

Hunter Water Operational Audit 2019

Report to the Minister

Compliance Report Water

March 2020

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Tribunal Members

The Tribunal members for this review are: Dr Paul Paterson, Chair Ms Deborah Cope Ms Sandra Gamble

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

Darren Holder	(02) 9290 8441
Darren Holder	(02) 9290 0441

Jamie Luke (02) 9290 8460

Matthew van Uffelen (02) 9113 7789

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Summary

Customers in NSW rely on safe and reliable water and wastewater services. Operating licences outline the obligations imposed by the NSW Government on publicly owned monopoly suppliers of essential services such as Hunter Water Corporation (Hunter Water). The Independent Pricing and Regulatory Tribunal of NSW (IPART) conducts annual licence audits to ensure Hunter Water meets these expectations.

This is our operational report to the Minister on the 2019 audit as required under the *Hunter Water Act* 1991 (Act).¹ In the 2019 annual audit, we audited Hunter Water's compliance with 21 clauses of the *Hunter Water* 2017-2022 *Operating Licence* (Licence).²

Key findings

The 2019 audit found that Hunter Water had a high level of compliance with the Licence conditions. We have summarised Hunter Water's compliance with audited clauses of the Licence in Table 1 below.

Liconco part	Number of audited	nber of Compliance grade assigned idited				
	clauses			8	8	
Part 1 – Licence context and authorisation	1	-	-	1	-	-
Part 2 – Water conservation	7	7	-	-	-	-
Part 3 – Supply services and performance standards	4	3	-	1	-	-
Part 4 – Organisational systems management	1	1	-	-	-	-
Part 5 – Customer and stakeholder relations	6	5	1	-	-	-
Part 6 – Performance monitoring and reporting	2	2	-	-	-	-
Part 7 – Definitions and interpretation	-	-	-	-	-	-
Total	21	18	1	2	-	-

Table 1 Hunter Water's compliance in 2019, the second year of its 2017-2022 licence

Note: 😎 = Compliant; 😎 = Compliant (minor shortcomings); 😳 = Non-Compliant (non-material);

😢 = Non-Compliant (material); 🖉 = No Requirement.

Source: Cobbitty Consulting, 2019 Operational Audit of Hunter Water Corporation, February 2020.

¹ See section 18A of the Act.

² This year our report presents an exception based summary of the audit, rather than all findings as in previous years. We discuss any audited clause which did not receive a "Compliant" grading in Chapter 2. For the full findings of the audit refer to the auditor's report in Appendix D.

The 2019 audit found:

- Two Non-compliant (non-material) grades for Hunter Water's incorrect application of its stormwater charges and sewer discharge allowance for non-residential properties, and for not maintaining its Recycled Water Quality Management System consistent with the *Australian Guidelines for Water Recycling* (AGWR)
- One Compliant (minor shortcomings) grade for Hunter Water's provision of information to customers and the general public.

These issues are further discussed in Table 2.2.

We make six recommendations to the Minister for clauses where we did not assign a fully Compliant grade.³ All six recommendations are set out in Chapter 1. The first five recommendations are discussed in Chapter 2 and the last recommendation is discussed in Chapter 3.

³ As per the IPART *Audit Guideline Public Water Utilities*, July 2019, auditors are only required to make recommendations for grades other than Compliant, (ie for Compliant (minor shortcomings), Non-compliant (non-material) and Non-compliant (material) grades).

1 Introduction

The 2019 audit is the second operational audit of Hunter Water's compliance with the requirements of the Licence.

We engaged specialist auditing firm, Cobbitty Consulting Pty Ltd (Cobbitty), in partnership with Viridis Consultants Pty Ltd (Viridis) (the auditor), to undertake the audit on our behalf. We have prepared this report to summarise the audit findings for the Minister for Water, Property and Housing, the Hon. Melinda Pavey MP.

1.1 Recommendations

We make the following six recommendations for the clauses where we did not assign a Compliant grade⁴ to Hunter Water to ensure that compliance with the Licence is maintained. These recommendations are based on the findings of the audit by our auditor Cobbitty and should be read in conjunction with each of the relevant Licence clauses.

Recommendations

- 1 By 30 June 2020, Hunter Water must report to IPART on the further progress made since the non-compliance was reported to IPART in the 2018-19 Statement of Compliance. The report must include progress made in contacting past owners of properties affected by the incorrect charging of the Stormwater Drainage Charge, the total of the refunds made compared to the amount overcharged, and any further actions to be undertaken (if necessary) to rectify this non-compliance.
- By 30 June 2020, Hunter Water must correct its application of the sewer discharge allowance within the billing system; determine the number of customers affected and the incorrectly billed amounts; and report these details to IPART together with details of actions and/or further actions proposed.
- 3 By 30 September 2020, Hunter Water must document the methodology for assessment of water quality data to inform risk assessment on ensuring consistency across schemes. The assessment should include methods for trending and identifying problems.
- 4 By 30 June 2020, Hunter Water must review the verification monitoring program for the Chisholm and Gillieston Heights recycled water schemes, to ensure microbiological testing is consistent with the advice provided in the *Australian Guidelines for Water Recycling* for large high exposure schemes, and include weekly testing of clostridial spores and somatic coliphage, and monthly testing of adenovirus and cryptosporidium oocysts.
- 5 By 30 June 2020, Hunter Water must ensure that all information required to be available on its website for downloading, or upon request through the General Enquiry Process, can be readily identified by methods such as menu navigation or using the search function.
- 6 By 31 March 2021, Hunter Water must ensure that the proposed functionality for fully automated tankered waste billing is incorporated into the new corporate billing system.

