person
		Jignesh Chudasama	Scribe	Sydney Water	In Person
15/09/2022	Consumers	Jim Sly	Auditor	Cobbitty	In Person
9.30am -		Mark Favetta	Auditor	Cobbitty	In Person
10.00am		Robert Aposhian	Observer	IPART	Online
		Melanie Werner		Sydney Water	In Person
		Rebecca Reid		Sydney Water	In Person
		Gus Garbers		Sydney Water	In Person
		Nicole McCarthy		Sydney Water	In Person
		Rada Djokic		Sydney Water	In Person
		Vedah Panuccio		Sydney Water	In Person
		Peter Nedelkovski	Facilitator	Sydney Water	In Person
		Jignesh Chudasama	Scribe	Sydney Water	In Person
15/09/2022	Assistance Options	Jim Sly	Auditor	Cobbitty	In Person
10.00am -	for Payment Difficulties and	Mark Favetta	Auditor	Cobbitty	In Person
10.30am	Actions for Non-Payment	Robert Aposhian	Observer	IPART	Online
		Melanie Werner		Sydney Water	In Person
		Rebecca Reid		Sydney Water	In Person
		Gus Garbers		Sydney Water	In Person



Day	Session	Name	Role/Job Title	Organisation	Attendance
		Nicole McCarthy		Sydney Water	In Person
		Rada Djokic		Sydney Water	In Person
		Vedah Panuccio		Sydney Water	In Person
		Peter Nedelkovski	Facilitator	Sydney Water	In Person
		Jignesh Chudasama	Scribe	Sydney Water	In Person
15/09/2022	Family Violence	Jim Sly	Auditor	Cobbitty	In Person
10.30am -		Mark Favetta	Auditor	Cobbitty	In Person
11.00am		Robert Aposhian	Observer	IPART	Online
		Melanie Werner		Sydney Water	In Person
		Rebecca Reid		Sydney Water	In Person
		Gus Garbers		Sydney Water	In Person
		Nicole McCarthy		Sydney Water	In Person
		Rada Djokic		Sydney Water	In Person
		Vedah Panuccio		Sydney Water	In Person
		Peter Nedelkovski	Facilitator	Sydney Water	In Person
		Jignesh Chudasama	Scribe	Sydney Water	In Person
15/09/2022	Customer	Jim Sly	Auditor	Cobbitty	In Person
11.00am -	engagement	Mark Favetta	Auditor	Cobbitty	In Person
11.45am		Robert Aposhian	Observer	IPART	Online
		Josh Isben		Sydney Water	In Person
		Sharon Bowyer		Sydney Water	In Person
		lzzy Kerr		Sydney Water	In Person
		Peter Nedelkovski	Facilitator	Sydney Water	In Person
		Jignesh Chudasama	Scribe	Sydney Water	In Person
15/09/2022	Internal complaints	Jim Sly	Auditor	Cobbitty	In Person
11.45am -	handling	Mark Favetta	Auditor	Cobbitty	In Person
12.15pm		Robert Aposhian	Observer	IPART	Online
		Melanie Werner		Sydney Water	In Person
		Rebecca Reid		Sydney Water	In Person
		Gus Garbers		Sydney Water	In Person
		Nicole McCarthy		Sydney Water	In Person
		Rada Djokic		Sydney Water	In Person
		Vedah Panuccio		Sydney Water	In Person
		Peter Nedelkovski	Facilitator	Sydney Water	In Person
		Jignesh Chudasama	Scribe	Sydney Water	In Person
15/09/2022	External dispute	Jim Sly	Auditor	Cobbitty	In Person
12.15pm - 12.30pm	resolution scheme	Mark Favetta	Auditor	Cobbitty	In Person
		Robert Aposhian	Observer	IPART	Online
		Melanie Werner		Sydney Water	In Person
		Rebecca Reid		Sydney Water	In Person
		Gus Garbers		Sydney Water	In Person
		Nicole McCarthy		Sydney Water	In Person



Day	Session	Name	Role/Job Title	Organisation	Attendance
		Rada Djokic		Sydney Water	In Person
		Vedah Panuccio		Sydney Water	In Person
		Peter Nedelkovski	Facilitator	Sydney Water	In Person
		Jignesh Chudasama	Scribe	Sydney Water	In Person
15/09/2022	NWI Indicators	Jim Sly	Auditor	Cobbitty	In Person
1.30pm -		Mark Favetta	Auditor	Cobbitty	In Person
4.00pm		Robert Aposhian	Observer	IPART	Online
		Peter Nedelkovski	Facilitator	Sydney Water	In Person
		Jignesh Chudasama	Scribe	Sydney Water	In Person
		Shaohua Ye		Sydney Water	In Person
		Ben Harris		Sydney Water	In Person
		Gus Garbers		Sydney Water	In Person
		Paul Kelly		Sydney Water	In Person
		Fiona Zhang		Sydney Water	In Person
		Daniel Cheong		Sydney Water	In Person
15/09/2022	Recycled Water Elements	James Howey	Auditor	Viridis	In Person
		Tasleem Hasan	Auditor	Viridis	In Person
		Sachin Singh	Observer	IPART	Online
		Carolyn Haupt		Sydney Water	In Person
		Katie Shield		Sydney Water	In Person
		Rebecca Lockett		Sydney Water	In Person
		Jason Sylvester		Sydney Water	In Person
		George Castline		Sydney Water	In Person
		Sandra Spargo	Facilitator	Sydney Water	In Person
		Nathan Ragel	Scribe	Sydney Water	In Person
		Peter Cox		Sydney Water	Online
		Corinna Doolan		Sydney Water	Online
		Caleb Furner		Sydney Water	Online
		Shaohua Ye		Sydney Water	Online
21/09/2022	Closing Meeting	James Howey	Auditor	Viridis	Online
3:00pm – 4:00pm		Sachin Singh	Observer	IPART	Online
		Jim Sly	Auditor	Cobbitty	Online
		Robert Aposhian	Observer	IPART	Online
		Peter Nedelkovski	Facilitator	Sydney Water	Online
		Sandra Spargo	Facilitator	Sydney Water	Online

2.3. Site Visit Report

As part of this audit, field verification site visits were made to a number of sites/facilities to verify how effectively Sydney Water is implementing the requirements of the Operating Licence in practice. These visits



involved inspection of facilities, observation of activities being undertaken and discussions with field personnel.

Sites/facilities inspected for the purposes of this audit included:

- Richmond WRRF
- South Windsor Reservoirs
- North Richmond WFP
- St Mary's Maintenance Depot.

A brief summary of the assets and/or activities inspected at each site, the issues reviewed and/or identified and the observations made are set in the following sections. More detailed discussion of specific aspects or issues is presented in Section 2.4

2.3.1. Richmond WRRF

Facility description

The Richmond WRRF provides tertiary treatment of wastewater, including additional phosphorus removal and disinfection. It discharges 2.2 ML (nominal) of recycled water per day, which is used for irrigation at the University of Western Sydney – Richmond campus and the Richmond Golf Course. Excess flows discharge to an adjacent creek.

The treatment train for the recycled water product consists of:

- Primary treatment (screens)
- Secondary treatment Intermittently Decanted Aeration Lagoon (IDAL)
- Tertiary treatment (coagulation-flocculation, tertiary dual media filtration)
- Disinfection (chlorine).

Appurtenant facilities include odour control system with biofilter to the inlet works; chemical storage; wet weather bypass with disinfection downstream of the IDAL unit; sludge (biosolids) dewatering lagoons and de-chlorination for environmental discharge.

Inspection overview

The site inspection comprised a 'walk through' of the treatment plant, generally following the PFD. This was followed by a review of site records and the critical control point settings in the SCADA system. Due to time constraints, sample records in respect of instrument calibration and other maintenance activities were requested for subsequent provision.

Asset management

The facility appeared to be generally well maintained, with no obvious deficiencies. Observations from an asset management perspective included the following:

- The inlet works include two step screens (primary treatment) which operate on a duty/standby arrangement, thereby providing a level of redundancy. Automated screen cleaning is initiated by screen loading as indicated by a level indicator in the inlet chamber.
- The inlet works are fitted with a positive draw (applied vacuum) odour containment and treatment system. There was no obvious odour at the time of inspection, which indicates that the system was operating effectively.
- The chemical storage area was secure with adequate containment bunding; the delivery area was also configured for spill containment. Relevant signage and labelling were in place; Material Safety Data Sheets (MSDS) were available, and their location clearly identified.
- The two IDAL streams operate alternately on 4-hour aeration/settle/decant cycles. Floating aerators appeared to be operating effectively at the time of the inspection.



- Tertiary filters (3 No) have anthracite and sand media. Backwash occurs twice weekly on a timer but is
 overridden by a head loss alarm that triggers either automatic or manual backwash (dependent on settings).
 Sydney Water noted that replacement/upgrade of the filter media is scheduled for next year (2023); this
 prompted a request for relevant maintenance scheduling records (Maximo or other), which are discussed in
 Section 2.4 (in respect of Licence sub-clause 5.5.2).
- Calibration stickers were noted adjacent to chlorine (free and total) analysers; calibration is also recorded on site and Maximo records. Analyser asset and calibration details are discussed in Section 2.4.
- Three sets of pumps in the effluent re-use pumping tank discharge to storage dams at the University of Western Sydney and Richmond Golf Course, and for onsite and tanker use. In each there are multiple pumps three, three and two respectively), which provides capacity for flow variation in response to demand, as well as redundancy. A further single pump enables discharge to the wet weather (bypass) chlorine contact tank (CCT).

Water quality

Points made in respect to water quality are as follows:

- The sewage source or catchment is generally domestic. Stormwater from within the site goes to the head of the plant as part of a first flush system to capture any spills. This is not shown on the PFD.
- The treatment processes were inspected and discussions undertaken with the Sydney Water team. Alum is dosed after the screens as well as into the equalisation basin. Alum is not dosed prior to filtration as shown on the PFD.
- Magnesium hydroxide is not dosed anymore but is still marked on the PFD.
- There are two IDAL tanks operated alternately in a batching process.
- The filters were seen. There is no online turbidity meter just post the filters, as shown incorrectly on the PFD. The online turbidity analyser is only one at the final effluent testing location, which takes samples from a tank after the CCT.
- Routine maintenance is through Maximo. The Major Preventive Maintenance (MPM) process is used for longer term tasks such as media replacement.
- The operators undertake daily inspections and testing. Completed checklists were sighted onsite.
- Calibration is being undertaken internally and externally. Internal calibration records for the benchtop turbidity meter were observed. There were stickers from an external calibration company on the instruments and the next due date had been exceeded on most instruments.
- Grab samples are taken to verify the online instruments. Records for the grab checks on the online instruments for chlorine and turbidity were observed.
- SCADA was reviewed onsite to check CCP set points and trending. It was noted that virtual meters were used for the recycled water which did not record results when recycled water is not supplied. This makes the report process much simpler.

2.3.2. South Windsor Reservoir

Facility description

The South Windsor Reservoir site accommodates two water storage tanks, a re-chlorination facility and a pumping station. The water storages were the focus of the inspection.

Both water storages are ground-level welded steel structures fitted with lightweight metal sheet roofing. The tank walls are protective coated and cathodic protection is fitted to further protect the internal walls and roof support structure.



WS0197, which was constructed in 1962, is the smaller of the two tanks; it has a storage capacity of approximately 9 ML. The reservoir roof and all appurtenances were replaced in 2017, along with the roof access facilities. WS0294 has a storage capacity of 50 ML.

Both reservoirs are dosed with chlorine and mixers are installed.

Inspection overview

The inspection comprised a briefing by Sydney Water personnel followed by a 'walk-around' the base of Reservoir WS0197. The roofs of both reservoirs (WS0197 and WS0294) were accessed, and the roof and appurtenances inspected.

Asset management

External wall coating of both tanks appeared to be in generally good condition. There was evidence of some patching of the coating near the top of the WS0197 walls, and some minor peeling although this was not considered of concern at this stage.

The recently constructed roof and the new access facilities on WS0197 were of a high quality. The roof and its appurtenances (access hatches, vents, conduits) were all well sealed and vent screening was of a good quality. Perimeter handrails, defined walkways, and extensive signage are included amongst the safety provisions.

The roof on WS0294 showed signs of aging. The vermin barrier/foam seal was missing from under the roof sheeting at some locations, noting that only a short section was able to be inspected from the access stairway. This deficiency is of concern and is further reported in Licence clause 5.5.2.

Water quality

The reservoirs visually appeared in relatively good condition from observations from permitted areas (not all areas were observed due to permission restrictions, which is understandable).

The hatches and vents observed were properly secured. Entry to the top of the reservoirs was controlled via locked access to the stairs.

There is a re-chlorination facility at the site (unable to be observed due to controlled access). Mixers are installed in both reservoirs to achieve a homogenous chlorine concentration. If the mixers fault, chlorine dosing is suspended. If there is an issue with the automated chlorine dosing process manual chlorine dosing (through tablets) is undertaken at the reservoirs. The manual dosing point was shown, and process explained.

Online chlorine analysers are installed at both reservoirs. Daily checks and alarm set points were later reviewed at the Richmond WFP in log sheets and IICATS (Integrated Instrumentation Control Automation & Telemetry System). The process appears to be well managed.

An issue was identified regarding the completion of works to reinstate a vermin barrier (missing foam seals), based on further review of documents and records. This deficiency is of concern and is further reported in Licence clause 4.1.3.

2.3.3. North Richmond WFP

Facility description

The process train comprises:

- Chemical dosing
- Clarification (either up flow clarifier or a Dissolved Air Floatation (DAF) if there is an algae bloom)
- Filtration (6 No. dual media filters)
- Granular Active Carbon (GAC) filters



- Chlorine disinfection
- Fluoridation

Raw water is sourced from the adjacent Hawkesbury River. Two pumping stations, one (WP0191) is located on the riverbank and the other (WP0065) adjacent to it, deliver flows to the head of the treatment plant with a static lift is approximately 50 metres.

WP0065, which was originally constructed in 1910, comprises a dry well in which the pumps are installed, set back from the riverbank. Water is drawn from the river through a nominally horizontal suction pipe. Electrical and other appurtenant equipment is located in a building above the pump well.

WP0191 comprises three submersible pumps located in a deep sump structure, which is fitted with both trash racks and fine screens. An overhead gantry for pump removal sits over the structure. Electrical equipment is located in an adjacent cabinet.

There had been extensive erosion and the stability of the riverbank in the vicinity of the pumping stations had been compromised as a result of three significant flood events that had occurred within the previous 12 months. The pumping station access provisions and the WP0191 gantry were damaged. The area around the WP0065 suction intake was eroded and it was surrounded with debris.

There are two clear water storages at the site; WS0159 which has a capacity of 9.4 ML and WS0308 which has a capacity of 36 ML. Both are ground-level welded steel structures fitted with lightweight metal sheet roofing. The tank walls are protective coated and cathodic protection is fitted to further protect the internal walls and roof support structure.

Some improvement works were being undertaken at the time of the site inspection:

- One filter was being refurbished.
- Chemical unloading area was being upgraded.
- Repair works to the pumping stations and surrounding riverbank were partially completed.
- Maintenance works were being undertaken to pumping station WP0065.

Inspection overview

The site inspection comprised:

- Inspection of the site of the pumping stations, including the significant flood damage. The nearby sludge dewatering lagoons were also observed.
- A walk through of the treatment plant, essentially following the PFD.
- A review of site records and the critical control point settings in the SCADA system.

Due to time constraints, sample maintenance records were requested for subsequent provision.

Asset management

Observations made from an asset management perspective included the following:

- As reported above, the area in the vicinity of the raw water pumping stations has been flood damaged and reinstatement/repair works are ongoing.
- WP0065 is near end of life and is to be replaced by a new pumping station (WP0423). The capital planning process for this work is discussed in Section 2.4.
- As also reported above, refurbishment of Filter No. 3 is currently in hand. It is understood that this work was commenced in 2012, but has been delayed due to issues with blockages, access and the collapse of sacrificial formwork.



- It was noted that the roof of Reservoir WS0308 is structurally deficient; as a result, roof access is restricted. The apparent inability to conduct inspections led to concerns regarding the integrity of vermin barriers/sealing of the roof against ingress; this issue is further discussed in Section 2.4.
- It is understood that planning is underway for refurbishment/replacement of the WP0308 roof structure, which
 is constrained by the inadequate capacity provided by WP0159. These storages normally operate in series to
 provide adequate chlorine contact time prior to the water being discharged into supply. The capital planning
 process for this work is discussed in Section 2.4.
- In other respects, the facility appeared to be generally well maintained with no obvious deficiencies.

Water quality

Points in respect to water quality are as follows:

- The raw water intake had sustained significant damage from recent floods. It was noted that the floods are becoming more intense recently and causing a lot more damage.
- It was also mentioned that WaterNSW communicates on releases and provide notifications where relevant.
- Jar tests are undertaken when there is a change in water quality.
- The supernatant outflow was visible from the intake pump location. The supernatant is discharged downstream of the intake point.
- It was mentioned by Sydney Water that the pump station WPO065 is to be replaced by WP423 as there are safety issues, performance issues, aging, erosion and bank instability.
- Filter No. 3 has been off for a number of years and has only recently been repaired. Also, during the site inspection the GAC was being refurbished and the carbon replaced.
- The filters backwash on headloss, 0.1 NTU turbidity or every 48 hours if the others did not trigger,
- The reservoirs within the WFP were visually seen from the ground during the walk through. There were some overhanging trees on reservoir WP0308 and leaf litter on the roof. It was noted that these trees are to be removed.
- The in-house testing lab area is kept neat and clean.
- SCADA is available at the North Richmond WFP and is used for operation controls. The CCP limits were observed for individual filters and final chlorine. The limits within SCADA are more stringent than specified in the Drinking Water Product Specification.
- The operators were knowledgeable, experienced and a sense of pride in the work they do was evident.
- There are issues with the condition of the reservoir WSO308 and missed six-monthly inspections, from review of documents and records. These have been further discussed under the Drinking Water and Asset Management clauses.
- Expiry dates of laboratory chemicals had not been exceeded. The iron standard expired on the date of the inspection (10 September 2022); review of records indicated the last test for which it was used was conducted two days prior (i.e. on 8 September 2022).

2.3.4. St Mary's Works Depot

Facility description/Inspection overview

The St Mary's maintenance depot is a civil maintenance depot servicing Sydney Water, western area. The visit to this site, which was conducted at the end of the working day, involved an overview of a typical maintenance vehicle, discussions with a maintenance crew leader and inspection of the storage arrangements for spare materials (pipes, fittings, etc.).



Observations

Inspection of a typical maintenance vehicle found it to be well equipped. The same vehicle is used for both water and wastewater maintenance, with some segregation of tools and equipment. Disinfectant was available on the vehicle and the maintenance officer was aware of the need to prevent cross-contamination.

Jetting tracks were also sighted (but not inspected). These are typically used for clearing blockages; they are not used for any repair work. The control of cross-contamination of tools was discussed and there is a process in place to manage the risks and disinfection is undertaken.

Use of the 'Tufbook' mobility platform for work order and safety management was demonstrated. This provides a robust mechanism for the issue and implementation of work orders, providing guidance (work instructions are available online) to ensure that the site works are correctly managed. Interlocks ensure that all steps are completed, including (for example) completion of hazard/job safety assessments and entering of job completion data (time, materials, etc.); crews are required to photograph the works at specific stages of the works.

It is noted that internal audits of process and completed field work is undertaken by supervisors. A sample record was requested.

Inspection of material storage area (building) found it to be generally clean and well organised. It was noted that pipes are stored uncapped (albeit indoors); Sydney Water advised that it is considering options to address this issue, including at the procurement stage (pipes are delivered uncapped).

Inventory is managed through the Material Resource Planning (MRP) module of SAP (software), which flags when replenishment is required. Sydney Water has preferred suppliers that generally operate under period contracts; product suitability/integrity has presumably been assessed through the tendering process.

2.4. Detailed Audit Findings by Clause

Table 7 Maintaining a water conservation program (3.1.1)

Obligation	3.1.1 Sydney Water must maintain a water conservation program consistent with the Current Economic Method.
Risk of non-compliance	Failure to maintain (and implement) a program of economical water conservation measures presents a high level of risk that the effective use of available water resources will not be maximised. A shortage of water resources may ultimately impact public health.
Audit grade	Compliant
Reason for the audit grade	Sydney Water demonstrated that it had maintained (and implemented) a water conservation program that is consistent with the Current Economic Method during the audit period. The program for 2021/22 is detailed in the 2021/22 Water Conservation Report, together with details of the program planned for 2022/23 and an outline of water conservation activities currently planned over the five year period to 2026/27. Annual assessment is undertaken using the Current Economic Method to ensure that water conservation programs/projects/activities meet the Economic Level of Water Conservation.
Auditor comments and justification	 Sydney Water advised that: the water conservation program for 2021/22, and details of how it is consistent with the <i>Current Economic Method</i>, is outlined in the annual <i>Water Conservation Report</i>; and there was no change to the to the <i>Current Economic Method</i> (methodology), which is available on the Sydney Water website, during the audit period. Review of the <i>Water Conservation Report 2021-2022</i> reveals that it provides: a detailed description of the water conservation program implemented during the reporting period (2021/22 financial year); and a breakdown of drinking water use and the water savings achieved through the implementation of the water conservation program during the reporting period; and



 forward plans identifying established projects for implementation during 2022/23 and proposed projects for the five year period 2022/23 to 2027/27
proposed projects for the live-year period 2022/23 to 2027/27.
The 2021/22 water conservation program comprised an extensive portfolio of programs/projects, as follows:
Water Efficiency
• Water Efficiency Program, which included:
Water Conservation Field Team
WaterFix [®] Residential
WaterFix [®] Concealed Leaks:
WaterFix [®] Strata
WaterFix® Commercial
WaterFix® Small Business
WaterFix® Schools' Water Efficiency
One Stop One Story Pilot
PlumhAssist®
Water Savings Partnership
Digital Metering Trial Expansion
2022 Water Efficiency Grants
Pool Cover Rebate Pilot Program.
• Water Efficiency Research and Innovation, which included:
Smart Shower Timer Phase 2
Childcare Washing Machines Upgrade
Washing Machine Replacement Trial
SOPA Smart Irrigation Trial
Better Life at Home Trial
Smart Devices Smart Homes Pilot
Robots for Urban Greening Pilot
Digital Metering Data Analytics to Support Non-Residential Water Conservation
End-Use Study Extension.
Water Leakage:
Water Leakage Programs, which included:
 Water Leakage Programs, which included. Speed and quality of renairs (customer reported leaks) – Data Analytics (Deskton)
Response to Leaks and Breaks)
 Active Leak Detection (hidden leaks) – Active Leak Detection (Field Services)
Contracts: Leak Detection Dogs program
 Pressure Management – Pressure management Program: Pressure Calming
Asset Management – Watermain Renewals
• Water Leakage Research and Innovation, which included:
Lift and Shift Acoustic Sensors
Dark fibre
Quantum Sensing
InSAR Leaks and Breaks Project
Predictive Model
Online Monitoring (behind the meter
SmartPipe (Smart Standpipes).
Becycled Water:
Becycled Water Schemes, which included:
Evicting recycled water schemes
Western Sydney Aerotronolis Growth Area Recycled Water Sunnly projects
 Recycled Water Research and Innovation, which included.
Recycled Water and Soil Interaction Stage 2
Arboretum and Recycled Water Project
Becycled water for construction
Hydraloop Trial
Ieo Truck
Community Awareness:
- Community Awareness.
Community Education Behavioural change campaign



	Data and Analytics.
	These programs/projects reflect a combination of established programs, early lifecycle projects, pilot projects, and research and innovation projects, thereby covering each phase of the program lifecycle. In each case, the 2021/22 Water Conservation Report provides an overview of the program/project, together with commentary in respect of the benefits, achievements to date, and 2021/22 achievements as appropriate.
	As further discussed in Licence sub-clause 3.1.2, all programs are reviewed and reassessed annually to ensure that they are consistent with the <i>Current Economic Method</i> , i.e. it is confirmed that they meet the Economic Level of Water Conservation (ELWC).
	As well as the program implemented during the reporting year, the 2021/22 Water Conservation <i>Report</i> outlines the water conservation program to be implemented:
	 During the subsequent year (2022/23) – a water conservation program comprising established water efficiency projects, water leakage programs, the recycled water program and the behavioural change campaign is outlined; estimated investment and target water savings are identified in each case. Estimated investment in pilots, research and innovation is also identified. During the subsequent five-year period (2022/23 to 2026/27) – a plan comprising water efficiency projects, water leakage programs, and recycled water projects is outlined; estimated water savings are identified for each year of the forecast period.
	The preceding discussion demonstrates that Sydney Water maintained a water conservation program during the audit period, whilst also developing forward programs for 2022/23 and the five-year period to 2026/27. Annual assessment is undertaken using the <i>Current Economic Method</i> to ensure that water conservation programs/projects/activities meet the ELWC.
Evidence cited	 Sydney Water, Determining Sydney Water's Economic Level of Water Conservation; Part A: The ELWC Methodology, undated; available at: https://www.sydneywater.com.au/content/dam/sydneywater/documents/determining-sydney-water's-economic-level-of-water-conservation.pdf Sydney Water, Water Conservation Report 2021-2022, undated
Recommendation(s)	None
Opportunities for improvement	None

Table 8 Implementation of water economic measures (3.1.2)

Obligation	3.1.2 Sydney Water must implement water conservation measures that have been assessed as economic as determined by the Current Economic Method.
Risk of non-compliance	Failure to implement economical water conservation measures presents a high level of risk that the effective use of available water resources will not be maximised. A shortage of water resources may ultimately impact public health.
Audit grade	Compliant
Reason for the audit grade	Sydney Water is assessed to have demonstrated compliance with this obligation. Sydney Water reported on the water conservation measures that were implemented during the audit period in the Water Conservation Report 2021 2022. The implemented program comprised established water efficiency and water leakage projects; operation of recycled water schemes; behavioural change initiatives; and the investigation of new initiatives through pilot projects. Sydney Water demonstrated that the implemented measures were assessed to be/remain economically feasible through the provision of Economic Level of Water Conservation calculation spreadsheet models for each of the key projects. It also demonstrated that implementation of the water conservation program is monitored and effectively managed.
Auditor comments and justification	 Sydney Water advised that: details of the water conservation measures implemented during the audit period are outlined in the 2021/22 Water Conservation Report, and noted that all activities were undertaken as planned



- all established customer programs remain economic to deliver; new identified programs are only included in the forward program following a positive assessment against the Economic Level of Water Conservation (ELWC)
- all programs are reviewed and reassessed annually to ensure they meet the ELWC, remain efficient to deliver, and can achieve the targeted benefits.

Review of the 2021/22 Water Conservation Report reveals that an extensive portfolio of water conservation measures (programs/projects/activities) was implemented. These included a combination of established programs, early lifecycle projects, pilot projects, and research and innovation projects that relate to water efficiency, water leakage, recycled water and behavioural change. A list of the implemented measures is presented in Licence sub-clause 3.1.1.

In each case, the 2021/22 Water Conservation Report provides an overview of the program/project, together with commentary in respect of the benefits, achievements to date, and 2021/22 achievements as appropriate. Water savings in 2021/22 were identified as follows (targets are as identified in the 2020/21 Water Conservation Report):

- Water efficiency measures calculated average annual savings of 742 ML (target 803 ML).
- Water leakage measure rolling 12-month leakage stabilised at 117.4 ML/day, which lies within the (target 108 ML/day).
- Recycled water calculated average annual drinking water savings of 12,700 ML (target 14,000 ML).
- Ongoing water-wise behaviours from restrictions and campaigns, continued impacts from the COVID-19 pandemic, and water efficiency programs are estimated to have reduced the demand for drinking water by around 6.6% compared to expected demands under average weather conditions (target 7%).

The implemented program of water conservation measures was consistent with that proposed in the 2020/21 Water Conservation Report, i.e. it comprised the various identified measures that had been determined to be economic. For example:

- Water efficiency measures included the WaterFix[®] Residential, WaterFix[®] Strata, PlumbAssist, WaterFix[®] Concealed Leaks and WaterFix[®] Commercial (pilot) programs as planned; the Online monitoring, Water Savings Partnership and WaterFix[®] Small Business pilot initiatives were also implemented. The variance from target was driven primarily by the WaterFix[®] Residential and WaterFix[®] Strata programs being on hold/limited customer uptake due to COVID-19 from July-November 2021; other programs performed in excess of target.
- Stabilisation of water leakage levels within the economic level of leakage band was achieved through the investment of \$44 million (\$44.6 million proposed) in its established water leakage programs, as well as research and innovation projects to assess the feasibility of new initiatives.
- Although less than target, drinking water savings realised by the use of recycled water remained consistent with 2020/21 performance, notwithstanding a reduction in total production. This is likely to have been affected by the extremely wet and relatively cool weather conditions experienced during the reporting period. Sydney Water advised that it invested a further \$19 million in renewals, upgrades, and new infrastructure across its recycled water systems in 2021/22.

Sydney Water demonstrated that it had assessed the feasibility of programs during the audit period by providing a sample of completed ELWC templates (MS Excel workbook models), which are used to implement the *Current Economic Method* (ELWC methodology). These samples included models for the WaterFix® Residential, WaterFix® Concealed Leaks, WaterFix® Strata, WaterFix® Commercial, WaterFix® Small Business pilot, WaterFix® Schools pilot, Online Monitoring, PlumbAssist and Pool Cover pilot programs. Each of these programs/projects was found to be economically viable for the current value of water (i.e. for current dam levels) except for the WaterFix® Small Business pilot program, which is further discussed below. In this case, the program as proposed was found to be viable only when dam levels were between 60-65%. Sydney Water also provided a sample of *Post Implementation Review Reports* in respect of the *End of pilot program – Online Monitoring* and *End of pilot program – WaterFix® Small Business*, and a *Post Campaign Evaluation* in respect of the *Phase Four – Turn It Off Bob (Bobland)* initiative. In each case, these reports provide detailed evaluations of the specific program/project, further demonstrating that the implementation of water conservation measures is effectively managed and monitored.



	The report in respect of the WaterFix® Small Business pilot program, which provides small businesses with water efficiency focused plumbing services that include a water efficiency assessment, repairs of various leaks, and the installation of water efficient products to reduce potable water demand, concluded with recommendations including that:
	• The subsidy offered should be reduced from \$1,000 to \$750 per customer, which was more reflective of the common spend per customer during the pilot program and makes the program viable for an increased value of water (dam level) range under ELWC assessment; and
	• Another pilot program should be rolled out until 30 June 2023 due to uncertainties in respect of implementation (contractor performance and stability of customer uptake).
	This effectively addressed the findings of the ELWC feasibility assessment reported above.
	Other evidence that demonstrates implementation and effective monitoring of water conservation measures includes:
	 Monitoring of water use to determine savings under the WaterFix[®] Small Business pilot program – this shows a comparison of water use as billed for the four quarters preceding and following intervention by small business customers to determine the volume of water savings.
	 Budget tracking of the PlumbAssist[®] program – which shows actual performance in respect of expenditure, the number of customer appointments, and water savings realised against budget/targets.
	• Monitoring of WaterFix [®] Concealed Leaks program – which indicates that leaks were repaired at 77 properties during the 2021/22 financial year. Repair costs and the estimated water savings for each property are recorded; the estimated savings amounted to 156 ML/year.
	• A detailed analysis of the WaterFix [®] Residential program – this resulted in the development of a model that can be used to generate a list of non-WaterFix properties in order of expected saving based on consumption prior to intervention, lot size, length of property ownership and geographic region.
	• A collation of data in respect of recycled water used during the 2021/22 financial year. Data includes monthly usage by customer and scheme; annual drinking water savings by scheme; and annual drinking water savings since 2015/16.
	Water leakage program management documents including:
	 the Leakage Management Manual, which outlines the principles and guidance to supporting the development of the annual Leakage Management Plan the 2021 Leakage Management Plan, which details the proposed leakage management activities with forecast expenditure for the period 2020/21 to 2024/25 the ELL Guideline, a procedure that details the approach for calculation of the economic level of leakage (ELL).
	In summary, the <i>Water Conservation Report 2021-2022</i> outlines the water conservation measures that were implemented during the audit period, and a sample of completed ELWC templates demonstrated that the <i>Current Economic Method</i> had been applied to assess ongoing economic feasibility of the individual programs/projects. Other supporting information demonstrated that implementation of the water conservation program is monitored and effectively managed.
Evidence cited	 Sydney Water, Water Conservation Report 2021-2022, undated. Sydney Water, Determining Sydney Water's Economic Level of Water Conservation; Part A: The ELWC Methodology, undated. MS Excel workbook: ELWC template v1.7 WaterFix Residential – QA.xlsx. MS Excel workbook: ELWC template v1.7 -Concealed leaks – QA.xlsx. MS Excel workbook: ELWC template v1.7 - WaterFix Strata – QA.xlsx. MS Excel workbook: ELWC template v1.7 - WaterFix Strata – QA.xlsx. MS Excel workbook: ELWC template v1.7 - WaterFix Commercial – QA.xlsx. MS Excel workbook: ELWC template v1.7 - WaterFix Small Business Pilot – QA.xlsx. MS Excel workbook: ELWC template v1.7 - WaterFix Schools pilot – QA.xlsx. MS Excel workbook: ELWC template v1.7 - Online Monitoring – QA.xlsx. MS Excel workbook: ELWC template v1.7 PlumbAssist – QA.xlsx. MS Excel workbook: ELWC template v1.7 Pool cover pilot – QA.xlsx. Sydney Water, Post Implementation Review Report; End of pilot program – Online Monitoring, 9 August 2022.
	 Sydney Water, Post Implementation Review Report; End of pilot program – WaterFix[®] Small Business, 19 July 2022.



	 Kantar Public/Sydney Water, Water Efficiency Campaign; Phase Four – Turn It Off Bob (Bobland); Post Campaign Evaluation; Final Report, February 2022. MS Excel workbook: WFSB Water Saving Bill Consumption.xlsx. MS Excel workbook: Water savings PlumbAssist 2021-22 Budget Tracking.xlsx. MS Excel workbook: WF Concealed Leaks Completed Jobs 20220804.xlsx. PowerPoint presentation: WaterFix Analysis. MS Excel workbook: RW Reporting (2).xlsx. Sydney Water, Leakage Management Manual, 2021. Sydney Water, Leakage Management Plan, 2021. Sydney Water, Procedure; Calculation of Economic Level of Leakage (ELL) (Version 2), August 2019.
Recommendation(s)	None
Opportunities for improvement	None

Table 9 Update the current level of water conservation (3.1.4)

Obligation	 3.1.4 Sydney Water must update the economic level of water conservation using the Current Economic Method: a) for the purposes of clause 3.1.1 and 3.1.2—annually; and b) or the purposes of clause 3.1.3(c)—monthly.
Risk of non-compliance	Failure to update the economic level of water conservation presents a moderate level of risk that the economic value of conservation measures may not be correctly determined
Audit grade	Compliant (minor shortcomings)
Reason for the audit grade	Sydney Water is assessed to have demonstrated compliance with this obligation, but with minor shortcomings, based on the following. Sydney Water demonstrated that the economic level of water conservation was updated once (annually) during the audit period for the purposes of maintaining and implementing the water conservation program (clauses 3.1.1 and 3.1.2) and monthly for the purposes of public reporting (clause 3.1.3(c)). The economic level of water conservation is updated based on calculation performed using an established spreadsheet model that replicates the Current Economic Method. It is noted that, for the purposes of clause 3.1.3(c), the economic level of water conservation is to be expressed both as the value of water in dollar per kilolitre and as the quantity of savings in megalitres per day. Whilst the model determines the value of water, it is not apparent from the evidence provided how this is transposed into the quantity of water savings.
Auditor comments and justification	Sydney Water advised that the value of water (economic level of water conservation) is estimated each month using a spreadsheet model that incorporates the key input variables from the approved <i>ELWC Methodology</i> (Economic Level of Water Conservation Methodology), i.e. the <i>Current Economic Method</i> . The spreadsheet models for each month during the 2021/22 year (audit period) were provided, demonstrating that the value of water had been calculated each month as required for the purpose of public reporting. The model run used for the <i>2021/22 Water</i> Conservation <i>Report</i> , i.e. for the purposes of developing/maintaining and implementing the water conservation program, was also provided. Sydney Water noted that: <i>"The economic level of water conservation (ML/day) did not vary during the reporting year, as dam levels remained above 80% for the entire year and the level of water savings reflects our baseline water conservation program."</i> The current economic level of water conservation expressed both as the value of water in dollars per kilolitre (\$/kL) and as the quantity of savings in megalitres per day (ML/day) is determined monthly, as evidenced by publication of values for the current and previous months on the "Operating Licence" webpage of the Sydney Water website. Publication on the website is as



	Although not technically a requirement of this obligation, Sydney Water provided an example of a request for information regarding the economic level of water conservation made to the Contact Centre in July 2021; Sydney Water is required to provide such information pursuant to Licence sub-clause 3.1.3 paragraphs (c) and (d). A copy of the information provided in response to the request comprised: Verified available storage level (%); Short-run value of water (\$/kL); Retail price of water (\$/kL); and Economic level of water conservation (ML/day) for each month of the period November 2019 to June 2021. Again, this demonstrated that the economic level of water conservation had been calculated (albeit the figures related to a period prior to the audit period). Evidence of the approach used to determine the current economic level of water conservation expressed as the quantity of savings in megalitres per day (ML/day) was sought; however, this does not appear to be currently documented. Sydney Water explained that the economic level of water conservation (ELWC), in volume terms, is the amount of water it expects to save each year from all programs that have a levelised cost that is less than (or equal to) the value of water; this is derived from the ELWC templates (MS Excel workbook models) discussed in Licence sub-clause 3.1.2, but acknowledged that this process is not formally documented. It is therefore apparent that the requirements of this obligation were fulfilled during the audit period; however, the absence of a documented procedure for determining the current economic level of water conservation expressed both as the value of water and as the quantity of savings is considered a minor shortcoming. Accordingly, it is recommended (REC-2022-01) that Sydney Water formally documents a procedure for updating and reporting the current economic level of water conservation, which is to be expressed both as the value of water in dollars per kilolitre (\$/kL) and as the quantity of savings in megalitres per day (ML/da
Evidence cited	 Sydney Water, Determining Sydney Water's Economic Level of Water Conservation; Part A: The ELWC Methodology, undated. For example, MS Excel workbooks: Value of Water_December 2021.xlsx and Value of Water_June 2022.xlsx. Sydney Water, Water Conservation Report 2021-2022, undated. Spreadsheet models have not been checked for consistency with the ELWC Methodology for the purposes of this audit. "Operating Licence" webpage at: <u>https://www.sydneywater.com.au/about-us/our- organisation/what-we-do/operating-licence.html</u>. Email dated 5 July 2021 to Sydney Water Customer Service and subsequent internal entry dated 10 July 2022 (re: Something else - Question). MS Excel workbook: Customer data request – 20210712.xlsx. Email dated 24 October 2022 from Sydney Water to Cobbitty Consulting (re: 2022 IPART Operational Audit - Summary of Audit Grade Reasons Report).
Recommendation(s)	REC-2022-01 By 30 June 2023, Sydney Water should formally document a procedure for updating and reporting the current economic level of water conservation, which is to be expressed both as the value of water in dollars per kilolitre (\$/kL) and as the quantity of savings in megalitres per day (ML/day) as required by paragraph 3.1.3(c) of the Operating Licence.
Opportunities for improvement	None

Table 10 Must deliver actions in the Metropolitan Water Plan or directed by the Minister (3.2.4)

Obligation	 3.2.4 Sydney Water must implement any action that: a) Sydney Water is responsible for delivering under the Metropolitan Water Plan; or b) the Minister directs, in writing, Sydney Water to implement.
Risk of non-compliance	Failure to comply with this obligation presents a high risk that effective water planning may not be fully and effectively implemented, thereby potentially impacting the long-term security of water supplies.
Audit grade	Compliant



Reason for the audit grade	Sydney Water demonstrated that has implemented actions for which it is responsible under the <i>Metropolitan Water Plan</i> as well as acting in response to directions by the Minister. Accordingly, Sydney Water is assessed to have demonstrated compliance with this obligation.
	Implementation of the water conservation program is Sydney Water's primary responsibility under the <i>Metropolitan Water Plan</i> ; however, it also has roles in delivery of the Plan, including extending the use of recycled water. Ministerial directions that were in effect during the audit period included an extension to the timeline for delivery of the Long-term Capital and Operating Plan and the transfer of responsibility for water supply augmentation planning from WaterNSW.
	Sydney Water's performance in implementing its water conservation program is discussed in Licence sub-clause 3.1.2. Sydney Water also demonstrated its involvement in development of the <i>Greater Sydney Water Strategy</i> (replacement for the <i>Metropolitan Water Plan</i>), activity in respect of its supply augmentation accountabilities, and delivery of the Emergency Drought Response Plan and Long-term Capital and Operating Plan (Licence requirements). It was also active in investigating the benefits of investing in recycled water and other water management initiatives.
Auditor comments and justification	Pursuant to this obligation, Sydney Water is required to implement actions for which it is responsible for delivering under the Metropolitan Water Plan, and to implement actions in response to any Ministerial directions.
	One Ministerial direction was made during the audit period; this extends the timeline for delivery of the Long-term Capital and Operating Plan (LTCOP) to no later than 1 June 2023. The original timeline for delivery, as nominated in the <i>Operating Licence</i> , was 1 December 2022; this was previously extended to 1 December 2021.
	It is noted that the Minister transferred responsibility for water supply augmentation planning from WaterNSW to Sydney Water in January 2021; the effect of this transfer continued during the audit period. As required by the Minister's direction, Sydney Water and WaterNSW have entered into a <i>Memorandum of Understanding</i> , which records the arrangements under which the parties will work together to effect the change.
	Metropolitan Water Plan:
	Sydney Water's primary responsibility under the <i>Metropolitan Water Plan</i> during the audit period was implementation of its Water Conservation Program, action in respect of which is reported in the annual <i>Water Conservation Report</i> . The maintenance and delivery of the Water Conservation Program during the audit period is discussed in detail in Licence clause 3.1.
	Sydney Water was also involved in supporting delivery of the Metropolitan Water Plan as follows:
	 It was actively engaged with the Department of Planning and Environment (DPE) and WaterNSW in the development of the <i>Greater Sydney Water Strategy</i>.
	 It took action in response to the change of supply augmentation accountabilities. It delivered the Emergence Provide Response Plan
	 It continued development of the Long-term Capital and Operating Plan.
	• It continued to engage with the community in respect of future uses of recycled water.
	Greater Sydney Water Strategy (GSWS):
	Sydney Water advised that it actively engaged with the DPE and WaterNSW in the development of the <i>Greater Sydney Water Strategy</i> , which was released in August 2022. Sydney Water's input has included: participation in governance leadership forums and working groups; the provision of secondees to DPE to assist in planning work; and the provision of various inputs, including demand forecasts, modelling for greening demands, integrated water management and waterways, supply-demand and portfolio development, circular economy/resource recovery and wastewater management inputs, and water conservation activities and savings. It has also facilitated internal briefings on progress and implications.
	Customer engagement activities undertaken to inform development of the <i>Greater Sydney Water</i> <i>Strategy</i> , such as the 'Water for the Future' project, are discussed in Licence sub-clause 6.6.1.
	As part of the change to supply augmentation accountabilities. Sydney Water has formed a
	steering committee (Steerco) to guide the planning process. The Steerco is chaired by the Head of System and Asset Planning, with relevant representatives from both Sydney Water and WaterNSW. This provides a forum for frank and open discussion and actions are captured and
	ionoweu up on a weekiy basis.