⁴ Compliant grade does not include Compliant (minor shortcomings) grade.

The compliance grades are explained in Appendix A. IPART's Reporting Manual⁵ requires Hunter Water to provide a report on its progress in implementing these recommendations by 31 March 2020 or at a later date agreed to by IPART. We agreed to a later date of 12 June 2020.

1.2 Annual statement of compliance

In preparing this report we have also considered Hunter Water's annual Statement of Compliance (Appendix E). This is an exception-based report⁶ certified by the interim CEO and the Chairman of the Board of Directors of Hunter Water. It lists all Licence non-compliances identified by Hunter Water and what remedial action has been taken, or is being taken, to resolve these non-compliances.

This year Hunter Water reported one non-compliance with the Licence on pricing in relation to the requirement to set the level of fees and charges for its services in accordance with any applicable pricing determination.

1.3 Progress with previous recommendations

Hunter Water fully completed 13 of the 15 outstanding recommendations from previous operating audits. Further information can be found in Chapter 3.

Hunter Water completed the majority of its outstanding recommendations on maintaining and implementing its drinking and recycled water quality management systems. Additionally, recommendations on pricing, asset and environmental management systems and the memorandum of understanding with Fire and Rescue NSW were completed.

1.4 Audit scope

The 2019 audit covered the period from 1 November 2018 to 31 October 2019. The full process we followed to undertake the audit is described in Appendix B.

⁵ *Hunter Water Reporting Manual Operating Licence* 2017-2022 (July 2018), available on our website (https://www.ipart.nsw.gov.au).

⁶ This means reporting only on those clauses where Hunter Water considers it is non-compliant.

2 Audit findings and recommendations

This Chapter provides an exception-based summary of Hunter Water's compliance with the audited clauses of the Licence. It explains the auditor's findings on audited clauses that did not receive the highest compliance grade (Compliant).

Hunter Water has shown an overall high level of compliance with the Licence. The quality of water produced by Hunter Water continues to be of a high standard and meets public health requirements. The auditor identified shortcomings with the provision of information to customers and the general public, and two non-material non-compliances in relation to pricing and the quality management system for recycled water. However these shortcomings have not affected water quality or public health. These issues require attention from Hunter Water to ensure compliance is maintained.

For the clauses subject to this audit, Table 2.1 provides a snapshot of Hunter Water's noncompliances over the course of the Licence for the clauses where Hunter Water has not been assigned a Compliant grade in this year's audit. Table 2.2 provides an audit exception summary (ie, a summary of the non-compliances) and our reasoning for the assigned grade and any relevant recommendations.

The auditor has also identified some opportunities for improvement in Hunter Water's operational audit report, provided in Appendix D.

Table 2.12019 audit exceptions in relation to historic performance with 2017-2022Operating Licence requirements

Licence clause	Requirement	Compliance grade				
		2017-18ª	2018-19 ^b	2019-20	2020-21	2021-22
1.8.1	Pricing – fees set in accordance with IPART's determination	8	8			
3.2.1	Recycled water quality management system consistent with Australian Guidelines for Water Recycling	<u>~</u>	8			
5.7.2	Hunter Water must make a copy of the following documents available to any person, free of charge on its website for downloading and upon request through the General Enquiry Process	Not Audited	~			

a IPART, Hunter Water Corporation Operational Audit 2018 – Report to the Minister – Compliance Report, March 2019.

b Cobbitty Consulting, 2019 Operational Audit of Hunter Water Corporation, February 2020.

Note: Compliant (minor shortcomings); C = Non-Compliant (non-material). The 2017-18 audit period is 1 July 2017 to 31 October 2018. The 2018-19 audit period is 1 November 2018 to 31 October 2019.

Licence clause	Requirement	Compliance grade	Audit finding	Recommendations
1.8.1	Subject to the terms of this Licence, the Act and the IPART Act, Hunter Water must set the level of fees, charges and other amounts payable for its Services in accordance with any applicable determination or determination under the IPART Act.	Non-Compliant (non-material)	Our auditor assigned Hunter Water a Non-compliant (non- material) grade for clause 1.8.1. We agree with this grade. liant rial) The auditor confirmed Hunter Water's declared non-compliance of the incorrect application of stormwater charges to affected properties from 2006 to 2019. Approximately 1% of Hunter Water's customers have been affected, with 0.2% of properties overcharged an average of approximately \$1,180 per property and 0.8% of properties undercharged an average of approximately \$935 per property. On the basis of the small percentage of customers affected, and given Hunter Water implemented corrective actions to address affected customers, a non-compliant (non-material) grade is assigned in respect of this obligation.	 2019-01: By 30 June 2020, Hunter Water must report to IPART on the further progress made in contacting past owners of properties affected by the incorrect charging of the Stormwater Drainage Charge, the total of the refunds made compared to the amount overcharged, and any further actions to be undertaken (if necessary) to rectify this non-compliance. 2019-02: By 30 June 2020, Hunter Water must correct its application
			The auditor also found incorrect application of the sewer discharge allowance for non-residential customers. The impact of sewer discharge allowance for non-residential customers is non-material as Hunter Water has incorrectly billed 8,665 non- residential properties, approximately 3% of its customers, to a total value of \$589 since 1 July 2016.7 Overall, in assessing the materiality of the incorrect charging the auditor considered the amount of over or undercharging and the impact relative to the broader customer base.	of the sewer discharge allowance within the billing system; determine the number of customers affected and the incorrectly billed amounts; and report these details to IPART together with details of actions and/or further actions proposed.

Table 2.2 2019 compliance with Hunter Water's operating Licence – grades other than fully Compliant

⁷ Email to IPART, Hunter Water, 6 February 2020.

 12.1 Hunter Water must maintain a Management System for Recycled Water that is consistent with the Australian Guidelines for Water Recycled Mater Cualify Management System). 12.1 Our auditor assigned Hunter Water a Non-compliant (non-material) grade for clause 3.2.1. We agree with this overall grade methodology for the assessment of water quality data under Element 2 was not documented and there was no evidence of the water quality data assessment of water quality dude methods for the displayed for the same sessment of water quality data assessment of water quality data assessment of water quality data assessment did comprehensively identify hazards and hazardous events despite the lack of water rus was no evidence of the water quality data assessment. We agree with the grade for Element 2. 12.1 Our auditor also noted under Element 5 that the Recycled Water Guality Management Plans for these sites proposed lower frequencies (monthy rather than weekly) of monitoring for microbiological indicators than those stated in the Australian Guidelines for Water Recycling (AGWR). The auditor considered the non-compliance mon-material somatic collphage, and monthly testing of adenovirus and cryptosportidum oocysts. 12.1 Hunter Water validated the treatment processes to demonstrate that it is capable of achieving the pathogen log reducing of achieving the pathogen log reducing the pathogen log reducing	Licence clause	Requirement	Compliance grade	Audit finding	Recommendations
	3.2.1	Hunter Water must maintain a Management System for Recycled Water that is consistent with the Australian Guidelines for Water Recycling, except to the extent that NSW Health specifies otherwise in writing (the Recycled Water Quality Management System).	Non-Compliant (non-material)	 Our auditor assigned Hunter Water a Non-compliant (non-material) grade for clause 3.2.1. We agree with this overall grade. Our auditor noted the methodology for the assessment of water quality data under Element 2 was not documented and there was no evidence of the water quality data assessment undertaken for the Gillieston and Chisholm scheme risk assessments. The auditor considered the non-compliance non-material because the risk assessment did comprehensively identify hazards and hazardous events despite the lack of evidence of water quality data assessment. We agree with this grade for Element 2. Our auditor also noted under Element 5 that the Recycled Water Quality Management Plans for these sites proposed lower frequencies (monthly rather than weekly) of monitoring for microbiological indicators than those stated in the <i>Australian Guidelines for Water Recycling</i> (AGWR). The auditor considered the non-compliance non-material. In the circumstances, we do not recommend the issue be treated as a non-compliance with the Licence. Although we consider it reasonable for the auditor to form the professional opinion it did, we recognise that Hunter Water undertook reasonable steps to achieve compliance. We assign a Compliant (minor shortcomings) grade to this issue. The auditor noted that: Hunter Water validated the treatment processes to demonstrate that it is capable of achieving the pathogen log reductions The proposed monitoring program included monitoring of microbiological indicators. 	2019-03: By 30 September 2020, Hunter Water must document the methodology for assessment of water quality data to inform risk assessment to ensure consistency across schemes. The assessment should include methods for trending and identifying problems. 2019-04: By 30 June 2020, Hunter Water must review the verification monitoring program for the Chisholm and Gillieston Heights recycled water schemes, to ensure microbiological testing is consistent with the advice provided in the AGWR for large high exposure schemes, and include weekly testing of clostridial spores and somatic coliphage, and monthly testing of adenovirus and cryptosporidium oocysts.