Sydney Water is developing a strategic business case to help identify and shortlist new options to meet long term water supply needs. This includes identifying the most suitable drought supply options to respond to extreme drought as well as investments that will help to manage system risks associated with resilience and climate change.

A *Bulk Water Supply Planning Pack*, which identifies and assesses augmentation options and details the next phase of work, has been prepared to inform the planning process.

Emergency Drought Response Plan:

Sydney Water finalised and delivered the *Greater Sydney Drought Response Plan* (GSDRP), which was developed in conjunction with WaterNSW, to government. The GSDRP "... *is intended to give guidance on how the Utilities and Government work together to respond to supply challenges and risks associated in drought. It outlines the key decisions and actions that need to be undertaken and parties responsible for doing so."*

The GSDRP identifies five stages of drought: Normal operations; Preparing for drought; Responding to drought; Extreme drought; and transitioning out of drought. The key elements of the plan include Drought governance, Demand-side responses, and Supply-side responses; governance and response actions to be implemented for each stage of drought are detailed.

Sydney Water advised that it would continue to monitor drought indicators, which are detailed in the GSDRP, as well as undertaking an annual review of the plan towards the end of 2022.

Long-term Capital and Operating Plan (LTCOP):

Sydney Water has commenced delivery of the Long-Term Capital and Operating Plan (LTCOP) with the view to submitting by 1 June 2023. It advised that:

"The LTCOP will provide an assessment of investments and trends that guide long-term servicing strategies while identifying key decisions necessary to ensure the levels of service we are required to deliver. The LTCOP will also identify what customer service outcomes can be achieved and how they can be delivered at a cost which is affordable and reasonable for today and tomorrow's customers."

Sydney Water has prepared a Basis of Planning document, which "... has been established to provide guidance towards implementation of key directions identified in the Greater Sydney Water Strategy as well as Sydney Water's 10-year strategy and our corporate vision of 'Creating an Enhanced Servicing with world-class water services'".

As evidence of progress, Sydney Water provided a sample of records, including the following:

- Presentation to the Board Planning and Infrastructure Committee (PIC) in respect of the *Fundamental Assumptions* underpinning the LTCOP.
- Presentation to the DPE, in conjunction with WaterNSW, setting out an overview of the scope of the LTCOP.
- Presentation to the Board PIC providing an update/overview in respect of the LTCOP.

Sydney Water noted that, as part of this work, it is working collaboratively with WaterNSW to understand the impacts of climate change on rainfall, run-off and water demand, and how this may inform future infrastructure planning.

Recycled Water:

As part of its supporting role in delivery of the *Metropolitan Water Plan*, Sydney Water continued its work in investigating the benefits of investing in recycled water, stormwater management, local integrated water solutions and water conservation programs. Action taken to advance the use of recycled water has included:

- Sydney Water continued its work in support of the 'Recycled Water as a Product' initiative, which is aimed at meeting strategic objectives for water recycling across four main product schemes:
 - Non-potable Recycled Water
 - Environmental flow replacement (e-Flows)
 - Stormwater Harvesting
 - Purified Recycled Water for Drinking (PRWD).

The 'Recycled Water as a Product' leadership group continued to hold monthly meetings through which it provides cross-enterprise guidance on prioritisation and risk management, thereby ensuring that actions are consistent with the framework set out in the *Portfolio Management Plan* for the project.

This work is informed in part by the outcomes of customer engagement/research. Feedback in respect of customer perceptions summarised in the presentation *Overview of customer insights relating to PRW* (for example) provide valuable input to the progression of this initiative.



	 A Recycled Water Position Statement was developed to provide clear direction in respect of recycled water opportunities. The position statement establishes how Sydney Water intends to promote, manage and plan for recycled water, thereby providing a framework to drive internal cohesion and provide clarity to stakeholders for discussions around government policy and regulation. A strategic business case for the Greater Parramatta Olympic Peninsula (GPOP), which includes recycled water servicing as part of Stage 1 and a pathway to purified recycled water, was developed. Sydney Water has been working to secure servicing for recycled water and stormwater in the Mamre Road Precinct as the next area prioritised by Government for development. A key focus has been to seek alignment between the water servicing approach and the Development Control Plan, thereby providing certainty to developers. Sydney Water is continuing to engage with the community on future uses for recycled water. For example, a Purified Recycled Water (PRW) demonstration plant/visitor centre is being built as a means of educating stakeholders and the general community about this potential water source option. Building a demonstration plant has been identified, together with community education, as one of the most effective means of increasing water literacy (understanding of the water cycle) and awareness on the role of purified recycled water for drinking. A <i>PRW Visitor Centre Journey</i> presentation provides an overview of the designed experience for those visiting the facility. DPE Comments: In feedback provided to IPART in respect of the scope of this audit, the DPE acknowledged the work undertaken by Sydney Water in respect of water planning during the audit period. In
	 summary, the DPE commented that: Sydney Water had participated in the inter-agency working group and the Project Control Group for the <i>Greater Sydney Water Strategy</i> (thereby meeting condition 3.2.5 of the Licence). Sydney Water submitted the GSDRP to the Minister by 1 December 2021 (as required), noting that it had been submitted as an interim plan so it could be refined against the final GSWS and that it will be reviewed on an annual basis. The delivery timeline for the Long-term Capital and Operating Plan had been extended to ensure that it aligns with the development and directions of the <i>Greater Sydney Water Strategy</i>; the Long-term Capital and Operating Plan will be finalised and submitted by 1 June 2023.
	Summary: The preceding discussion demonstrates that Sydney Water fulfilled its obligations in respect of implementing actions for which it is responsible under the <i>Metropolitan Water Plan</i> as well as acting in response to directions by the Minister. Its primary responsibility under the <i>Metropolitan</i> <i>Water Plan</i> is delivery of the water conservation program; however, it was also heavily involved in development of the <i>Greater Sydney Water Strategy</i> , the <i>Greater Sydney Drought Response Plan</i> ; the ongoing development of a Long-term Capital and Operating Plan; water supply augmentation planning; and the promotion of recycled water use.
Evidence cited	 Document: LTCOP signed letter of extension Aug 2021.pdf. Sydney Water, Operating Licence 2019-2023, undated, sub-clause 3.2.1. Letter dated 22 January 2021 from Minister for Water, Property and Housing to Sydney Water. Memorandum of Understanding; Transfer of the Supply Augmentation Planning Function between WNSW and Sydney Water, dated 28 January 2021. MS Excel workbook: Supply Augmentation Actions and Data Sharing Register.xlsx. PowerPoint presentation: Sydney Water/WaterNSW, Bulk Water Supply Augmentation; Planning Pack. Sydney Water, LTCOP; Sydney Water's Long term capital and operational plan; basis of planning, undated. PowerPoint Presentation: Long Term Capital and Operating Plan; Fundamental Assumptions. PowerPoint Presentation: Long Term Capital and Operating Plan; DPIE Sydney Water Corporation WNSW Scope Overview.



	 Sydney Water, Recycled Water as a Product; Portfolio Management Plan (Version 4.0), 15 October 2020. PowerPoint presentation: Overview of customer insights relating to PRW. Document: Sydney Water Position Statement - Recycled Water.pdf. PowerPoint presentation: Overview of customer insights relating to PRW. PowerPoint presentation: PRW Visitor Centre Journey for Stakeholders & Community. Letter (reference V22/77083) dated 22 July 2022 from the DPE to IPART (re: 2022 Operational Audits for Hunter Water, Sydney Water and WaterNSW).
Recommendation(s)	None
Opportunities for improvement	None

Table 11 Maintaining a Drinking Water Quality Management System (4.1.1)

Obligation	4.1.1 Sydney Water must maintain a Management System that is consistent with the Australian Drinking Water Guidelines and any requirements relating to Drinking Water specified by NSW Health (the Drinking Water Quality Management System)
Risk of non-compliance	Without a comprehensive DWQMS, there is a high risk that Sydney Water may not be able to effectively manage risks to water quality and protect public health.
Audit grade	Compliant
Reason for the audit grade	Sydney Water was compliant because it maintained a DWQMS that is compliant with the ADWG in the audit period, through various processes and documents. There are opportunities for improvement identified which can strengthen the DWQMS framework, for example, periodic testing of CCP alarms and shutdowns and regular field audits to confirm adherence to hygienic work practices during mains/pipes repairs. Absence of these during the audit period did not result in any adverse impact on water quality, but the auditors feel that as the DWQMS matures further, these could be incorporated into processes.
Auditor comments and	Element 2
justification	It has been determined that all the requirements of the ADWG Element 2 have been met.
	Risk assessment teams were identified for the risk workshops undertaken. Examples sighted were for the risk workshops for North Richmond WFP and North Richmond Networks. The WFP workshop was undertaken on 29/6/22 and the Networks workshop was undertaken on 20/6/22. As per the <i>Operational Risk Assessment Workshop SOP for Drinking Water</i> (D0000799), NSW Health were invited and participated at both the workshops. The Risk Assessment workshop reports include the details of the risk assessment teams.
	Flow diagrams have been developed for the schemes. Examples seen included North Richmond WFP, North Richmond Networks and Nepean WFP.
	The characteristics of the drinking water systems have been documented between the PFDs and Risk Briefing Papers. Examples seen included the Risk Briefing Papers for North Richmond WFP and North Richmond Networks.
	The approach and methodology for the hazard identification and risk assessment has been defined in the Operational Risk Assessment Workshop SOP for Drinking Water (D0000799). The Risk Management Procedure (1045159) was also provided.
	The risk registers for North Richmond - WFP and Networks, show the risks with and without controls.
	Element 3
	It has been determined that all the requirements of the ADWG Element 3 have been met.
	Preventive measures have been documented as existing controls in the risk registers. These were seen in the North Richmond – WFP and Networks registers.



Element 5
ine list of Asset Standards and Specifications used, including acceptable products, was provided (iConnect page picture). This states that standard products must conform to specifications shown in EPS 500 – Engineering Product Specification for Standard Pipes and Fittings for Networks.
treatment (WT5232).
There is a procedure on <i>Quality Assurance of Hypochlorites</i> , which includes use of hypo in the networks (liquid and tablets).
Although it did not have the frequency of the tasks, it did show that preventive maintenance tasks have been scheduled in Maximo.
The list of preventive maintenance orders from Maximo was extracted and provided in Excel.
The calibration records for turbidity meter (HACH 2100) used in the field was provided.
<i>22).</i> The <i>Master Equipment calibration list for the North Richmond WFP</i> (WTNR5004.07) was provided. This includes the calibration frequency of the online and benchton meters used by the Plant team.
There is a <i>Drinking Water Quality Operational Monitoring Plan (21-22). E. coli</i> detections from this monitoring is treated as the same as for the <i>Annual Drinking Water Quality Monitoring Plan (21-</i>
 test results (D0001676). Process Decision and Abnormal Water Quality (DOC0350) – observed onsite Drinking Water Quality Event Management Plan (WPIMS5228) Managing Customer Water Quality Complaints (D0001661)
 (WTNR5004). Triggers, Notifications and Actions for Adverse Water Quality Results – for responding to lab
 North Richmond Daily Workflow Process and Equipment Monitoring – shows operator checks
A list of procedures for Network maintenance from BMIS was also provided.
OMM-001).
A list of Operations Team Procedures for North Richmond WFP from BMIS was provided. The <i>Operating Protocols and Maintenance Specifications for Civil Assets (OPAMS) – Potable and Recycled Water</i> was also provided. This includes task codes and reference to other related procedures. The O&M manual for Nepean was provided - <i>Operation and Maintenance Manual rev1</i> (101178-
It has been determined that all the requirements of the ADWG Element 4 have been met.
example, via joint Operational Group (JOG) meetings or separate emails/meetings.
It was mentioned that changes needed to the CCP critical limits are discussed with NSW Health, for
critical limit breaches will be notified to NSW Health, and further reporting details are in other supporting documents like the <i>Drinking Water Quality Event Management Plan</i> .
Networks. Critical control points and operational control points have been identified and reasons for inclusion incorporated in the <i>Drinking Water Product Specification</i> . It is mentioned in the document that
Additional preventive measures or new improvement actions have been identified from the risk assessments. This was seen from the Risk Assessment Reports for North Richmond – WFP and Naturalia
86972178) was provided. It was noted that this inspection is highly focussed on safety and there are limited water quality considerations (e.g. if the crew have used sodium hypochlorite, if dirt and debris has been prevented from entering pipes, have pipes been flushed etc). It is positive that these checks on procedure implementation are being undertaken, but it is considered it could be improved by including water quality aspects to the procedure. OFI-2022-2
It was mentioned at the audit interviews and the Saint Marys Maintenance Depot site visit that Supervisors or Team Leaders undertake an inspection or audit to check that crew have followed procedures appropriately. An example of a completed inspection for a broken main (WO
and interlocks has not been undertaken in recent years. The WFP team though can monitor through SCADA that process controls are initiated, for example, backwash is triggered at the setpoint. It would be beneficial to periodically test that control set points are correct and that interlocks operate as expected. This would add further robustness to operational control of WFPs. OFI-2022-1
For North Richmond, a test or simulation of CCP or operational target breach to verify time delay



It has been determined that all the requirements of the ADWG Element 5 have been met.
There is a verification monitoring program, which is called the <i>Annual DWQ Monitoring Plan 21-22</i> . The Plan is reviewed annually, considering population growth statistics. Verification monitoring samples are mainly tested by Sydney Water Monitoring Services. Few analytes are sent by Monitoring Services to external laboratories but the process is controlled via the procedure <i>Subcontracting laboratory testing and field sampling</i> (D0000642) and <i>Service Provider Evaluation</i>
(D0000642.03 V1). Note, a completed evaluation form was not provided by Sydney Water, but it appears that there are processes in place. The audit did not investigate this further.
There is a <i>customer complaints procedure</i> (version 1, 17/9/19). Complaints are logged into the CRM system.
Review of data is initiated from Labware database, where the laboratory enters data. This flags out-of-spec results. Data from Labware goes into Limnos which is run twice daily and is the exceedance notification system. It generates alerts and sends them to the water team via email. Monitoring BI is where data is stored and can be extracted for reports and summaries.
provided.
A water quality testing report for WFPs is generated monthly which shows the performance of the WFP. This is a good additional review process for data. The WFPs – <i>Performance for March 22 report</i> was provided as an example.
The corrective actions in response to non-compliant data is explained in the procedure D0001676 – <i>Triggers, Notifications and Actions for Adverse Water Quality Results</i> and SCADA.
Element 6
It has been determined that all the requirements of the ADWG Element 6 have been met.
The contact list for relevant agencies was provided (D0001088 - Water Quality Management <i>Contacts</i>). The critical customers list is maintained in CRM. The Excel extract of this was provided as evidence.
The Health Strategic Liaison Group (SLG) has developed the Joint Communications Protocol that provides detail of information sharing and responsibilities for incident communication between Sydney Water, WaterNSW and NSW Health.
There is a customer / stakeholder notification procedure, which includes communication in relation to the continuity of the water supply. The <i>Drinking Water Quality Event Management</i> document includes that Sydney Water's media and external communications team manages any media and social media response required in relation to water quality incidents.
The process to identify and respond to water quality events and incidents is detailed in the Drinking Water Quality Event Management document.
The NSW Health web page link to the response protocols in section 6.1 of the DWQMP is not correct. This is a minor administrative issue. OFI-2022-03
A testing plan was provided - D0000633 - WFPs Scenario Testing Plan 2022-2025.
Element 7
It has been determined that all the requirements of the ADWG Element 7 have been met. Sydney Water has developed a drinking water awareness training, which relevant staff undertake. This was provided as evidence.
A video has also been developed as part of corporate induction.
BOO operators need to maintain qualification and skills for their operators. Trility's online tracking of licences and training were provided (Examples of Macarthur training records1 and records2). An example of the fluoride certificate for one of Trility's operators at the Macarthur plant was also seen.
Experience and qualifications appropriate for each role are included in the position descriptions. Mandatory and corporate training is managed through Compass, including e-Learning modules. Local induction process covers training for new starters.
Element 11
It has been determined that all the requirements of the ADWG Element 11 have been met.
Water quality trends are analysed to assess performance via various means, for example, monthly WFP performance reports, quarterly drinking water reports and assessments undertaken in the risk briefing papers.



	There is an internal audit program - Water Grid Assurance Audit Schedule (Drinking Water and Recycled Proposed - Audit programs 2021 - 22). North Richmond is scheduled for 2023. Nepean was audited within the audit period.
	Element 12
	It has been determined that all the requirements of the ADWG Element 12 have been met.
	There are various mechanisms where executives review the performance of the DWMS, for example, in the PALG (Product and Asset Management Leadership Group) meeting and annual management review meetings.
	There is a Consolidated Action Plan (CAP) which includes all improvement actions from the risk assessment process. A subset of this is the Drinking Water Improvement Plan (DWIP). Details on how the CAP and DWIP link and are used is explained in <i>the IMS-Operational Risk Assessment Workshop (KnowRisk Review) SOP for Drinking Water</i> .
Evidence cited	 how the CAP and DWIP link and are used is explained in the IMS-Operational Risk Assessment Workshop (KnowRisk Review) SOP for Drinking Water. 101178-OMM-001 Operation and Maintenance. Manual WT0008 - Nepean TWTP 1 8/12/2020 Annual Drinking Water Quality Monitoring Plan - Final Compliance Monitoring Plan 2021-22 30/07/2021 Annual Water Quality Risk Assessment 2022 North Richmond Delivery System WT0011 - North Richmond WFP D0000633 Scenario Testing Plan WFP Hubs: Southern, Warragamba, Western 2 Aug-22 D0000642 Subcontracting laboratory testing and field sampling 2 Jun-21 D0000799 IMS-Operational Risk Assessment Workshop (KnowRisk Review) SOP for Drinking Water 5 14/01/2022 D0001078 Water quality management contacts D0001676 Triggers, Notfications & Actions for Adverse Water Quality Results 1 23/04/2020 D0001676 Triggers, Notfications & Actions for Adverse Water Quality Results 1 23/04/2020 D0001676 Triggers, Notfications & Actions for Adverse Water Quality Results 1 23/04/2020 D0001676 Triggers, Notfications & Actions for Adverse Water Quality Results 1 23/04/2020 D0001676 Triggers, Notfications & Actions for Adverse Water Quality Results 1 23/04/2020 D000179 IMA: Agrathur training records1 Examples of Macarthur training records2 High consequence critical customer segmentation list Maximo - North Richmond WFP - Operations Maintenance Schedule (extract) Maximo - North Richmond WFP - Operating Licence Audit - North Richmond VFP (Email) 21/09/2022 North Richmond WFP Briefing Paper Annual Risk Assessment 2021-22 May-22 Further request for information - Operating Licence Audit - North Richmond WFP (Email) 21/09/2022 North Richmond WFP Operational Risk Assessment 2022 Summary Report Aug-22 Sydney Water - Water Quality Managem
	 WOQ5012 Use of Limnos Actions Database 11 Aug-21 Water Grid Audit Schedule 12/01/2022
	2901815 Joint Communication Responsibilities Mar-19
	WFP Water Quality Testing Report Mar-22
	D0000685 Creation of PFD Work Instruction 3 23/08/2022
	 D0000893 PFD - North Richmond WFP 26/05/2022
	 18/8/22 Weekly Maintenance Meeting (from OneNote)


	BMIS0213 Drinking Water Quality Management Plan 7 26/08/2022		
Recommendation(s)	None		
Opportunities for improvement	OFI-2022-01 Establish a process for the periodic testing of critical limits, time delays and interlocks set in SCADA. This should ensure that they are set correctly in the first instance and then that the appropriate interlocks work (e.g. filters backwash on 0.1 NTU and that fluoride stops dosing at 1.5 mg/L)		
	OFI-2022-02 Establish regular field audits to confirm adherence to hygienic work practices during mains/pipes repairs. Consider if this can be integrated with the Safety Audit undertaken by Supervisors/Team Leaders.		
	OFI-2022-03 Insert the correct link to NSW Health web page on response protocols in section 6.1 of the DWQMP.		

Table 12 Drinking Water Quality Management System Implementation (4.1.3)

Obligation Risk of non-compliance	 4.1.3 Sydney Water must ensure that the Drinking Water Quality Management System is fully implemented and that all relevant activities are carried out in accordance with the Drinking Water Quality Management System and to the satisfaction of NSW Health. [Note: Sydney Water is to apply the Drinking Water Quality Management System to the Drinking Water system under its control, having regard to the entire Drinking Water supply system – from the water catchment to the Consumer.] If the DWQMS is not fully implemented, there is a high risk that Sydney Water may not be able to affectively manage risks to water guality and protect sublic health.
effectively manage risks to water quality and protect public health.	
Audit grade	Non-compliant (non-material)
Reason for the audit grade	 Sydney water was hon-compilant with ruly implementing the DWQMS and control measures to consistently manage potential risks to water quality. There were several issues identified: The <i>Risk Assessment Workshop SOP for Drinking Water</i> (D0000799) was not fully implemented for the North Richmond Network risk assessment. Not all of the risks in the Network operational risk register have specific hazards identified. This is due to some Risk Descriptions not aligning with a corresponding hazardous event in the <i>Risk and Hazard Library</i>. Hazards are identified in the <i>Risk and Hazard Library</i> and without a linkage to the risk line items there is a gap with water quality hazard identification. This was considered a minor issue in terms of risk management. The condition of reservoir WS0308 was identified as an issue in the 2015 Reservoir Maintenance Report and there has been delays in rectifying these issues, which reduce access to the roof due to safety concerns. The nature of the delays has been addressed in Licence obligation 5.5.2. The 6-monthly reservoir inspection for WS0308, as per the controls in the Risk Registers (WFP and Networks) has not been undertaken since 2016, due to the safety of the roof. As an alternative reservoir integrity of WS0308 has been assessed from the roof of WS0159 as part of the monthly safety inspection checklist, which is not considered to be adequate to identify water quality such chlorine residuals, which have been maintained. It was considered that the lack of inspections at small number of reservoirs, whilst other barriers were in place, was a minor risk to Licence obligations. It was considered there was insufficient evidence to determine the veracity of closing out identified issues from reservoir inspections as there is not a consistent process in place. Some of the issues identified affects Sydney Water's ability to monitor and ensure controlled processes, with the main one being reservoir inspections and implementing timely



	is an important barrier, but also that the other barriers to recontamination in the network are place and that the issues are isolated to a small number of reservoirs. Therefore, this Licence obligation has been assessed as non-compliant non-material over the audit period. However, t issue is further addressed in Licence obligation 5.5.2.		
Auditor comments and	Element 2		
justification	It is considered that Sydney Water is not conforming in relation to implementing the DWQMP requirements under Element 2. The <i>Risk Assessment Workshop SOP for Drinking Water</i> was not fully implemented but was considered a minor risk to the management of water quality risks. The PFDs for North Richmond WFP and Networks were provided. The WI for <i>Creation of PFD</i> (D0000685) was largely followed. The PFDs have been field verified. Although, for Networks, it is		
	bottom of the PFD as per step 13 in the WI. This was considered an administrative error. OFI-2022- 04		
	The auditors walked through the North Richmond WFP. It was found that the PFD was reflective of the operating environment.		
	Historical data has been evaluated for the risk workshops and were seen in the Briefing Papers for North Richmond – WFP and Networks.		
	There is a catchment to customer (C2C) risk assessment, which started back in the 90s and has been modified over the years. WaterNSW and NSW Health are the main stakeholders for this. The operational risk assessments are captured in KnowRisk, although there are Excel versions of the risk registers as well. There are plans to integrate the C2C and operational risk assessments in the future, which will reduce complexity and duplication.		
	The consequence descriptors for the risk assessment have been recently changed in discussions with NSW Health and trialled at the North Richmond WFP workshop. The Risk Report shows the outcomes of the workshop. The new descriptors will be applied for future operational risk assessments.		
	There were minor errors in the <i>North Richmond Networks Briefing Paper</i> (May 2022) - the risk management procedure was stated as QMAF0081, which has now been superseded by document 1045159. The risk matrix in the Briefing Paper was not consistent with the corporate risk matrix (version 8, Doc 800991). At the audit interview it was mentioned that these were administrative errors and correct risk matrix was used for the risk assessment. OFI-2022-05		
	The hazard assessment is contained within the Hazard and Risk Library (Excel document).		
	The North Richmond Operational Risk Registers for the WFP and Networks were provided. To align the risk assessment with requirements/terminologies of the ADWG (e.g. hazards, hazardous events), a <i>Risk and Hazard Library</i> (D0001199) is used. This Library contains potential hazardous events and associated hazards. The intention is that the 'Risk Description' in the Risk Registers matches with a Hazardous Event in the Library thereby showing the associated hazards. A check of a few randomly selected Risk Descriptions in the Risk Registers against the Library was undertaken.		
	North Richmond WFP Operational Risk Register		
	High turbidity water exceeding the critical limit of individual filtered water turbidity or combined turbidity leading to public health risks from pathogens – this is present in the Library.		
	 Pathogen contamination of CW1 (at the plant) and GAC contactors impacting water quality - this is present in the Library. Failure of reservoir mixer impacting water quality – this is present in the Library. 		
	North Richmond Networks Operational Risk Register		
	 Deteriorating water quality in reservoirs leading to taste/odour complaints and/or not meeting internal disinfection targets in reservoirs – this is not present in the Library. 		
	• Failure to maintain a chlorine residual throughout the distribution network resulting in poor treated water quality and/or not meeting internal targets and/or increased customer		
	 complaints – this does not fully match with the Library. Water quality issues or ineffective management of water quality due to unclear control/responsibility of reservoirs with a cross over boundary between the WFP and network – this is not proport in the Library. 		
	- נווה זה ווטג או פאבווג ווו גווב בוטו מו א.		



An issue is identified with implementation of the *Risk Assessment Workshop SOP for Drinking Water* (D0000799). For the North Richmond Network risk assessment, not all of the Risk Descriptions in the operational risk register align with a corresponding hazardous event in the *Risk and Hazard Library*. As the *Risk and Hazard Library* is used to identify specific hazards for the identified risks in the register, without a linkage between a Risk Description (Risk Register) and Hazardous Event (Risk and Hazard Library) hazards are not identified for that specific risk. **REC-2022-02**

In addition, the layout of the risk registers between the North Richmond WFP and Networks is different. Although not a non-conformance, it be beneficial for them to be consistent. **OFI-2022-06**

Element 3

It is considered that Sydney Water is conforming in relation to implementing the DWQMP requirements under Element 3.

Implementation of preventive measures was verified during the field inspections.

North Richmond WFP

SCADA is available at the North Richmond WFP and is used for operational controls. The CCP limits were observed for individual filters and final chlorine. The limits within SCADA are more stringent than specified in the Drinking Water Product Specification. This enables water quality produced to be more protective of public health but in a way makes the limits in the Product Specification redundant. The operators were knowledgeable, experienced and a sense of pride in the work they do was evident.

The chlorination C.t value was provided by Sydney Water. It showed that under typical conditions a C.t of 458 mg.min/L will be achieved and on a worst-case scenario a C.t of 169 mg.min/L will be achieved (when chlorine out of reservoir WS038 is set at 0.5 mg/L for the calculation).

A potential concern noted was that if the CCP critical limit for chlorination is breached then the WFP will shut down but water already in the reservoirs will continue to be supplied to the network. Further review of this scenario was undertaken. Sydney Water explained that there would be notifications by various upstream chlorine analysers before the CCP critical limit breach. There are three separate chlorine analysers in sequence - clearwater rising main to WS159; WS159 outlet; WS308 outlet (CCP). Call outs and shut down will happen prior to CCP breach to enable the issue to be rectified. In case of a critical limit breach, the Drinking Water Event Management plan (WPIMS5228) will be activated. The Event response includes checking the C.t. The Incident trigger is if the C.t is <15 mg.min/L, it will then be escalated as an Incident and the Event Management Plan will be followed for incident management. These actions appear to be adequate.

Reservoirs WS0197 and WS0294

The reservoirs visually appeared in relatively good condition and the hatches and vents were properly secured. Entry to the top of the reservoirs was controlled via locked access to the stairs. There is a re-chlorination facility at the site (unable to be seen due to controlled access). There are mixers in the reservoirs, which have fault alarms and online chlorine analysers. The daily checks and alarm set points were seen at the WFP in log sheets and IICATS. The process appears to be well managed. The manual dosing point, when needed, was shown and process explained. The Field Dosing Calculator, which provides guidance on dosing quantities, was provided as evidence. Routine chlorine testing (online) ensures that there is no overdosing. **OFI-2022-07**

There was sufficient evidence provided on the quality checks undertaken on the chlorine tablets. <u>St Marys Maintenance Depot</u>

The storage of pipes and fittings at the depot and in the trucks was neat and relatively clean. The control of cross-contamination of tools was discussed and there is a process in place to manage the risks – disinfection is undertaken. Water pipes are stored inside the depot but are not capped. However, Sydney Water is in discussions with suppliers to put in place measures where it is received from them in a 'sealed' condition.

The Civil Maintenance Skills Development Program has competency standards which staff need to undertake. Templates were provided for Repair, Replace Section of Watermain and Disinfection of Fittings with Sodium Hypochlorite (1%). Completed competency records for the Crew Leader interviewed were provided.

It was mentioned during the audit interviews that a preferred suppliers list is used for procurement of materials. The preferred suppliers list was provided.

The water quality reports did not show any instances of CCP breaches for the North Richmond and Nepean WFPs.

The CCP interlocks and shutdowns for Nepean was tested on 9/12/20.



Backflow prevention is part of system integrity and included in SW's Drinking Water Product Specification document. Monitoring of compliance with annual test was verified. Evidence was provided that compliance is tracked and reminder letters are sent when required. North Richmond showed 90% compliance.

The records observed for the RPZ at the North Richmond WFP showed that it was being tested annually as required.

Element 4

It is considered that Sydney Water is not conforming in relation to implementing the DWQMP requirements under Element 4. It was identified that maintenance identified on reservoirs was not completed in a timely manner and as a result of an unsafe roof inspections were not being undertaken. This was considered to be non-conforming, in this instance non-material as other barriers, such as a chlorine residual, were in place. Although, this is not ideal as it does reduce the robustness of the risk management practices.

An assessment of whether documents/procedures have been reviewed to maintain currency was undertaken through review of a sample of documents.

- The Drinking Water Quality Event Management procedure (WPIMS5228) last reviewed 30/8/22
- Customer / Stakeholder Notification Procedure (IMS0089) last reviewed 7/3/22
- Triggers, Notifications and Actions for Adverse Water Quality Results (D0001676) last reviewed 23/4/20
- *Backflow Prevention Process* (BCS0013) last reviewed 27/8/19, just past the three year review cycle at the time of the audit.
- The Operating Protocols and Maintenance Specifications for Civil Assets (OPAMS) Potable and Recycled Water (BMIS0057) version 5 last reviewed 1/9/2022.
- North Richmond Distribution System Contingency Plan (WSO5023_R4) last reviewed 01/09/22.

It appeared from the sample assessed that documents were being regularly reviewed. The records for selected operational procedures were reviewed to verify implementation.

Operator daily tasks:

North Richmond Daily Workflow Process and Equipment Monitoring (WTNR5004) – it was confirmed onsite at the North Richmond WFP that operators use and fill this out. A sample of filled records was sighted.

Reservoir inspections:

The Drinking Water Products Specification states that reservoir inspections are undertaken six monthly and three yearly. The reservoir inspection record (AIS July 21 to June 22) showed that reservoirs WSO197 and WSO294 (site visited) were inspected twice over the audit period (November 21 and March 22). The task code WP7N was used.

The records for the reservoirs at the WFP – WSO159 and WSO308 were not part of the AIS records provided. It was mentioned at the onsite interviews that within the WFP compound, the operators undertake the inspections (later found to be safety inspections). The *WI for Daily Workflow Process and Equipment Monitoring* (WTNR5004) does not include details of reservoir inspection. Post the audit interviews, Sydney Water provided examples of the *Monthly Safety Inspection Checklist* (WTN5004.05) which is undertaken by the Plant team. However, this checklist is safety focussed and does not include water quality related inspections such as vermin proofing. The checklist includes a comment that WSO308 was only viewed from the roof of WSO159 and from the Old Administration building as access is restricted.

The WSO308 6-monthly inspection was put on hold due to the reservoir condition and the adjacent reservoir WSO159 was rolled up incorrectly with this and was also not inspected. Examples of inspections for other reservoirs within a WFP compound were provided (Orchard Hills and Nepean) to demonstrate there was no systemic issue in the inspection of reservoirs located within the confines of a WFP.

Maintaining reservoir integrity through regular inspections and implementing timely actions on findings is a critical component of providing safe quality water. NSW Health guidance (on their website) reiterates the importance of reservoir inspections by mentioning reservoirs as a CCP. Sydney Water has its own approach to establishing CCPs and does not refer to reservoirs as a CCP but as an Operational Control Point (OCP), which is fine. However, regular inspections and acting on actions remains important.

There are some **issues** identified with the North Richmond supply:



• The six-monthly reservoir inspection for WSO308, as per the controls in the Risk Registers
(WFP and Networks) has not been undertaken since 2016.
The condition of reservoir WSO308 was identified as an issue in the 2015 Reservoir
Maintenance Report (from evidence provided, it may have been an issue from earlier
pernaps). A Level 2 Reservoir inspection and Condition Assessment Report (dated 26/9/16)
Identified the same. A reservoir inspection report dated 4/7/19, followed by a Level 2
condition Report dated June 2022 (Inspection conducted in Nov 2020), again identified
condition issues. Due to the condition of the reservoir (roor corrosion) no access to the roor is
terms of water quality protection. It is noted that the Drinking Water Quality Specification has
a target of 90% of 6-monthly and three yearly inspections being completed annually and that
other harriers are in place such as residual chlorine. However, there is some concern that a
small number of reservoirs are consistently not being inspected, resulting in a reduction in the
robustness of water quality risk management. REC-2022-03
 Viewing the reservoir integrity of WSO308 from the roof of WSO159 is not a comprehensive
inspection, and the monthly safety inspection checklists are not focussed on water quality
protection considerations (e.g. vermin proof, protection from debris / rainwater entry etc).
OFI-2022-08
• The inspection of reservoir WSO294 reported an issue with vermin barrier – foam seals
missing under the roof in some parts in the Nov 2021 inspection and again in the Mar 2022
inspection. A 'P1' priority was identified. P1 to P6 are response timeframes with P6 being
most urgent and P1 to be responded to within one month (Maintenance Specification
D0001441). The missing foam seals were not rectified at the next inspection approximately
five months later (from 2/11/21 to 31/3/22). Sydney Water stated that response timeframe
for a P1 issue is one month, which is to determine a resolution, not undertake the
rectification work. In addition, the inspection report from 27/9/22 (post audit period) was
provided, which did not pick up the missing foam issue (vermin barrier). It is not clear if the
same locations around the reservoir root were inspected (it was a different inspector). Sydney
always require a Work Order to be established but can be done either verbally (in the case for
WS0294) or by email communicating with the Maintenance teams". However, this makes it
difficult to ascertain that issues identified during inspections are rectified. It was considered
there was insufficient evidence to determine the veracity of closing out identified issues, but
it was considered to be a minor issue in relation to fulfilling the Licence obligations. REC-2022-
04
Further discussions on the reservoir condition are undertaken under Licence obligation 5.5.2.
Mains/pipes repairs:
The procedure on Prevention of water quality contamination following water main breaks
(D0001688) was provided. This procedure does not have the water quality criteria to bring the
main back online. It was mentioned at the audit interview that the water quality criteria are in the
procedure Water Quality Management During Operational Activities (D0001667). This procedure is
around managing trunk mains that are 375mm or greater. Investigation into the actual process for
managing water quality for mains/pipes below 375mm was not undertaken for this audit but
investigation into testing undertaken after works was done.
An example of work undertaken was provided - AM131071 Callout 375 mm main Kingsgrove Rd,
Kingsgrove. Lesting was done by the WQ Scientist for total chlorine and turbidity before bringing
Chiorine, turbidity and taste and odour were tested as per procedure D0001667. Appendix 6 of
procedure DUDU1667 (version 1, $U1/U4/20$) stated that turbidity should be <0.2 NIU and taste and
turbidity regults were 1.47 NTU in sample 1 and 1.28 NTU in sample 2, and tasts and edges use
undertaken by one person. Post the audit interviews. Sydney Water stated that the 0.2 MTU was a
transcription error and the criteria is actually 2 NTIL Sydney Water also stated that it is impractical
for two people to undertake the taste and odour check and in practice one person undertakes it
The procedure has been updated to reflect these changes. Version 3. 20/10/22 was provided by
Sydney Water. Although the procedure has been updated post the audit period, the auditors
believe that the intent of any proposed recommendation, which would have been to review the
procedure for practicality, has been completed. Hence the issue has been addressed.
Calibration:



Calibration for online meters (e.g. for CCP monitoring) is scheduled via Maximo. The calibration record for filter 5 at North Richmond WFP (asset # ATU3515) was provided. It was last calibrated on 19/10/21 (within the audit period).

Chemical quality:

The records for operators following chemical quality procedure for receiving ferric chloride was checked onsite. The operators received the Certificate of Analysis and did testing for specific gravity. Record for the operators at the North Richmond WFP undertaking training on procedures on 11/1/22 related to bulk chemical delivery was also provided.

Element 5

It is considered that Sydney Water is conforming in relation to implementing the DWQMP requirements under Element 5.

The Labware software and Monitoring BI were shown onsite. Data was investigated from Monitoring BI for the audit period. It showed that there were 217 samples taken for E. coli for North Richmond (216 samples/year were required under the Monitoring Plan).

Evidence that a complaint was adequately managed was provided – Water Quality customer complaint – South Windsor (8001429648).

Several email alerts were provided which showed that out-of-spec (ADWG or internal) were being picked up by the current processes.

- Email 03-05-22 THM Exception Result for Drinking Water (Labware Notification)
- Email 2022-01-25 074427.376 Automated email notification from AMD's Actions Database for free chlorine
- Email 2022-06-29 154727.497 Automated email notification from AMD's Actions Database for free chlorine
- Email 10008853 Positive Crypto Giardia Sample (LIMSP). This was logged into the Sydney Water Incident Recording & Learning System (SWIRL) also – INC-38965 – WQ-HAZ-North Richmond WFP Crypto and Giardia in raw water.

Customer complaints were trended by month. Evidence for this was provided – Unified customer water quality complaint report June 2022

Sydney Water undertakes active customer surveys to highlight main issues and implications/improvements that could be considered. Evidence of these were seen (Community Sentiment Monitor Jan-March 2022 Main Report and Community Sentiment Monitor April-June 2022 Main Report).

Element 6

It is considered that Sydney Water is conforming in relation to implementing the DWQMP requirements under Element 6.

The Water Quality Management Contacts list was updated on 23/06/2022.

All water quality incidents are recorded in SWIRL, including those reportable to NSW Health. A copy of the 2021-22 SWIRL WQ Hazards and Incident Master List was provided. SWIRL was seen onsite.

Response to the taste and odour incident from October 2021 was discussed. An alert was triggered from CRM on 6/10/21 (>6 complaints in a cluster). It was recorded in SWIRL as an incident on 6/10/21, which is when NSW Health was also informed. Lake Burragorang was identified as the source. A review of the incident was undertaken by an independent third-party (late 2021), commissioned jointly by Sydney Water and WaterNSW. The review report and summary of findings were provided as evidence. Majority of the actions were supposed to be delivered in 2022 based on the report's timeframe and this has not happened as some of it needs consultation and agreement with WaterNSW. It was mentioned by Sydney Water that some high priority actions have been implemented from the report, including additional monitoring of taste and odour compounds by WaterNSW, changes to Sydney Desalination Plant (SDP) operating rules and the annual risk assessments. The remaining findings were under review and an action plan will be developed to address those that are relevant. It was also mentioned that the timeframes in the report were suggestions by the independent reviewer. It was mentioned that progress on some of the recommendations is also reported at JOG meetings (although the JOG minutes provided for Feb 22 showed that the de-brief meeting findings were discussed and not an action plan as such). In this instance it was considered that there could be some improvement in the management of actions out of this incident, although not considered a non-conformance. OFI-2022-09



There were also individual filter turbidity exceedances of 0.52 NTU on two occasions for the Prospect Filtration Plant. An independent de-brief was held in Sept 21. The status of corrective actions from this de-brief was provided and it was seen that actions were being completed. This demonstrates there are processes to track the improvement actions out of incidences, but greater constancy would be beneficial. Example of a tripartite exercise held in 2021 was shared. Based on outcomes the Emergency Management and Crisis Management processes have been reviewed. The attendance records for Emergency Management training held in March-April 2022 was provided. Crisis Management training record for Executives held on 23/6/22 was also provided. In addition, the draft JOG Tripartite Workshop Report (June 2022) was shared. These collectively indicate that testing of emergency protocols and processes occur. Risk to water quality from unplanned outages was checked in the North Richmond risk register.
North Richmond C2C – 4514 - 100 Loss of power supply at the treatment plant results in poor water quality. Control – standby generator including connection facilities. There appears to be controls in place.
Element 7 It is considered that Sydney Water is conforming in relation to implementing the DWQMP
Training records provided showed that staff have undertaken the drinking water quality awareness training (WQ Training Records July 21 - June 22).
The performance of BOO (Build-Own-Operate) plant operators is monitored by Sydney Water via operational reports every month. Evidence was provided for June 2022 reports for Illawarra and Macarthur WFPs.
The Skills Competency Framework is used to ensure staff/operators have the relevant skills for their level and work on progression to the next. The Certificate III training plan for the North Richmond operators was provided.
The template for the training checklist for new Production Officers was provided and the in- progress checklist for a new starter at the North Richmond WFP was viewed onsite, which demonstrated implementation of the training program.
The procedure on Development Program for Water Quality Scientists was provided and the in- progress checklist for a staff undertaking competency assessment for the role of a Water Quality Scientist was also provided to demonstrate implementation of the development program.
Staff are also sent for relevant courses. An example was provided where a Process Engineer went for the IWES – ADWG course (July 2022).
Element 11
It is considered that Sydney Water is conforming in relation to implementing the DWQMP requirements under Element 11.
Copies of reports which includes data trends (short and long-term) were provided (WFP Water Quality Testing Report March 2022, Quarterly Drinking Water Quality Report - North Richmond Delivery System April 2022, Risk Briefing Paper for North Richmond – WFP and Networks).
Nepean was provided as an example of an audit completed in the audit period (<i>Final Nepean System DWQ audit report</i> 22-06-21).
The audit schedule and general criteria are presented to NSW Health in the JOG meetings (not the audit scope). A representative from the Water Unit, NSW Health participated as an observer at the Nepean audit.
The findings from the audit (non-compliances and OFIs) are entered into BMIS and tracked from there for implementation. The findings from the Nepean audit were seen in BMIS. Example seen was #0003416.
Element 12
It is considered that Sydney Water is conforming in relation to implementing the DWQMP requirements under Element 11.
Records of review meetings on the DWMS performance were provided - 1MS Steering Committee - Annual Integrated Management Review, Management Review Meeting Material and PALG Minutes.



	The DWIP was filtered for North Richmond actions to review implementation. Progress on implementation of actions was being tracked and comments put in, target dates were being revised accordingly (for example, action #DW97 was overdue and new revised target date has been assigned, with comments).
	Action #DW45.2 North Richmond WFP reservoir maintenance was reviewed. This was initially identified in 2018 in the DWIP as 'High' priority and given a timeframe of 5 years. A condition assessment planned for the reservoir (WSO308) was delayed due to various reasons, including Covid related impacts. The inspection was conducted on 11/11/20 and the report finalised in June 2022 (appears to be a considerable lag between the inspection and the final report). The recent North Richmond WFP Risk Assessment Report (2022) states that reservoir WSO308 is in poor condition. An issue is not identified under this element as this component is looking at implementation of the DWIP and action #DW45.2 is still within its original due date identified. However, it is noted that improvement items that have long timeframes and multiple sub tasks could be tracked better if sub-task are assigned due dates. OFI-2022-10
Evidence cited	10008853 Positive Crypto/Giardia Sample (LIMSP). 25/05/2022
	 1MS Steering Committee - Annual Integrated Management Review 29/10/2021
	• 2021 Lake Burragorang Geosmin Water Quality Incident Review Report 20/02/2022
	2021-22 SWIRL WQ Hazards and Incident Master List
	2022-01-25 07:44:27.376 - Automated email notification from AMD's Actions Database
	 25/01/2022 2022-06-29 15:47:27.497 - Automated email notification from AMD's Actions Database 29/06/2022
	 2022-23 Drinking Water Quality Improvement Plan Q3 JOG Aug 2022 Final Aug-22
	• 22-0094-01-03 Result Sheet - Analysis of Calcium Hypochlorite Tablets 28/01/2022
	• 22-0516-04-06 Result Sheet - Analysis of Calcium Hypochlorite Tablets 6/05/2022
	AAJV-0353-North Richmond WS0308 Level 2 Reservoir Roof Inspection and Condition
	Assessment North Richmond Reservoir WSO308 C 22/09/2016
	Als Reservoir Inspection Report July 21 - June 22
	Attachment I. Improvement opportunity, recommendations and actions BCS0013 Backflow Prevention Process 7 27/08/2019
	 BCS0013 Backhow Prevention Process 7 27/08/2019 BMIS0057 Operating Protocols and Maintenance Specification for Civil Assets (OPAMS) – Detable and Recycled Water E 1/00/2022
	 BMIS0057 Operating Protocols and Maintenance Specifications for Civil Assets (OPAMS) - Potable and Recycled Water 4 29/09/2015
	Civil Maintenance Skills Development Program - Attach Indicator Plates Jul-17
	 Civil Maintenance Skills Development Program - Disinfect Mains, Fittings with Sodium Hypochlorite (1%) Jul-17
	Civil Maintenance Skills Development Program - Repair, Replace Section of Watermain Jul-17
	 Complaint 8001429648 Complaint: 8001429648, Water Quality - Drinking > Taste - Drink D0001199 Drinking Water Quality Risk and Hazard Library for Sydney Water Corporation 2
	22/08/2022
	D0001667 Water Quality Management During Operational Activities 1 20/10/2022
	D0001667 Water Quality Management During Operational Activities 1 1/04/2020
	 D0001669 Disinfection & dechlorination of water mains 2 13/08/2021 D0001672 Compotency / preficiency assessment for acting in the Cystemer Water Ouality
	Doology's competency / pronciency assessment for acting in the customer water Quality Scientist role 3
	 D0001673 Development Program for Water Quality Scientists 3 25/08/2022
	D0001688 Prevention of water quality contamination following water main breaks 1
	21/04/2020
	D0002119 North Richmond Delivery System PFD 2/06/2022
	Debrief Summary Paper 6/09/2021
	DKAFI Joint Operations Group Tripartite Workshop Report June 2022 1 Jun-22
	Continuing water quality investigation report - recommissioning of a 375mm water main in Kingsgrove Rd in Kingsgrove 30/08/2022
	EIVI and LIVI Updates Eiold Decing Coloulator 27/02/2012
	 Field Dusting Calculator 27/05/2015 Further request for information - Operating Licence Audit - North Dichmond WED (Email)
	21/09/2022
	Illawarra WFP Performance Report June 22



	 IMS0089 IWES Cer List of ap Macarthu Managen Nepean a North Ric North Ric North Ric North Ric North Ric North Ric Product a Prospect QMAF002 Quarterly 31 March Request f Reservoir Total Trih Notificati Training F Unified cu Water Qu in raw wa WO#7792 WPIMS522 WQ Train WSO5022 WT008 WTHQ50 	Customer / Stakeholder Notification Procedure 4 7/03/2022 tificate of Participation - Giyan Dharmadasa proved suppliers ar Water Supply Project Operations Report 1 June 22 to 30 June 22 13/07/2022 nent Review Meeting 29/10/2021 und North Richmond Backflow Device Register and Compliance Status - Excel th WFP - Cert III training plan, Technical Capability Training stakeholders thmond Delivery System Water Quality Risk Assessment 2022 thmond Distribution System Contingency Plan 1/09/2022 thmond Reservoir WS)308 Roof and Wall Refurbishment 3.1 18/02/2016 thmond WFP Operational Risk Register 2022 29/06/2022 and Asset Management Leadership Group 27/07/2022 WFP turbidity CCP exceedance actions update 13.07 Assurance Summary 6 21/06/2022 / Drinking Water Quality Report - North Richmond Delivery System 1 January 2022 to a 2022 28/04/2022 for information - Operating Licence Audit - St Marys Depot (Email) 21/09/2022 for Seed Funding 1 Dec-21 · Maintenance Priorities Report 2015 - North Richmond 308 14/04/2015 halomethanes, Exception Result for Drinking Water ad hoc sample (Labware on). 23/08/2022 Record Record Records ustomer water quality complaint report June 2022 uality Incident Record INC-38965 - WQ-HAZ-North Richmond WFP crypto and giardia ater has been created. 26/05/2022 11380 Reservoir Inspection Report North Richmond WS)308 4/07/2019 228 Drinking Water Quality Event Management Plan 20 30/08/2022 hing Records July 21 - June 22 3 North Richmond Distribution System Contingency Plan 4 1/09/2022 3 R3 North Richmond Distribution System Contingency Plan 3 6/01/2014 Nepean - TWTP CCP Witness Checksheet 9/12/2020 20 Training List for New Production Officers 6
Recommendation(s)	REC-2022-02	By 30 June 2023, check the North Richmond Network risk assessment to ensure that all risks align with a hazardous event in the Hazard and Risk Library document. A check should be made at the completion of future risk assessments to ensure that all risks in the risk register correspond to a hazardous event in the Hazard and Risk Library. This could be done by including the hazardous event reference number in the risk assessment spreadsheet. By 30 June 2023, develop a procedure to track and respond to exceptions to the reservoir roof inspection program, including a process to prioritise delayed inspections and provide alternate inspection arrangements if reservoir roof access is unsafe. Appropriate alternative inspection arrangements and timeframes for implementation should be included in the procedure and agreed to by NSW Health. Performance reporting to NSW Health is to be reviewed as part of this action, including reporting against the Drinking Water Quality Specification reservoir inspection target (90% six monthly and three yearly inspections completed) and in addition reservoirs that have not been inspected for over 12 months should also be reported. By 30 June 2023, review the process for actioning P1-P6 findings from reservoir inspections, especially related to water quality contamination barriers (e.g. vermin proof breach), to ensure verifiable audit evidence is maintained to demonstrate that the work was completed as required within a reasonable timeframe. Consider consulting with NSW Health to solicit their input.
Opportunities for improvement	OFI-2022-04 OFI-2022-05	Include the name of the field verifiers and date of verification at the bottom of the PFDs to ensure that the WI for Creation of PFD is being fully implemented. Ensure that the risk matrix, when included in the Briefing Paper, is current and accurate.



	OFI-2022-06	Consider a consistent layout of the Excel risk registers between WFPs and Networks.
	OFI-2022-07	Ensure that the Field Dosing Calculator is a controlled document with periodic reviews. It was last reviewed and updated on 27/3/13.
	OFI-2022-08	Investigate use of drones to complete the regular reservoir inspections (six- monthly) where there is a safety concern to undertake it from the top.
	OFI-2022-09	Complete the action plan for implementation of the recommendations from the October 2021 Taste and Odour incident review, including assigning appropriate timeframes and tracking implementation status.
	OFI-2022-10	Include sub-actions and estimated sub-timeframes for multifaceted improvements with long timeframes in the DWIP. For example, Action #DW45.2 which is a 'High' priority action, has a five-year timeframe for completion and a number of steps.

Table 13 Maintaining a Recycled Water Quality Management System (4.2.1)

Obligation	4.2.1
	Sydney Water must maintain a Management System that is consistent with the Australian Guidelines for Water Recycling and any requirements relating to water recycling specified by NSW Health (the Recycled Water Quality Management System)
	Without a comprehensive BWOMS, there is a high rick that Sudney Water may not be able to effectively
Risk of non- compliance	manage water quality and protect public health and the environment.
Audit grade	Compliant
Reason for the audit gradeSydney Water is compliant with the requirement of this licence obligation as the Recycled W Management System was found to comply with the requirements of the Australian Guidelin Recycling. Sydney Water's RWQMP is a mature system and has been developed over a number of year seen that all of the elements of the guidelines have been addressed. It is also positive to see still some improvements being made, such as further development of the risk assessment p There were some improvements identified, mainly in relation to documentation. As the syst there is a tendency for documentation to increase in number and complexity and become le and more difficult to maintain. Sydney Water started a process to address some of these iss 	
Auditor comments	Element 2
and justification	It is considered that the evidence provided demonstrates that Element 2 has been fully met.
	Intended Uses and Sources of Recycled Water
	Under the AGWR Sydney Water must identify the recycled water source water, intended uses (including inadvertent and unauthorised uses), routes of exposure and receiving environments. This is demonstrated as follows:
	• Section 2.1 of the Sydney Water Recycled Water Management Plan (RWMP) refers to the scheme specific RWMP.
	 The source of the recycled water is in section 2.1.1 of the RWMP-Richmond. This identifies the wastewater catchment and identifies the trade waste permits issued in the catchment. Uses of recycled water are detailed in section 2.1.2 of the RWMP-Richmond. All three end-users store the recycled water onsite and use it for irrigation. It should be noted that Taronga Zoo eucalyptus plantation is identified as a use, however, this is not currently operational. The receiving environment is detailed in section 2.1.3 of the Richmond RWQMP. This identifies the types of soils and vegetation that the RW is used on, and that Sydney Water has no responsibility in relation to the receiving environment. The contracts that Sydney Water has with the Richmond Golf Club and Western Sydney University pass on the requirements to monitoring the environment to them. Routes of exposure are identified in section 2.1.4 of the RWMP-Richmond. Inadvertent and unauthorised uses are identified in section 2.1.5 of the RWMP-Richmond. The risk assessment briefing papers also contain details of uses and treatment requirements. Appendix 2 of the Recycled Water Specification identifies the use as municipal irrigation.



Recycled Water System Analysis

The AGWR requires the recycled water system to be analysed, information regarding the scheme to be assembled, a flow diagram developed, and an appropriate team is put together to assess the information.

- Section 2.2 of the RWQMP refers to the scheme specific RWQMP for detailed scheme information as well as the Process Capability Assessment (PCA) for current performance details and predicted growth over 30 years.
- The Risk Assessment Team is identified in the Risk Assessment Report, Table 3-1. This seems appropriate for the risk assessment process.
- The RWMP-Richmond, section 2.2.3 has a scheme schematic, including CCPs. However, this includes UV, which is not a process at the Richmond WRRF. **OFI-2022-11**
- There is a work instruction for preparing PFDs, *Creation of PFD*.
- The *Richmond Recycled Water PFD* is referenced in the Richmond WRRF RWQMP and is prepared following the conventions of the procedure.

Assessment of Water Quality Data

Under the AGWR Sydney Water is required to assess both influent and effluent from the treatment plants and recycled water supplied to the users, this was addressed as follows:

- Section 2.3 of the RWMP refers to the scheme specific RWMPs.
- The RWMP has some information on the process validation and refers to the Recycled Water Briefing Paper for details of monitoring
- The Recycled Water Briefing Paper has a detailed analysis of influent and effluent quality. It has a summary of the last financial year of monitoring 2020/2021 and a 10-year summary.

Hazard Identification and Risk Assessment

Under the AGWR the risk assessment process is required to have a defined approach, be periodically reviewed, identify hazards and hazardous events, estimate the levels of risk, determine significant risks and evaluate sources of uncertainty.

This has been addressed as follows:

- The RWMP refers to the scheme specific plans.
- The scheme specific RWMP refers to the 2022 Richmond Recycled Water Risk Report, but also contains details of key risks. This report summarises the risk workshop outcomes.
- The Recycled Water Risk Assessment Briefing Paper refers to the Sydney Water's Risk Matrix (800991) to assess consequence and likelihood. This also includes how to assess the effectiveness of controls and escalation process for risk ratings.
- There is also a *Recycled Water Risk Assessment Workshop SOP* that specifies how risk workshops are to be undertaken. It was noted that this procedure is not referenced in the RWQMP, it should direct readers to key procedures such as this one (**OFI-2022-12**). It details the following:
 - There is a detailed risk register that is reviewed every four years, or earlier if there is a change to the recycled water process or end use.
 - There is a KnowRisk risk register for each scheme as well. The detailed risk assessment is uploaded to KnowRisk and this risk register is to be reviewed annually by the operations team.
 - This SOP includes how to determine uncertainty regarding risks.
 - The *Risk Management Procedure* is referenced on how to conduct a risk assessment. This is a high-level corporate document on risk assessment principles and approach.

The risk registers identify hazardous events and consequences, which includes human and environmental hazards. The KnowRisk database was being used in a central location to store all corporate risk. However, this has become verbose and as a result a Hazard Library has been developed that maps hazards to hazardous events, to gain consistency across recycled water risk assessments. Sydney Water is in the process of replacing KnowRisk with a new Governance, Risk and Compliance tool that offers greater functionality.

Element 3

It is considered that the evidence provided shows that the requirements of Element 3 have been fulfilled. *Preventive Measures and Multiple Barriers*

Under the AGWR existing preventive measures are to be identified for significant hazardous events and residual risk is to be calculated. Additional preventive measures are to be identified where the mitigated risk is not acceptable and preventive measures are to be documented.

Section 3.1 of the RWQMP details the multiple barriers in place at a high-level. It refers to the Detailed process validation that is undertaken. This process is detailed in the *Recycled Water Treatment Detailed Verification Monitoring for Pathogen Reduction Procedure*.



The Log Reduction Value (LRV) assessment has been undertaken in the Richmond Recycled Water Briefing Paper and this demonstrates the multiple barriers for pathogen treatment. The assessment shows removal of pathogens at each process and a final total across the entire treatment train. The results demonstrate the importance of all the processes, including secondary activated sludge to achieve LRVs. Preventive measures are detailed in the Richmond WRRF Risk Register, as 'Existing Controls'. There were no hazardous events that had an unacceptable risk and required additional control put in place. The Sydney Water Risk Management Procedure details the requirement to identify controls for each identified risk and to assess risk with and without them and to determine the effectiveness of the controls. *Critical Control Points*

Under the AGWR preventive measures are to be assessed to identify CCPs, mechanisms are to be established for control and these are to be documented with critical limits and target criteria.

The *Recycled Water Product Specification* details the methodology used to identify CCPs. It also lists the CCPs for all recycled water schemes including critical limits. This information is also in section 4.1 of the Richmond RWQMP, as well as operational control points and actions to be implemented.

Sydney Water have documented the principles of recycled water management agreed with NSW Health, this includes that enteric pathogens cannot be controlled using treatment alone and requires customer controls. The required customer controls are in the recycled water supply agreements for the golf course and university sites.

Element 4

Sufficient evidence has been provided to demonstrate that the requirements of this element have been met.

Operational Procedures

Under the AGWR all operational procedures are to be documented for the whole recycled water scheme and documented into an operations manual.

The *Richmond WRRF Plant Operations Manual* has detailed step by step work instructions required to operate plant using SCADA and manually.

Operational processes for unit operations are documented in *Sydney Water's Unit Process Guides (UPG)*. A sample of UPG was provided as evidence, *Unit Process Guideline Biological Nutrient Removal*. This included detailed information on the operation biological processes including the IDAL.

Operational Monitoring

Under the AGWR Sydney Water is to develop monitoring protocols for operational performance of the recycled water supply system and documentation of monitoring protocols into a monitoring plan.

The *Richmond WRRF Workflow Process and Equipment Monitoring* SOP is a detailed procedure that provides instructions on how to carry out the operational checks at the plant. There is an associated log sheet that is completed by the operator to record results and record that checks have been undertaken.

The Water Resource Recovery Common Laboratory Methods and Analysis Manual details how using the equipment and supplemental schedule in the Blue Mountains Hub Sampling and Analysis work instruction identifies the operational monitoring to be undertaken at the Richmond WRRF as well as the other WRRFs in the Blue Mountains Hub.

In addition, the CCPs and OCPs monitoring is detailed in the Richmond RWQMP section 3.2 and 4.1 respectively.

Online instruments are located at appropriate points in the process and monitored using SCADA, as verified during the site inspection.

Operational Corrections

Under the AGWR Sydney Water is to establish and document procedures for corrective action where operational parameters are not met and a rapid communication system for unexpected events is present. Sections 3.2 and 4.1 of the Richmond RWQMP contains details of the action / control to be taken if CCPs or OCPs are out of specification. For the recycled water CCPs these are all monitored using online instruments and the action is to interlock the recycled water pumps. OCPs where monitored online will trigger a SCADA alarm and action will need to be implemented.

The Richmond WRRF Process Specification details the target criteria for other operational monitoring. The UPGs are a reference document that are used to troubleshoot issues that arise with a process.

Equipment Capability and Maintenance

Under the AGWR Sydney Water is to ensure that equipment performs adequately and provides sufficient flexibility and process control. A program is to be established for regular inspection and maintenance.



Sydney Water has an Asset Management System, which is considered in detail within other sections of this audit. Compliance with the *Asset Management Policy*, in relation to maintenance, is through the *Maintenance Specification*. This identifies the minimum requirement for Sydney Water and contractors.

Preventive maintenance is scheduled and work orders are set-up in Sydney Water's Maximo system. An extract of the preventive maintenance for the Richmond WRRF (site code ST0012) was provided as evidence. Longer term maintenance (5-8 years) that is condition based is in *the Major Preventative Maintenance Plan* (PMP).

The *Richmond WRRF Workflow Process and Equipment Monitoring* SOP details the operational checks on instrumentation.

Materials and Chemicals

Under the AGWR Sydney Water must ensure that approved chemicals and materials are used and that there is a documented process.

Sydney Water maintains the *Approved List of Chemicals in Sydney Water and Change Management Process SAP* which can be used for all WRRFs. This list of approved chemicals also includes approved suppliers and technical specification for each chemical. There is an SOP for the delivery of bulk chemicals for recycled and wastewater facilities. This includes the checks that are in place to ensure only approved chemicals are supplied.

Chemical supply contracts are in place that detail the specification of approved chemicals. The Omega Chemicals supply contract was reviewed as evidence.

Element 5

Sufficient evidence has been provided to demonstrate that the requirements of this element have been met.

Recycled Water Quality Monitoring

The requirement of the AGWR is to determine the characteristics to be monitored and the points and frequency that they will be monitored.

Monitoring characteristics are outlined in section 5 of the RWQMP and specific details are in the *Recycled Water Quality Compliance & Operational Monitoring Plan*. This plan outlines the characteristics, sampling location and frequency of monitoring. Table 7 has the specific details for the Richmond WRRF.

Application Site and Receiving Environment Monitoring

The AGWR require that the characteristics to be monitored and the points at which monitoring will be undertaken are identified.

The RWQMP states that the responsibility of the receiving environment rests with the customer of the recycled water. Current customers for the Richmond WRRF are University of Western Sydney and Richmond Golf Course.

It is a requirement of the user agreements that they undertake a Land Suitability Assessment and monitor soil and ground water impacts in accordance with the assessment.

Documentation and Reliability

The AGWR require a sampling plan to be developed that includes each characteristic, ensuring monitoring data is representative and reliable.

The monitoring plan is documented in the Recycled Water Compliance & Monitoring Plan. Section 12.3 to 12.6 of the plan detail the data management, quality management, systems and certification and quality control procedures. This plan is reviewed annually. These processes fulfil the requirements of the AGWR. *Satisfaction of Users of Recycled Water*

The AGWR requires the establishment of an inquiry and response program for users of recycled water, including appropriate training of people responsible for the program.

The overarching procedure for managing customer complaints is outlined in the *Managing Water Quality Customer Complaint Procedure*.

The RWQMP details in section 5.4 that customers with a recycled water supply agreement are assigned a Business Customer Representative (BCR) as a relationship manager whom they can contact directly with any inquiries. BCRs visit customers every six months to review compliance with customer agreements. This is a two-way exchange and customer satisfaction is also gauged.

The sampling in this audit only included the use of recycled water for irrigation and not a domestic scheme, whereby complaints would come through the customer contact system. However, the process is in the *Managing Water Quality Customer Complaint Procedure* and if there is a suspected cross-connection this would be investigated by a Water Quality Scientist.

Short-term Evaluation of Results



The AGWR requires a procedure to be established for the short-term review of monitoring data and satisfaction of recycled water users. Mechanisms for reporting should also be developed. Results from the verification monitoring is recorded in Labware, the Sydney Water Laboratory Information Management System (LIMS). If result exceed the set limits emails are generated that notify the relevant staff. Sydney Water produces a number of monthly and guarterly reports for internal and external stakeholders (e.g. NSW Health, recycled water customers) these are listed in section 10.2 of the RWQMP as well as in section 12 of the Monitoring Plan Recycled Water Quality: Compliance & Operational. These reports include: Quarterly water quality report to NSW Health Quarterly Irrigation Water Quality Report to Clients Monthly Performance Report These reports are reviewed and discussed at the quarterly JOG meetings and operational meetings. It is considered that the reporting undertaken fulfils the requirements for the evaluation of results, customer satisfaction and reporting. Corrective Responses The AGWR requires a documented procedure is to be developed for corrective responses to nonconformance or feedback from users of recycled water. A rapid communication system is required for unexpected events. Non-conformances in relation to water quality grab sampling data are reported using Labware and the Effluent Knowledge and Management System (EKAMS). Daily exception notifications are sent to relevant internal stakeholders. Immediate phone notification by the laboratory is undertaken for any positive Cryptosporidium, Giardia or virus results, as per section 12 of the Recycled Water Compliance & Monitoring Plan. Element 6 Sydney Water has provided enough evidence to demonstrate that this requirement has been met. Communications The AGWR requires a communication protocol with the involvement of relevant agencies are to be defined and a contact list of agencies and people prepared. In addition, a public and media communication strategy is to be developed. The RWQMP states that the Memorandum of Understanding (MoU) with NSW Health explains the highlevel considerations for Sydney Water's communication with NSW Health on any events in relation to Sydney Water's systems or services. NSW Health are to be notified immediately of any event with public health significance. The Recycled Water Quality Event Management Plan outlines the communication protocols for the various categories of incident, both internal and external stakeholders. It includes details for generic and sitespecific events. Contact details are in the Water Quality Management Contact List spreadsheet, which contains all the relevant internal and external contacts, names, numbers and emails. This includes the major customers for the relevant recycled water sites. The Recycled Water Quality Event Management Plan specifies that media and social media responses will be done in Liaison with NSW Health and undertaken by the Media & External Communications Team. Incident Response Protocols The AGWR requires potential incidents and emergencies are defined, procedures and response plans are documented, employees are trained, emergency response plans are tested and that any incidents or emergencies are investigated and protocols as revised, as necessary. The Recycled Water Quality Event Management Plan (RWQEMP) has specific information on the events and incidents managed by the recycled water schemes and how to respond to them. The RWQEMP has triggers for reporting events and incidents to NSW Health and any escalation that may be required. There are further site-specific details in site incident response manuals, the Richmond WRRF Incident Response Manual was provided as evidence. There is also additional information for all types of incidents in the Water Resource Recovery and Water Supply and Production and Reporting Procedure this includes details of registering the incident in SWIRL. The Incident Debrief & Investigation Procedure details the incident debrief and investigations processes, including when it is required in accordance with the consequence or incident level.



Element 7	1
It is considered in this instance Sydney Water have provided sufficient evidence that this requirement has been met.	
Operator, Contractor and User Awareness and Involvement	
Under the AGWR Sydney Water is required to develop a mechanism and communication procedures to increase operator, contractor and end-user awareness of, and participation in, recycled water quality management and environmental protection.	
Section 7 of the RWQMP identifies the ways that awareness is provided to staff, contractors and users.	
One of the main ways awareness of recycled water risk is delivered is through the risk assessment process, which includes operators and end users. The risk assessment for the Richmond WRRF was conducted during the audit period.	
New and transferred Production Officers receive induction training regarding the site-specific issues, which include the process, environmental licences, recycled water supply agreements and the RWQMP. The PowerPoint slide show for the RWQMP training was provided as evidence. It could be seen that this included an overview of the plan, risks, intended uses, customers and critical control points.	
Business customers that have entered into Recycled Water Supply Agreements are assigned a BCR. Site visits, twice a year, are also used as a means to raise awareness with irrigation and industrial users.	
Under the AGWR Sydney Water must ensure that operators, contractors and end users maintain the appropriate experience and qualifications, identify training needs and document training and maintain records of training sessions.	
The Production Capability Framework has been developed, which covers 10 capability areas. These broad areas cover all aspects of operating a recycled water facility, including production operations which covers the requirements to operate the plant. There are four levels of attainment for each capability, from Foundation through to Expert. For Production Operators they are required to complete a number of units from the National Water Training Package, these units are:	
NWPGEN001 – risk management principles	l
NWPTRT031 – operate and control sedimentation and clarification processes	
NWPTRT092 – operation and control digestion processes	
NWPTRT082 – operation and control nutrient removal processes	
NWPTRT052 – operation and control hypochlorite disinfection processes	
Records of e-learning training through Compass were provided as evidence of training. Compass is also used to track training to ensure the appropriate training is maintained. This system was viewed onsite.	
Industrial and irrigation end users are managed through recycled water agreements. These agreements state that users must be inducted in the safe use of recycled water. End-users must then also provide an annual statutory declaration stating that user controls have been implemented, which includes the training requirements.	
The <i>Picton Regional Sewerage Scheme Operational Interface Protocol</i> was provided as evidence procedural requirements/training for contractors. The Picton Farm reuse area is managed under contract and the protocol details all the requirements of the various stakeholders. This document does refer to the RWQMP and the Picton Recycled Water Quality Management Plan. It also states that the Farm Manager is to assist with training. However, there is nothing in the protocol regarding the requirement of the Farm Manager to ensure that competent/trained operators work at the site. OFI-2022-13	
Element 8	1
It is considered that Sydney Water demonstrated compliance with this requirement.	
Consultation with Users of Recycled Water and the Community	
Under the AGWR Sydney Water is required to assess the requirements for effective involvement of the users and community and develop a consultation strategy.	
Section 8 of the RWQMP identifies Sydney Water's strategy for consultation with business and residential recycled water customers.	
Information aiming to communicate with and educate the community is published on the Sydney Water website. This includes details of the Community Advisory Committee. The role, objectives and responsibilities of the Community Advisory Committee are detailed in the Community Advisory Committee Charter. This includes details of consultation with the community. <i>Communication and Education</i>	



	Under the AGWR it is required that Sydney Water develop a two-way communication program to users of recycled water and promote awareness, provide information on benefits and impacts of unauthorised use.					
	Community consultation is undertaken via public discussion documents, public forums, through the groups like the Customer Advisory Committee and BCRs.					
	Recycled water customers (business) are involved in the risk assessment for the specific scheme, which includes an assessment of unauthorised uses.					
	The website contains details of how water is recycled, benefits and appropriate uses.					
	Element 9					
	Sydney Water has provided sufficient evidence to demonstrate that this requirement has been met. <i>Validation Process</i>					
	Under the AGWR processes are to be validated to ensure they control hazards effectively and these are to be revalidated if variations in conditions occur.					
	Section 9.2 of the RWQMP has a general description of how equipment and infrastructure are validated. The RWQMPs have scheme specific validation information. Sydney Water is undertaking verification validation (pathogen indicator monitoring program) for treatment processes to verify that the LRVs required for each scheme are being achieved. The process for undertaking this is detailed in the <i>Recycled Water Treatment Detailed Verification Monitoring for Pathogen Reduction</i> procedure. The procedure specifies that detailed verification monitoring will be undertaken at each WRP on a four-year rolling cycle.					
	Under the AGWR Sydney Water must validate the design of new equipment and infrastructure					
	Section 9 of the RWQMP states that pre-validated equipment where possible will be used. Equipment will also be tested through the verification validation process.					
	Investigative Studies and Research Monitoring					
	Under the AGWR Sydney Water is required to establishes programs to increase the understanding of the recycled water supply system and use this information to improve the management of the recycled water.					
	Section 9.3 of the RWQMP identifies the <i>Innovation Research and Deployment Plan</i> as driving research at Sydney Water. This describes the framework that is utilised for successful innovation in the area specific to the Sydney Water's strategy.					
	Scheme specific improvement actions are identified through recycled water risk assessment workshops and during the review of the RWQMP, these are added to the <i>Recycled Water Product Improvement Register</i> .					
Evidence cited	 D0000643 Approved List of Chemicals in Sydney Water and Change Management Process SAP 2 31/08/2022 Blue Mountains Hub MPM EY22-23 					
	 D0001344.02 Blue Mountains Hub Sampling and Analysis 1 1/04/2019 Community Advisory Committee Charter 					
	 Community Advisory Committee Charter D0000685 Creation of PED Work Instruction 3 23/08/2022 					
	 iConnect Asset Standards and Specifications Page 					
	D0000513 Incident Debrief and Investigation 2 Jun-22					
	Innovation Research and Deployment Plan					
	 Irrigation Water Quality Report Richmond Golf Course Supply Scheme - First Quarter 1 9/10/2021 Irrigation Water Quality Report University of Western Sydney (UWS) Supply Scheme - First Quarter 1 9/10/2021 					
	 Irrigation Water Quality Report Richmond Golf Course Supply Scheme - Second Quarter 1 12/01/2022 Irrigation Water Quality Report University of Western Sydney (UWS) Supply Scheme - First Quarter 1 					
	12/01/2022					
	 Irrigation Water Quality Report Richmond Golf Course Supply Scheme - Third Quarter 1 9/04/2022 Irrigation Water Quality Report University of Western Sydney (UWS) Supply Scheme - Third Quarter 1 9/04/2022 					
	 Irrigation Water Quality Report Richmond Golf Course Supply Scheme - Fourth Quarter 1 10/07/2022 					
	 Irrigation Water Quality Report University of Western Sydney (UWS) Supply Scheme - Fourth Quarter 1 10/07/2022 					
	Key points agreed between Sydney Water and NSW Health on recycled water risk documentation Nov-21					
	D0001441 Maintenance Specification 2 4/03/2021					
	 DUUU1661 Managing Water Quality Customer Complaints 1 17/09/2019 Master Supply of Goods Contract for supply and delivery of bulk chemicals 1 23/12/2021 					



	 SWIM2946 2022 NWP Units WTOC0112 Manageme Production Quarterly I 5/11/2021 Quarterly 	5105 Monitoring Plan - Recycled Water Quality: Compliance & Operational Final 2021 - 5 for Wastewater and Recycled Water 2 Picton Regional Sewerage Scheme Operational Interface Protocol Integrated ent System 6 1 Capability Framework 2019 Recycled Water Quality Monitoring Report for NSW Health 2021-22 - First Quarter
	9/02/2021 • Quarterly 1 3/05/2022	Recycled Water Quality Monitoring Report for NSW Health 2021-22 - Third Quarter
	 Quarterly 9/08/2022 	Recycled Water Quality Monitoring Report for NSW Health 2021-22 - Fourth Quarter
	• D0001682	Recycled Water Hazard Library D 29/06/2021
	 BMIS0260 	Recycled Water Management Plan 4 31/08/2022
	 WQ0009 R D0000096 	ecycled Water Management Plan - Richmond 4 31/08/2022 Recycled Water Product Specification 6 16/12/2021
	• WR52271	Recycled Water Quality Event Management Plan 13 May-22
	• D0001681	Recycled Water Risk Assessment Workshop SOP 30/06/2021
	Recycled V	Vater Supply Agreement - Irrigation: Sydney Water and Richmond Golf Club
	Recycled V	Vater Supply Agreement - Irrigation: Sydney Water and Western Sydney University
	Recycled V	Vater Supply Agreement Variation - Irrigation: Sydney Water and Richmond Golf Club
	 PANWPOL 25/08/202 	2
	Richmond	WRRF Risk Assessment 4 13/06/2022
	Richmond	RWQMP Training Package 2022
	Richmond	- ST0012 Maintenance Plan 31/08/2022
	 Richmond (Daniel Hu 	and North Richmond WRRF - New or Transferred Production Officer Training Schedule nt) 21/06/2021
	Richmond	Irrigation Scheme Monthly Report: Operations Compliance Report Jul-21
	• WQ0009.0	1 Richmond Recycled Water Briefing Paper 1/01/2022
	• WQ0009.0	3 Richmond Recycled Water PFD 11/05/2022
	• WQ0009.0	2 Richmond Recycled Water Risk Report 1 1/06/2022
	 D0001283 D0001173 	Richmond WRP – Plant Operations Manual 2 1//08/2022
	 D0001173 D0001222 	Richmond WRP – Process Specification 1 31/01/2019
	 D0001222 1045150 P 	Richmond WRRF Incident Response Manual 5 21/04/2021
	 1043139 K 800001 Rid 	
	 TO0021 Ur 	nit Process Guideline - Biological Nutrient Removal 3 31/03/2019
	 D0001388 	Wastewater and Recycled Water Bulk Chemical Delivery SOP 1 Jan-22
	 D0001088 	Water guality management contacts
	DC-TOHQC Bonorting	015 Water Resource Recovery and Water Supply and Production Notification and
		Water Resource Recovery Common Laboratory Methods & Analysis Manual 2 10/06/2021
	 RCTP0028 	Workflow Process and Equipment Monitoring SOP 6 11/07/2018
Recommendation(s)	None	
Opportunities for improvement	OFI-2022-11	The schematic in the Richmond WRRF RWQMP identifies UV as the disinfection process rather than chlorine. Update the schematic to reflect the processes onsite.
	OFI-2022-12	Key procedures such the Recycled Water Risk Assessment Workshop SOP would benefit from being referenced in the RWQMP.
	OFI-2022-13	Consider including contractor competency requirements in contract agreements such as the Picton Regional Sewerage Scheme Operational Interface Protocol.