Licence clause	Requirement	Compliance grade	Audit finding	Recommendations
			 The critical control points were established to take action should treatment performance deviate from required ranges. 	
5.7.2	Hunter Water must make a copy of the documents in clause 5.7.2 available to any person, free of charge on its website for downloading and upon request through the General Enquiry Process.	Compliant (minor shortcomings)	Our auditor assigned Hunter Water a Compliant (minor shortcomings) grade for clause 5.7.2. We agree with this grade.	2019-05: By 30 June 2020, Hunter Water must ensure that all information required to be available on its website for downloading, or upon request through the General Enquiry Process, can be readily identified by methods such as menu navigation or using the search function.

Source: Cobbitty Consulting, 2019 Operational Audit of Hunter Water Corporation, February 2020.

3 Progress on previous audit recommendations

The previous audits identified areas where Hunter Water was not fully Compliant with the Licence obligations. We made recommendations to Hunter Water to address these issues.⁸ The following table outlines Hunter Water's progress in implementing these recommended actions.

Commendably, Hunter Water has fully implemented 13 of the 15 outstanding audit recommendations. The other recommendations are being progressed. The previous recommendations are shown in Table 3.1.

	Recommendation	Progress
2018-01	 Pricing (clause 1.8.1): Hunter Water should take action to ensure that tankering charges are correctly applied, including by: a) 31 March 2019, the use of paper tanker delivery dockets is replaced by a digital capture (mobility) arrangement b) 30 June 2019, draft bill validation processes are implemented for tankered waste bills c) 31 December 2019, automated billing for the receipt of tankered waste is implemented as part of Hunter Water's proposed billing system upgrade. 	 (a) and (b) complete. (c) revised. Hunter Water implemented a digital document entry system and bill validation processes of tankered waste bills. Some degree of automated billing has been implemented for the application of the relevant fees within the online 'Tankering' application. However, Hunter Water should ensure that the proposed functionality for fully automated tankered waste billing is incorporated into the new corporate billing system, which is forecasted to be in 2021 (see new recommendation 2019-06). 2019-06: By 31 March 2021, Hunter Water must ensure that the proposed functionality for fully automated tankered waste billing is incorporate into the new corporate billing system.
2018-02	Pricing (clause 1.8.1): By 1 September 2019, Hunter Water must report to IPART on the further progress made in contacting owners affected by the incorrect charging of the Environment Improvement Charge and notify the total of the refunds made, and any further actions to rectify this non-compliance.	Complete Hunter Water prepared and submitted a report to IPART on the further progress made in contacting owners affected by the incorrect charging of the Environment Improvement Charge, including details of the total of the refunds made, and further actions proposed to rectify the non-compliance.
2013-14-03 2013-14-04 2013-14-06 2013-14-13	Drinking Water (clauses 3.1.1 & 3.1.2): Within 6 months, Hunter Water should review Critical Control Points (CCPs) for each treatment plant, including:	Complete NSW health has agreed to the final disinfection CCP critical limits.

Table 3.1Hunter Water's progress in 2019 to address our recommendations from the
previous audits

⁸ IPART, Hunter Water Corporation Operational Audit 2018, Report to the Minister, March 2019.

	Recommendation	Progress
	 a) review all CCP critical limits (including alarm delays), and monitoring points to ensure they reflect current practice, as agreed with NSW Health. [Note: other elements of these recommendations, as they apply to Drinking Water, had been fully addressed at the time of the 2018 Operational Audit.] 	
2018-03	Drinking Water (clause 3.1.1): By 30 June 2019, Hunter Water should have a clear and transparent risk assessment process. Hunter Water should review the current risk process to ensure that the risk process is clearly mapped out and documented so that all stakeholders are able to follow the process easily. Documentation of the risk process should include all relevant data that is used to inform the risk assessment.	Complete Hunter Water developed a new quality assurance guideline which explains the catchment to tap risk assessment process. The guideline includes key information covering risk assessment preparation (ie, water quality analysis, briefing paper etc.), and risk outcomes reporting including corporate risk updates.
2018-04	Drinking Water (clause 3.1.1): By 30 June 2019, Hunter Water should clearly identify as a hazard event 'receiving water from Central Coast Council' in the risk assessment and preventive/control measures must be documented and implemented.	Complete Hunter Water has undertaken a risk assessment process with the involvement of NSW Health and Central Coast Council and prepared risk mitigation plan for those risks that are considered to exceed Hunter Water's risk appetite.
2018-05	Drinking Water (clause 3.1.1): By 30 June 2019, Hunter Water should prioritise the improvement actions identified in the 2018 risk assessment to ensure maintenance hygiene procedures are reviewed so that consistent hygiene practices are implemented and are auditable. These hygiene practices should include the disinfection of tools, personal hygiene (in relation to workwear), disinfection and storage of parts/pipes, working clearances to prevent contamination, flushing, reinstating a service and acceptance criteria.	Complete Hunter Water developed a new Standard Technical Specification for Water Quality Acceptance Testing (STS 408). The new specification includes personal, tools and equipment hygiene, storage in vehicles of tools and equipment, hygienic work practices, water quality acceptance criteria, based on risk, and template checklist for a Water Quality Acceptance Report.
2018-06	 Drinking Water (clause 3.1.1): By 30 June 2019, Hunter Water should: a) Add reservoir inspection training to the training needs matrix for all positions undertaking reservoir inspections, to ensure training is current. b) Revise the Reservoir Inspection form to provide more specific guidance and refer to specific and measureable assessment criteria, where possible. For example, under Roof Hatches and Roof Sheeting, the inspection item: "P1 – evidence of bird/vermin in reservoir or vent/opening not bird/vermin proof" could be revised to include a specific measurable assessment criterion: 	Complete Hunter Water updated its IMS Training and Competency Needs Register to include 'mandatory' and 'as required' training requirements. Relevant staff have been assigned 'mandatory' training. Additionally the Reservoir Inspection Form has been revised to include new measurable criteria for assessment, as required by part b) of the recommendation.