Table 14 Recycled Water Quality Management System Implementation (4.2.3)

Obligation	4.2.3			
	Sydney Water must ensure that the Recycled Water Quality Management System is fully implemented			
	and that all relevant activities are carried out in accordance with the Recycled Water Quality Man System and to the satisfaction of NSW Health.			
Risk of non-	If the RWOMS is not fully implemented, there is a high risk that Sydney Water may not be able to			
compliance	effectively manage water quality and protect public health and the environment.			
Audit grade	Non-Compliant (Non-Material)			
Reason for the	Sydney Water were found to be non-compliant (non-material) with the requirement of this licence			
audit grade	obligation as the Recycled Water Management System was found not to not be fully implemented. The following observations were made:			
	 The PFD for the Richmond WRRF did not show the stormwater first flush system or one of the alum dosing points. This key information is used by the risk assessment team who may not have physically visited the facility to determine the level of risk. This is inconsistent with the <i>Creation of PFD Work</i> <i>Instruction</i>. 			
	The risk assessment is missing some site-specific risks. The Richmond WRRF includes returns of supernatant to the head of the plant as well as the stormwater first flush system. Both of these processes have potential to introduce additional hazards to the treatment process. The supernatant is from the backwashing of the tertiary filters, which can concentrate hazards. The stormwater first flush protects the environment, by capturing the first portion of stormwater runoff from the site and diverting it to the head of the plant. First flush could contain spills from around the site, including chemicals. Neither of these two processes are considered in the risk assessment. This does not follow the requirement of the <i>Recycled Water Risk Assessment Workshop SOP</i> to consider all hazardous events that can compromise recycled water quality.			
	 The turbidity meter for CCP 1 is located at the end of the CCT, however in all documentation it is identified as being on the combined outlet of the filters. It is considered the CCP has not been implemented as documented. When this CCP was agreed to by the risk assessment team, including NSW Health, it would have been assumed that the online turbidity meter was monitoring combined filter effluent. 			
	 The Tertiary Filter MPM specified a condition assessment and subsequent preventive maintenance was to be undertaken on the Richmond WRRF media filters in 2018. The condition assessment was undertaken and it specified remedial action was required for them to operate effectively. The maintenance has not been completed, this appears to be an excessive delay in rectification works. Detailed verification to determine the LVRs for the Richmond WRRF has recently been undertaken and based on the evidence provided it is unclear if procedure <i>Recycled Water Treatment Detailed Verification Monitoring for Pathogen Reduction</i> is being followed. Based on the interviews it appears that sampling is postponed based on rain forecasts. This pragmatic approach is to prevent wasting resources: sampling, testing, and reporting, at a time when the plant may exceed flow rates suitable for recycling and results cannot be used. However, it may also systematically exclude periods of wet weather flow that are still within the operating range of the recycled water scheme and possibly the highest risk portions of the operating envelope. The procedure requires that the full range of operational conditions are considered in the study over time. 			
	The non-compliance is considered non-material due to the other existing controls that were in place during the audit period. This is a fairly low risk scheme as recycled water is supplied to customer dams, which acts as an additional barrier. In addition, the detailed verification monitoring has just been undertaken and it shows that the Richmond WRRF meets the required LRVs when customer controls are included, which are required under the supply contracts for this scheme. The issues regarding management of the tertiary filters, overdue maintenance and adequate operational control are considered a priority to appropriate risk management to ensure that treatment standards are maintained.			
Auditor comments	Element 2			
and justification	The requirement is to implement and undertake activities as specified in the RWQMP for Element 2. It is considered that Sydney Water is implementing its requirements under Element 2.			
	Intended Uses and Sources of Recycled Water			
	I his information is considered as part of the risk assessment review. The Richmond WRRF risk assessment was undertaken in March 2021. The sources and intended uses were reviewed during this process.			
	Recycled Water System Analysis			
	The Richmond WRRF PFD was last updated on 11/05/2022 and field verification was undertaken on 12/07/2018. The PFD was reviewed onsite and the following points were made:			



Magnesium hydroxide is not currently used, but the infrastructure is still in place if required. ٠ Alum is dosed into the equalisation basin and is not marked on the PFD. The monitoring location of the online turbidity meter for CCP 1 is shown after the tertiary filters, the • site inspection showed that this was in fact after the CCT. The Taronga Zoo supply is on the diagram but is not operational. It is considered that the Creation of PFD Work Instruction has not been followed because the stormwater first flush and the alum dose point are not included on the PFD, and CCP 1 monitoring is marked in the incorrect location. REC-2022-05 There was a risk workshop held in 2022, however the PFD was last field verified in 2018. It would be better to review the diagrams in preparation to the workshop to ensure it is accurate. Sydney Water also have a second PFD for the Richmond WRRF that is used for the Environmental Protection Licence (EPL). This diagram has the correct locations for the chemical dosing. It would be better to consolidate the PFDs and have one that includes all of the information required for the RWQMP and the EPL. OFI-2022-14 The risk assessment process, which is undertaken every four years, reviews the system analysis and this is shown in the risk assessment briefing, which was last undertaken in January 2021. Through the field visits it was considered that these accurately describe the scheme. Assessment of Water Quality Data Water guality trends are reviewed as part of the risk assessment process. 10 years of data is in Richmond Recycled Water Briefing Paper and was last prepared in January 2022. In the interim water quality is reviewed at least quarterly in the JOG meetings. The water quality update from the 16 May 2022 was provided as evidence. Hazard Identification and Risk Assessment The Richmond WRRF Briefing Paper identifies that the Richmond Risk Assessment was undertaken in May 2016 and then reviewed again in March 2022. It was agreed with NSW Health in 2019, based on the May 2022 JOG Minutes, that all schemes would undergo detailed verification LRV monitoring on a four year cycle. This monitoring would then be followed by a review of the water quality risk assessment. The first cycle was to be completed by May 2023. This end date will not be achieved due to wet weather and COVID. NSW Health has been updated on the progress of the program through the JOG meetings. Based on the agreed four year cycle with NSW Health, the Recycled Water Risk Assessment Workshop SOP and BMIS include a four year review of risk assessments. This cycle will not be achieved in the next audit period, it would be beneficial to minute NSW Health's agreement to the delay and revised program. However, it is also worth considering that this would still be non-compliant to the requirements of the RWQMP albeit with NSW Health's approval. Sydney Water should consider the risks of this and ensure any issues identified are addressed. OFI-2022-15 A Hazard Library has been developed that maps hazards to hazardous events and to gain consistency across recycled water risk assessments. This is a good approach, however, possibly due to the inaccuracy of the PFD, the risk assessment does not include the risk of the stormwater first flush system being pumped to the head of the plant or the risk of managing the supernatant from the tertiary filter backwash process. This does not follow the requirement of the Recycled Water Risk Assessment Workshop SOP, which required that all hazardous events that can compromise recycled water quality are included in the risk assessment. This was considered to be a minor risk, as controls were noted onsite for these processes, but they have not been reviewed as part of the risk assessment process. REC-2022-06 The Recycled Water Hazard Library is required to be updated annually, this was due 29/6/2022 and based on the evidence was not completed. This is considered to be an administrative issue, as it is reviewed as part of the risk assessment process. OFI-2022-16 Element 3 The requirements under this element were found not to have been met. CCP 1 has not been implemented as required by the Richmond WRRF RWQMP. Preventive Measures and Multiple Barriers Preventive measures are detailed in the scheme risk assessments as 'Existing Control Measures'. During the site inspection the Richmond Workflow Process Equipment Monitoring Log Sheet was reviewed and it could be seen that these activities were undertaken. This included operational monitoring and checking and calibrating online instrumentation. There are two current irrigation customers and one proposed. There are annual meetings held with the irrigation customers and in there is an awareness training element where the required controls are reviewed. In addition, the customers sign a statutory declaration that the controls required to achieve the

The stormwater first flush system is not shown as a source. It is noted that this is managed by the operators, but it is required to be on the PFD to ensure the risk is appropriately assessed.



LRVs for irrigation are implemented. The *Recycled Water Customer Meeting Forms* and annual declarations were provided for both the Richmond Golf Club and Western Sydney University Hawkesbury. An important control is the trade waste program, which reduces the risk of incompatible waste being discharged. Evidence of implementation of the trade waste program provided included permits, compliance monitoring, pre-treatment equipment inspections and a relationship management meeting report for the following permit numbers:

- 39750
- 38405
- 39981
- 51136

Critical Control Points

Critical limits are assessed as being appropriate through the detailed process validation undertaken by Sydney Water, this is discussed further under Element 9. Based on the validation a 2.9 LRV has been demonstrated, less than the required 3.7 LRV required for enteric parasites. The remainder is achieved through customer controls to achieve the remainder.

It was noted during the site inspection that the turbidity online instrument for the tertiary filters is actually after the CCT, not in the combined filtrate. It is considered that this is not optimal for managing the filtration process. It is considered that CCP 1 has been incorrectly implemented, as detailed in the Richmond RWQMP.

The Richmond WRRF RWQMP identifies combined filter effluent as being the appropriate monitoring location. NSW Health have requested Sydney Water move to individual filter turbidity monitoring in order to have more operational control, as detailed in an email from the Water Unit to Sydney Water (19 Jan 2022). An improvement item was added to the *2022-23 Recycled Water Improvement Plan* after the audit period to consider this proposal. **REC-2022-07**

Critical limits are monitored using online instruments and SCADA. These limits are interlocked to the recycled water supply pumps and there was no instance identified in the audit period where the interlock did not work. This process was reviewed during the site visit on SCADA.

Critical limits in SCADA were checked to ensure consistency with the *Recycled Water Product Specification* and the Richmond RWQMP. All critical limits were correct.

Whilst onsite the simulation mode of one of the CCP instruments was tested. It brought up a warning and operators informed the auditor that this would also lock out the recycled water pumps.

Annual preventive maintenance is carried out to check all of the critical limits at the plants. The work order for the annual check at the Richmond WRRF was provided as evidence.

Element 4

The requirement is to implement and undertake activities as specified in the RWQMP for Element 4 have not been met. Preventive maintenance schedule for the filters at the Richmond WRRF has not been implemented in good time.

Operational Procedures

Records were observed onsite of operational procedures being implemented and are being maintained for the implementation of the Process and Equipment Monitoring Procedure:

Workflow Log Sheet– Wollongong WRP

- Workflow log sheet Wollongong Liquids Stream
- Calibration Log sheet Wollongong WRP

Weekly meetings of the Production Team are held and meeting minutes are maintained, a sample was observed.

When a new operator starts at a WRRF they are required to be inducted into operation of the plant. The Production Officer Training Schedule for the plant is worked through, an example of a completed training schedule, undertaken in the audit period was provided for Richmond and North Richmond WRRFs.

Operational Monitoring

Operational monitoring undertaken by the operators is entered into SCADA Central. The system was observed and the data appeared to be consistent with requirements. SCADA trends were also viewed during the site audit. Samples are also collected and sent to the Sydney Water Laboratory and Production Officers take samples to support decision making.

Online operational data is stored in Sydney Water's SCADA PDMS system (database).

Corrective Action

No CCPs failed to operate as required over the audit period.



SCADA was observed onsite and through the observation of trends, the chlorination process was reviewed to ensure that a residual was maintained as supplies varied throughout the day.

Minutes of the weekly Hub Production Meeting and Planning and Review Meeting were provided to demonstrate the discussion and implementation of corrective actions.

Equipment Capability and Maintenance

Calibration and maintenance records were observed onsite. Production Officers undertake daily checks of the instruments and if there is a discrepancy the online instrument is calibrated.

It was noted on site that Filter 3 has been offline for some time and in need of repair. The Tertiary Filter MPM Program was provided as evidence and this shows that a condition assessment and potential filter overhaul was scheduled in 17/18. Based on the current condition it would appear that this has not occurred. Implementation of the asset management plan is further investigated in clause 5.5.2 and no recommendation has been added for this obligation.

Materials and Chemicals

Materials are managed through specifications listed in section 4.5 of the RWQMP. The *Approved List of Chemicals in Sydney Water and Change Management Process SAP* identifies all the approved chemicals used at the plants. During the site visit it was noted that there were no other chemicals observed.

The supply contract with Omega Chemicals was reviewed and this does contain details of the approved products. The specification in the contract is only Omega's Material Safety Data Sheet, this is appropriate for sewage treatment and recycled water, it was noted that there were more detailed specifications for drinking water.

Records were provided to support implementation of the Wastewater and Recycled Water Bulk Chemical Delivery SOP. Delivery dockets for alum were provided including the chemical receival checklist and certificate of compliance. The process was also confirmed during the site inspection and no issues were identified.

Element 5

The requirements under this element were found to have been met.

Recycled Water Quality Monitoring

Sydney Water stores all the verification monitoring data generated by the laboratory in LIMS. This system was viewed onsite, and all verification period data was extracted for the audit period and compared to the requirements of the Recycled Water Quality Compliance & Operational Monitoring Plan. If was found that all of the required monitoring was undertaken.

Environmental monitoring is to be undertaken by customers and this is checked through the customer six monthly meetings. The meeting agenda includes Customer Recycled Water Awareness reiterating the End User responsibilities for environmental monitoring. Meeting minutes were provided for both the Richmond Golf Club and University of Western Sydney.

It was noted that monitoring results are not shared with Sydney Water. It would be beneficial to have a feedback loop to determine that some form of environmental monitoring is taking place and there is no deterioration of the environment. **OFI-2022-17**

Satisfaction of Users of Recycled Water

There were no complaints regarding the quality of recycled water over the audit period. There are only two customers and recycled water is only used for irrigation. However, a sample record from the CRM was supplied, which detailed conversations over a number of days with a customer to resolve an issue that was considered to be due to recycled water quality.

Short-term Evaluation of Results

All of the quarterly reports to health were provided as evidence, well as a sample of the quarterly customer reports and monthly reports.

Corrective Responses

On review of the data there were no exceedances during the audit period.

A review of the JOG meeting minutes showed that recycled water quality is reviewed as a standing item. At a more operational level weekly production team meetings are held that cover an operational area (Hub). Meeting minutes for the Blue Mountains Hub Planning and Review Meeting were provided. This showed that water quality issues are discussed at an operational level in order to implement corrective actions where required.

During the site inspection the production staff were highly knowledgeable and understood water quality issues.

Element 6



The requirement is to implement and undertake activities as specified in the RWMM and RWQMPs for Element 6. It is considered that Sydney Water met this requirement based on the evidence. *Communication*

The Water Quality Management Contacts were last reviewed on 23/6/22 as seen in the BMIS document management system. This shows that it is regularly updated and within the six monthly period as specified in the contact list.

The were no incidents during the audit period for the Richmond WRRF. An incident at anther recycled water plant in the Blue Mountains Hub was reviewed as evidence that procedures were followed. The incident INC-38886 at the Penrith WRRF was selected. However, this was incorrectly recorded in SWIRL, as it was not an incident. It was thought that high strength trade waste entered the plant and an investigation was undertaken as it resulted in a reduced ability to achieve the required DO concentration in the IDAL and elevated ammonia in the recycled water. However, the Product Specification was not exceeded, but it did demonstrate that process issues and potential illegal discharges to the sewer are investigated.

Incident and Emergency Managing Protocols

The SWIRL system was viewed during the audit interviews.

It was noted that there were no multi-agency training exercises conducted during the audit period. This was mainly due to the excessive rain received during the audit period, resulting in Sydney Water and Water NSW being in constant communication to manage ongoing incidents. This was confirmed at the SLG Meeting on 22/6/2022 and a schedule of workshops has been developed that will be held in the nest audit period.

There were records at the Richmond WRRF showing that Critical Power Failure Scenario was run with plant operators on 22/2/2022.

Element 7

The requirement is to implement and undertake activities as specified in the RWMM and RWQMPs for Element 7. It is considered that Sydney Water met this requirement based on the evidence.

Operator, Contractor and User Awareness and Involvement

The completed induction checklist was provided for a Production Officer new to the Richmond WRRF. All the training was signed off, except the RWQMP. Additional evidence was supplied that showed the attendance at RWQMP awareness training for the Richmond WRRF Production Officers after the audit period. In this Instance it shows that the RWQMP awareness training was undertaken approximately three months after the Production Officer's start date, rather than within one month as specified in the training schedule. **OFI-2022-18**

Sydney Water raises awareness of the consequence of system failure through scheme risk assessment workshops. The Richmond WRRF risk assessment was last undertaken in March 2022 and it included customers and operators.

Irrigators and industrial recycled water users are visited every six months to ensure continued awareness and an onsite checklist is completed. Evidence was provided showing a completed site visit checklist for the Richmond Golf Club and Western Sydney University.

Operator, Contractor and End-user Training

Evidence was provided of staff training recorded in Compass, the corporate training management system. It could be seen that this had records of the mandatory training, such as locking out and tagging. Certificates of attainment were provided for a number of operators that had completed the units of competency required under the Production Capability Framework. iConnect is being used to manage capability development and this was viewed during the audit interviews.

Element 8

The requirement is to implement and undertake activities as specified in the RWMM and RWQMPs for Element 8. It is considered that Sydney Water met this requirement based on the evidence.

Consultation with users of recycled water and the community

Minutes from the Customer Advisory Committee meetings are available on the Sydney Water website. It could be seen that recycled water issues are discussed with the community. The minutes from the 19 May 2022 included discussion on water literacy and market research on the acceptance of desalination and indirect potable reuse as sources of alternative water during drought.

Communication and education

Sydney Water have an educational vehicle, the Wonders of Water education van, that is activated at community events, shopping centres, public spaces such as parks and schools to reach members of the general community with quality water literacy education. As a touch point for the business the



	Community Education team utilise the van in engaging the community with information about where their water comes from, how it is filtered, how their wastewater is treated as part of the urban water cycle. This shows how wastewater is recycled and reused within the community.			
	Flement Q			
	The requirement is to implement and undertake activities as specified in the RWQMS and RWQMPs for Element 9. It is considered that Sydney Water provided sufficient evidence to demonstrate that this requirement has been met.			
	Validation of Processes			
	The detailed validation process was undertaken between April and July 2021. The process identified that adequate LRV was obtained for the scheme when treatment and user controls are considered. Further detail is in the Risk Assessment Briefing Paper. It was noted in the interviews that sampling for the validation is cancelled if there is greater than 10 mm of rain. It is noted the procedure Recycled Water Treatment Detailed Verification Monitoring for Pathogen Reduction states sampling should not occur if there is a significant wet weather flow. It is understood that sampling is cancelled for pragmatic reasons, the suite of testing is expensive and time consuming, and if the plant flow is too high the samples will be invalidated. It needs to be ensured that this 'rule of thumb' does not exclude the full range of normal operating conditions for the recycled water scheme. The procedure requires sampling that allows for normal operating conditions including dry/wet weather flows. REC-2022-08 No changes have been made to the Richmond WRRF over the audit period, therefore no validation was			
	required for new equipment or processes.			
	Design of Equipment			
	No changes were made to the sites considered, therefore no evidence was reviewed.			
	Investigative Studies and Research Monitoring			
	During the audit period Sydney Water has undertaken or partnered with others to deliver research projects. The Research & Innovation Portfolio Summary 2021/22 was provided as evidence for the range of research projects that Sydney Water is working on. There is a range of projects and a number involve recycled water.			
	A paper published on the use of indigenous microbial surrogates to understand public health risks in recycled water was provided as evidence of research. The research was undertaken by a Sydney Water employee using data from Sydney Water operated recycled water schemes.			
	Evidence of research partnerships was provided through the WaterRA Research Proposal for Assigning and Maintaining Appropriate Pathogen LRVs in MBRs. Sydney Water is project partner. The work aims to better understand the operation performance of MBRs and provide information that will lead to improvements in the WaterVal MBR Protocol.			
Evidence cited	 Business Case T-West Area Tertiary Filter MPM Program DABC Package 3.2 8/08/2016 D0000643 Approved List of Chemicals in Sydney Water and Change Management Process SAP 2 31/08/2022 			
	Blue Mountains Hub MPM FY22-23 2022			
	2022 Q1 JOG Final Minutes 14/02/2022 Isite Operations Course Accords item 7.4h 14/02/2022			
	 Joint Operations Group – Agenda item 7.4b 14/02/2022 SLG 15 June 2022 – Agenda item 5.1 Tripartite Exercise 2022 Undate 15/06/2022 			
	 Recycled Water Quality update 16/05/2022 			
	Recycled Water Management System Update 16/05/2022			
	JOG Meeting Minutes 16/05/2022			
	2022-23 Recycled Water Product Improvement Plan Nov-22			
	 3050 Research Proposal - Assigning and Maintaining Appropriate Pathogen LKVS in MBKS 80010/1/319 Recycled Water Quality Complaint 13/09/2021 			
	 CW2241799 Master Supply of Goods Contract for supply and delivery of bulk chemicals 1 24/01/2022 			
	Annual Declaration Richmond Golf Club 13/07/2022			
	Annual Declaration Western Sydney University 26/07/2022			
	Certificate of Compliance - Alum Feb-22 Certificate of Compliance - Alum Feb-22			
	Certificate of Compliance - Alum Feb-22 Irrigation Water Quality Report Richmond Golf Course Supply Scheme _ Eirct Quarter 1.0/10/2021			
	 Inrigation Water Quality Report Neurona Gon Course Supply Scheme - First Quarter 1 9/10/2021 Irrigation Water Quality Report University of Western Sydney (UWS) Supply Scheme - First Quarter 1 9/10/2021 			
	 Irrigation Water Quality Report Richmond Golf Course Supply Scheme - Second Quarter 1 12/01/2022 Irrigation Water Quality Report University of Western Sydney (UWS) Supply Scheme - First Quarter 1 12/01/2022 			



 Irrigation Water Quality Report Richmond Golf Course Supply Scheme - Third Quarter 1 9/04/2022 Irrigation Water Quality Report University of Western Sydney (UWS) Supply Scheme - Third Quarter 1 9/04/2022
 Irrigation Water Quality Report Richmond Golf Course Supply Scheme - Fourth Quarter 1 10/07/2022 Irrigation Water Quality Report Haiversity of Waters Supply Scheme - Fourth Quarter 1 20/07/2022
 Imgation water Quality Report University of Western Sydney (UWS) Supply Scheme - Fourth Quarter 1 10/07/2022
 Key points agreed between Sydney Water and NSW Health on recycled water risk documentation Nov-21
 Master Supply of Goods Contract for supply and delivery of bulk chemicals 1 23/12/2021 23/247 Palman, Paalet Liquid Alum 15 (02 (2022))
276347 Delivery Docket Liquid Alum 15/02/2022 280611 Delivery Docket Liquid Alum 23/04/2022
280611 Delivery Docket Liquid Alum 22/04/2022 SCADA Disinfaction Scroop 28/10/2022
Filter Assessment Recommendations
 Flow Meter FTX8100 SCADA Variables Screenshot 28/10/2022
WTOC0112 Picton Regional Sewerage Scheme Operational Interface Protocol Integrated
Management System 6
• Email: Key points and principles for recycled water documentation (NSW Health to Sydney Water) 18/01/2022
Production Capability Framework 2019
 North Richmond & Richmond WRRF - Incident Scenario Timetable 22/02/2022
Richmond WRP Workflow Process Equipment Monitoring Log Sheet 4/03/2022
Richmond WRP Workflow Process Equipment Monitoring Log Sheet
 Richmond WRP Workflow Process Equipment Monitoring Log Sheet 18/02/2022
 Quarterly Recycled Water Quality Monitoring Report for NSW Health 2021-22 - First Quarter 5/11/2021
Key points agreed between Sydney Water and NSW Health on recycled water risk documentation
 Quarterly Recycled Water Quality Monitoring Report for NSW Health 2021-22 - Second Quarter 9/02/2021
Richmond WRRF Media configuration change proposal
• Doi 10.1071/MA21037 Indigenous Microbial Surrogates in Wastewater used to Understand Public Health Risk Expressed in the Disability-Adjusted Life Year (DALY) Metric 15/09/2021
 Quarterly Recycled Water Quality Monitoring Report for NSW Health 2021-22 - Third Quarter 3/05/2022
 PAMWP0001 Recycled Water Treatment Detailed Verification Monitoring for Pathogen Reduction 5 25/08/2022
 Quarterly Recycled Water Quality Monitoring Report for NSW Health 2021-22 - Fourth Quarter 9/08/2022
Blue Mountains Hub Production Meeting Minutes 24/02/2021
D0001682 Recycled Water Hazard Library D 29/06/2021
D0000096 Recycled Water Product Specification 6 16/12/2021
D0001681 Recycled Water Risk Assessment Workshop SOP 30/06/2021
PAMWP0001 Recycled Water Treatment Detailed Verification Monitoring for Pathogen Reduction 5 pr /og /og 2
25/08/2022 Pichmond W/PPE Pick Assossment 4.12/06/2022
Research & Innovation Portfolio Summary 2021/22
Recycled Water Customer Meeting Form - Richmond Golf Course 7-Jul-21
 Recycled Water Customer Meeting Form - University of Western Sydney 8-Jul-21
Richmond and North Richmond WRRF - New or Transferred Production Officer Training Schedule
(Daniel Hunt) 21/06/2021
Richmond Irrigation Scheme Monthly Report: Operational Compliance Report Jul-21
SCADA Reuse Screen 28/10/2022
Sydney Water's program for review the Scheme RWQMPs (Commencing 2019)
WQUUU9.U1 KICHMONG KECYCIEG WATER Briefing Paper 1/01/2022
Kichmonia war worknow Process Equipment Nontonitoring Log Sneet 19/06/2011 ST0012 Richmond Alum and Magnocium Hydrochlorido Docing SCADA Screensbot
Field Form for Calibration Prominent Chlorine 2022
FPI 1726 Richmond WRRE lun-22
Richmond Golf Club Backflow Compliance Status
 RWQMP W&WW Training Attendance Sheet 6/09/2022



	ST0012 Richmond - Disinfection and Reuse SCADA Screenshot		
	Richmond verification data 21-22		
	WQ0009.02 Richmond Recycled Water Risk Report 1 1/06/2022		
	Richmon	d WRRF Risk Assessment 4 21/10/2022	
	Golf Court	rse Reuse Interlocks SCADA Screenshot 28/10/2022	
	Golf Court	rse Reuse Pump Variables SCADA Screenshot 28/10/2022	
	Universit	y of Western Sydney Reuse Pump Variables SCADA Screenshot 28/10/2022	
	• ST0012R	TU/04-V1 NON PMO -Richmond STP - Critical Alarm Testing Area 8 - PM 2022	
	• ST0012 C	hlorine Analyser Work Order status 2022	
	SWIRL Re	ecord INC 38886 28/10/2022	
	Commun	ity Advisory Committee Meeting Minutes 19/05/2022	
	Consent	to discharge industrial trade wastewater 3/11/2021	
	Relations	hip management meeting report from 24-06-2022 24/06/2022	
	Your Svd	nev Water inspection results from 22-03-2022 22/03/2022	
	Trade Wa	aster Sample results - Permit 39750 2022	
	Grease T	rap Inspection - Trade Waste Permit 38405 9/09/2022	
	Commer	rial trade wastewater permit	
	Grease T	ran Inspection - Trade Waste Permit 39981 20/04/2022	
	Commer	rial trade wastewater permit	
	Grease T	ran Inspection - Trade Waste Permit 51136 Aug-22	
	Grease r	rial trade wastewater permit	
	 Comment D000122 	2 WPPE & WED Common Incident Pernance Manual 2 Mar 21	
	 D000122 Blue Mee 	z wrkr & wrr common incluent response Manual 5 Mai-21	
	Blue Mol	untains Hub Planning & Review Meeting 5/02/2022	
	Blue Mountains Hub Planning & Review Meeting 10/02/2022		
	Western Sydney University Backflow Compliance Status 27/01/2022		
	Wonders of Water Mobile Educational Vehicle 18/08/2022		
	• D000138	8 wastewater and Recycled water Bulk Chemical Delivery SOP 1 Jan-22	
Recommendation(s)	REC-2022-05	By 30 June 2023, review the PFD and undertake field verification of the revised diagram. The Richmond WRRF PFD must include all processes that could impact water quality, including the stormwater first flush and the alum dosing into the Equalisation Basin.	
	REC 2022 06	By 21 December 2022, review the rick accessment process for the Dichmond W/DPE. The	
	RLC-2022-00	Becycled Water Risk Assessment Workshon SOP requires all hazardous events that can	
		compromise recycled water quality are considered in the risk assessment process. The	
		Richmond WRRE risk assessment did not include a risk assessment of the supernatant	
		return or stormwater first flush system. Sydney Water must ensure that the Recycled	
		Water Hazard Library has appropriate hazardous event documentation to cover these	
		processes and that they are considered at the Richmond WRRE. The Richmond WRRE risk	
		assessment was conducted using the recently developed risk assessment process this	
		should also be reviewed to understand how these were missed and the Recycled Water	
		Risk Assessment Workshon SOP revised as necessary	
	BEC 2022 07	By 21 December 2022, CCB 1 turbidity monitoring at the Bichmond WBBE is to be moved	
	RLC-2022-07	to monitor combined filter affluent. The status of recycled water tertiary filter turbidity	
		monitoring is ambiguous across a number of Sydney Water recycled water plants in	
		relation to the use of individual online filter turbidity monitoring. A decision should be	
		made for all plants based on risk and a program of implementation developed and agreed	
made for all plants, based on risk, and a program of implementation		to by NSW Health	
	REC 2022 08	By 20 June 2022, the sampling process for the Recycled Water Treatment Detailed	
	RLC-2022-00	Verification Monitoring for Pathogen Reduction procedure is to be reviewed. This should	
		ensure that wet weather flows within the operating envelope of recycled water schemes	
ensure that wet weather flows within the operating envelope of rec are not systematically omitted from being sampled. The monitoring		are not systematically omitted from being sampled. The monitoring program should	
		ensure that over a number of monitoring cycles that all operating conditions are included	
		in the sampling program. This may also need to consider some targeted event monitoring.	
Opportunities for	OFI-2022-14	Consider combining the EPL and recycled water PFDs into one that contains all of the	
improvement		required information. If there is one point of truth it may assist in maintaining accuracy.	
	OFI-2022-15	Consider minuting NSW Health's agreement to the detail verification and risk assessment	
		program for recycled water. This is especially important where there are deviations from	
and the second	1	the planned program, regardless of the circumstances.	



	OFI-2022-16	The Recycled Water Hazard Library was overdue a review at the time of the audit. Consider reviewing the document and revising BMIS as soon as possible. When reviewed, consider how changes to the hazard library may impact risk assessments. There should be a process to roll out changes if it is considered it could change the risk profile. Waiting until the next scheduled risk assessment may not be appropriate as it could be a number of years away.
	OFI-2022-17	Environmental monitoring is undertaken by recycled water customers. The current process requires customers to undertake appropriate monitoring, but Sydney Water does not receive any result or feedback from customer. It would be beneficial for Sydney Water to be aware of any potential impacts on the environment. This could be done using an informal process, such as a point to raise at the six monthly meeting (e.g. have they noticed, or has monitoring shown, an adverse impact on the environment or soil) and space to note the response on the Recycled Water Customer Meeting Minutes form.
	OFI-2022-18	It was noted that the RWQMP training has been delivered outside of the suggested time period. Consider if there needs to be an adjustment to the induction program.

Table 15 Implementation of an asset management system (5.5.2)

Obligation	5.5.2
	Sydney Water must ensure that the Asset Management System is fully implemented and that all relevant activities are carried out in accordance with the Asset Management System.
Risk of non-compliance	Failure to fully implement its Asset Management System presents a high level of operational risk that Sydney Water may not be able to effectively manage the safe and reliable performance of its assets as required to meet its business objectives.
Audit grade	Non-compliant (material)
Reason for the audit grade	Sydney Water demonstrated that it had, in most respects, continued to fully and effectively implement its Asset Management System during the audit period. This is evidenced in part by it continuing to maintain accreditation of the Asset Management System as being consistent with the Australian Standard AS ISO 55001 <i>Asset management – Management system – Requirements</i> . More specifically, Sydney Water demonstrated that it has managed its asset portfolio in accordance with the Asset Management System through the provision of example documentation and records related to the strategy and planning; asset creation; maintenance; and asset renewal phases of the asset lifecycle. Evidence of ongoing asset management awareness training and internal audit of the <i>Strategic Asset Management Plan</i> was also provided. There were, however, some examples identified during the audit site inspections where maintenance inspection regimes had not always been implemented and identified issues had not always been dealt with in a timely and effective manner. Issues identified at the South Windsor Reservoirs and North Richmond WFP (for example) present a risk to water quality and potentially public health. It was not apparent that all programmed maintenance had been completed or evidence that recommendations arising from condition assessments in respect of the tertiary filters at the Richmond WRRF had been implemented in a timely manner. In view of the identified deficiencies, it is assessed that Sydney Water has not demonstrated full compliance with this obligation. Given that the resultant risks have the potential to be significant ('Very High' or 'High' in the absence of effective mitigation), and there appears to be reoccurring failure to address identified maintenance issues, the non-compliance is considered to be material.
Auditor comments and	Overview:
justification	Assessment of compliance in respect of this obligation has involved review of Sydney Water's overall approach to the management of its assets under its AS ISO 55001 certified Asset Management System. This has included review of the system documentation and records of implementation (both at system level and in the field), and more detailed assessment of some aspects based on field observations.
	Maintenance of Asset Management System Certification:
	Sydney Water's Asset Management System was initially certified as being consistent with AS ISO 55001:2014 Asset management – Management systems – Requirements in June 2019. In March 2022 Sydney Water successfully completed a recertification audit; as a result, accreditation has been extended to June 2025, as indicated on the Certificate of Registration (No: AMS 669826).
	Review of the certifying auditor's report revealed that the audit identified three (3) minor opportunities for improvement. These related to ongoing continual improvement; measurement



against the objectives identified in the *Strategic Asset Management Plan*; and cross organisation alignment/interaction.

Asset Management System Overview:

The Asset Management Policy, Strategic Asset Management Plan and a series of Master Plans are the key governance and guidance documents for Sydney Water's Asset Management System.

The Asset Management Policy, which was last reviewed/updated in February 2021, sets out Sydney Water's commitment to manage its assets to achieve the strategic outcomes detailed in its Corporate Strategy. The principles that guide sustainable management of Sydney Water's infrastructure to provide water services are identified.

The Strategic Asset Management Plan is the central document to Sydney Water's Asset Management System. It "... articulates Sydney Water's strategic plan in relation to managing its infrastructure ("the assets"). It provides a link between the organisation's objectives and strategy, the Asset Management Policy, and Sydney Water's asset management processes and plans". It embraces the principles of asset management and identifies Asset Management Objectives that align with the Corporate strategic outcomes. The Strategic Asset Management Plan was last updated in June 2021 (i.e. just prior to the audit period).

Master Plans, including (for example) the *Wastewater Treatment and Water Recycling Plant Asset Master Plan* and the *WFP Asset Master Plan*, detail the tactical approach to management of the specific asset class. They provide an overview of the assets; identify performance requirements; detail an assessment of asset class performance and gap analysis; identify future servicing requirements and planning needs; and detail the adopted strategy for the lifecycle management of the asset class together with the associated action and investment plans.

System Implementation:

<u>General</u>:

Sydney Water provided sample documentation to demonstrate ongoing implementation of asset management practices as they relate to various aspects of the asset management lifecycle, consistent with its Asset Management System. A review of some of the practices /documentation is set out in the following.

Asset Creation:

Sydney Water demonstrated that it continues to plan and implement its capital investment projects under the governance of its gateway approval process. As examples, the following were provided for review:

Delivery Approval Business Case for the Quakers Hill WRP PLC, SCADA and Electrical Upgrade, which was signed by the Managing Director.

Option Approval/Delivery Approval Business Case for Quakers Hill WRP PARR Repairs to Damaged Works.

July 2022 Monthly Update for projects being undertaken by the Lower South Creek Delivery Partner. This includes reporting on (for example) the Quakers Hill WRP projects.

Whilst these business cases were approved prior to the audit period, they relate to works that it was originally planned to visit for the purpose of field verification.

<u>Operation</u>:

Sydney Water advised that operations at its sites is undertaken in accordance with the relevant management plans, operation and maintenance manuals and work instructions. Examples of these are discussed in respect of Licence sub-clauses 4.1.3 and 4.2.3.

<u>Maintenance</u>:

Asset maintenance is undertaken in accordance with the principles and guidance provided in the:

- Asset Maintenance Policy, which outlines the guiding principles and elements of asset maintenance management as implemented by Sydney Water.
- Maintenance Strategy, defines the six maintenance strategies/approaches that are implemented by Sydney Water, including (for example) Failure Based Maintenance and Periodic Schedule Maintenance.
- Maintenance Management Framework, which identifies standards, definitions and methodologies used by Sydney Water to determine the maintenance requirements for assets.
- Maintenance management is further supported by standards/guidance in respect of Condition Assessment (discussed elsewhere) and Failure Mode Effect and Criticality Analysis, for example.

Implementation of Sydney Water's maintenance practices is demonstrated by:

Dashboard reporting of maintenance delivery metrics.



End of financial year performance reports in respect of Water and Wastewater maintenance.
 Minutes of weekly/monthly Maintenance meetings in respect of (for example) WFPs.

Further examples of maintenance implementation are provided in the discussion in respect of field implementation (see below).

<u>Renewals</u>:

Asset renewals are planned in accordance with the *Asset Renewals Planning Standard*, which then feeds into the asset creation/capital investment process. This standard outlines a process of identifying and assessing assets, creating concepts (grouping assets that will form the basis of a renewal project), prioritisation, and project initiation.

Asset renewal is initiated on the basis of assessed condition. A schedule of *Condition Assessment Programs* sets out the details of each program (for example, the Critical Water Mains (CWM) Condition Assessment Program), which include (for example) the product and asset type to which it applies, the prioritisation approach, responsibilities for planning and implementation, annual budget, condition assessment techniques used, and any gaps that need to be addressed.

Sydney Water provided a *Listing of Concepts – North Richmond*, which identified upgrade and renewal requirements that have been identified at the North Richmond WFP. Each item is risk scored and a proposed delivery timeline identified. It is noted that the raw water pumping upgrade is listed, however, the Reservoir WS0308 roof project is not; this may be reflective of the timing of planning developments.

AMS Training:

Sydney Water provided a copy of its *Asset Management System; Awareness training* module, which is a high level presentation that explains why asset management is carried out, identifies the key documents and objectives, and explains linkages to other components of the Sydney Water management system. The *Awareness Training and Communications Register* (extracted records) revealed that approximately 40 staff members had completed the training in one of nine sessions conducted between December 2021 and April 2022.

The Training Register also revealed that more than 100 staff members had completed various elements of 'Review/Consultation/Training' in relation to the Asset Management System during the audit period.

Monitoring and Review:

Sydney Water advised that monitoring and review of the Asset Management System during the audit period comprised of:

- the Asset Management System recertification/surveillance audit undertaken by an independent certifying body in March 2022 (which is reported above)
- an internal audit undertaken in May 2022
- an asset health audit, a draft report in respect of which was prepared in July 2022.

Sydney Water advised that the May 2022 internal audit addressed a range of topics including cross connections, demand analysis, demand and forecast planning; however, the reports were in draft format and being finalised at the time of responding to the *Audit questionnaire*.

The asset health audit was a follow-up on six actions arising from an audit conducted during the 2020/21 financial year (previous audit period) and an additional five in-progress initiatives that related to the audit findings. All related to two key issues: "*Key asset data is not uniformly recorded and/or available*"; and "*There is inconsistent reporting on asset health*".

It was found that four of the eleven actions had been completed and the remaining seven remained in-progress. As a result, the overall risk rating in this area was assessed to have been reduced from "Major improvement needed" to "Some improvement needed". It is noted that two of the ongoing actions were not yet due for completion at the time of the assessment, and that the target completion dates for the others were extended to ensure that more beneficial outcomes are realised by building on the outcomes of the work completed to date.

Sydney Water also provided:

- A draft report on an audit of the *Strategic Asset Management Plan* undertaken in June 2021 (i.e. just prior to the audit period). The report identified eight improvement opportunities and made eight observations (issues outside the audit scope that may require monitoring). One 'positive finding' was noted; this reflects an opportunity for shared learnings where good or commendable practice was observed by the auditor.
 - Record of problems/improvement opportunities identified through PAMS Reviews of:



 Centrifuges Maintenance Management conducted in April 2021 (prior to the audit period) – this review (interviews) identified 63 items of which three were rated high, 12 medium and one low importance (only 16 items were rated); and Rising Main and SPS Maintenance Management in May 2021 (prior to the audit period) – this review identified 62 items of which 11 were rated high, 34 medium and 17 low importance.
Further analysis was provided including the 'theme', 'lifecycle stage' and 'group' (within Sydney Water) to which the problem/improvement opportunity related. No information in respect of how these outcomes were addressed was provided (or requested by the auditor).
In summary, Sydney Water continues to have appropriate guidance in place for each phase of the asset management lifecycle. Evidence provided, together with the field verification observations, confirms that management of the assets is undertaken generally in accordance with the documented practices.
Improvement Initiatives:
During the audit interviews, Sydney Water provided an overview of improvement initiatives that it has progressed during the audit period. These include:
 Developing a Service Excellence framework – which is aimed at providing a risk-based road map for achieving excellence in respect of business, environmental, health and asset risks. Exploring and developing asset management reporting measures and their alignment to the
 Corporate Strategy. Developing an enhanced Asset and System Framework for better management of the asset portfolio.
Whilst not discussed in further detail, Sydney Water is commended for continuing to evolve its Asset Management System through the implementation of improvement initiatives.
Field Implementation:
<u>General</u> :
Field verification visits were undertaken to a number of sites/facilities to verify how effectively Sydney Water is implementing the requirements of its Asset Management System in practice. The notes presented in Section 2.3 provide an overview of the observations made during the site inspections; the following discussions provide further detail in respect of some specific issues/aspects of implementation.
It is also noted that, although not specifically reported, additional documentation provided by Sydney Water in response to the auditor's request has been viewed and taken into account in the overall assessment of compliance with this obligation.
Richmond WRRF:
Filter media upgrade
As noted in Section 2.3.1, Sydney Water advised that replacement/upgrade of the filter media is scheduled for next year (2023). Condition assessment and capital planning records in respect of this proposed refurbishment work were requested.
A <i>Filter Assessment Report</i> prepared in October 2018 noted that the filters had not been refurbished since installation in 2005, and up to that time there had not been any performance issues. All three filters were scheduled to be refurbished during 2018/19 as part of the tertiary filter MPM.
The assessment was undertaken to " assess the condition of the filters to inform the refurbishment strategy and recommend possible improvement opportunities for filter operation and backwashing." The assessment concluded that, notwithstanding various amounts of loss, the filter media in all filter cells was generally in fair condition. Deficiencies in respect of air scour pattern media bed/underdrain resistance to backwash flows were identified. Several recommendations were made in respect of improvements to be incorporated into the refurbishment works (which would not initially be part of the filter overhaul); however, there was no further comment in respect of the timing.
Review of the <i>T</i> -West Area Tertiary Filter MPM Program reveals that expenditure for both condition assessment and refurbishment of Filters 1 & 2 was scheduled for 2017/18 and of Filter 3 in 2018/19. There is no reference or other documentation indicating that the work has been deferred/rescheduled, which raises concerns regarding the timeliness in which this major maintenance work is to be undertaken. It is appropriate that the timing of the works is based on an assessment of condition and/or performance (e.g. there has been no reported impact on



recycled water quality to date); however, the above referenced report indicates that refurbishment was required at the time of writing and provides no comment in respect of deferral from the original plan.
The <i>Richmond WRRF Risk Assessment</i> identifies failure of the granular filtration due to (amongst other factors) 'poor filter condition' and 'slow maintenance and/or refurbishment' as a risk to recycled water quality, and therefore human/public health. "SW filter refurbishment program" is one of the existing controls that reduces the risk rating from 'High 2' to 'Medium 4'; as the filters have not been refurbished as recommended in the <i>Filter Assessment Report</i> , the risk has not been fully mitigated and must be considered to remain 'High".
Instrument calibration
Records of instrument calibration were also sought for review. Independent calibration is undertaken by an external service provider six-monthly. A report extracted from Maximo showed that the Residual Chlorine Analysers on the Hypo Contact Tank TNK8120, the Effluent Reuse Pumping Tank TNK8121 and the Plant Bypass Hypo Contact Tank TNK8300 had been recalibrated in May 2021 (prior to the audit period) and again in November 2021; records for the next six-monthly calibration, which should have fallen within the audit period, were not provided.
Field calibration of instruments is also undertaken regularly by the plant operators. Records of calibration of total chlorine (ARC 8128) and free chlorine (ARC 8134) instruments on 20, 21, 23 & 28 June 2021 were sighted. The instruments were cleaned and calibrated on 21 & 28 June 2021.
<u>Site records</u>
Other site records sighted included (for example) the <i>Richmond WRP Workflow Process Equipment Monitoring Log Sheet</i> for the week 7-11 March 2022, and the <i>Daily Process and Equipment Report</i> . These records were appropriately completed and/or annotated, thereby demonstrating that daily operational activities are completed and recorded.
South Windsor Reservoirs:
Reservoir WS0197 roof replacement
As noted in Section 2.3.2, the roof and appurtenances on Reservoir WS0197 were replaced in 2017. This followed the completion of a Level 2 (specialist) condition assessment undertaken in January 2012 found the roof structure to be in poor condition and in need of refurbishment. Sydney Water provided a copy of the Delivery Approval Business Case signoff for this project, thereby demonstrating that the appropriate governance for this work to proceed was implemented.
A Level 1 asset condition inspection of Reservoir WS0197 conducted in July 2018, i.e. after completion of the refurbishment works, but well before the audit period, found most items of inspection to be in good order. The exceptions were the presence of corrosion nodules on the mixer on the tank floor/mixer base (internal) and some corrosion at the wall base.
Reservoir WS0294 vermin barrier
As also noted in Section 2.3.2, vermin barrier/foam seal was missing from under the WS0294 roof sheeting at some locations. This had been identified during inspections undertaken by Sydney Water in November 2021 and again in March 2022 (when it was noted to have been previously reported) and assigned a 'P1' priority rating. Sydney Water's <i>Maintenance Specification</i> indicates that the required response time for a Priority 1 failure is a maximum of one month. Given that the issue had apparently not been addressed for a period of approximately five months between inspections, this was considered to constitute a significant breach of Sydney Water's maintenance guidelines. It is further noted that the <i>North Richmond Delivery System Water Quality Risk Assessment</i> identifies "Reservoir ingress leading to deterioration in water quality and not meeting ADWG values" caused (amongst other factors) by "Lack of timely maintenance" as a risk; "inspection and maintenance of reservoirs" is one of the existing controls that reduces the risk
rating from 'Very High 1' to 'High 3'; as the barrier has not been repaired, the risk has not been mitigated and remains 'Very High"
Sydney Water subsequently advised/provided evidence as follows:
 Assignment of a 'Priority P1' " requires a resource within one month to determine resolution.
 Assignment of a Priority F1 requires a response within one month to determine resolution, not the rectification work itself". It further explained that such rectification work does not always require a work order to be raised; it may be undertaken in response to direct communication (phone or email) to the maintenance teams, which may result in it being included as part of a planned repair program.
included as part of a planned repair program.



- The risk to drinking water quality due to missing vermin barriers is low as robust controls are in place to manage the risk to drinking water quality through the multi-barrier approach; there has been no indication of any impacts to water quality. Chlorine residual is tightly controlled through the re-chlorination plant at the South Windsor site; there has also been increased water quality monitoring across the system due to the extreme weather experienced during the audit period.
- Maintenance activity has been disrupted as "... extreme weather events over the last 18 months, including heavy rains and flooding events, have delayed rectification works of this type as field crews respond to high priority and emergency maintenance work. Maintenance work on reservoir roofs, including inspection work, is unable to proceed during rain due to safety reasons, which creates a backlog and causes existing programs to be delayed."
- A sample of work orders (Maximo screenshots) to demonstrate the response to similar issues at other sites, including:
 - WO86073535 (WS0209 Orchard Hills Reservoir, hole in roof) reported May 2022, complete August 2022.
 - WO82227211, WO82227241 and WO82227133 (WS0014 Heathcote Reservoir, vermin barrier, ring drain, sample tap covers) – reported September 2020, complete October 2022.

Notwithstanding Sydney Water's feedback, the apparent failure to address an issue that was first identified in November 2021 and was still evident at the time of the audit inspection (September 2022) remains of concern. It is also of concern that such issues are (apparently) not always addressed through the maintenance management/work order system which would enable effective tracking.

North Richmond WFP:

Raw Water Supply

As noted in Section 2.3.3, raw water pumping station WP0065 is to be replaced by a proposed new pumping station to be designated WP0242. Records of the capital planning undertaken to date in respect of the proposed new facility were requested as evidence of process implementation. Review of records provided by Sydney Water revealed the following:

- Options for ensuring the ongoing supply of raw water to the North Richmond WFP were assessed in 2014. An option involving retention of the adjacent WP0191 (with more regular inspections and maintenance of pumps), the decommissioning of WP0065 and construction of a new submersible pump station (intake, wet well and valve chamber) to contain two new pumps, together with associated pressure/rising main works was recommended.
- WP0191 pumps are facing obsolescence but cannot be replaced like-for-like. To ensure that supply of raw water to the treatment plant is maintained, refurbishment cannot be undertaken until the new pumping station is constructed.
- A delivery business case was approved in August 2017 and a contract awarded in September 2017. The appointed contractor went into receivership and liquidation in August 2018; the work was retendered, and a new contract awarded in September 2019. The second contractor withdrew from the project at the 50% design stage. The Regional Delivery Consortium, which is now in place, has been requested to quote the work.
- Progress has also been affected by the COVID-19 pandemic and the multiple flood events.
- A planning review was undertaken during 2021/early 2022 (actual timing not apparent), which resulted in the preferred option being confirmed, albeit with some adjustments (final configuration to be confirmed during the design process.)
- A detailed paper in support of a *Proposed Business Case Variation* was submitted to the Sydney Water Board in September 2021. A *Variation Business Case 2 for Delivery of the North Richmond Raw Water Intake Upgrade* was subsequently approved by the Managing Director on 6 October 2021.
- A *Preliminary Delivery Program* indicates that, following issue of a request for quote in October 2022, design and construction will be completed and the new facility operation ready in July 2024.

Based on the information reviewed, it appears that notwithstanding unforeseen setbacks, appropriate planning and governance arrangements have been implemented in advancing this project.

WS0308 roof integrity/refurbishment

General



	As noted in Section 2.3.3, observations made/information provided during the site inspection prompted two lines of enquiry in relation to the Reservoir WS0308 roof. These were as follows:
	 Given the advice that the roof had been assessed to be structurally deficient, and access to it paused, there were concerns that monitoring of roof integrity against the ingress of vermin or other contaminants was not being undertaken, thereby presenting a potential risk to water quality and ultimately public health. Given that planning for refurbishment/replacement of the roof structure is underway, it was considered prudent to review and understand the process that is being implemented in respect of this capital improvement, and how the apparent constraints presented by the
	limited capacity of Reservoir WS0159 are being taken into account.
	Roof integrity
	In respect of integrity of the roof against ingress of vermin or other contaminants:
	 A Level 1 inspection undertaken in April 2015 reported that "There is no bird proofing" and assigned the issue Priority 0 (item requires immediate attention) and Status A (Attention required). It was further noted that "Bird Proofing and holes in Roof were issues expressed to Sydney Water Staff onsite". There is no evidence that this issue was addressed. A Level 2 inspection undertaken in October 2015 (final report September 2016), which was primarily focussed on structural integrity, noted in annotation/comments to photographs that there were "Gaps in reservoir roof sheeting" (photograph from inside the reservoir showed open corrugations at sheet ends) and "Bird proofing was scattered along the walkway, exposing gaps in the reservoir roof sheeting for contaminants to enter". A Level 1 inspection undertaken in July 2020 reported the condition of vermin proofing as "Some roof sheet end caps detached". It was understood that inspections could not be undertaken at that time due to roof access limitations and constraints imposed by COVID Response Protocols, so it is not apparent how the inspection was undertaken. A Level 2 inspection undertaken in November 2020 (report dated June 2022) reported (based on external inspection) that "Vermin proofing appears intact outside with no dead animals or evidence of residence inside". The auditor is of the view that, given the absence of evidence
	and the prevailing circumstances, it is unlikely that previously identified deficiencies had been addressed; it is likely that this observation indicates that no absence of vermin proofing was identified.
	Sydney Water advised that monthly inspections of the WS0308 roof had been undertaken from the roof of the adjacent WS0159. <i>Safety Inspection Checklists</i> completed on 30 April 2021 and 19 January 2022 indicate that Reservoir WS0398 was " <i>Not inspected from Res 308 roof due to access restriction. Viewed from roof of Res 159 and old admin</i> ". The checklists indicate that these were safety inspections only, and in the auditor's opinion, would not provide an effective representative assessment of vermin proofing condition around the full perimeter of the roof.
	Consistent with its response in respect of this issue at the South Windsor Reservoirs, Sydney Water commented that the risk to drinking water quality due to missing vermin barriers is low as robust controls are in place to manage the risk to drinking water quality through the multi-barrier approach; there has been no indication of any impacts to water quality. Chlorine residual is monitored through a series of online analysers located throughout the North Richmond distribution network and controlled through five re-chlorination plants.
	Whilst acknowledging the constraints imposed as a result of the assessed poor condition of the roof structure, there remains concern about the failure to undertake repairs given that the roof was apparently accessed to undertake inspections in July and November 2020, some five years after first identified (there is no evidence that repairs had been undertaken and the loss of vermin proofing had reoccurred in the interim).
	As previously reported in respect of South Windsor Reservoir WS0294, in the absence of repairs the risk must be considered to remain 'Very High"; this assessment is reiterated in the <i>North Richmond WFP Operational Risk Register</i> .
	Roof refurbishment
	In respect of refurbishment of the roof, Sydney Water outlined a sequence of activity, as follows:
	 A Level 2 inspection undertaken in October 2015 (final report September 2016), identified deterioration in the structural condition of the roof



•	This led to the submission and approval of a <i>Project Initiation Business Case</i> in August 2016.
	The recommended refurbishment option comprised: "Full repairs and full roof recoating for
	roof structure now; Conduct minor repairs and maintenance of the primary support structure
	at 10 years; Replace the whole roof structure without relining at 20 years". It was also noted
	that the reservoir could be taken offline for remedial works " provided a temporary facility is
	provided". The risk to the structure was at this stage rated at Risk Level 4 – Medium.
•	Advancement of the project was constrained due to factors including its risk rating in
	comparison to others; extreme drought conditions that required reallocation of resources
	from lower risk projects; and the constraints imposed by COVID Response Protocols, which
	restricted access to water treatment facilities for all except critical work.
•	The next Level 2 (five-year) inspection was undertaken in November 2020 (report dated
	June 2022); this documented further deterioration of condition, concluding that "Subject to
	broader option assessment of the Nth Richmond System and adjacent reservoir, full
	replacement may be preferred".
•	A range of risk assessments have been undertaken for operational, asset management and
	project management purposes:
	• Three operational risk assessments identify structural failure of WS0308 as Level 1 - Very
	High (extreme/possible, critical/very likely and extreme/likely).

- The Significant Assets Report identifies the health of the North Richmond WFP as "Poor" with a Level 2 High risk rating, listing both the raw water pumping and the deterioration of WS0308 roof deterioration amongst the issues of concern.
- An assessment of structural integrity concerns by the Capital Delivery project team assessed risk at Level 3 High (major/possible) in view of roof sheeting failure. Collapse of the roof structure was assessed at Level 4 Medium (major/unlikely).

Whilst there is variance in the outcomes of these assessments, which appear to have been undertaken at similar times, the level of risk was assessed to have substantially increased since 2016 assessment. The operational risk assessments clearly identify the need to refurbish or replace the reservoir roof as the primary mitigation measure, noting that rectification work is overdue, whilst also identifying a number of ongoing operational management controls aimed at maintaining long-term serviceability.

The Structural Integrity Concerns Risk Register identifies specific treatment actions and timing in the event of further failure of the roof sheeting and/or support structure.

• Sydney Water's Western Region Delivery Consortium has now completed an options assessment to determine how the work can be undertaken without risk to water supply. A forward program that shows project completion in August 2024 has been developed, and the project is progressing to the next gateway business case (Needs Development business was scheduled for approval in October 2022). It was noted that "In this next phase we are seeking funds to also design and install temporary roof repairs and restraints suitable for a 5 year period while the new reservoir is built so WS0308 can be taken offline for maintenance of the roof and relining".

In summary, whilst progress in response to identified deterioration of the roof structure appears to have been somewhat protracted, the project has and continues to advance in accordance with Sydney Water's condition assessment and capital planning processes, under which the work has been prioritised on the basis of assessed risk. The above referenced forward program provides what appears to be a realistic program for project implementation given the current status.

St Mary's Maintenance Depot:

Work order records

Sample work order(s) for a water main repair job which required the engagement of the water quality team to assess/undertake disinfection, and which had been subject to internal audit were requested following site discussions with maintenance personnel. In response, the following Maximo extracts were provided:

- WO84871535 for repair of a 200mm CICL potable water main in Kingsgrove, which was undertaken on 9 November 2021.
- WO84871090 for follow on work. Whilst it is not readily apparent from the extract provided that this work order relates to disinfection assistance, it is noted that the work order is assigned to a different service department.



Records of an internal audit (full inspection) undertaken in respect of WO86972178 on 6 September 2022 (after the audit period). All assessed aspects of the work were recorded as being "in-compliance".

Training

A sample of maintenance personnel competency records were also requested. Detailed *Competency Standards/Evidence Guides/Assessment Instruments* templates were provided in respect of the following training units:

- SDP 001.07AA Repair, Replace Section of Water Main
- SDP 001.08AA Disinfect Mains, Fittings with Sodium Hypochlorite (1%).

These are templates which provide for a robust assessment of competency in the subject matter. Performance criteria are defined, and the range of required knowledge is specified; evidence requirements are detailed together with assessment instruments, which include a site observation checklist and a series of structured questions. Sign-off by multiple team leaders is required for competency approval.

<u>Summary</u>:

From an overall perspective, the field verification site visits revealed that the infrastructure (asset portfolio) is generally well maintained. Identified capital projects were found to have been progressing generally in accordance with Sydney Water's capital planning governance arrangements notwithstanding unforeseen setbacks in some cases. However, there remains concern that inspection regimes had not always been implemented and

identified issues had not always been dealt with in a timely and effective manner. Failure to address issues identified in respect of vermin barriers on Reservoirs WS0294 and WS03038 present a risk to water quality and potentially public health. In the absence of repair work being undertaken, the risk must be considered to remain 'Very High', as documented in risk assessments undertaken by Sydney Water.

It is noted that guidance provided in the Australian Drinking Water Guidelines is that: "Water distribution systems should be fully enclosed and storages should be securely roofed with external drainage to prevent contamination". Sydney Water notes that it implements a multibarrier approach in managing the operational control of containment/contamination risks; integrity against contamination (a closed system) and maintenance of chlorine residual levels are the two barriers in place within the distribution system, one of which has been compromised.

The deferment of programmed maintenance in respect of tertiary filters at the Richmond WRRF without documented reasoning/justification is also of concern. A condition assessment undertaken in October 2018 indicates that refurbishment works are required. However, this major periodic maintenance has not been undertaken in accordance with the planned timeline. In the absence of this work being undertaken, the risk to recycled water quality must be considered to remain 'High'.

Given that these deficiencies have been identified at three randomly selected sites, there is concern that they may be reflective of systemic issues such as (for example) inadequate resourcing in the face of repeated incidents/interruptions.

It is noted that in feedback provided to IPART in respect of the scope of this audit, NSW Health commented that:

"Participation in risk assessments and interaction in incidents has highlighted concerns with the consistency of controls for critical processes between Sydney Water and contract plants and the prioritisation of maintenance and renewal of the drinking water system" thereby endorsing concerns regarding the prioritisation/timeliness of maintenance and renewal activities.

These issues are considered reflective of a deficiency in the implementation of the Asset Management System, and therefore non-compliance with this obligation. Given the associated risk has been assessed by Sydney Water as either 'High' or 'Very High', and the mitigative measures in place to ensure that water quality is maintained have not been fully implemented, the non-compliance is considered material. Accordingly, it is recommended that:

- Sydney Water ensures that all corrective maintenance is managed through the maintenance management/work order system; prioritised on the basis of assessed risk; and any delay to implementation is justified and clearly documented (REC-2022-09).
- Sydney Water ensures that major periodic maintenance is prioritised on the basis of assessed risk; any deferment from the planned timeline should be based on condition/performance assessment and be clearly documented (REC-2022-10).



	• Whilst the failure/inability to effectively undertake planned Level 1 inspections of the Reservoir WS03038 roof over what appears to have been an extended period of time is of concern, a recommendation in respect of this matter is not seen to be sufficiently broad-based to be beneficial.
	As an opportunity for improvement (OFI-2022-19) , it is suggested that Sydney Water reviews its processes and capacity (including resources) for managing its business-as-usual commitments in parallel with major incidents.
	It is noted that, in providing additional information in response to the Summary of Reasons for Grade Report, Sydney Water self-identified several shortcomings that comprise opportunities for improvement, including (for example) the variability between risk assessments undertaken in respect of the same asset/issue. The auditors support the follow-up of these opportunities, however, we have not documented them in this report.
Evidence cited	 998192 ISOS5001 Certificate.pdf. 998192 ISOS5001 Certificate.pdf. Sydney Water, Policy; Asset Management Policy, 1 February 2021. Sydney Water, Strategic Asset Management Plan (Version 5), June 2021. Sydney Water, Ware Asset Management Plan (Version 5), June 2021. Sydney Water, Ware Asset Master Teatment and Water Recycling Plant Asset Master Plan (Version 5), 2019. Sydney Water, Delivery Approval Business Case; PLC, SCADA and Electrical Upgrade at Quakers Hill WRP isgned 11 June 2020. Sydney Water, Option Approval/Delivery Approval Business Case; Quakers Hill WRP PARR Repairs to Damaged Works, signed 2 June 2020. Lower South Creek Delivery Partner, July 2022 Monthly Update, 11 August 2022. Sydney Water, Standard; Maintenance Policy (Version 2), 21 November 0218. Sydney Water, Standard; Maintenance Strategy (Version 2), 17 December 2019. Sydney Water, Standard; Maintenance Management Framework (Version 1), 19 February 2021. Maintenance Delivery Metrics.docx. EOFY Performance Report_Water, pdf. 2022 WFP Monthly Maintenance Meeting.pdf. Sydney Water, Standard; Asset Renewals Planning Standard (Version 6), 21 April 2021. MS Excel workbook: CA Programs V4.xlsx. PowerPoint presentation: Sydney Water Asset Management System (AMS); Awareness training. MS Excel workbook: 1.1 - T-West AREA Tertiary Filter MPM Program DABC Package V3.0.xlsx. MS Excel workbook: 1.1 - T-West AREA Tertiary Filter MPM Program DABC Package V3.0.xlsx. MS Excel workbook: Nichmond WRF Risk Assessment.xlsx. SAMP Audit 15 June 2021 Report_v0.1.docx. PowerPoint presentation: Asset Management 01.5.5; 2022 IPART Operating Licence Audit. Sydney Water, Richmond WRF Risk Assessment, Treatment WW&RW P&O, October 2018 MS Excel workbook: Ni: 1.1 - T-West AREA Tertiary Filter MPM Program DABC Package V3.0.xlsx. MS Excel workboo
	 OL Audit Grade Findings Response Windsor South.docx. Reservoir work orders.docx. Sydney Water, North Richmond WFP Feed Pump Station Planning Review; Review Report,
	 undated (file: NR Pump Station Option Review FINAL.pdf). Sydney Water, Board paper for Capital Investment Decisions; North Richmond Raw Water Intake Project Variation Business Case (PN 20030469), September 2021 and Attachments 1-8.
	 Sydney Water, Variation Business Case 2 for Delivery of the North Richmond Raw Water Intake Upgrade, approved 6 October 2021.



	 NR WFP Raw WS0308 Leve 	Water PS Preliminary Delivery Program.pdf.	
	AA, Level 2 R Report for No	eservoir Root Inspection and Condition Assessment; Inspection and Assessment orth Richmond Reservoir WS0308, 22 September 2016	
	 WS0308 Leve KBR, North R Documents: I Jan 2022.pdf OI Audit Grad 	the Findings Response North Richmond WS308 docx.	
	 AA, Level 2 R Report for No WS0308 Refu 	eservoir Roof Inspection and Condition Assessment; Inspection and Assessment orth Richmond Reservoir WS0308, 22 September 2016.	
	KBR, North R WS0308 Leve	ichmond Reservoir WS0308; Level 2 Condition Report 2021, 20 June 2022 (file: el 2 Inspection 2022.pdf).	
	MS Excel wor System.xlsx.	kbook: Annual Water Quality Risk Assessment 2022 – North Richmond Delivery	
	 MS Excel workbook: North Richmond Delivery System Water Quality Risk Assess 2022.xlsx. MS Excel workbook: North Richmond WFP Operational Risk Assessment Report Sydney Water, Significant Infrastructure Assets; Key Findings, 29 October 2021 Significant Infrastructure Asset Key Findings Final Nov 21.pdf). 		
	MS Excel wor 220808.xlsx.	kbook: North Richmond WS0308 Structural Integrity Concerns Risk Register	
	 Scnedule_Oct22.pdf. Email, Sydney Water internal, dated 21 September 2022 (re: North Richmond V water main work order and follow on.pdf. WQ - 84871535 Details.pdf. 		
	 water main v Formsite ema Repair, Repla Disinfect Mai Letter (refered) 	vork order and follow on.pdf. ail notification dated 6 September 2022 (re: Safety Audit Form Result). ce Section of Water Main.pdf. ns, Fittings with Sodium.pdf. ence: H22/66697) from NSW Health to IPART, undated.	
Recommendation(s)	REC-2022-09	By 30 June 2023, Sydney Water should implement processes to ensure that all corrective maintenance is managed through the maintenance management /work order system; prioritised on the basis of assessed risk; and any delay to implementation is justified and clearly documented.	
	REC-2022-10	By 30 June 2023, Sydney Water should implement processes to ensure that major periodic maintenance is prioritised on the basis of assessed risk; any deferment from the planned timeline should be based on condition /performance assessment and be clearly documented	
Opportunities for improvement	OFI-2022-19	It is suggested that Sydney Water review its processes and capacity (including resources) for managing its business-as-usual commitments in parallel with major incidents.	


Table 16 Customer communication (6.2.1)

Obligation	 6.2.1 Sydney Water must prepare one or more communications that: a) provide a brief explanation of the Customer Contract; b) summarise the key rights and obligations of Customers under the Customer Contract; c) refer to the types of account relief available for Customers experiencing financial hardship; d) outline the rights of Customers to claim a rebate and the conditions that apply to those rights; e) contain information regarding how to contact Sydney Water by telephone, email or post; and f) contain information regarding the ability of a Customer to enter into agreements with Sydney Water separate to the Customer Contract for the provision of Services by Sydney Water to the Customer.
Risk of non-compliance	Failure to prepare a communication (and make it available pursuant to subclause 6.2.3) presents a moderate risk that Customers and Consumers may not be fully aware of their rights and obligations under the Customer Contract
Audit grade	Compliant
Reason for the audit grade	Sydney Water is assessed to have demonstrated compliance with this obligation. Sydney Water demonstrated that it has prepared a communication/pamphlet entitled <i>Our contract with you</i> that summarises the provisions of the <i>Customer Contract</i> consistent with the specified requirements. The communication is prepared/updated annually in accordance with a <i>Regulatory Customer Information Procedure</i> ; a Compliance Checklist is used to ensure that the communication is prepared in a timely manner and published accordingly.
Auditor comments and justification	 Syntey water advised that it prepares a communication/partiprite related <i>Our contract with you</i>, which addresses the requirements of sub-clause 6.2.1, annually. The communication is prepared in accordance with the <i>Regulatory Customer Information Procedure</i>, which defines the tasks, timings and accountabilities for all regulatory information to be provided to Sydney Water's customers pursuant to section 6 of the Operating Licence. A <i>Compliance Checklist</i> is used to ensure that all required information, including the <i>Our contract with you</i> communication, is prepared in a timely manner and published accordingly. Review of the contents of the communication/pamphlet confirm that it addresses the specified requirements, as follows: a) A brief explanation of the <i>Customer Contract</i> is provided in the introduction at top of page 1 of the communication. b) The rights of Customers under the <i>Customer Contract</i> are summarised principally under the headers <i>What will Sydney Water do?</i> (Page 1 of the communication); and <i>What if there's a problem with Sydney Water's service?</i> (Pages 1-5, under several sub-headers). The obligations of Customers are also addressed in part under the header <i>What if there's a problem with Sydney Water's service?</i> (Pages 1-5, under several sub-headers) and under the headers <i>What defective or illegal services?</i> (Page 5); <i>What if I want to do some building work on my property?</i> (Page 5); <i>Who can have a rainwater tank?</i> (Page 6); <i>What can't you do?</i> (Page 6); and <i>How can you pay your bill?</i> (Page 6). c) Reference to the types of account relief available for Customer sexperiencing financial hardship is made under the header <i>What happens if you can't pay your bill on time?</i> (Pages 6-7 of the communication). Reference is also made to concessions available to pensioners under the header <i>What do we offer pensioners?</i> (Page 7). d) The rights of Customers to claim a rebate and the conditions that apply to those rights ar
	e) Information regarding how to contact Sydney Water by telephone, email or post is provided on the last page (back cover) of the pamphlet. Contact information is also provided under the headers <i>How can you talk to Sydney Water</i> ? (Page 8); <i>What if you're not happy with</i> <i>Sydney Water's service</i> ? (Page 8); and <i>How can you get more involved</i> ? (Page 9).



	f) Information regarding the ability for a Customer to enter into agreements with Sydney Water (separate to the Customer Contract) for the provision of Services is addressed under the header What will Sydney Water do? (Page 1 of the communication), where Sydney Water indicates that it will: "consider requests for an agreement for the provision of services, separate to the Customer Contract" and "meet the terms of any other agreements you have with us that are separate from the services covered by the Customer Contract".
Evidence cited	 Document: Sydney Water Our Contract with you.pdf. Sydney Water, Procedure; Regulatory customer information (Doc no. 2997874) (Version 1), 17 August 2022 (file: Regulatory customer information procedure.docx). Document: 2021-22 Compliance checklist.docx.
Recommendation(s)	None
Opportunities for improvement	None

Table 17 Customer communication (6.2.3)

Obligation	 6.2.3 Sydney Water must: a) provide the communication or communications and any updates, free of charge to: i. Customers at least annually with their Bills; and ii. any person upon request made to the Contact Centre; and b) make the communication or communications and any updates publicly available on its website, free of charge, within 60 days of the commencement of the Customer Contract or 	
Risk of non-compliance	any communication update. Failure to make the communication(s) available presents a moderate risk that Customers and Consumers may not be fully aware of their rights and obligations under the Customer Contract	
Audit grade	Compliant	
Reason for the audit grade	Sydney Water is assessed to have demonstrated full compliance with this obligation. Sydney Water demonstrated that the communication prepared pursuant to sub-clause 6.2.1 is provided free of charge to Customers in conjunction with the August-October billing cycle each year and upon request to the Customer Centre; it is also available on the Sydney Water website for downloading free of charge.	
Auditor comments and justification	 Sydney Water advised that the Our contract with you communication/pamphlet was issued to Customers with their bills in conjunction with the August-October 2021 billing cycle. The Billing and Revenue Partner Manager ensures that the required regulatory information, including the Our contract with you communication is issued with customer bills as required. A Compliance Checklist indicates that the communication is to be included with the August-October bills; the Bill Print Production Activities _IPART Review 2022 provides a compilation of information, including the following, which demonstrates that the Our contract with you communication was included with the August-October 2021 billing cycle: an explanation in respect of billing inserts (Business Update, Waterwrap and the Customer Contract (Our contract with you) examples of: Sydney Water Daily File Extracts (instruction files issued to the billing contractor) in both code and spreadsheet formats Daily Consolidated Reports, which detail the processing and printing of bills and inserts daily processing summary as provided by the billing contractor (Computershare) other supporting records. Sydney Water advised that the Contact Centre manages the need to provide copies of the Our contract with you communication upon request through its internal knowledge management 	



Table 18 Making information available (6.2.4)

Obligation	 6.2.4 Sydney Water must publish on its website and advertise at least annually in a manner that Sydney Water is satisfied is likely to come to the attention of members of the public, information as to: a) the types of account relief available for Customers experiencing payment difficulty b) rights of Customers to claim rebates and the conditions that apply to those rights 	
Risk of non-compliance	Failure to comply with the requirements of this obligation presents no direct risk to public health or the environment; however, it poses a high level of risk in respect of customer relations and the financial management of Sydney Water's business.	
Audit grade	Compliant	
Reason for the audit grade	Sydney Water is assessed to have demonstrated compliance with this obligation. Sydney Water demonstrated that it has published on its website, and advertised at least annually through its social media channels, information on the types of account relief available for customers experiencing payment difficulty, and the rights of customers to claim rebates and the conditions that apply to those rights. Information in respect of these matters is also provided to customers annually through its <i>Waterwrap</i> newsletter, which is included with the quarterly bills, as well as on the bills themselves and any reminder notices (account relief options only).	
Auditor comments and justification	Sydney Water advised that publication of the required information on its website, on its social media channels and in <i>Waterwrap</i> (which is issued to customers with their bills) is undertaken in accordance with the <i>Regulatory Customer Information Procedure</i> , which defines the tasks, timings and accountabilities for all regulatory information to be provided to Sydney Water's customers pursuant to section 6 of the Operating Licence. A <i>Compliance Checklist</i> is used to ensure that the required information is prepared in a timely manner and published accordingly. The Sydney Water website has information available in respect of account relief on the:	



 "Help with your bill" webpage at: <u>https://www.sydneywater.com.au/accounts-billing/paying-your-bill/help-with-your-bill.html</u>, which provides information in respect of Payment extensions, Deductions from Centrelink payments, Free essential plumbing, Discounts for pensioners, Longer-term support, Emergency support, Support if there's violence at home, and We speak your language (provides information in languages other than English). These are all arrangements under which Sydney Water provides assistance. "Other help and support" webpage at: <u>https://www.sydneywater.com.au/accounts-billing/paying-your-bill/help-with-your-bill/other-help-support.html"Other</u>, which provides information in respect of Banks – financial hardship teams, Financial assistance services, Counselling and support services, and Accredited community agencies under a header "Don't face financial challenges on your own". In summary, this webpage refers to agencies other than Sydney Water who may be able to provide assistance.
Information in respect of service rebates is available on the "Service rebates" webpage at: <u>https://www.sydneywater.com.au/accounts-billing/managing-your-account/service-rebates.html</u> . This webpage details the circumstances under which a rebate can be claimed, and the rebate amount.
These webpages are readily accessed from the website "Home" page as follows:
• the "Help with your bill" webpage can be accessed by selecting:
Home>Accounts & billing>Paying your bill>Help with your bill
• the "Other help and support" webpage can be accessed by selecting:
Home>Accounts & billing>Paying your bill>Help with your bill>Other help and support
 the "Service rebates" webpage can be accessed by selecting:
Home>Accounts & billing>Managing your account>Service rebates
Website access is therefore considered straightforward.
Rather than advertising in newspapers, as was required under the previous Operating Licence (this is no longer considered to provide the best visibility), Sydney Water considers that information is most likely to come to the attention of members of the public by advertising through its social media channels. Extracts demonstrate that, during the audit period, information was posted as follows:
 Financial assistance information was posted to Facebook on 22 April 2022 and Instagram on 3 May 2022 Service rebate information was posted to Facebook on 6 June 2022 and Instagram on 16 May 2022.
A check of the Sydney Water Facebook page failed to locate posts on the nominated dates. Upon further enquiry, Sydney Water advised that the content had been run as Facebook advertisements, which are posted for a defined period. Further search revealed a post on 12 August 2021 that referenced "Payment Extensions or Plans, Financial Relief and Rebates".
Information regarding payment assistance and service rebates is published in selected <i>Waterwrap</i> newsletters, which are sent to residential customers with each bill. The <i>Compliance Checklist</i> indicates that "Annual information on assistance options for payment difficulties and actions for non-payment (residential customers and non-res customers)" and "Rebates information" is to be included in the February-April version of <i>Waterwrap</i> , preparation of which commences in December.
Review of the February-April 2022 edition of Waterwrap revealed that it included:
 Information regarding the types of account relief available for customers experiencing payment difficulty under the header line "<i>The last two years have been tough, and we can help</i>". Reference to the "Help with your bill" website page and Sydney Water's contact number were also provided; and
 Information regarding rights of Customers to claim rebates and the conditions that apply to those rights under the header line "We've been operating our network for over 130 years – usually without you noticing". Reference (website link) to the Customer Contract, which details the arrangements in respect of rebates was also provided (refer further comment below).