	Recommendation	Progress
	"P1 – evidence of bird/vermin in reservoir or	
	vent/opening greater than "X"mm."	
2013-14-03 2013-14-04 2013-14-06 2013-14-13	 vent/opening greater than "X"mm." Recycled Water (clauses 3.2.1 & 3.2.2): Within 6 months, Hunter Water should review Critical Control Points (CCPs) for each treatment plant, including: a) review all CCP critical limits (including alarm delays), and monitoring points to ensure they reflect current practice, as agreed with NSW Health; c) revise and review CCP documentation to clearly state location, parameters, target criteria, monitoring frequency, critical limits, corrective actions and responsibilities for each CCP; and e) operational and critical limits must be set in SCADA as alarms, including delay times where appropriate. [Note: other elements of these 	 a) Ongoing c) and e) Completed Hunter Water is awaiting NSW Health agreement to the final CCP critical limits. Hunter Water reviewed and updated the Recycled Water Quality Management Plans (RWQMPs) and the Validation testing program for water recycling schemes. The Validation testing program details the CCP review process that was undertaken and the rationale for determining the parameters and the critical limits. The scheme specific RWQMPs were updated and include tables that detail the CCPs, target limit, critical limits, operational monitoring (parameters, time delays as appropriate, monitoring locations and frequencies) and corrective actions
	recommendations, as they apply to Recycled Water, had been fully addressed at the time of the 2018 Operational Audit.]	Hunter Water stated in the audit questionnaire that it has reviewed and confirmed the SCADA setpoints. The auditor verified this statement during the site inspection of the Morpeth Recycled Water Treatment Plant.
2016/17-06	 Water Quality; Recycled Water (clause 3.2.1): By 30 September 2018, Hunter Water should: Develop a table in each scheme's Recycled Water Quality Management Plan that documents the evidence for the selection of the Critical Control Point, its associated monitoring parameter(s) and limits. This should include sufficient document control to capture when changes are made and the basis of those changes Consult with NSW Health on the validation testing program for the water recycling schemes Specify the performance required of the ultraviolet (UV) units in their operating context and determine whether they are achieving this performance. Any failure in the performance of pre-validated UV units should be further investigated. 	Complete Hunter Water updated the Validation testing program for water recycling schemes and the scheme specific RWQMPs to reflect the requirements for Ultra-violet Transmittance (UVT) testing. Hunter Water consulted with NSW Health and received a letter from NSW Health indicating its satisfaction with the status of the validation of the Chisholm/Gillieston Heights RWQMP.
2018-07	Recycled Water (clause 3.2.1): By 30 June 2019, Hunter Water should ensure that critical limits are documented accurately in the RWQMP, including any time delays; ensure that the location of where the critical limit applies is accurately documented; and ensure that the critical limits are consistently documented across Hunter Water and Veolia documentation.	Complete Hunter Water updated scheme specific RWQMPs to include tables that detail the CCPs, parameters, target limits, critical limits, operational monitoring (location, frequency and any time delays, as appropriate) and corrective actions.