	Information in respect of payment options was also referenced in acknowledgment of the impacts of COVID-19 in the November 2021-January 2022 edition of <i>Waterwrap</i> . The "Help with your bill" website page and Sydney Water's contact number were also referenced.
	As discussed in detail in Licence sub-clause 6.2.3, the <i>Bill Print Production Activities_IPART Review 2022</i> provides a compilation of information which demonstrates that the <i>Waterwrap</i> newsletter is included with each quarterly billing run.
	As noted above, the <i>Waterwrap</i> information in respect of service rebates included the website link to the <i>Customer Contract</i> . Scanning of the <i>Customer Contract</i> is required to locate the relevant information, which is also available and concisely presented on the "Service rebates" webpage. As an opportunity for improvement (OFI-2022-20), it is suggested that the link to the "Service rebates" webpage be used instead of the website link to the <i>Customer Contract</i> for information regarding service rebates in future editions of <i>Waterwrap</i> .
	Sydney Water advised that information in respect of account relief and service rebates is also provided to customers through other mechanisms, including:
	 On original bills, which include information in both respects (extract provided On reminder notices under the header "<i>Payment difficulties?</i>" (redacted sample provided) Through promotion at community events (photograph provided).
Evidence cited	 Sydney Water, Procedure; Regulatory customer information (Doc no. 2997874) (Version 1), 17 August 2022 (file: Regulatory customer information procedure.docx). Document: 2021-22 Compliance checklist.docx. Document: Regulatory social media 21-22.docx. Email dated 4 October 2022 from Sydney Water to Cobbitty Consulting (re: Follow up clarifications requested by the Auditor). Document: Waterwrap February–April 2022.pdf. Document: Waterwrap – November 2021–January 2022.pdf. Document: BILL PRINT PRODUCTION ACTIVITIES _IPART Review 2022.docx. Document: Original notice - regulatory information.docx. Document: Reminder Notice.docx. Document: Community events - payment support.docx.
Recommendation(s)	None
Opportunities for improvement	OFI-2022-20 It is suggested that Sydney Water considers providing a link to the "Service rebates" webpage instead of the link to the Customer Contract for accessing information regarding service rebates in future editions of Waterwrap.

Table 19 Extending the customer contract (6.3.1)

Obligation	 6.3.1 Sydney Water's obligations under the following clauses of the Customer Contract are extended to Consumers as though the Consumers were parties to the Customer Contract: a) clause 5.1 (Payment difficulties and assistance options for all customers) b) clause 6.5 (Occupiers (tenants) may pay charges to avoid restriction or disconnection) c) clause 12 (If I am unhappy with the service provided by Sydney Water what can I do?) d) clause 13 (Consultation, information and privacy) e) clause 14 (When does this contract with Sydney Water terminate?). 		
Risk of non-compliance	Failure to comply with this obligation presents a high level of risk that Consumers may not be provided with rights aimed at ensuring the continuity of service; this may ultimately present a risk to public health for individual Consumers.		
Audit grade	Compliant		
Reason for the audit grade	Sydney Water is assessed to have demonstrated compliance with this obligation. Sydney Water demonstrated, primarily by the wording in the relevant policy or procedure, that the nominated provisions of the <i>Customer Contract</i> are extended to Consumers as though the Consumers are parties to the <i>Customer Contract</i> . Sydney Water also provided examples where its obligations in respect of payment assistance and complaint management had been extended to tenants (i.e. Consumers).		



Auditor comments and justification	In identifying "Who is covered by this contract?", the Customer Contract specifically indicates, in respect of both Private residential tenants and Commercial tenants, that:		
	"You are also our customer, and covered by clauses 5.1, 6.5, 12, 13 and 14 only, if you receive water supply services and/or wastewater services from us and you are a private residential [commercial] tenant."		
	 This addresses the context that, for Sydney Water's purposes, a Consumer (as opposed to a Customer) is typically a tenant. The provisions of each of the nominated clauses of the <i>Customer Contract</i> are further addressed as follows: a) clause 5.1 (Payment difficulties and assistance options for all customers): Section 2.2 of the <i>Payment Assistance Policy</i> begins "For residential customers, whether you're an owner or a tenant, we can offer you", thereby indicating that the policy provisions are applicable to both Customers and tenants (Consumers). b) clause 6.5 (Occupiers (tenants) may pay charges to avoid restriction or disconnection): Section 2.9 (entitled We'll help you if you're a tenant) of the Overdue payments policy indicates that "If this isn't possible, you can pay the bill and legally deduct it from your rent. We'll give you a receipt to show your payment", thereby indicating that Consumers may pay charges to avoid restriction or disconnection. c) clause 12 (If I am unhappy with the service provided by Sydney Water what can I do?): Section 1.2 of the <i>Complaints policy</i> indicates that "This policy applies to complaints received from customers and consumers and their representatives." d) clause 13 (Consultation, information and privacy): The provisions of clause 13 of the <i>Customer Contract</i>, the <i>Privacy policy</i> and the "Privacy" page on the Sydney Water website are all general in nature and do not specifically identify 		
	 either Customers or Consumers. e) clause 14 (When does this contract with Sydney Water terminate?). This aspect is addressed through the provisions of clause 2.2 (which indicates that tenants are deemed to be customers for specific aspects) and clause 14 of the <i>Customer Contract</i>. Sydney Water further noted (in its response to the <i>Audit questionnaire</i>) that termination of the arrangement between a Consumer and Sydney Water " would relate to the ability to access assistance options and to pay charges in lieu of rent. The consumer would still be able to make a complaint and have any information stored subject to privacy principles. This covers the rights and obligations that would still be in-place around clauses 12 and 13." 		
	 Sydney water further advised that: During the 2021/22 financial year it undertook a managing agent campaign, under which it promoted information on how it can help tenants with their bills. Assistance options available to tenants have also been promoted on the tenants' association website. When responding to an enquiry/call, the Contact Centre goes through a series of privacy questions to identify the caller, including identification of any non-owners (tenants or managing agents in many cases); tenants will also usually self-identify and are asked what the relationship is between them and the property. The Contact Centre will ask the caller to confirm property information and their relationship to the property. A tenant's contact information is then recorded against the property as an unauthorised contact. Sydney Water provided screen extracts from its Customer Relationship Management (CRM) 		
	 system demonstrating examples of: payment assistance being provided to a tenant; and a complaint made by a managing agent on behalf of a tenant. These extracts demonstrate that Sydney Water's has extended its obligations under clauses 5.1 and 12 (for example) of the <i>Customer Contract</i> to Consumers as though they were parties to the <i>Customer Contract</i>. 		
Evidence cited	 Sydney Water, <i>Customer Contract; Operating Licence 2019-2023</i>, section 2.2. <i>Customer Contract</i>, sections 2.2.2 and 2.2.3 respectively. Sydney Water, <i>Policy; Payment assistance</i> (Doc no. 447786) (Version 5), 23 November 2021 (file: <i>Payment assistance.pdf</i>). Sydney Water, <i>Policy; Overdue payments</i> (Doc no. 753789) (Version 4), 22 November 2021 (file: <i>overdue-payments-policy.pdf</i>). 		



	 Sydney Water, <i>Policy; Complaints Policy</i> (Doc no. 735107) (Version 8), 27 September 2021 (file: <i>Complaints Policy.pdf</i>). Sydney Water, <i>Policy; Privacy policy</i> (Doc no. 326463) (Version 5), 1 April 2019 (file: <i>Privacy policy.pdf</i>). Document: <i>Payment assistance - tenant (6.3).docx</i>. Document: <i>Non-owner complaint records.docx</i>. 	
Recommendation(s)	None	
Opportunities for improvement	None	

Table 20 Payment difficulties (6.4.1)

Obligation	 6.4.1 Sydney Water must maintain and fully implement: a) a payment difficulty policy that assists residential Customers experiencing payment difficulty to better manage their current and future Bills b) procedures relating to a payment plan for residential Customers who are responsible for paying their Bills and who are, in Sydney Water's reasonable opinion, experiencing payment difficulty c) procedures for identifying the circumstances under which Sydney Water may disconnect or restrict the supply of water to a Customer's Property d) provisions for self-identification, identification by community welfare organisations and identification by Sydney Water of residential Customers experiencing payment difficulty, (the Assistance Options for Payment Difficulties and Actions for Non-Payment).
Risk of non-compliance	Failure to comply with the requirements of this obligation presents no direct risk to public health or the environment; however, it poses a high level of risk in respect of Sydney Water's customer relations and the financial management of its business
Audit grade	Compliant
Reason for the audit grade	Sydney Water is assessed to have demonstrated compliance with this obligation. Sydney Water demonstrated that it has maintained and fully implemented arrangements for assisting residential customers who are experiencing payment difficulty during the audit period. These arrangements, which are summarised in the <i>Payment Assistance Policy</i> , include payment extensions, regular payment arrangements, the Payment Assistance Scheme (PAS) and the BillAssist customer assistance program. The <i>Payment Assistance Policy</i> and <i>Overdue Payments Policy</i> identify the circumstances under which Sydney Water may restrict or disconnect the supply of water; these documents emphasise the need to exhaust all available debt recovery approaches before action is taken to restrict or disconnect a service. Sydney Water is proactive in promoting the availability of assistance programs through community events and information is available on the Sydney Water website.
Auditor comments and justification	 Sydney Water has a <i>Payment Assistance Policy</i>, which was in-place throughout the audit period. This policy provides an overview of the support available to customers (property owners and tenants), and how Sydney Water manages customers and consumers through the support process. More specifically, it: explains how Sydney Water can help if a customer or consumer is having trouble paying their bill identifies the scope of the policy (i.e. to whom it applies), as being the owner of the property who is having trouble paying (the policy details extends this to include both owners and tenants) identifies the policy objectives as: helping Customers to keep the water on, regardless of their capacity to pay helping Customers to pay their bill in a way that they can manage. It is noted that whilst this Licence obligation applies specifically to residential customers that are experiencing payment difficulty, the <i>Payment Assistance Policy</i> indicates that some support is also available to business (i.e. non-residential) customers.



 Outlines o or tenants making 	otions available/actions that can be taken to support residential customers (owners) who are experiencing payment difficulties, which include: ng sure that they get any government concessions they're entitled to
 giving helpin refern which 	Inem the right payment plan Ig them to set up Centrepay payments if they get Centrelink support ing them to a community service agency that Sydney Water partners with for help, I might be for counselling services, emergency financial relief, or medical advice and prt
o offeri BillAs	ng them help through Sydney Water's Payment Assistance Scheme (PAS) or sist® program ng them use less water by giving them tip
o offeri servic	ng emergency and essential plumbing work through Sydney Water's PlumbAssist® e (if they own and live in their home).
 Make is beindifficition 	s it clear that Sydney Water won't restrict water supply or take legal action if action ng taken to support a customer (or consumer) who is experiencing payment ulty.
The Payment A	ssistance Policy is supported by other procedures and guidance, including:
Payment a place to w encouragin procedure to Sydney	ssistance scheme (PAS) procedure – this procedure describes the processes in ork with and support community welfare organisations in identifying, and ng self-identification, of customers experiencing payment difficulties. The describes how both financial assistance and payment arrangements can be offered Water customers.
 How to he Contact Ce difficulty p customers services th 	<i>p</i> customers in hardship work instruction – provides guidance for Sydney Water intre and Revenue Collections staff in assisting residential customer who are having aying their accounts. It defines the assistance options available, how to identify in hardship, how to make a referral to the Customer Care team, and the support at that team can offer customers.
PAS checkle ontions	ist – is used as a screening process to assess a customer's eligibility for assistance
 Overdue p and visit a restrict sup stuck to th 	ayments policy – this policy states that Sydney Water will send a bill, three notices customer's property before it restricts their water supply. Sydney Water will only oply as a last resort when the customer has not reached out to it (Sydney Water), eir payment plan, or paid the overdue bill.
• The policy it gets hard	makes it very clear that Sydney Water's preference is to work with the customer if d to pay their bills. Trained staff will work with the customer to "deal with your lifficulty in a fair and reasonable manner"
 The proceed specifically 	dure clearly sets out what actions will be taken if a customer doesn't pay their bill,
1.	If you don't pay your bill by the due date, we'll send you a reminder notice
2.	If you don't pay your bill when you get a reminder notice, we'll send you a restriction notice.
3.	If you don't pay your bill when you get a restriction notice, we'll hand deliver another notice. This notice tells you that we intend to restrict or disconnect your water supply.
4.	If you don't pay your bill when you get this notice, we may restrict your water supply and/or take legal action."
As noted	by Sydney Water, this process aligns with clause 6 of the Customer Contract.
Sydney Water r	loted that:
 It is preparing instalment 	ed to consider a request by a customer for extension of time to pay or payment by arrangements at any stage of the debt recovery process.
 The appro- self-identif Water pro- includes (f 	y, and Sydney Water will begin a conversation with them. Alternatively, Sydney motes the support arrangements that are available via various means. This or example):
 Atten media ageno proac camp servic 	dance at community engagement opportunities (which is also promoted via social a channels). Sydney Water seeks out opportunities to engage with community sies to provide support services at community agency events; agencies also tively contact Sydney Water to become an accredited support agency. An email aign was initiated in June 2022 seeking additional agencies to provide these ses.



	 Participation in "Bring your Bill Days", an initiative run by EWON (the Energy and Water Ombudsman NSW). Participation in the "One Stop One Story" pilot (started in October 2021), which allows for cross referrals between Sydney Water and other participating essential service providers. Under this scheme, customers only need to tell their story (explain their circumstances) once. No restrictions to service occurred during 2021/22 due to COVID support measures being in place. As evidence that the <i>Payment Assistance Policy</i> was implemented during the audit period, Sydney Water provided examples of records including the following: <i>Evidence of Sydney Water assessment</i> – this record included screen shots of a completed BillAssist Questionnaire, Record of Interactions with the customer, and a letter sent to the customer. In this case, the customer explained their situation which was assessed to justify support. The customer was entered into the BillAssist program with an agreed payment plan of \$50 per fortnight, had the late payment fee and interest removed from their account, and the account was credited with a \$300 PAS (Payment Assistance Scheme) allowance. A letter to the customer detailed the agreed accions. <i>Example of Customer referred by Community Agency on 300622.docx</i> – this record included an email referral from Anglicare together with a completed Sydney Water <i>Payment Assistance Scheme</i> Assessment <i>checklist for agencies only</i>. The email indicated that a copy of the Sydney Water bill was also attached. <i>Bill demonstrating PAS offered</i> – this illustrates that there is a standing paragraph under the "Customer information" section of the bill hassist customer assistance program are all mentioned. <i>Example of email sent to customer with PAS confirmation and support information</i> – this record was an email which referenced an attached " <i>letter confirming your Payment Assistance Scheme (PAS) credit along w</i>
	 Contact Centre staff being appropriately skilled. Review of the training program outlined for recruited Customer Experience Representatives (CERs) reveals that it includes a session specifically focussed on "Identifying customers in hardship". This session includes instruction in respect of: When is it appropriate to escalate to Customer Care What can Customer Care offer? Understanding a customer in hardship (pride, embarrassment, sense of shame) What are Hardship Indicators? (Repeat payment arrangements, out of work etc) Account – when to raise a SR to Customer Care Customer Care Presentation – Listen to hardship call" This training correlates to the requirements of this obligation, as addressed by the <i>Payment</i>
	Assistance Policy.
Evidence cited	 Sydney Water, Policy; Payment assistance (Doc no. 447786) (Version 5), 23 November 2021 (file: Payment assistance.pdf). Sydney Water, Procedure; Payment Assistance Scheme (PAS) (Doc no. 272216) (Version 4), 7 May 2020 (file: Payment assistance procedure.pdf). Sydney Water, Work instruction; How to help customers in financial hardship? (Doc no. 1280430) (Version 1), 9 September 2020 (file: How to help customers in hardship1_FINAL Version.docx). Document: PAS checklist.pdf. Sydney Water, Policy; Overdue payments (Doc no. 753789) (Version 4), 22 November 2021 (file: Overdue-payments-policy.pdf).
	 Document: Evidence of Sydney Water assessment.docx. Document: Example of Customer referred by Community Agency on 300622.docx.



	 Document: Bill demonstrating PAS offered.pdf. Document: Example of email sent to customer with PAS confirmation and support information.docx. Document: PAS showing in the account.pdf. Document: Email to agencies.docx. Sydney Water, Standard Operating Procedure; Onboarding new Contact Centre recruits (CER's) (Version 2), 9 January 2018 (file: SOP Onboarding and Induction Procedure - Contact Centre.docx). 	
Recommendation(s)	None	
Opportunities for improvement	None	

Table 21 Explanation of payment assistance options (6.4.2)

Obligation Risk of non-compliance	 6.4.2 Sydney Water must provide, free of charge, an explanation of the Assistance Options for Payment Difficulties and Actions for Non-Payment on its website and to: a) all residential Customers, at least annually with their Bills b) residential Customers who Sydney Water identifies as experiencing payment difficulty on the date that Sydney Water first identifies that the Customer is experiencing payment difficulty c) any other person upon request made to the Contact Centre. Failure to comply with the requirements of this obligation presents no direct risk to public health or the environment; however, it poses a high level of risk in respect of Sydney Water's customer relations.
Audit grade	
Reason for the audit grade	Sydney Water is assessed to have demonstrated compliance with this obligation. Sydney Water demonstrated that information about Assistance Options for Payment Difficulties and Actions for Non-Payment (specifically the <i>Payments Assistance Policy</i>), including further information regarding the available support options, is available on its website. It also demonstrated that information is provided at least annually with customers' bills; information is provided on the bills themselves, in at least one quarterly edition of the <i>Waterwrap</i> newsletter, and in the <i>Our contract with you</i> communication. Arrangements for identification of customers that may be experiencing payment difficulty and the action taken to provide information to such customers were also described and elements of the process demonstrated. Sydney Water also demonstrated the action taken in response to enquiry to its Contact Centre.
Auditor comments and justification	In respect of Licence sub-clause 6.2.4, Sydney Water advised that publication of the required regulatory information on its website, on its social media channels and in <i>Waterwrap</i> (which is issued to customers with their bills) is undertaken in accordance with the <i>Regulatory Customer Information</i> Procedure, which defines the tasks, timings and accountabilities for all regulatory information to be provided to Sydney Water's customers pursuant to section 6 of the Operating Licence. A <i>Compliance Checklist</i> is used to ensure that the required information is prepared in a timely manner and published accordingly. A copy of the <i>Payment Assistance Policy</i> is available on the Sydney Water website at: https://www.sydneywater.com.au/content/dam/sydneywater/documents/payment-assistance-policy.pdf. Information in respect of the available payment support options is also available on the "Help with your bill" webpage at: https://www.sydneywater.com.au/accounts-billing/paying-your-bill/help-with-your-bill.html. The "Help with your bill" webpage, which includes a direct link to the <i>Payment Assistance Policy</i> , can readily be found by navigation from the website "Home" page by selecting: Home>Accounts & billing>Paying your bill>Help with your bill Information in respect of support arrangements including Payment extensions, Deductions from Centrelink payments, Free essential plumbing, Discounts for pensioners, Longer-term support, Emergency support, Support if there's violence at home, and We speak your language (provides information in languages other than English) are provided on the "Help with your bill" webpage.



	The Overdue Payments Policy is also available on the Sydney Water website at: <u>https://www.sydneywater.com.au/content/dam/sydneywater/documents/overdue-payments-policy.pdf</u> . A link to the policy is provided on the "Help with your bill" webpage in the section that addresses Payment extensions. Sydney Water provides information regarding the Assistance Options for Payment Difficulties and
	 Actions for Non-Payment (<i>Payment Assistance Policy</i>) with its bills in several ways: Original bills include a standing paragraph under the "Customer information" section of the bill indicating that help is available if customers are having difficulty paying their bills. Payment extensions, a regular payment arrangement, the Payment Assistance Scheme (PAS) and the BillAssist customer assistance program are all mentioned. Reminder notices include a list of assistance options under the header "<i>Payment difficulties?</i>" Information regarding payment assistance is published at least once annually in the quarterly <i>Waterwrap</i> newsletters, which are sent to residential customers with each bill. Review of the February-April 2022 edition reveals that it included information regarding the available payment assistance to the "Help with your bill" webpage. It did not provide any information regarding actions for non-payment. The <i>Our contract with you</i> communication:
	 refers to the types of account relief available for Customers experiencing financial hardship under the header <i>What happens if you can't pay your bill on time?</i> (Pages 6-7 of the communication); and indicates that "<i>If you don't pay your bill by the due date and haven't made other arrangements with us, we may restrict or disconnect the water to your property</i>", and provides further related information under the header "<i>When will Sydney Water disconnect the water supply?</i>" It is noted that the <i>Our contract with you</i> communication appears to be the only mechanism via
	which information regarding the actions taken for non-payment is specifically provided to customers. Whilst this addresses the Licence requirement, as an opportunity for improvement, Sydney Water may wish to consider including information regarding the actions taken for non-payment in the <i>Waterwrap</i> newsletter or directly on customers' bills (in addition to in the <i>Our contract with you</i> communication). (OFI-2022-21)
	 experiencing payment difficulty, Sydney Water outlined the following process: Billing system data (overdue accounts information) identifies accounts that are overdue and the period by which they are overdue (+30 days/+60 day/90+ days). This information is used to proactively identify customers who may benefit from payment assistance. A letter is sent to these customers offering assistance. The <i>Debtors letter example</i> is a template of the letter initially sent to customers identified as having increasing debt; it offers help if the customer is having trouble paying their bill
	 Once a customer has been identified as experiencing payment difficulty, Sydney Water will have a conversation with them and provide information describing the support options available to them. The <i>How to help customers in hardship work instruction</i> describes how to identify customers in hardship, defines the available assistance options, and provides guidance for assessing whether a customer should be referred to the Customer Care team. The Customer Care team maintains a Debtor's Report and Call List. This is used as the basis for proactively monitoring customers who may be experiencing payment difficulties and then engaging with them to offer support. Engagement activities include calls to customers and engagement through the Home Visits program. Under the Home Visits program, a personal visit, during which support arrangements are discussed, can be arranged following an initial letter (template provided); if a visit is agreed, the outcomes are documented in a subsequent
	letter. Sydney Water advised that enquiries to the Contact Centre are managed through its internal knowledge management portal, "Confluence". The <i>Evidence of Sydney Water Sydney Water</i> <i>assessment</i> example discussed in Licence sub-clause 6.4.1 demonstrates that information had been provided to a customer upon enquiry.
Evidence cited	 Sydney Water, Procedure; Regulatory customer information (Doc no. 2997874) (Version 1), 17 August 2022 (file: Regulatory customer information procedure.docx). Document: 2021-22 Compliance checklist.docx. Document: Bill demonstrating PAS offered.pdf. Document: Reminder Notice.docx.



	 Document: Waterwrap February–April 2022.pdf. Document: Sydney Water Our Contract with you.pdf. Document: Debtors letter example.docx. Sydney Water, Work instruction; How to help customers in financial hardship? (Doc no. 1280430) (Version 1), 9 September 2020 (file: How to help customers in hardship1_FINAL Version.docx). Document: Home Visits Letter 1 2022.docx. Document: Evidence of Sydney Water assesment.docx. 	
Recommendation(s)	None	
Opportunities for improvement	OFI-2022-21	It is suggested that Sydney Water may wish to consider including information regarding the actions taken for non-payment in the Waterwrap newsletter or directly on customers' bills (in addition to in the Our contract with you communication).

Table 22 Family violence policy (6.5.1)

Obligation	6.5.1 Sydney Water must develop and implement a family violence policy by 1 July 2020 (or another date approved by IPART in writing).
Risk of non-compliance	Failure to comply with this obligation presents a moderate risk that victims of family violence may not be adequately supported by ensuring that service continues to be provided regardless of capacity to pay.
Audit grade	Compliant
Reason for the audit grade	Sydney Water demonstrated that it has developed a Family Violence Policy and had done so in advance of the required timeline. It also demonstrated, by provision of redacted case records that the policy was implemented during the audit period. Accordingly, Sydney Water is assessed to have demonstrated compliance with this obligation.
Auditor comments and justification	Sydney Water advised that it has a <i>Family Violence Policy</i> , which was implemented in 2020. Provision of the original version of the policy confirms that it had been developed well prior to 1 July 0220; it was formally issued on 1 April 2020. Details of the policy are discussed in section 1.4.4.2 (in respect of Licence sub-clause 6.5.2).
	An example of interaction with a self-identified victim of domestic violence was provided. This demonstrated that a BillAssist questionnaire had been completed and that, as a result, the customer has been assisted by provision of a Payment Assistance Scheme (PAS) credit, waiving of interest and entering into a payment plan. This response is consistent with the actions identified within the <i>Family Violence Policy</i> . Redaction of identifying (personal) information in the evidence provided for audit purposes demonstrated that confidentially is maintained.
	Sydney Water estimated that approximately 50 out of 500 BillAssist cases related to family /domestic violence victims.
	Sydney Water noted that:
	• It, together with other utilities and banks, is represented as a member of the Domestic and Family Violence 2022 Network for Business by invitation through Sydney Water's membership of the Thriving Communities Partnership.
	Cases may be referred via the "One Stop One Story" Hub (pilot started in October 2021), which allows for cross referrals between Sydney Water and other participating essential service providers.
	These observations demonstrate that Sydney Water is proactive in providing support to victims of family/domestic violence.
Evidence cited	 Sydney Water, Policy; Family violence assistance (Doc no. 1117163) (Version 2), 15 March 2022. Sydney Water, Policy; Family violence assistance (Version 1), 1 April 2020. Document: Family Violence Case example.docx.



Recommendation(s)	None
Opportunities for improvement	None

Table 23 Family violence policy requirements (6.5.2)

Obligation	6.5.2	
	The family violence policy must, at a minimum, provide for:	
	a) the protection of private and confidential information b) access to payment difficulty programs	
	c) processes that minimise the reliance on individuals to disclose their family violence	
	d) processes that minimise the reliance on individuals to disclose their family violence	
	d) processes for referrals to specialist services.	
Risk of non-compliance	Failure to comply with this obligation presents a moderate risk that victims of family violence may not be adequately supported by ensuring that service continues to be provided regardless of capacity to pay and that their privacy/confidentiality may be compromised	
Audit grade	Compliant (minor shortcomings)	
Reason for the audit grade	Sydney Water is assessed to have demonstrated compliance with this obligation, but with minor shortcomings.	
	Sydney Water demonstrated that its <i>Family Violence Policy</i> addresses the identified minimum requirements in respect of privacy and confidentiality, access to payment difficulty programs, and processes for referrals to specialist services; however, whilst the requirement to address <i>"processes that minimise the reliance on individuals to disclose their family violence"</i> is broadly covered under the privacy and confidentiality provisions, there is scope to include guidance that is reflective of actual practice as being implemented.	
Auditor comments and justification	Review of the <i>Family Violence Policy</i> reveals that it addresses the minimum requirements as follows:	
	a) the protection of private and confidential information – this is addressed under sections 2.1 "We'll keep your information safe" and 2.5 "We'll give you a respectful, confidential service".	
	Section 2.1 indicates that "All customers identified as experiencing or affected by family violence will be entered into our BillAssist program, regardless of their financial situation", and goes on to explain that this action results in the assignment of a case coordinator (member of the Customer Care team) as a single point of contact, thereby helping to ensure that information is not inadvertently provided to the perpetrator or other connected parties. Only Customer Care team members have access to the confidential information section on a customer's account.	
	The policy further notes that members of the Customer Care team "all hold a tertiary qualification in social services and have received specific training in domestic and family violence".	
	b) access to payment difficulty programs – this is addressed under sections 2.2 "We'll make it easy if you need help with your bill" and 2.3 "We'll offer support if you need a little more help with your bill".	
	Section 2.2 refers to the availability of payment plans; section 2.3 identifies a more extensive list of options and specialist help that can be considered for support in 'getting on top of' outstanding bills.	
	c) processes that minimise the reliance on individuals to disclose their family violence – this is addressed by inference under sections 2.1 "We'll keep your information safe" and 2.5 "We'll give you a respectful, confidential service".	
	Sydney Water further advised that, in practice:	
	We do not ask customers for any physical evidence of their situation for example AVO, court records or medical records.	
	We do not want to re-traumatise our customers by repeating their story and choose to believe them at face value."	



	 d) processes for referrals to specialist services – this is addressed under section 2.3 "We'll offer support if you need a little more help with your bill", which indicates that Sydney Water can offer specialised help. The options identified for 'getting on top of' outstanding bills include (for example): "We can refer you to a community service agency that we partner with for help. This might be for counselling services, emergency financial relief and medical advice and support."
	Whilst this assessment indicates that the minimum requirements have been addressed in the <i>Family Violence Policy</i> , there is scope to include additional guidance that is reflective of actual practice as being implemented in respect of the requirements for processes that minimise the reliance on individuals to disclose their family violence. Accordingly, it is recommended (REC-2022-11), that Sydney Water includes additional practice-based guidance in respect of "processes that minimise the reliance on individuals to disclose their family violence" in its <i>Family Violence Policy</i> .
Evidence cited	 Sydney Water, Policy; Family violence assistance (Doc no. 1117163) (Version 2), 15 March 2022. Email dated 6 October 2022 from Sydney Water to Cobbitty Consulting (re: Follow up clarifications requested by the Auditor). Email dated 24 October 2022 from Sydney Water to Cobbitty Consulting (re: Family violence clause response to minor shortcoming). Document: Confidentiality and Privacy for customers.docx.
Recommendation(s)	REC-2022-11By 30 June 2023, Sydney Water should include additional practice based guidance in respect of "processes that minimise the reliance on individuals to disclose their family violence" in its Family Violence Policy
Opportunities for improvement	None

Table 24 Customer engagement (6.6.1)

Obligation	6.6.1 Sydney Water must undertake customer engagement to understand its customers' preferences and willingness to pay for service levels. The customer engagement must be relevant, representative, proportionate, objective, clearly communicated and accurate.	
Risk of non-compliance	Failure to undertake customer engagement poses a high risk in respect of customer satisfaction. It is important that Sydney Water's decision making is informed by an understanding of its customers' preferences and willingness to pay for service levels	
Audit grade	Compliant	
Reason for the audit grade	Sydney Water is assessed to have demonstrated compliance with this obligation. Sydney Water demonstrated that it has engaged with its customers through an extensive program of focussed surveys, ongoing research, and interaction feedback. Surveys/engagement undertaken during the audit period included (for example) Water for the Future (in support of long-term planning and development of the Greater Sydney Water Strategy), World Class Water Services (which built on the previous survey) and Carbon Offset Willingness to Pay Study, all of which focussed on (or included elements focussed on) customer preference and willingness to pay for service levels. During the audit period, Sydney Water also developed a <i>Customer Research and Engagement Plan</i> which sets out a program of customer research and related activities for the period 2021-2023. Future engagement activities include (for example) Strategic Customer Engagement, planning for which was commenced during the audit period. Sydney Water also continued to seek feedback from customers following their interactions with Sydney Water, and to engage with customer representative groups through the Community Advisory Committee.	



Auditor comments and justification	Sydney Water outlined an extensive program of customer engagement through both specifically focussed surveys and ongoing feedback, noting that although it already implemented a program, the requirement for customer engagement was first introduced into the current <i>Operating Licence 2019-2023</i> , which commenced in November 2019.
	Approach to Customer Engagement:
	Sydney Water's overall approach to engaging with its customers is predominantly survey based, as detailed in the discussion of principal engagement activities below. In some cases, the surveys are specifically focussed, for example the Interaction Research undertaken following customer contacts, whilst others require the engagement of a representative sample of customers and other stakeholders.
	Sydney Water has identified customer categories, which group customers based on their servicing needs. These include Residents, Businesses, Developers, Value Makers, and Laboratory Customers. Engagement activities will normally include representatives from all groups potentially affected by the issue being researched. Quotas and weightings are typically used to ensure representativeness.
	Sydney Water use specialised market research companies to support both the design and execution of its customer engagement activities. Their expertise, in conjunction with Sydney Water's internal capability, is leveraged to design objective and high-quality research, which ensures accuracy in the findings.
	All customer engagement/research activities are documented. All reports set out the methodology, details of the demographic representativeness of the sample, detailed analysis of the collected data, and a clear statement of the outcomes/findings.
	Reports are shared with key stakeholders, including the Sydney Water Executive, are published to the SWIM platform and are available internally via iConnect. Summary presentations are provided to key stakeholders as necessary (some examples are referenced below).
	Themed reports, which summarise the available research about specific topics including (for example) Business Customer, Developer, Digital Meters, Leaks and Breaks, The Environment, Water Efficiency, Water shortage and supply augmentation, and Water Continuity Standards, are developed and communicated internally. These detailed reports are updated quarterly to include any new findings.
	Principal Engagement Activities:
	The principal activities undertaken (or of relevance) during the audit period are discussed in the following.
	Customer Informed Planning for Advocacy (CIPA):
	This body of work was undertaken in 2018, i.e. prior to the audit period; however, Sydney Water referenced it as being the foundational customer engagement in respect of service levels and willingness to pay, the findings of which informed Sydney Water's submission to IPART in respect of development of the current <i>Operating Licence</i> . The work was undertaken in three phases, with reports providing details on customer engagement activities, topics (including customer priorities) and results from tariff structure proposals. The three phases were focussed as follows:
	 Phase 1 – involved a series of deliberative forums, discussion groups, interviews and online surveys focussed on gaining evidence of customer attitudes and preferences regarding perceptions of Sydney Water; priority outcomes; measuring service performance; rebates; fees and discounts for payment channel usage; and customer representation. Phase 2 – comprised of two parts:
	 an online survey focussed on customer willingness to pay for changes in respect of Water interruptions, Wastewater overflows, Digital meters, Wastewater ocean outfalls and Water pressure
	 a series of deliberative forums, discussion groups, interviews and tariff surveys focussed on gaining evidence of customer attitudes and preferences regarding customer priorities from phase 1, rebate changes in response to phase 1, pricing principles, water pricing options, wastewater pricing options, and solutions to rainwater in the wastewater system.
	• Phase 3 – involved a series of deliberative forums, discussion groups and an online survey focussed on confirming the preferred set of project/program options to be included in Sydney Water's plans for 2020-2025 in the context of different scenarios for the overall impact on survey bills.
	Impact on customer bills.