	Recommendation	Progress
2018-08	 Recycled Water (clause 3.2.1): By 30 June 2019, Hunter Water should: a) Include the monitoring of UVT in the operational monitoring detailed in the site specific RWQMPs for recycled water schemes that rely on UV disinfection for primary disinfection; b) Confirm that critical limits (for example UVT) are set in accordance with the available validation information; c) For schemes that have online monitoring of UVT, implement an alarm and or shut down for when UVT falls outside the validated operational range for the UV system (e.g. 45% at Morpeth Wastewater Treatment Works (WWTW)); and d) For schemes that do not have online monitoring of UVT, establish appropriate monitoring of UVT, falls outside the validated operational range for methy); and d) For schemes that do not have online monitoring of UVT, establish appropriate monitoring nocesses, such as regular grab samples with identified corrective actions for when UVT falls outside the validated operational range specified by the manufacturer. 	Complete UVT monitoring has been included in the operational monitoring detailed in each of the site specific RWQMPs for those Recycled Water Schemes that rely on UV Disinfection for primary disinfection. A SCADA change has been implemented since the update and UVT CCP alarms are in place. Weekly laboratory monitoring is implemented at Recycled Water Schemes that rely on UV Disinfection for primary disinfection as detailed in the Recycled Water Quality Monitoring Plan.
2018-09	Recycled Water (clause 3.2.1): By 30 June 2020, Hunter Water should investigate the establishment of online monitoring of UVT with alarms and or shutdowns at all sites that rely on UV disinfection for primary disinfection of recycled water.	Complete Hunter Water and Veolia investigated the potential for establishing online UVT testing at relevant treatment plants and identified Cessnock as a potential site for the application of online UVT Testing. Hunter Water is currently completing a capacity review of Cessnock WWTW and a plant upgrade in 2022 that may include modification to the UV Disinfection System.
2016/17-08	Asset Management System (clause 4.1.2): By 30 June 2019, Hunter Water should fully implement an asset criticality and risk assessment approach that is consistent across all asset classes and consistent with the enterprise risk management framework.	Complete Hunter Water finalised development of its Critical Asset Standard, which details an asset criticality and risk assessment approach that is consistent with the enterprise risk management framework. The approach is applicable across the asset portfolio, and the ranking process can be applied to all levels of the asset hierarchy. Review of a sample of the Asset Management Plans/ Asset Plans reveals that the approach has been applied to various asset types and classes.
2018-10	Environmental Management System (clause 4.2.2): By 30 June 2019, Hunter Water should ensure high risk issues in the Environmental Compliance Tracking Register are addressed within the allocated timeframe.	Complete Hunter Water's Environmental Commitments Tracker demonstrated that it reduced open matters from 133 in 2018 to 63 at the time of the 2019 operational audit. All high priority items have been closed out.
2018-11	Memorandum of Understanding with Fire and Rescue NSW (clause 5.11.1):	Complete

Recommendation	Progress
By 30 June 2019, Hunter Water should use its best endeavours to develop and enter into a Memorandum of Understanding with Fire and Rescue NSW.	Hunter Water entered into a Memorandum of Understanding with Fire and Rescue NSW on 17 June 2019, prior to the date required by the recommendation.

Source: IPART, Hunter Water Corporation Operational Audit 2018, Report to the Minister, March 2019. Cobbitty Consulting, 2019 Operational Audit of Hunter Water Corporation, February 2020.

Appendices

A Compliance grades

Grades of compliance		Description		
	Compliant	Sufficient evidence is available to confirm that the requirements have been met.		
0	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.		
8	Non-compliant (non-material)	Sufficient evidence is not available to confirm that the requirements have been met and the deficiency does not adversely impact the ability of the utility to achieve defined objectives or assure controlled processes, products or outcomes.		
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 utility to achieve defined objectives or assure controlled processes, products or outcomes.		
	No Requirement	There is no requirement for the utility to meet this criterion within the audit period.		

Table A1: Current compliance grades

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

B Audit process

B.1 Audit programme

In developing our 5-year audit programs and annual audit scopes for Hunter Water we apply IPART's *Compliance and Enforcement Policy, December 2017*. This policy sets out our risk-based regulatory model. Under this policy, we can:

- Focus on allocating resources to areas of higher risk
- Increase our efficiency
- Tailor our enforcement response.

We base our risk-based approach on evaluating the risk that each part of our regulatory function aims to reduce. We evaluate the risk 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 allocation of resources in proportion to the risk and complexity of regulated entities and behaviours.

The audit process involves receiving and reviewing reports, undertaking and attending audit interviews with Hunter Water staff, and undertaking field verification to investigate how effectively the requirements of the licence are met in practice.

B.2 2019 audit scope

We do not audit every licence clause each year, instead we adopt a risk-based audit approach. This means we audit 'high risk' clauses more frequently and 'low risk' clauses less frequently. We audit all requirements of the licence at least once during the 5-year term of the licence. Audits are conducted in accordance with our *Audit Guideline – Public Water Utilities* (Audit Guideline) which is available on our website.

Following the risk-based approach, the audit scope for this year included licence obligations on:

- Licence context and authorisation (Part 1) requirements on pricing
- Water conservation (Part 2) requirements on water conservation
- Supply services and performance standards (Part 3) requirements on drinking water and recycled water
- Organisational systems management (Part 4) requirements on asset management.
- Customer and stakeholder relations (Part 5) requirements on complaints handling, provision of information to the public and memorandum of understanding with Fire and Rescue NSW

Performance monitoring and reporting (Part 6) – requirements on reporting obligations

Applying the risk-based approach used in the auditing program, we did not audit clauses from Part 7 (Definitions and interpretations) this year.

We consulted with Department of Planning, Infrastructure and Environment (DPIE), the NSW Ministry of Health (NSW Health), and Fire and Rescue NSW, and sought public submissions in determining the scope of the audit. The audit scope is provided in Appendix C. Submissions from stakeholder agencies including DPIE and NSW Health indicated stakeholders were generally satisfied that Hunter Water had met is obligations under the Licence relevant to their portfolio.

We did not amend the audit scope as a result of the submissions from stakeholder agencies. Generally where stakeholders raised particular areas of concern requiring further action, our auditor had regard these comments in assessing the progress against previous recommendations.

We received one submission from the member of the public on the operational audit in relation to sewerage services in the suburb of Morpeth. We reviewed the submission and consulted with Hunter Water on the nature of the unconnected properties and the necessary actions to connect to Hunter Water's services. We determined that the issue did not constitute a breach of Hunter Water's Licence.

We note IPART's 2018 final report and determination: *Maximum prices for connecting, or upgrading a connection, to a water supply, sewerage, or drainage system* sets out a methodology for calculating charges for the owners of existing properties. Under this determination, existing property owners are able to connect to Hunter Water's sewerage systems, provided property owners fund and deliver the necessary infrastructure works and comply with the notice of requirements issued by Hunter Water.

B.3 2019 audit plan

We engaged Cobbitty Consulting Pty Ltd (Cobbitty), in partnership with Viridis Consultants Pty Ltd (Viridis), to undertake the 2019 audit of Hunter Water.

We held a project start-up meeting with the auditor on 17 July 2019 to agree on the project milestones, audit timing, and outline our expectations. We also participated in the audit inception meeting with Hunter Water and the auditor on the first day of the audit interviews, on 12 November 2019. At this meeting, expectations and protocols for the conduct of the audit were agreed. All parties adhered to the agreed protocols throughout the audit.

We required the auditor to undertake the following tasks:

- 1. Receive stakeholder submissions and comments for inclusion in the audit scope
- 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

- 3. Review reports and documents provided by Hunter Water in response to the questionnaire
- 4. Conduct interviews with Hunter Water staff at its offices
- 5. Conduct field verification and assess the implementation of Hunter Water's systems and procedures
- 6. Assess the level of compliance (according to our compliance grades) Hunter Water achieved for each of the identified obligations of the licence and provide supporting evidence for this assessment
- 7. Assess and report on progress by Hunter 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 drafts of the audit report to us and address comments from Hunter Water and us regarding draft audit findings
- 10. Prepare a final report outlining audit findings (Appendix D).

Our auditor adopted a methodology consistent with *ISO 19011 Guidelines for Auditing Management Systems*. This guideline defines the requirements of an audit, ensuring that it is conducted in accordance with an established and recognised audit protocol. Where appropriate, the auditor also sought guidance from *ISO 55001:2014 Asset management system – Requirements*.

Our auditor also carried out the audit according to our *Audit Guideline - Public Water Utilities, July 2019.*⁹ Under this guideline, the auditor can make recommendations or suggest opportunities for improvement.

Where we support an auditor's recommendation, we make our recommendation based on the auditor's recommendation. Our recommendations are summarised in section 1.1 of this report.

Where the auditor suggested opportunities for improvement, Hunter Water can decide whether to implement these suggestions. This approach should balance improved performance with the investment required to achieve it. That is, we want Hunter Water to first consider the pricing implications and value for money of continued improvement. As a consequence, while we encourage Hunter 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.

Our auditor conducted audit interviews from 12 to 14 November 2019 at Hunter Water's office in Newcastle. On 13 November 2019, the auditor also undertook a site visit to the following locations:

Morpeth Recycled Water Plant

⁹ Available on our website (https://www.ipart.nsw.gov.au). The latest version of the Audit Guidelines was released in July 2019.

- Chisholm No 2 Chlorination Facility
- Chisholm urban development (recycled water network)
- Adamstown Heights Reservoirs
- Fern Bay (environmental improvement site).

Our auditor assessed Hunter Water's compliance with the relevant requirements of the Licence as per the compliance grades outlined in Appendix A.

C 2019 audit scope

Note: The audit scope was prepared prior to contacting stakeholders.

2019 operational audit scope Hunter Water Corporation

2019 audit scope

This document sets out the 2019 operational audit scope for Hunter Water Corporation (Hunter Water).

This scope is based on IPART's 5-year audit program for Hunter Water's 2017-2022 Operating Licence. Auditors should note any directions in the comments column of Table 2.

Audit period

The audit period is 1 November 2018 to 31 October 2019. Interviews for the audit will be held in November 2019.

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 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 Hunter Water Operating Licence 2017-2022 (licence) and the audit scope, the licence will prevail.