Work on the 'Water for the Future' project, which involved customer engagement in support of Sydney Water's long-term planning cycle and the development of the *Greater Sydney Water Strategy*, continued during the audit period. This engagement comprised of a series of eight (8) deliberative forums across Greater Sydney (including the Blue Mountains and Illawarra), which were conducted in late June 2021 (i.e. just prior to the audit period), together with an online survey aimed at capturing a wider participant group, which was conducted in July and August 2021 (i.e. within the audit period). The forums and online survey sought to understand customers' preferences around the resilience options available to meet changing climatic conditions, ageing infrastructure and urban growth. Customers were also informed about the relative costs, resilience, and environmental impacts of various supply augmentation options.

Activity during the audit period built on work completed during 2020. Details of the objectives, methodology and outcomes of each phase of the project are documented as follows:

- Initial round of consultation this round, which was conducted in February 2020, aimed to "...
 involve the community in thinking about the role of water in all its forms not just how it is
 used in homes and businesses, but the role it plays in communities, in shaping
 neighbourhoods, and in maintaining quality of life as the city grows".
- Round 2 consultation involved online (due to the COVID-19 pandemic) engagement which
 was focussed on "... discussing long term plans and preferences for the future, with the aim of
 providing water for a growing, liveable and resilient city". The five broad objectives of this
 round were based on the findings of the Round 1 consultation.

Participants were subsequently asked to participate in a series of online forums or telephone interview to further discuss the outcomes of the previous consultation, as presented in a summary document, *Sydney Water Talk*.

• Further customer engagement (Round 3) was undertaken in June and July/August 2021, as outlined above, which comprised deliberative forums with 825 customers and an online survey amongst 1,023 customers. A summary of the outcomes of this work is documented in the report *Water for the Future; Customer Participation Project*, which presents findings in respect of: Customer Concern about the Future; Considerations for the Future (considerations for decision making are ranked by importance); Securing Our Water Supply (support for supply options is rated); a discussion of Supply Options; Implications for the Future; and Communication Implications.

World Class Water Services:

Subsequent customer engagement was carried out in September 2021, under the 'World Class Water Services' theme. This engagement consisted of five online (due to the ongoing COVID-19 pandemic) customer forums, attended by 185 customers. During these online forums, customers were invited to discuss six key topics, including: Customer Service; Pricing and Fairness; Liveable Public Spaces; Water and Wastewater Reliability; Water Supply Security; and Environment.

Sydney Water noted that this program "... builds on the conversations and research carried out to shape Sydney Water's 2020-2030 Strategy, and the Greater Sydney Water Strategy, and will be fundamental to developing our long-term business plans and next price review".

Details of the engagement process and outcomes are documented in an *Outcomes Report*, which indicates that the consultation was broadly based with participants representing (for example) 132 suburbs and 28 ethnicities. The outcomes were summarised in a presentation *Understanding our customer's priority outcomes*, which addressed each of the abovementioned key topics. <u>Carbon Offset Willingness to Pay study</u>:

Sydney Water participated in a Water Services Association of Australia (WSAA) study on customers' willingness to pay for Carbon abatement and co-benefits. This study, which was conducted between November 2021 and January 2022, built Sydney Water's understanding of: customer preferences for various types of carbon offset products, expressed as the 'willingness to pay' for different attributes of carbon offsets, and demographic factors affecting those preferences.

Sydney Water indicated that: "The study supports our commitment to work with customers and communities to understand their expectations and preferences and take those views into account in policy setting".

The outcomes of the study are presented as *Region-specific results*, which sets out estimates of average household 'willingness to pay' in Sydney Water's operating area (this formed an appendix to the main WSAA report); a *Final Report* prepared for WSAA; and a *Summary Presentation* provided to Sydney Water.

Customer and Research Engagement Plan:



Sydney Water has developed a *Customer Research and Engagement Plan* for the two years 2021-2023, a summary of which was provided as evidence. The plan, which sets out all customer research and related activities scheduled for the two-year period, was approved by the Sydney Water Executive on 17 December 2021.

The program is aimed at identifying outcomes that customers want, the level of services required to deliver those outcomes and where there is a gap in performance, how much customers are willing to pay to deliver the improved service levels; it will also consider customer capacity to pay. More specifically, it includes qualitative and quantitative research across three streams of interrelated customer research and engagement to inform, manage and measure:

- 10-year Business Plan, LTCOP (Long-term Capital and Operating Plan) and IPART Submissions
- Enterprise decision-making
- Customer journeys and interactions.

This plan demonstrates that Sydney Water's regular ongoing research comprises of specific customer engagement activities aimed at providing a holistic view of customer sentiment, preferences, and expectations. Furthermore, it demonstrates a focus on "*Putting customer value at the heart of business planning and our next regulatory submissions*", which aligns with IPART's expectations in respect of customer engagement.

Strategic Customer Engagement:

Sydney Water advised that it is currently preparing to undertake 'Strategic Customer Engagement' planned in support of the 2025 price review. This work is expected to be completed by August 2023.

An external service provider has been selected to support this engagement project and a Customer Engagement Working Group has been established. A detailed *Scope of Works* sets out key aspects including: the background to and purpose of the study; the key considerations to be addressed in undertaking the work (Audience; Public Engagement Plan; Sydney Water Talk (engagement platform); Running Phases in Parallel; Engagement Methodologies; Willingness to Pay); and a detailed project scope that identifies the objectives and required activities and deliverables for each of five phases; governance arrangements; and timeline.

Samples of meeting agenda and minutes demonstrate that the Customer Engagement Working Group has held 'kick-off' - and subsequent weekly - meetings (albeit after the audit period). A presentation to the 'kick-off' meeting provides a clear outline of the study, consistent with the scope of works. A timeline for Phase 1 of the study was also provided.

Detailed planning, including topics for engagement and sequencing has commenced. Strategic blueprints and supporting materials for customer engagement are being developed.

An *Update on Customer Engagement Plan* presented to the Sydney Water Executive on 25 August 2022 (after the audit period) demonstrates that the progress of the study is being monitored and reported.

Regular Ongoing Customer Research:

Sydney Water conducts regular customer research, including Enterprise Research (such as 'Brand Tracker', 'Community Sentiment Monitor', 'Service Faults tracker', and 'Water Literacy Tracker'), and 'Interaction Research' surveys. These surveys reveal details of customer views, preferences and expectations on particular topics and service interactions, as follows:

- 'Brand Tracker' monitors and reports quarterly on perceptions of Sydney Water based on Delivery against Customer promises (Tier 3); Brand awareness, Reputation, Customer satisfaction, Trust and Price perception (Tier 2); and Enterprise Advocacy – talking positively about Sydney Water (Tier 1).
- 'Community Sentiment Monitor' monitors and reports quarterly on matters including (for example) Community Issues, Products and services, Marketing activities, Tap water quality, Flush and Sink behaviours, Leaks and breaks. This research also results in focussed reports; for example, a Water Efficiency Report was prepared in July 2021 and Attitudes and Behaviours of Water-Drinking Segments were analysed in May 2022.
- 'Service Faults Tracker' monitors and reports quarterly on feedback from customers who have reported a service fault; these customers are surveyed via phone following the resolution of the fault they reported. Perceptual drivers include Repair crew (overall perception); Response time; Keeping the customer informed; Overall phone contact; and Call answering time.



	 water Elected y Tracket — Is a new initiative inflotuced utiling the duiling the fould (first report prepared in April 2022) which is to be undertaken quarterly. It involves tracking customers' overall "water literacy", i.e. understanding of the urban water cycle and future challenges and is also used to test sentiment toward new water source options. The insights gained are used to guide Sydney Water's community education program and to inform its planning for future services. The Water Literacy tracker research set out to: "track sentiment towards PRW and Desalination and their use in Greater Sydney, by monitoring levels of comfort with and support amongst the community. understand, benchmark and track Water Literacy levels in Greater Sydney. quantify the existence and prominence of key attitudinal barriers that drive negative sentiment towards PRW and Desalination; and monitor changes in these over time. benchmark and monitor trust in related aspects of Sydney Water's service delivery and community perceptions of water quality —in particular, monitoring any changes that coincide with increased levels of communication/education or the actual implementation of new PRW or Desalination treatment plants. explore considerations around implementation, such as expectations around how PRW and Desalination should be funded, perceptions of customer journey. There are interaction with Sydney Water, or at the completion of a customer journey. There are interaction surveys across various touchpoints including the Customer Hub (Service Faults), Contact Centre (General Inquiries), Developer Applications, Website, and Payment Arrangements, thereby providing insights into customer expectations on specific service interactions. Review of a sample of reports in respect of Contact Centre, WaterFix, and Service Fault interactions (although these all related to surveys conducted prior to the audit period) revealed detailed analysis of the feedback.	
	period, through a program of focussed surveys, ongoing research, and interaction feedback. Some of this work had been commenced (or undertaken predominantly) prior to the audit period; some continued as an ongoing or new initiatives; and some was planned for implementation after the audit period. Detailed reporting revealed that the manner in which the surveys/research was undertaken, and the analysis and interpretation of the data collected was robust, thereby ensuring customers' preferences and willingness to pay for service levels (amongst other criteria) is well understood.	
Evidence cited	 Sydney Water, <i>Customer Categorisation</i>, September 2021. Themed reports for the Jan-Mar 2022 guarter for each of the nominated topics were 	
	 provided as evidence. CIE/Woolcott, <i>Customer-informed IPART submission (CIPA) Phase 1</i> (Final Report), 30 April 2018. CIE/Woolcott, <i>Customer willingness to pay; Customer-informed IPART submission (CIPA) Phase 2</i> (Final Report), 28 September 2018. CIE/Woolcott, <i>Deliberative forums, discussion groups, interviews and tariff surveys; Customer-informed IPART submission (CIPA) Phase 2</i> (Final Report), 4 October 2018. CIE/Woolcott, <i>Bringing it all together; Customer-informed IPART submission (CIPA) Phase 3</i> (Draft Report), 17 December 2018. A further two forums were initially planned but cancelled due to the COVID-19 pandemic. Woolcott, <i>Water for the Future; Customer Participation Project; Round two report prepared for Sydney Water</i>, July 2020. Woolcott, <i>Water for the Future; Deliberative forum report prepared for Sydney Water</i> (Draft 3), March 2020. Sydney Water, <i>Sydney Water Talk; Customer Participation; Key Messages – Round 1 and 2, 17 September 2020.</i> Svdney Water/Woolcott, <i>Water for the Future; Customer Participation Project, undated</i> 	
	 Sydney Water, Sydney Water Talk; Customer Participation; Key Messages – Round 1 and 2, 17 September 2020. Sydney Water/Woolcott, Water for the Future; Customer Participation Project, undated. RPSgroup, World Class Water Services Customer Forums; Outcomes Report, 5 October 2021 	



	Document: World Class Water Services - FY 21'22 - (11) November - Understanding Customers Briarity Outcomes Benett _ Final adf
	 CIE, Appendix; Willingness to pay for carbon abatement; Region-specific results; Prepared for
	Sydney Water, 18 January 2022.
	• CIE, Willingness to pay for carbon abatement and co-benefits; Stated preference research;
	Prepared for Water Services Association of Australia, 2 March 2022.
	• Cit, whilingness to pay for carbon abatement and co-benefits, A choice modening survey, 16 March 2022.
	Sydney Water, Customer Research and Engagement Plan 2021 2023; Summary,
	December 2021.
	Document: 211209 Executive MOS paper - Customer at the heart of business planning
	FINAL.docx.
	 Sydney Water, Scope of Works – Strategic customer engugement, undated. Document: Customer Engagement Working Group 2022 - Agenda - Kick-Off Meeting –
	070722.pdf.
	 Document: Customer Engagement Program 2022 - (07) - July - CEWG Kick off meeting minutes – Final.pdf.
	 Document: Customer Engagement Working Group 2022 - Agenda - Weekly Meeting – 090822.pdf.
	 Document: Customer Engagement Working Group 2022 - (08) August - Minutes - Weekly Meeting 090822 – Final.pdf.
	 Document: Customer Engagement for IPART"LTCOP 2022 - Working Group Kick-Off Meeting - July 2022.pdf.
	• Document: Customer Engagement for IPART'LTCOP - 2022 (16) Aug - Phase 1 Timeline.pdf.
	 Document: EMOS Agenda item - Update on Customer Engagement Plan - August 2022_FINAL.docx.
	 Sydney Water, Customer Research Team; Types of Research Available, June 2022 (file: Customer Research Team 2022 - (06) June - Types of Research Available - Updated 090622.pdf).
	 Sydney Water, Brand Tracker; Quarterly Report Apr-May-Jun 2022, July 2022 (file: Brand Tracker - FY21'22 - Q4 - (April-Jun)-Report – Final.pdf).
	• Sydney Water, Community Sentiment Monitor Apr-Jun 2022; Main Report, July 2022.
	• Sydney Water, Community Sentiment Monitor Apr-Jun 2021; Water Efficiency Report,
	JULY 2021. Sudney Water, Water-Drinking Profile Anglysis by LGA: Attitudes and behaviours of water-
	drinking segments, May 2022.
	• Sydney Water, Sydney Water Faults Management Tracking Program; Apr 2021 to Jun 2022
	(2021/22 Q4) Quarterly Report.
	 Sydney Water, Water Literacy Tracker; Benchmark report; Quantitative findings, April 2022. Sydney Water, Water Literacy Tracker; Ton line report – Waye 2 (April 10, 2022); Quantitative
	findings, August 2022.
	Potable Recycled Water.
	• Document: Contact Centre Interactions - 2021 - (05) May - Report – Final.pdf.
	 Document: Interactions Research - 2021 - (04) April - WaterFix Interactions - Summary Bonort - Final adf
	 Document: Service Faults Interaction Surveys - 2021 - (06) June - Summary Report - Final off
Recommendation(s)	None
Opportunition for	Nana
improvement	None

Table 25 Consult the Customer Council (6.6.2)

Obligation	6.6.2 Sydney Water must establish and regularly consult with its Customer Council.
Risk of non-compliance	Failure to consult with its Customer Council poses a moderate risk. In the absence of customer input, Sydney Water may not be aware of Customer perceptions of issues relevant to its performance.



Audit grade	Compliant
Reason for the audit grade	Sydney Water demonstrated that it has established a Customer Council (now known as the Community Advisory Committee) and that it regularly consulted with the Committee having met quarterly during the audit period. Sydney Water further demonstrated that the Committee operates in accordance with a Community Advisory Committee Charter that outlines the operation of the Committee addressing matters such as its role and objectives, types of matters to be addressed, membership criteria, and record keeping requirements.
Auditor comments and justification	 Sydney Water advised that it has established a Customer Council (now known as the <i>Community Advisory Committee</i> (CAC)) and that it had regularly consulted with that Committee during the audit period. Through the provision of meeting agenda and minutes, it demonstrated that it had consulted with the Committee quarterly, with meetings held on: 19 August 2021 18 November 2021 17 March 2021 19 May 2021. The Community Advisory Committee operates in accordance with a <i>Charter</i>, which Sydney Water advised has been effective since February 2020. The <i>Community Advisory Committee Charter</i>⁶⁶ outlines the operation of the Commutity Advisory Committee addressing issues including (for example): Section 3 Role of the Community Advisory Committee – indicates that "The Committee plays a pivotal role in helping Sydney Water to make customer advocated decisions" and identifies specific areas of focus. Section 6 Membership criteria – indicates that members must be representatives of formally constituted entities that operate within Sydney Water's area of operations, are non-party political in nature and are non-profit making. Section 2 Objectives and Section 3 Role of the Community Advisory Committee – indicate (by implication) the types of matters to be addressed by the Commute; and Section 5 Sydney Water responsibilities – indicates that (amongst other things) Sydney Water is responsible for maintaining records of meeting, in that it agrees to: "publish the ratified meeting minutes from previous Committee meetings on Sydney Water's website". The <i>Community Advisory Committee Charter</i> is available on, and can be downloaded from, the Sydney Water website "Community Advisory Committee" webpage at: https://www.sydneywater.com.au/about-us/our-people/who-we-are/customer-forums.html. A list of Committee members and copies of meeting minutes are also available at this location.
Evidence cited	 Sydney Water, Agenda; Community Advisory Committee Meeting; August 2021 Meeting. Sydney Water, Minutes and actions; Community Advisory Committee Meeting; August 2021 Meeting. Sydney Water, Agenda; Community Advisory Committee Meeting; November 2021 Meeting Sydney Water, Minutes and actions; Community Advisory Committee Meeting; November 2021 Meeting. Sydney Water, Agenda; Community Advisory Committee Meeting; March 2022 Meeting Sydney Water, Agenda; Community Advisory Committee Meeting; March 2022 Meeting Sydney Water, Minutes and actions; Community Advisory Committee Meeting; March 2022 Meeting. Sydney Water, Agenda; Community Advisory Committee Meeting; May 2022 Meeting. Sydney Water, Agenda; Community Advisory Committee Meeting; May 2022 Meeting. Sydney Water, Minutes and actions; Community Advisory Committee Meeting; May 2022 Meeting. Sydney Water, Community Advisory Committee Charter, undated.
Recommendation(s)	None
Opportunities for improvement	None



Table 26 Provide information to the Customer Council (6.6.3)

Obligation	6.6.3 Sydney Water must provide the Customer Council with information in Sydney Water's possession or under its custody or control necessary to enable the Customer Council to discharge the tasks assigned to it, other than information or documents that are confidential or privileged.
Risk of non-compliance	Failure to provide information poses a moderate risk. In the absence of suitable information, the Customer Council would be unable to provide effective input in respect of the issues discussed
Audit grade	Compliant
Reason for the audit grade	Sydney Water demonstrated that it had provided the Community Advisory Committee (Customer Council) with information necessary to enable the Committee to discharge the tasks assigned to it. Information was provided principally in presentations and briefings at Committee meetings; however, there was also evidence of information provided out of sessions. Committee members were also informed of upcoming forums and the availability of reports, etc. that may be of interest. Assessment as to whether specific information is confidential or privileged and therefore not to be provided to the Community Advisory Committee is undertaken in conjunction with setting the agenda and Chair briefing meetings held prior to Committee meetings; this indicates that appropriate measures are in place.
Auditor comments and justification	 Sydney Water provides information to the Community Advisory Committee (Customer Council) (CAC) principally in in the form of presentations and briefings at Committee meetings. Review of presentation packs and minutes for each of the four meetings held during the audit period revealed that information provided and discussed included the following: August 2021: Customer Service Update – Water Conservation Program Customer Education – Water Literacy Customer Engagement Workshop (World Class Water Services) – six factsheets /discussion guides related to Bills (Pricing and fairness), Customer Service, Environment, Water and wastewater reliability, Water supply security, and Liveable public spaces were provided as background reading material for the workshop. November 2021: Draft Greater Sydney Water Strategy Customer Engagement update IPART revised guidelines for pricing submissions Engaging with CALD (Culturally and Linguistically Diverse) and LOTE (language other than English) communities during project delivery – draft guidelines for discussion were provided prior to the meeting. March 2022: IPART regulatory reform Customer Engagement update Reshaping the Community Advisory Committee Reshaping the Community Advisory Committee May 2022: Reshaping the Community Advisory Committee Resilient and Reliable Water Supply Water Literacy tracker Partnership with Restaurants and the Catering Association. Information was also provided to CAC members out of session. This included (for example): A copy of the Sydney Water 2020/21 Annual Report was sent to members on 29 November 2021. Information regarding upcoming customer engagement and major project forums, and a WSAA webinar from its <i>Purified Recycled Water Around the World</i> series was sent to members on 26 May 2021 (prior to the audit period).



	 Details of calls for expressions of interest for a new Independent Chair and Members of the proposed new Customer and Community Reference Group were sent to members on 15 June 2022 with a follow-up sent on 30 June 2022. Sydney Water advised that CAC members can request additional information either at the quarterly meetings, or via email to advisory@sydneywater.com.au. Sydney Water further advised that assessment as to whether specific information can be provided to the CAC (from a confidentiality or privilege perspective) is determined as part of setting the agenda and Chair briefing meetings held prior to each CAC meeting. The above summary assessment (and review of both the meeting minutes and the associated presentations) indicates that Sydney Water provided the CAC with information in respect of a range of strategic and operational matters, thereby enabling the committee to discharge the tasks assigned to it.
Evidence cited	 Document: 210818_CAC_Presentation.pdf. Sydney Water, Minutes and actions; Community Advisory Committee Meeting; August 2021 Meeting. Email/meeting placeholder from Sydney Water to CAC members (re: Sydney Water Community Advisory Committee Meeting - August Placeholder), including attachments. Document: 211018_CAC_Presentation_FNL.ppt. Sydney Water, Minutes and actions; Community Advisory Committee Meeting; November 2021 Meeting. Email/meeting placeholder dated 22 October 2021 from Sydney Water to CAC members (re: Sydney Water Community Advisory Committee Meeting - 18 November 2021), including attachments. Document: 220317_CAC_Presentation Pack.pdf. Sydney Water, Minutes and actions; Community Advisory Committee Meeting; March 2022 Meeting. Document: 220519_CAC_Presentation PDF.pdf. Sydney Water, Minutes and actions; Community Advisory Committee Meeting; May 2022 Meeting. Document: 220519_CAC_Presentation PDF.pdf. Sydney Water, Minutes and actions; Community Advisory Committee Meeting; May 2022 Meeting. Email dated 20 November 2021 from Sydney Water to CAC members (re: Sydney Water Annual Report 2020-2021). Email dated from Sydney Water to CAC members (re: CAC Update - Upcoming Forums and Webinar). Email dated 29 March 2022 from Sydney Water to CAC members (re: Community Advisory pack and draft Customer Reference Group Charter). Email dated 15 June 2022 (and follow-up dated 30 June 2022) from SW to CAC members (re: EOI - Members for Sydney Water Customer & Community Reference Group).
Recommendation(s)	None
Opportunities for improvement	None

Table 27 Minute Customer Council proceedings (6.6.4)

Obligation	6.6.4 Sydney Water must keep minutes of proceedings of the Customer Council and make a copy of the minutes available to any person, free of charge, upon request made to the Contact Centre.
Risk of non-compliance	Failure to comply with this obligation presents no direct risk to public health or the environment; however, it poses a high level of risk in respect of Sydney Water's customer relations
Audit grade	Compliant
Reason for the audit grade	Sydney Water demonstrated that it had kept comprehensive minutes of proceedings of each meeting of the Community Advisory Committee (Customer Council) held during the audit period. Minutes covered all matters listed on the respective meeting agenda, thereby indicating that all proceedings were recorded.



	Minutes of Community Advisory Committee meetings are available on the Sydney Water website, to which requests made to the Contact Centre would be directed. Copies of minutes would be alternatively provided if required.
Auditor comments and justification	Sydney Water provided copies of minutes prepared in respect of each of the four quarterly meetings of the Community Advisory Committee (Customer Council) held during the audit period, i.e. on 19 August 2021, 18 November 2021, 17 March 2021 and 19 May 2021.
	Review of the minutes revealed that they provided a comprehensive record of the matters discussed. Recommendations arising from the meeting are documented and the status of actions from previous meetings is recorded.
	Comparison of the minutes of the 19 August 2021 and 19 May 2021 meetings (for example) against the respective meeting agenda confirmed that each meeting agenda item had been addressed as planned and the proceedings recorded.
	Copies of the Community Advisory Committee meeting minutes are available on, and can be downloaded free of charge from, the Sydney Water website "Community Advisory Committee" webpage at: https://www.sydneywater.com.au/about-us/our-people/who-we-are/customer-forums.html .
	Sydney Water noted that requests to the Contract Centre for copies of the minutes would be directed to the website, or copies alternatively provided if required.
Evidence cited	 Sydney Water, Minutes and actions; Community Advisory Committee Meeting; August 2021 Meeting. Sydney Water, Minutes and actions; Community Advisory Committee Meeting; November 2021 Meeting. Sydney Water, Minutes and actions; Community Advisory Committee Meeting; March 2022 Meeting. Sydney Water, Minutes and actions; Community Advisory Committee Meeting; May 2022 Meeting. Sydney Water, Minutes and actions; Community Advisory Committee Meeting; May 2022 Meeting. Sydney Water, Agenda; Community Advisory Committee Meeting; August 2021 Meeting. Sydney Water, Agenda; Community Advisory Committee Meeting; May 2022 Meeting.
Recommendation(s)	None
Opportunities for improvement	None

Table 28 Review the Customer Council Operations (6.6.5)

Obligation	6.6.5 Sydney Water must undertake a review of the operation of the Customer Council. The review must include an assessment of the Customer Council's role, objectives, outcomes and membership, including whether the Customer Council could be used to better support customer engagement, as required by clause 6.6.1.
Risk of non-compliance	Failure to comply with this obligation presents a moderate risk that the Customer Council may not be effective in fulfilling its intended role, i.e. providing representative customer input to Sydney Water's operations.
Audit grade	Compliant
Reason for the audit grade	Sydney Water demonstrated that it had undertaken a review of the operation of the Customer Council, which involved an external review, internal assessment and review by Sydney Water staff, and consultation with the Customer Council members. A series of eight recommendations resulted in changes in respect of the name (now known as the <i>Community Advisory Committee</i>), role, objectives, outcomes, and membership of the former Customer Council. These changes were reflected in an updated Charter (the <i>Community Advisory Committee Charter</i>). On the basis of the review outcomes/changes implemented, it is apparent that the review included a robust assessment of the Customer Council's role, objectives, outcomes and membership, and of whether the Customer Council could be used to better support customer engagement.



Auditor comments and justification	It is noted that sub-clause 6.6.6 of the Licence, which is not included in the scope of this audit, requires Sydney Water to IPART on the review required by this obligation by 30 June 2020. The report to IPART is referenced in the following discussion
	Sydney Water advised that it had undertaken a review of the exerction of the Customer Council
	which is documented in the Customer Council Review; Report to IPART. The review comprised of
	The phases.
	 External review – an independent third party conducting a review of Sydney Water's customer engagement activities (of which the Customer Council was a significant part) Internal assessment and review – interviews with Customer Council members conducted by experienced Sydney Water staff (where members weren't interviewed by the external reviewer); and
	• Consultation with Customer Council – ongoing consultation with Customer Council members via scheduled meetings throughout 2019.
	Key findings from each phase of the review were documented and a series of eight recommendations collated. These recommendations were reflected in changes in respect of:
	 Name – the group was renamed at the Customer Advisory Committee as it was felt that this name represented their role better as a group that provides advice to Sydney Water, with each member acting as a representative of a community or interest group as opposed to being able to speak for Sydney Water's customer base as a whole. Role – the role of the new Community Advisory Committee was modified to focus on helping Sydney Water make customer-advocated decisions. The intent of this change was to
	incorporate the Council's previous focus on providing advice on behalf of their organisations on specific topics whilst branching out to allow the new Committee to provide input to Sydney Water's direct engagement with customers.
	 Objectives – whilst objectives relating to the previous Customer Council's focus of providing advice on policy, planning and service decisions made by Sydney Water on behalf of its customers have been retained, additional objectives have been added to the Community Advisory Committee's charter to reflect the shift in role outlined above. Outcomes – in addition to the functions provided by the Customer Council, it was anticipated that the prepared expanses usual decomption to a phility of Committee members to provide
	 advice; increase Sydney Water's ability to engage with a broader representation of its customer base; develop a two-way discussion by empowering Committee members to raise issues for discussion (discussion topics previously set by Sydney Water); and improve Sydney Water's ability to make strategic decisions that are based on robust customer insights. Membership – in addition to inviting current members of the Customer Council to remain as part of the Community Advisory Committee, it was proposed that Sydney Water be able to invite a customer engagement expert to provide independent quality assurance in respect of Sydney Water's customer engagement methodology and provide advice to the Committee on
	 best practices in customer engagement. Charter – the previous <i>Customer Council Charter</i> was revised to reflect the changes arising from the review. Customer Council members were consulted throughout the development of the new <i>Community Advisory Committee Charter</i>.
	On the basis of these outcomes/changes, it is apparent that the review of the operation of the Customer Council included a robust assessment of the Customer Council's role, objectives, outcomes and membership, and whether the Customer Council could be used to better support customer engagement.
	Whilst technically beyond the scope of this obligation, Sydney Water advised that a new Customer and Community Reference Group will be established in 2022-2023, in response to discussion papers released by IPART during 2021/22 in respect of a proposed new framework for water utilities. IPART has increasing expectations of water utilities to involve their customers in the regulatory and broader planning processes.
	Sydney Water is transitioning its Customer Advisory Committee (CAC) to the new Customer and Community Reference Group (CCRG), with the aim of better meeting its goal to be customer centric whilst continuing to meet its legislative and regulatory requirements, thereby addressing IPART's increasing expectations. A draft Charter for the new group has been developed; the transition process was discussed with members of the CAC at its March 2022 and May 2022 meetings.
Evidence cited	Sydney Water, Customer and Community Reference Group Charter - Draft, undated.



	 Sydney Water, Minutes and actions; Community Advisory Committee Meeting; March 2022 Meeting. Sydney Water, Minutes and actions; Community Advisory Committee Meeting; May 2022 Meeting.
Recommendation(s)	None
Opportunities for improvement	None

Table 29 Procedure for complaints (6.7.1)

Obligation	6.7.1 Sydney Water must maintain a procedure for receiving, responding to and resolving Complaints. The procedure must be consistent with Australian Standard AS/NZS 10002:2014 – Guidelines for complaint management in organizations (the Internal Complaints Handling Procedure).
Risk of non-compliance	Failure to comply with the requirements of this obligation poses a moderate operational risk in that Sydney Water may not otherwise become aware of operational problems, which may affect public health or the environment; it also poses a high risk in respect of Sydney Water's customer and public relations
Audit grade	Compliant
Reason for the audit grade	Sydney Water demonstrated, by provision of an Assessment Report prepared by the Customer Services Institute of Australia (CSIA), that its Internal Complaints Handling Procedure (Complaint procedure) was recertified as being consistent with AS/NZS 10002:2014 in May 2020. Subsequent revisions to the procedure have either enhanced the process or been cosmetic in nature.
Auditor comments and justification	Sydney Water confirmed that it maintains an internal complaint handling procedure. It further indicated that the procedure aligns with and is responsive to the Australian Standard for complaint handling (<i>AS/NZS 10002:2014 Guidelines for complaint management in organisations</i>). A copy of the <i>Complaint Procedure</i> was provided.
	Sydney Water's complaint handling process has been certified against the Customer Service Institute of Australia (CSIA) <i>Complaint Handling Framework (CSIA-CHF 2015)</i> . An <i>Assessment</i> <i>Report</i> prepared by CSIA in respect of a Recertification Assessment undertaken in May 2020 indicates that the <i>Complaints Handling Framework</i> against which Sydney Water's complaint handling was assessed is consistent with AS/NZS 10002:2014.
	The assessment involved scoring against compliance with the requirements of each relevant clause of AS/NZS 10002:2014. Both the individual and overall scores indicate that Sydney Water's complaint handling process is 'integrated', i.e. its application lies in the "Integration" (as opposed to the "Intention" or "Implementation" phases), which means that: " <i>Evidence exists to show that the attribute is part of the culture, and measurement data is being used to enhance service delivery.</i> "
	Whilst the CSIA assessment was undertaken in May 2020, review of the document change history reveals that subsequent revisions to the <i>Complaints Procedure</i> have comprised enhancements (inclusion of additional information in respect of response guidelines, and details of the three-step review/escalation process) and some cosmetic changes (new procedure template; refinement of wording). Sydney Water advised that some 'tweaks' were also made as a result of its involvement with a Water Services Association of Australia (WSAA) working group that is seeking to ensure consistency between utilities.
	On this basis it is assessed that Sydney Water maintains an internal complaint handling procedure (process) that is consistent with AS/NZS 10002:2014. [It is noted that the standard has now been updated to a later version.]
Evidence cited	 Sydney Water, Procedure; Complaint procedure (Doc no. 735113) (Version 1), 20 June 0222. CSIA, Assessment Report; Sydney Water Reg No. 6126, July 2020 (file: Sydney Water CHF assessment report_Final.pdf). Sydney Water, Procedure; Complaint procedure (Doc no. 735113) (Version 15), 17 August 2021, section 7.1. Bevision history has been removed from the current version and the version number reset. A
	reference to SWIM for previous versions of the procedure is provided.
Recommendation(s)	None



Opportunities for None None

Table 30 Provide customer information about complaint handling (6.7.2)

Obligation	6.7.2 Sydney Water 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		
Risk of non-compliance	Failure to comply with the requirements of this obligation poses a moderate operational risk in that Sydney Water may not otherwise become aware of operational problems, which may affect public health or the environment; it also poses a high risk in respect of Sydney Water's customer and public relations		
Audit grade	Compliant		
Reason for the audit grade	Sydney Water demonstrated through summary information presented in monthly Corporate Performance Reports, analysis of customer feedback following complaint closure, and the implementation of identified improvement actions, that it effectively implemented its Internal Complaints Handling Procedure (Complaint Procedure) during the audit period. Training of Customer Experience Representatives (Contact Centre staff) ensures that they are appropriately skilled and experienced to fulfil their complaint management roles. Effective implementation of the procedure was also confirmed as part of the assessment undertaken by the Customer Services Institute of Australia (CSIA) when recertifying it as being		
Auditor comments and	Complaints are managed in accordance with the Complaint Procedure. The process workflow is		
justification	managed through the CRM online portal, which provides a step-by-step guide to the process. Sydney Water correctly noted that implementation of the Complaint Procedure was assessed as part of the certification assessment undertaken by the Customer Service Institute of Australia (CSIA) (refer section 1.4.6.1 in respect of Licence subclause 6.2.1). Notwithstanding, the following further assessment is provided for the purposes of this audit. Sydney Water provided extracts from the Corporate Performance Reports for October 2021 and June 2022 which provide a summary of complaint management undertaken during the month. These reports detail the number of complaints received and resolved, with commentary in respect of increase/decrease from the previous month and identification of specific issues/drivers.		
	Monthly and cumulative annual figures are shown for both the current and previous financial years		
	years. Review of these Performance Reports revealed that		
	October 2021 report:		
	 1746 complaints across all categories had been received, which was about 200% greater than the previous month's total of 580. 1353 of these related to a significant taste and odour water quality incident in October (a summary of which was provided). 1630 complaints identified as Sydney Water's responsibility were resolved, a significant increase over the previous month's total of 457. The surge in complaints resolved reflected responses to the abovementioned water quality event. 		
	 554 complaints were received, which was in line with the previous month's total of 558. Primary issues related to meter reading, and water pressure, recycled water quality and other water quality complaints related to a specific maintenance activity. It was noted that a debrief had been conducted in respect of the maintenance activity. 448 complaints identified as Sydney Water's responsibility were resolved, which was in line with the previous month. The majority of resolved complaints related to water quality, wastewater overflows, meters, accounts and site rehabilitation. 28 matters were referred from EWON (Energy and Water Ombudsman NSW), which was considered to reflect a return to normal debt recovery activities and in line with pre-COVID levels. Issues raised related to wastewater surcharging, joint private water service and pensioner concessions; matter related to catch-up billing following estimated bills accounted for only two referrals (this issue was previously reflected in both direct complaints to Sydney Water and EWON referrals in previous months). 		



	Once a complaint has been closed out, Sydney Water seeks customer feedback by emailing a		
	survey to the complainant under its Voice of Customer program. Responses are analysed and		
	summarised in each of the monthly Corporate Performance Reports.		
	For example, the October 2021 report indicated that:		
	There had been a 22% response rate to the survey.		
	 Three aspects of the complaints handing process were contributing to customer disaction (actions of cities of cities of cities). 		
	dissatisfaction (ratings of either "extremely" or "somewhat" dissatisfied), hamely:		
	 Information provided throughout the process (communication) 		
	 Complaint handled by the right team or individual (process). 		
	• Customers who were either "extremely" or "moderately" satisfied (indicating that the process		
	is working well) identified the following key performance drivers:		
	 Ease of lodging a complaint 		
	 Complaint handled by the right team or individual (process) 		
	• Helpfulness of Sydney Water staff.		
	 To improve communication and expectations in respect of complaint resolution, Sydney 		
	water developed a Resolution Time Guide for the top twelve complaint categories. This has		
	Results in respect of customer advocacy and satisfaction (CSAT) in the July to Sentember		
	quarter continued to improve and remained above targets.		
	In respect of process improvements, the June 2022 Corporate Performance Report referred to a		
	Complaints Handling Improvement Project, noting that all initiatives had been completed by the		
	expected 30 June 2022 target date. This project comprised of actions to address opportunities for		
	improvement identified by the Customer Service Institute of Australia (CSIA) certification audit		
	(refer to Licence sub-clause 6.7.1).		
	Effective complaints management is dependent upon those involved, specifically Sydney Water's		
	Customer Experience Representatives (who operate in the Contact Centre) being appropriately		
	trained. These personnel, who participate in role playing scenarios as part of the recruitment		
	process, complete induction training in accordance with the Unboarding new Contact Centre recruits (CERs) Standard Operating Procedure, which details an extensive program of training		
	which includes elements related to Problem Solving and Customer Complaints and the related		
	functionality of the CRM (Customer Relationship Management) system. A <i>Participant Attendance</i>		
	Form confirmed that four new staff had completed the first four days of this training program from		
	27-30 June 2022.		
	More specific training in respect of complaint management is provided through the Complaint		
	Handling training module (which is identified as mandatory corporate training for CERs) in the		
	abovementioned induction training procedure. This training module addresses topics including		
	What is a complaint?; Formal v's informal complaints; Customer satisfaction; Know your		
	customer/effective listening; complaints process; and wore information (where this can be obtained)		
	Sydney Water noted that training for new recruite is enhanced (on the joh' by initially (buddying		
	un' on calls and using recordings of real life calls for training nurnoses (subject to nermission form		
	both customer and staff member).		
	On the basis of the summary information presented in the Corporate Performance Reports, the		
	demonstrated analysis of customer feedback following complaint closure, and the improvements		
	actions being undertaken, it is apparent that Sydney Water has effectively implemented its		
	Internal Complaints Handling Procedure (Complaints Procedure) during the audit period.		
Evidence cited	• Sydney Water, <i>Procedure; Complaint procedure</i> (Doc no. 735113) (Version 1), 20 June 0222.		
	CSIA, Assessment Report; Sydney Water Reg No. 6126, July 2020.		
	 Document: OL auait adaitional information.docx (Corporate Performance Reports section). Sydney Water, Standard Operating Procedure: Ophografing new Contact Centre recruits 		
	(CERs) (Version 2), 9 January 2018 (file: SOP Onboarding and Induction Procedure - Contact		
	Centre.docx).		
	Document: New Starter Training 27062022.docx.		
	• Document: OL audit additional information.docx (Complaints handling training module		
	section) Document: OL audit additional information.docx (Complaints handling training		
	module section).		
Recommendation(s)	None		



Opportunities for None improvement Implement	
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Table 31 Make complaints handling information freely available (6.7.3)

Obligation	6.7.3 Sydney Water must provide to Customers, at least annually with their Bills, information concerning internal Complaints handling. The information must explain how to make a Complaint and how Sydney Water will receive, respond to and resolve Complaints	
Risk of non-compliance	Failure to comply with this obligation presents a moderate operational risk in that Sydney Water may not otherwise become aware of operational problems, which may affect public health or the environment as well as Sydney Water's customer and public relations. It is important that Customers and Consumers are aware of how to make a compliant if they are not happy with Sydney Water's service.	
Audit grade	Compliant	
Reason for the audit grade	Sydney Water demonstrated that information concerning internal complaints handling had been provided in the Our Contract With You communication and the August-October 2021 edition of the Waterwrap newsletter, both of which had been issued to customers with their bills during the August-October billing cycle.	
Auditor comments and justification	Information in respect of internal complaints handling was provided to customers in the <i>Our contract with you</i> communication (which also addresses the requirements of sub-clause 6.2.1 of the Licence) and the August-October 2021 edition of <i>Waterwrap</i> , both of which were issued with bills during the August-October billing cycle.	
	Review of the Our contract with you communication reveals that information about complaints is provided under the heading "What if you're not happy with Sydney Water's service?" (Pages 8-9 of the communication), where Sydney Water indicates that:	
	"We want to know if you're not happy about our service. If you'd like to make a complaint, contact us by:	
	calling 13 20 92 between 8am-5:30pm, Monday to Friday	
	writing to PO Box 399, Parramatta NSW 2124	
	visiting the Contact us page at sydneywater.com.au	
	If we can't resolve your complaint immediately, we'll respond within:	
	two working days, if you phoned us	
	five days, if you emailed or wrote to us.	
	We will respond to let you know what we're going to do to resolve your complaint and when.	
	If you're not satisfied with our response, you can ask for a manager to review it."	
	This is considered to address the requirements of this obligation.	
	Review of the August-October 2021 edition of <i>Waterwrap</i> reveals that it also provides information in respect of complaints handling under the heading <i>"Sharing your views"</i> , where Sydney Water indicates that: <i>"We want to know if you have any problems with our services and we'll do our best</i> <i>to resolve them. Your feedback helps us improve."</i> The remainder of the information is focussed on the external complaints management service provided by the Energy and Water Ombudsman NSW (EWON) (refer Licence sub-clause 6.8.2 for further discussion).	
	As reported in Licence sub-clause 6.2.4, Sydney Water advised that publication of the required regulatory information, including information that is to be issued to customers with their bills, is undertaken in accordance with the <i>Regulatory Customer Information Procedure</i> , which defines the tasks, timings and accountabilities for all our regulatory information to be provided to Sydney Water's customers pursuant to section 6 of the Operating Licence. A <i>Compliance Checklist</i> is used to ensure that the required information is prepared in a timely manner and published accordingly.	
	Review of the <i>Compliance Checklist</i> confirms that the <i>Our contract with you</i> communication is to be included in the August-October billing cycle and that the August-October edition of <i>Waterwrap</i> is to include " <i>Annual information to customers on how to make a complaint (both internal & ombudsman)</i> ". The <i>Bill Print Production Activities_IPART Review 2022</i> provides a compilation of information the demonstrates that the <i>Our contract with you</i> communication was included with	



	the August October 2021 billing run and that the relevant edition of the <i>Waterwrap</i> newsletter was included with each quarterly billing run.On this basis it is apparent that the relevant information was provided to customers at least once annually during the audit period.	
Evidence cited	 Document: Sydney Water Our Contract with you.pdf. Document: Waterwrap – August–October 2021.pdf Sydney Water, Procedure; Regulatory customer information (Doc no. 2997874) (Version 1), 17 August 2022 (file: Regulatory customer information procedure.docx). Document: 2021-22 Compliance checklist.docx. Document: BILL PRINT PRODUCTION ACTIVITIES _IPART Review 2022.docx. 	
Recommendation(s)	None	
Opportunities for improvement	None	

Table 32 Dispute resolution (6.8.2)

Obligation	 6.8.2 Sydney Water must: a) prepare a communication that: i. lists the dispute resolution services provided by the Energy & Water Ombudsman NSW, including any right to have a Complaint or dispute referred to the Energy & Water Ombudsman NSW ii. explains how a Consumer can contact the Energy & Water Ombudsman NSW b) provide a copy of that communication, free of charge to Customers at least once a year with their Bills c) make a copy of that communication available to any person, free of charge: i. on its website ii. upon request made to the Contact Centre.
Risk of non-compliance	Failure to comply with this obligation presents a high level of risk in respect of Sydney Water's customer relations. It is important that customers and consumers are aware that they have an alternative independent means of raising concerns in respect of Sydney Water's actions and/or performance.
Audit grade	Compliant
Reason for the audit grade	Sydney Water demonstrated that information concerning the dispute resolution services provided by the Energy & Water Ombudsman NSW (EWON) had been provided in the Our Contract With You communication and the August-October 2021 edition of the Waterwrap newsletter, both of which were issued to customers with their bills during the August October billing cycle. Sydney Water also demonstrated that both the Our Contract With You communication and the Waterwrap newsletter are available its website and can be downloaded free of charge.
Auditor comments and justification	Sydney Water includes information about the dispute resolution service provided by the Energy and Water Ombudsman of NSW (EWON) in its <i>Our contract with you</i> communication (which also addresses the requirements of subclause 6.2.1 of the Licence). Information in respect of EWON is provided under the heading <i>"What if you're not happy with</i> <i>Sydney Water's service?"</i> (Pages 8-9 of the communication), where Sydney Water indicates that <i>"If</i> <i>you're still not satisfied you can ask the Energy and Water Ombudsman NSW (EWON) to consider</i> <i>your complaint at any time, at no cost. You can also engage the NSW Civil and Administrative</i> <i>Tribunal (NCAT) or other legal avenues."</i> EWON's contact details are provided, together with Sydney Water's, on the last page of the communication. The <i>Our contract with you</i> communication is available on the Sydney Water website at: <u>https://www.sydneywater.com.au/content/dam/sydneywater/documents/our-contract-with-</u> <i>you.pdf</i> . This can be accessed by searching from the website "Home" page as discussed in subclause 6.2.1. Information regarding the services provided by EWON was also provided in the August October 2021 edition of the <i>Waterwrap</i> under the heading <i>"Sharing your views"</i> , where Sydney Water indicates that:



	"We want to know if you have any problems with our services and we'll do our best to resolve them. Your feedback helps us improve."
	If you aren't satisfied with our response to your complaint, you can ask for a manager to review the decision or you can contact the Energy & Water Ombudsman NSW (EWON) or NSW Civil & Administrative Tribunal (NCAT) for further action.
	EWON can give independent advice and may:
	arrange for a senior member of our team to contact you
	investigate the issue
	negotiate on your behalf.
	Visit ewon.com.au , email <u>omb@ewon.com.au</u> or call 1800 246 545."
	<i>Waterwrap</i> newsletters are also available on the Sydney Water website; the August-October 2021 edition is no longer available (at the time of reporting), however, the August-October 2022 edition,
	which is available at: https://www.svdneywater.com.au/content/dam/svdneywater/documents/waterwran-aug-oct-
	2022.pdf
	includes the same information in respect of the services provided by EWON. This can be found by navigation from the website "Home" page by selecting:
	Home>About us>Reports and publications
	and either selecting the "Waterwrap newsletters" link at the top of the page or scrolling down.
	As reported in Licence sub-clause 6.2.4, Sydney Water advised that publication of the required regulatory information, including information that is to be issued to customers with their bills, is undertaken in accordance with the <i>Regulatory Customer Information Procedure</i> , which defines the tasks, timings and accountabilities for all our regulatory information to be provided to Sydney Water's customers pursuant to section 6 of the Operating Licence. A <i>Compliance Checklist</i> is used to ensure that the required information is prepared in a timely manner and published accordingly.
	Review of the <i>Compliance Checklist</i> confirms that the <i>Our contract with you</i> communication is to be included in the August-October billing cycle and that the August-October edition of <i>Waterwrap</i> is to include " <i>Annual information to customers on how to make a complaint (both internal & ombudsman)</i> ". The <i>Bill Print Production Activities_IPART Review 2022</i> provides a compilation of information the demonstrates that the <i>Our contract with you</i> communication was included with the August-October 2021 billing run and that the relevant edition of the <i>Waterwrap</i> newsletter was included with each quarterly billing run.
	On this basis it is apparent that the relevant information was provided to customers at least once annually during the audit period.
	Communications that provide information about the dispute resolution service provided by EWON (and the internal complaint process) are available on the Sydney Water website, thereby meeting the requirements of this obligation. However, provision of the information in this manner makes it is somewhat obscure; it is not readily apparent to someone not familiar with the specific communications and their content. As an opportunity for improvement (OFI-2022-22), it is suggested that Sydney Water considers implementing changes to make information about EWON services (and the internal complaint process) more readily and transparently available on its website.
Evidence cited	 Document: Sydney Water Our Contract with you.pdf. Sydney Water, Procedure; Regulatory customer information (Doc no. 2997874) (Version 1), 17 August 2022. Document: 2021-22 Compliance checklist.docx. Document: BILL PRINT PRODUCTION ACTIVITIES IPART Review 2022.docx.
Recommendation(s)	None
Opportunities for improvement	OFI-2022-22 it is suggested that Sydney Water considers implementing changes to make information about EWON services (and the internal complaint process) more readily and transparently available on its website.



3. **PREVIOUS RECOMMENDATIONS**

The status of recommendations from previous audit have been assessed and the findings are summarised in Table 33 below.

Table 33 Assessment of the status of previous recommendations

REC number	Operational issue (licence reference where applicable)	IPART's recommendation to the Minister	Audit findings	Status
2020-02	Economic approach for water conservation (water conservation program) clause 3.1.1	Sydney Water must update the Water Conservation Report to include more information on the development, delivery and monitoring of the program. This should include more information on how projects are first identified from the wide range of potential options, assessment of project effectiveness and monitoring of benefits. Sydney Water must develop the structure of this report and content to be included in time for the next water conservation report for the 2020-21 year.	Sydney Water demonstrated that it has enhanced the <i>Water Conservation Report</i> by inclusion of information in respect of program governance and the program lifecycle framework that is being implemented to develop, implement, and evaluate projects. The framework has also been documented in a draft <i>Water</i> <i>Conservation Framework Procedure</i> , which describes in greater detail the activities to be undertaken through all phases of a project lifecycle. Improved project reporting through the Program Control Board has contributed to improvements in overall program governance, as reflected in the 2021/22 Water Conservation Report. Examples of project evaluations demonstrate the rigorous analysis that underpins the information presented as part of the reporting process. On this basis, this previous recommendation is considered to have been addressed.	Completed



REC number	Operational issue (licence reference where applicable)	IPART's recommendation to the Minister	Audit findings	Status
2020-06	Drinking water Clause 4.1.1	By 30 June 2021, Sydney Water must review the Corporate Risk Matrix to rectify inconsistencies between Public Health and Injury /Illness consequence descriptors, including liaison with NSW Health.	The matrix was reviewed and changed in discussions with NSW Health. It was pilot tested for the North Richmond drinking water operational risk assessment. Further suggestions from NSW Health were incorporated and the revised matrix was shared with them again. Evidence provided showed the changed risk matrix, email where NSW Health accepted the revised risk matrix (17/6/22) and email where the updated risk matrix following the North Richmond workshop was emailed to NSW Health.	Completed
2020-07:	Drinking water Clause 4.1.1	By 31 March 2021, Sydney Water must formalise the process for how the updated risk matrix and risk procedure is being implemented across water supply systems, including resolving inconsistencies in superseded documentation references, particularly noting the IMS-Operational Risk Assessment Workshop (KnowRisk Review) SOP for Drinking Water procedure.	This recommendation was to do with the previous discrepancy where risk assessment reference included both QMAF0081 and document 1045159. This has since been updated in SOP D0000799 hence this recommendation is complete. QMAF0081 has been superseded. The new risk matrix as per REC 2020-07 will need to be incorporated into SOP D0000799. It has been noted in this SOP that this will be completed following the work in progress on risk re-alignment with BOO risk assessment procedure using Sydney Water's new risk matrix.	Completed



REC number	Operational issue (licence reference where applicable)	IPART's recommendation to the Minister	Audit findings	Status
2020-08:	Drinking water Clause 4.1.3	By 30 June 2021, Sydney Water must establish processes for identifying and actioning improvement items identified in risk assessments to ensure timely resolution. After Sydney Water has established these processes, update the Product Management Improvement Framework.	A Consolidated Action Plan (CAP) has been developed. The link between the CAP and the DWIP, and the monitoring and reporting process has been explained in the SOP D000799. The CAP is updated every quarter with action update by owner to track the progress of actions. The CAP quarterly update report and risk actions status will be regularly presented in the Product and Asset Management Forum (PAMF). An update on the CAP was presented to NSW Health in the Quarter 2 JOG meeting on 6 May 2022.	Completed
2020-11:	Recycled water Clause 4.2.1	By 30 September 2021, Sydney Water must update critical control point documentation for the audited WRP to document the basis for the CCT low flow critical control point.	The low flow rate in CCP 4 is an operational limit and removal from the CCP was presented to NSW Health at the JOG meeting 14 February 2022. The West Camden RWQMP has been revised and the low flow has been removed from CCP 4 It is noted that the low flow rate is still in the Recycled Water Product Specification.	Completed REC-2022-12 – By 30 June 2023, update the Recycled Water Product Specification to remove the low flow on the West Camden chlorine disinfection CCP.
2020-12:	Recycled water Clause 4.2.1	By 31 December 2021, Sydney Water must update scheme specific referencing in recycled water quality management plans that are scheduled for review in the next audit period to include reference to scheme specific documentation, including the audited Recycled Water Quality Management Plan. Include an action in the Recycled Water Improvement Register to update all scheme specific plans with this information at their scheduled review.	Liverpool, Rouse Hill and Richmond RWQMPs have been updated to the new format, with supporting documentation referenced as attachments. All remaining scheme RWQMP will be updated as part of the review cycle. This action is recorded in the Recycled Water Improvement Plan 2022- RW128-0.	Completed



REC number	Operational issue (licence reference where applicable)	IPART's recommendation to the Minister	Audit findings	Status
2020-13:	Recycled water Clause 4.2.1	By 31 December 2021, Sydney Water must update the recycled water audit schedule to ensure an annual review of high risk AGWR elements at a number of recycled water schemes each year (as agreed with NSW Health). The schedule should be risk-based and consider locations and exposures. All recycled water schemes should be audited within a 3-year cycle.	The audit plan has been provided for the 22/23 audit period. This covers off that high risk elements are being prioritised annually. However, the audit plan does not demonstrate how the audit program will achieve the auditing of all schemes over a three year period. The scope of the completed Wollongong WRRF audit was provided as evidence and it shows details of the audit and the elements to the RWQMP to be audited.	Ongoing Three year audit plan required to close out.
2020-15:	Recycled water Clause 4.2.3	By 30 June 2021, Sydney Water must review permissions and limits in SCADA to ensure that changes outside critical limits can only be made in accordance with an appropriate change management procedure and that critical limits align with the critical control point documentation for all plants.	It was noted at the Richmond WRRF that operators could not change CCP set points. This type of change must be made by a SCADA technician. The <i>Treatment Plant Operational Change</i> <i>Procedure</i> is in place and it requires that product quality is considered, if there are any operational changes, including consultation with a range of stakeholders. The checks are in place and should pick up a change outside the critical limits. A sample internal audit program was supplied as evidence, this includes a check of CCPs in SCADA. In addition, the <i>Plant</i> <i>Modification Request Forms</i> for changes to SCADA follow the audit were provided as evidence for the following plants: Bombo Castle Hill Liverpool Penrith Quakers Hill Richmond	Completed



REC number	Operational issue (licence reference where applicable)	IPART's recommendation to the Minister	Audit findings	Status
			 Rouse Hill St Mary's West Camden Wollongong 	
2020-18:	Water Continuity Standard Clause 5.1.1	By 31 December 2021, Sydney Water must complete lessons learned reports for the five largest unplanned water supply interruption events that occurred in 2019-20 and identify what measures could be implemented in future to reduce the number of properties impacted by future interruptions at these locations. Sydney Water should demonstrate how it has considered the application of these lessons learned across its entire network.	Sydney Water demonstrated it had undertaken a robust root cause analyses into the five incidents with the greatest number of impacted properties in 2019-2020, and that it documented the review in a <i>Lessons</i> <i>Learned Report</i> . The review/analysis identified eight contributing factors and detailed six problem statements/identified lessons. A total of twenty (20) improvement recommendations/actions were proposed and are now being implemented. On this basis, this previous recommendation is considered to have been addressed.	Completed
2020-20:	Asset management Clause 5.5.2	By 31 December 2021, Sydney Water must review its inspection programs for all asset classes to incorporate lessons learned from its current inspection program for sewage pumping stations. The output should be an updated condition assessment strategy (or similar) document(s) that specifies the desired approach to condition assessment for all major asset classes including (but not limited to): - consideration of risk of asset failure and consequence of failure - frequency of inspection - level of inspection (visual v detailed inspection) and situations where more detailed inspections are warranted - inspection techniques	 Sydney Water demonstrated that it has undertaken several activities to improve its condition assessment practices. It has: documented the lessons learned from its inspection program for sewage pumping stations, which relate to program governance; adopting risk based (rather than time based) programs; and the need for a specific structural program engaged an external review of its condition assessment practices developed a new Condition Assessment Framework and Condition Assessment Standard, which reflect the lessons learned, and developed condition assessment guidelines for specific asset types 	Completed



REC number	Operational issue (licence reference where applicable)	IPART's recommendation to the Minister	Audit findings	Status
		resourcing and support considerations such as access and shutdowns.	 is now implementing the condition assessment program in accordance with the updated Framework. On this basis, this previous recommendation is considered to have been addressed. 	
2020-22:	Reporting Clause 10.2.2	Sydney Water must include detailed and quantitative discussion regarding the drivers for observed performance and variances to historical performance for all Performance Standards in the Performance Standards Report. This should be implemented for the next Performance Standards Report which will be for the 2020/21 year. Under Sydney Water's Reporting Manual, the Performance Standards Report is due for submission by 1 September following the end of the relevant financial year (i.e., 1 September 2021).	Sydney Water demonstrated that it has increased the extent and detail of the discussion and comparison of observed performance, and discussion of the factors impacting performance, included in the Performance Standards Report for each of the Performance Standards. On this basis, this previous recommendation is considered to have been addressed.	Completed


REC number	Operational issue (licence reference where applicable)	IPART's recommendation to the Minister	Audit findings	Status
2020-23:	Reporting Clause 10.2.4	By 30 June 2021, Sydney Water must improve document control of the records held in its systems by ensuring that information such as the version date, version number, change history and document author are included in all records.	The focus of this previous recommendation appears to have shifted when progress was assessed during the 2021 Operational Audit. The recommendation sought an improvement in document control of records by ensuring that relevant information (version date, version number, change history and document author) is included in all records; however, the progress review focused on the proportion of controlled documents that were overdue for review. Sydney Water demonstrated that the intent of the recommendation, as stated, has been addressed. It also provided an extensive explanation of changes to its document management arrangements that are currently being implemented, together with an update in respect of document currency. On this basis, this previous recommendation is considered to have been addressed; however, a new recommendation has been made to ensure that target KPIs in respect of maintaining the currency of controlled documents is achieved.	Completed REC-2022-13: By 30 June 2023, Sydney Water should take action to ensure that the currency of controlled documents complies with its KPI target of 5% for expired documents.



REC number	Operational issue (licence reference where applicable)	IPART's recommendation to the Minister	Audit findings	Status
2021-1	Drinking water Clause 4.1.1	By 30 June 2022 Sydney Water establish processes, accountabilities and schedules for the review of the DWQMP including descriptive text in Helix, accurate links within Helix, updating of the Drinking Water Management Manual. The review frequency of review should reflect the frequency with which each aspect changes. Processes to ensure the reviews are conducted must be established. Sydney Water must prioritise the review aspects noted in this audit report including Element 8 and the documentation of how Sydney Water meets its obligations to prepare an annual report to customers and stakeholders (element 10) so the DWQMP accurately reflects Sydney Water's practices. By 30 June 2023 Sydney Water ensures that the water quality management system and supporting procedures are current and do not rely solely on the specified review period but also consider non time-based triggers.	 Helix is more of a business process mapping tool and is not used operationally for water quality management. Development of a better map is being planned by Sydney Water. To address the recommendation, Sydney Water has removed the descriptive text in Helix to avoid any confusion and consolidated it within the DWQMP. The DWQMP has been assigned a 1-year review cycled in BMIS. The DWQMP has been updated in relation to Elements 8 and 10 to address the recommendation. In relation to non time-based triggers, Sydney Water has added relevant text to their <i>Controlled Documents Standard</i> procedure (608701 in Section 2.1.2). There is a change request process in BMIS which will be used for non time-based triggers. Regular audits will assess if the process is being implemented. A list of documentation relating to the DWQMS has been identified in the management system dashboard. The status is tracked fortnightly. The auditors are satisfied to close out this recommendation as a process is in place to track review status. Regular audits will pick up documents which have not been reviewed as was picked up in this 2022 audit. 	Completed



REC number	Operational issue (licence reference where applicable)	IPART's recommendation to the Minister	Audit findings	Status
2021-2	Drinking water Clause 4.1.1	By 30 June 2022 the Macarthur Drinking Water Quality Management Plan be updated to address all the relevant actions in the Framework for drinking water quality management. There is also further opportunity for improvement to document the ADWG actions that are only addressed by Sydney Water's DWQMS.	The Macarthur DWQMP has been updated and appears to address all elements of the ADWG.	Completed
2021-3	Drinking water Clause 4.1.3	By 30 June 2022 Sydney Water reviews its process to ensure NSW Health is invited to all risk assessments which consider public health risks (across all relevant risk assessments, including. operational, incident management, projects).	A consolidated list of risk assessments undertaken by Sydney Water which consider public health and their purpose was mapped, including those for planning and asset renewal purposes. The mapping process includes engagement with NSW Health. A meeting with NSW Health to review this approach was held on 6 May 2022. After this meeting NSW Health advised they endorsed this approach.	Completed



REC number	Operational issue (licence reference where applicable)	IPART's recommendation to the Minister	Audit findings	Status
2021-4	Drinking water Clause 4.1.3	By 30th June 2022 Sydney Water completes its current improvement project on incident investigations and its current review cycle of preventative aspects of the Incident Management and Emergency Management Procedures, such as business impact assessments and continuity plans and have evidence of implementation of the project outcomes.	The 2021 Operating Licence Audit Report identified tasks for the improvement project mentioned in the recommendation and linked to Element 6. Basically, it was for review of the incident and lessons learnt procedure and review of BCPs. The <i>Incident Debrief and Investigation</i> Procedure was reviewed and updated (D0000513). An example was provided for INC-36135 - 'Failed to meet the water continuity compliance target in 2019-2020' as an example of a completed investigation, undertaken in Nov 21. The auditors noted that the investigation was completed well. The <i>Business Continuity Planning</i> procedure was released (new document D0002088). Sydney Water mentioned that 21 BCPs have been updated during the audit period and two examples were provided as evidence - D0001989 - Business Continuity Plan Contact Centre and D0002078 – <i>Business Continuity</i> <i>Plan – Strategic Communications and CSR</i> .	Completed



REC number	Operational issue (licence reference where applicable)	IPART's recommendation to the Minister	Audit findings	Status
2021-5	Drinking water Clause 4.1.3	By 30 June 2022 Sydney Water has evidence to demonstrate that the operational risk assessment workshop procedure (D0000799) has been fully implemented for both the WFP and networks. This includes the identification of all recycle streams in the PFD as per D0000685.	The deficiencies from the 2021 Operating Licence Audit Report were generally around not identifying the risk team, on the briefing paper content and identification of recycle streams in the PFD. North Richmond supply documents were reviewed to assess if the deficiencies were addressed, and the procedure implemented. The risk teams were identified, NSW Health was invited to workshops for both the WFP and Network, Briefing Papers had appropriate level of content and the recycled stream (supernatant) discharge was marked on the Richmond WFP PFD. The auditors are satisfied to mark this as completed but inconsistency with implementation of procedure D0000799 related to different aspects was identified at this 2022 audit as well. A new recommendation has been made.	Completed
2021-6	Drinking water Clause 4.1.3	By 30th June 2022 Sydney Water undertake a formal risk assessment on the residual lagoon at Macarthur WFP to identify circumstances where chemical spills and other contaminants may enter the lagoon and be returned to the head of the works and ensure processes and procedures for monitoring and managing these risks are adequate and implemented. This risk assessment may be undertaken as part of the annual risk review.	The Macarthur risk assessment register was reviewed as a workshop on 30/6/22, with NSW Health attendance. Risk ID #60 is the relevant risk row in relation to the recommendation, with controls for managing the risk identified in the risk register. The review of the risk line identified an action 'Project to calculate potential spilling concentrations and possibility to exceed ADWG/become a problem'. The target date for this has been identified as Dec 22. The auditors are satisfied that the risk assessment was completed and relevant actions identified.	Completed



REC number	Operational issue (licence reference where applicable)	IPART's recommendation to the Minister	Audit findings	Status
2021-7	Drinking water Clause 4.1.3	By 30th June 2022 Sydney Water review the instrument calibration and checks for the Hach Pocket Colorimeter to ensure the requirements are clarified, documented and implemented.	An updated Calibration Form was developed (dated 25/2/21, may be a typographical error and was developed in 2022), which replaced the form audited. Its use was started in April 2022. Instructions regarding minimum calibration period requirements were added. Evidence on the calibration checks for the HACH colorimeter - chlorine was provided. This showed that calibrations were being done monthly. The instrument with serial number ending in 2048 only appeared on the form in April 2022. It was mentioned by Sydney Water that the use of this was discontinued and a new instrument (serial number ending in 346) started to be used. The auditors are satisfied that this recommendation has been completed.	Completed
2021-8	Recycled water Clause 4.2.1	By 30 June 2022, Sydney Water resolve or remove the discrepancies between the monitoring plans in the Liverpool RWQMP and the annual Recycled Water Monitoring Plan.	The verification monitoring now not in the Liverpool RWQMP.	Completed



REC number	Operational issue (licence reference where applicable)	IPART's recommendation to the Minister	Audit findings	Status
2021-9	Recycled water Clause 4.2.1	By 31 December 2022, Sydney Water must update Work Instruction for Creation of PFDs (D0000685) to include specific instructions and examples for recycled water. Update all recycled water flow diagrams to be consistent with the updated work instruction. Update the Liverpool RWQMP to only include one flow diagram.	The procedure has been updated, it now contains a specific example of recycled water diagrams. It was noted that the recycled water example implements Step 5 differently than in the drinking water example. The step states that the CCP process is to be highlighted/boxed and that the actual CCP monitoring points should be marked similarly. In the recycled water example only the monitoring point is highlight, the process is not. The Liverpool RWQMP was updated last 31/08/2022. It contains only a high-level schematic and refers to a separate PFD for more details. The PFDs are being updated as the risk assessments are being reviewed. The Richmond WRRF risk assessment was reviewed in the audit period and the PFD had been updated to the new format.	Ongoing Not all PFD have been updated yet. Also, the recycled water PFD example is inconsistent with the work instruction and should be revised.
2021-10	Recycled water Clause 4.2.1	By 30 June 2022, Sydney Water must incorporate management review requirements for recycled water and drinking water management systems into the Management Review Procedure.	The procedure has been updated to include recycled water.	Completed
2021-11	Recycled water Clause 4.2.1	By 30 June 2022, Sydney Water must incorporate audit requirements for recycled water and drinking water management systems into the 2LOA Audit Procedure.	Criteria to prioritise drinking water and recycled water audits has been added in to the 2LOA Audit Procedure	Completed



REC number	Operational issue (licence reference where applicable)	IPART's recommendation to the Minister	Audit findings	Status
2021-12	Recycled water Clause 4.2.3	By 31 March 2022, Sydney Water update Irrigation Scheme Monthly Reports to include explanations when fewer samples are required in the period than the frequency in the monitoring plan (e.g. if there are four weeks in the month why are less than four weekly samples required).	The samples were lower than the estimated number of samples when recycled water was not being produced. This information is now on the report to indicate when this is the case. The Picton Irrigation Scheme (PI0011) Monthly Report V2 June 2022 was supplied as evidence.	Completed
2021-13	Asset management Clause 5.5.2	By 30 June 2022 Sydney Water reviews its project development and assurance approach (i.e. business case and gateway process and documents) to determine whether the mitigation measures identified in project risks assessments are recorded and their implementation tracked.	Sydney Water demonstrated that it has developed an IP-IMO Risk Management Plan – Delivery Handbook, which outlines the approach, process, and requirements in relation to asset lifecycle risk management. The documented approach seeks to ensure consistency across business /asset lifecycle planning and delivery of individual projects and programs (in effect a more wholistic approach to risk management) as well as awareness and engagement of personnel involved in the business processes. Improved processes and process elements include: the embedment of risk more clearly in the gateway approval process, with modifications to business case templates to ensure that risk is fully understood throughout the development and implementation phases; and establishment of a centralised management approach for monitoring and updating risk throughout the project/asset lifecycle, which provides real- time visibility. Sydney Water has developed and is implementing a detailed transition plan to ensure that the changes to project/program risk management are clearly understood and effectively implemented.	Completed



REC number	Operational issue (licence reference where applicable)	IPART's recommendation to the Minister	Audit findings	Status
			On this basis, the previous recommendation is considered to have been addressed.	
2021-14	Asset management Clause 5.5.2	By 30 June 2022 Sydney Water reviews any public health related project risks to determine whether the management of these risks is in accordance with its risk management framework.	As reported in respect of Recommendation 2021-13, Sydney Water demonstrated that it has developed an IP-IMO Risk Management Plan – Delivery Handbook, which outlines the approach, process, and requirements in relation to asset lifecycle risk management. The documented approach seeks to ensure consistency across business/asset lifecycle planning and delivery of individual projects and programs (in effect a more wholistic approach to risk management) as well as awareness and engagement of personnel involved in the business processes. Improved processes and process elements include: the embedment of risk more clearly in the gateway approval process; and establishment of a centralised management approach for monitoring and updating risk throughout the project/asset lifecycle, which provides real-time visibility. The Business Case Risk Assurance Register provides a mechanism through which the integrity of the risk analysis at each stage of the gateway approval process can be assured, thereby addressing the issue in respect of which this recommendation was raised. To demonstrate that the issue (essentially account of rick rolativo to varian	Ongoing
			assessment of risk relative to varying	



REC number	Operational issue (licence reference where applicable)	IPART's recommendation to the Minister	Audit findings	Status
			conditions, for example status pre and post implementation of capital works) has been effectively addressed, examples showing the progressive assessment of public health related risks throughout a project lifecycle should be provided. The risks identified in the evidence provided appear to relate to ongoing operation of the facility, and do not relate to the whole of life development, implementation and operation of a specific facility (i.e. a project) to which this recommendation is understood to apply. On this basis, this previous recommendation is considered to be ongoing.	
2021-15	Reporting Clause 10.2.2	By 30th June 2022 Sydney Water, ensures the Quarterly – Water Quality Monitoring Report – Drinking Water (the public water quality reports meets the requirements of the Reporting Manual to report each quarter on their performance against all health and aesthetic water characteristics and raw water operational characteristics identified in the DWQMS.	Sydney Water demonstrated it has made adjustments to the public water quality reports for drinking water to address the identified deficiencies. Accordingly, this previous recommendation is considered to have been addressed	Complete
2021-16	Reporting Clause 10.2.3	By 30 June 2022, Sydney Water conduct an internal audit of its reported environmental data to provide assurance that the data is accurate and in accordance with the reporting definitions.	Sydney Water demonstrated it had conducted an internal audit of its reported environmental data and identified a number of improvement actions. A timeline for implementation of improvement actions was agreed, with the key action relating to indicator definition scheduled for completion in September 2022, i.e. prior to submission of the 2021/22 environment indicators report (due 1 October 2022). Accordingly, this previous recommendation is considered to have been addressed.	Complete



4. GLOSSARY

Abbreviation	Description
ADWG	Australian Drinking Water Guidelines
AGWR	Australian Guidelines for Water Recycling
BMIS	Business Management Information System
BOO	Build-Own-Operate
C2C	Catchment to Consumer
ССР	Critical Control Point
ССТ	Chlorine Contact Tank
DAF	Dissolved Air Floatation
DPE	Department of Planning and Environment
DWQMP	Drinking Water Quality Management Plan
DWQMS	Drinking Water Quality Management System
EKAMS	Effluent Knowledge and Management System
ELL	Economic Level of Leakage
ELWC	Economic Level of Water Conservation
EPL	Environment Protection Licence
EWON	Energy and Water Ombudsman NSW
GAC	Granular Active Carbon
IICATS	Integrated Instrumentation Control Automation & Telemetry System
IDAL	Intermittently decanted aeration lagoon
IPART	Independent Pricing and Regulatory Tribunal
JOG	Joint Operational Group
KPI	Key Performance Indicator
LIMS	Laboratory Information Management System
LRV	Log Reduction Value
LTCOP	Long-term Capital and Operating Plan
ML	Megalitres
mg/L	Milligram per Litre
MPM	Major Preventive Maintenance
MSDS	Material Safety Data Sheet
NTU	Nephelometric Turbidity Unit
NWI	National Water Initiative
OCP	Operational Control Point
PCA	Process Capability Assessment
PFD	Process Flow Diagram
RWQEMP	Recycled Water Quality Event Management Plan
RWQMP	Recycled Water Quality Management Plan
RWQMS	Recycled Water Quality Management System
SCADA	Supervisory Control and Data Acquisition
SLG	Strategic Liaison Group
SOP	Standard Operating Procedure
SWIRL	Sydney Water Incident Recording & Learning System



Abbreviation	Description
UPG	Unit Process Guideline
UV	Ultraviolet
WFP	Water Filtration Plant
WI	Work Instruction
WRRF	Water Resource Recovery Facility



DOCUMENT HISTORY AND TRACKING

Document History

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			Howey	Howey	
			Jim Sly		
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		Sydney Water and IPART	Jim Sly		

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Viridis Consultants Pty Ltd PO Box 131 Bulimba Qld 4171 Australia

1300 799 310

www.viridis.net.au ABN: 49 129 185 271

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F IPART's checks for the 2021-22 operational audit

Table E.1 Clauses that we checked as part of the 2021-22 operational audit

Licence clause	Operating Licence obligation	Compliance grade
1.2		
1.2.2	Sydney Water must publish on its website a map of its Area of Operations by 31 December 2019 (or another date approved by IPART in writing). Sydney Water must update the map within 30 days of any change to its Area of Operations.	
1.6		
1.6.1	Sydney Water must make a copy of this Licence available to any person, free of charge: on its website; and upon request made to the Contact Centre.	
3.1		
3.1.3	 Sydney Water must make: a) a copy of the Current Economic Method; b) a plain English summary of the Current Economic Method; and c) the economic level of water conservation (expressed as the value of water in dollars per kilolitre and as the quantity of savings in megalitres per day) determined in accordance with the Current Economic Method, available: d) to any person, free of charge upon request made to the Contact Centre; and e) on Sydney Water's website. 	
6.1		
6.1.2	 Sydney Water must make a copy of the Customer Contract available to any person, free of charge: a) on its website; and b) upon request made to the Contact Centre. 	
6.7		
6.7.4	 Sydney Water must make the information concerning internal Complaints handling referred to in clause 6.7.3 available to any person, free of charge: a) on its website; and b) upon request made to the Contact Centre. 	
6.8		
6.8.1	Sydney Water must be a member of the Energy & Water Ombudsman NSW to facilitate the resolution of disputes between Sydney Water and its Customers and Consumers.	
8.2 8.2.2	Sydney Water must, by 30 September 2020 (or another date approved by IPART in writing), publish electronically the Servicing Information for each major water system and wastewater system that it has available by that date that is in a form suitable for publication.	

Licence clause	Operating Licence obligation	Compliance grade
8.2.3	Sydney Water must continue to publish Servicing Information for each major water system and wastewater system as it becomes available. Sydney Water must publish all Servicing Information by 30 June 2021 (or another date approved by IPART in writing).	
10.1		
10.1.1	 Sydney Water must cooperate with an audit undertaken by IPART or an Auditor of Sydney Water's compliance with any of the following: a) this Licence (including the Customer Contract); b) the Reporting Manual; and c) any matters specified by the Minister, (the Operational Audit). 	
10.1.2	For the purpose of any Operational Audit or verifying a report on an Operational Audit, Sydney Water must, within a reasonable period of receiving a request from IPART or an Auditor, provide IPART or the Auditor with all the information in Sydney Water's possession, custody or control that is necessary to conduct the Operational Audit, including any information that is reasonably requested by IPART or an Auditor.	
10.1.3	 For the purpose of any Operational Audit or verifying a report on an Operational Audit, Sydney Water must permit IPART or the Auditor to: a) access any works, premises or offices occupied by Sydney Water; 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 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 Sydney Water's obligations under this Licence (including the Reporting Manual); and e) discuss matters relevant to the Operational Audit or any report on the manual; and 	
10.3		
10.3.1	Sydney Water must provide IPART information relating to the performance of any of Sydney Water's obligations under clause 10.2 (including providing IPART physical and electronic access to the records required to be kept under clause 10.2) within a reasonable time of Sydney Water's receiving a request from IPART for that information.	
10.3.2	Sydney Water must provide IPART such information as is reasonably required to enable IPART to conduct any review or investigation of Sydney Water's obligations under this Licence within a reasonable time of Sydney Water receiving a request from IPART for that information.	
10.3.3	If Sydney Water engages any person (including a subsidiary) to undertake any activities on its behalf, it must take all reasonable steps to ensure that, if required by IPART or an Auditor, any such persons provide information and do the things specified in clause 10.1 as if that person were Sydney Water.	
10.3.4	If IPART or an Auditor requests information that is confidential, the information must be provided to IPART or the Auditor, subject to IPART or the Auditor entering into reasonable arrangements to ensure that the information remains confidential.	0

Licence clause	Operating Licence obligation	Compliance grade
10.3.5	Sydney Water must provide NSW Health with information relating to water quality in the manner and form specified by NSW Health within a reasonable time of receiving NSW Health's request.	
	[Note: Under section 19 of the Public Health Act 2010 (NSW), the Secretary of NSW Health may require Sydney Water to produce certain information.]	
Note _: 💽 = Ca	ompliant; 😎 = Compliant (minor shortcomings); 😢 = Non-Compliant (non-material); 😢 = Non-Co	mpliant (material).

IPART, Sydney Water operational audit 2021 – Report to the Minister, March 2022. IPART, *Compliance and Enforcement Policy*, December 2017. IPART, *Audit Guideline – Public Water Utilities*, July 2019.

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