Table 1 Key

Requirement	Meaning
Audit/Review	Audit/review clause in 2019 audit.
SC	Audit of this clause not required in the 2019 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 2019 Audit scope for Hunter Water Corporation

Licence clause	Operating Licence obligation	2019 audit requirement	Comments for the auditor
1	Licence Context and authorisation		
1.1	Objectives of this Licence		
1.1.1	 This licence aims to: (a) provide transparent and auditable terms and conditions for Hunter Water to lawfully undertake its activities at industry good-practice; (b) recognise the interests of stakeholders within its Area of Operations; and (c) impose the minimum regulatory burden on Hunter Water by avoiding duplication or conflict with other regulatory instruments. 	NR	
1.2	Licence authorisation		
1.2.1	This Licence authorises and requires Hunter Water to provide, construct, operate, manage and maintain efficient, co-ordinated and commercially viable systems and services for supplying water, providing sewerage services, and disposing of Wastewater within its Area of Operations.	NR	
1.2.2	This Licence authorises Hunter Water to do all things necessary or convenient to achieve, and to promote the capability to achieve, the transfer of water between its Area of Operations and the local government area of the Central Coast Council in accordance with the Hunter/Central Coast Pipeline Agreement.	NR	
1.2.3	This Licence authorises and requires Hunter Water to provide, operate, manage and maintain a drainage service as described in section 13(1)(b) of the Act.	SC	
1.2.4	This Licence authorises (but does not require) Hunter Water to provide, construct, operate, manage and maintain a drainage service within the Area of Operations in excess of the drainage service it is required to provide, operate, manage and maintain under clause 1.2.3. For the avoidance of any doubt, this clause authorises (but does not require) Hunter Water to enhance, expand and add capacity to the drainage service described in section 13(1)(b) of the Act.	NR	

Licence	Operating Licence obligation	2019 audit	Comments for the
clause		requirement	auditor
1.3	Term of this Licence		
1.3.1	The term of this Licence is 5 years from the Commencement Date	NR	
	[Note: This Licence starts on 1 July 2017, which means		
	that it will end on 30 June 2022.]		
1.4	Licence amendment		
1.4.1	Subject to the Act and clause 1.4.2, this Licence may be	NR	
	amended by the Governor by notice in the New South		
	Wales Government Gazette. The amendment takes		
	South Wales Government Gazette, or on such other date		
	specified in the notice.		
1.4.2	Before any notice of an amendment to this Licence is	NR	
	published in the New South Wales Government Gazette,		
	the Minister must give Hunter Water reasonable notice of the proposed amendment to enable it to comply with the		
	amended Licence (if relevant) upon its commencement.		
1.5	Obligation to make Services available		
1.5.1	Subject to Hunter Water continuing to comply with any	NR	
	applicable law, Hunter Water must provide the Services		
	Operations which is connected to, or for which a		
	connection is available to:		
	(a) in the case of supplying water, the Water Supply		
	System; and		
	disposing of Wastewater, the Sewerage System.		
1.5.2	Subject to Hunter Water continuing to comply with any	NR	
	applicable law, Hunter Water must provide the Services		
	on request to any WIC Act Licensee for ultimate end-use within the Area of Operations, where that WIC Act		
	Licensee is connected to, or where a connection is		
	available in respect of that WIC Act Licensee to:		
	(a) in the case of supplying water, the Water Supply		
	System; and		
	(b) in the case of providing sewerage services and/or		
	disposing of Wastewater, the Sewerage System.		
1.5.3	Hunter Water may impose any lawful conditions it sees fit	NR	
	on the making available of Services under clause 1.5.1 or		
	clause 1.5.2, to ensure the safe, reliable and financially viable supply of the Services in accordance with this		
	Licence.		

Licence clause	Operating Licence obligation	2019 audit requirement	Comments for the auditor
1.6	Non-exclusive Licence		
1.6.1	This Licence does not prohibit another person from providing Services in the Area of Operations that are the same as, or similar to, the Services, if the person is lawfully entitled to do so.	NR	
1.7	Making copies of this Licence available		
1.7.1	 Hunter Water must make this Licence available to any person, free of charge: (a) on its website for downloading; and (b) upon request made through the General Enquiry Process. 	SC	
1.8	Pricing		
1.8.1	Subject to the terms of this Licence, the Act and the IPART Act, Hunter Water must set the level of fees, charges and other amounts payable for its Services in accordance with any applicable determination or determinations under the IPART Act.	Audit	We last audited this clause in 2018. We assigned a Non-Compliant Non- Material grade in that audit. Auditor should note that Hunter Water self-reported non-compliance with this clause in 2019 (email from Hunter Water to IPART, 17 April 2019) about errors in levying stormwater charges between 1 July 2006 and 30 June 2019. Auditor should refer to the following recommendations relevant to this clause (see Table 3): 2018-1 2018-2.
1.9	End of term review		
1.9.1	 It is anticipated that a review of this Licence will commence in the first quarter of 2021 to investigate: (a) whether this Licence is fulfilling its objectives; and (b) any issues which have arisen during the term of this Licence, which may affect the effectiveness of this Licence, (End of Term Review) 	NR	
	(Ena of Term Review)		

Licence clause	Operating Lice	nce obligation	2019 audit requirement	Comments for the auditor
1.9.2	Hunter Water must provide to End of Term Review such info required to enable the person Term Review.	the person undertaking the ormation as is reasonably to undertake the End of	NR	
1.10	Notices			
1.10.1	Any notice or other communication given under this Licence must be made in writing addressed to the intended recipient at the address shown below or the last address notified by the recipient.		SC	
	Hunter Water	IPART		
	The Managing Director Hunter Water Corporation 36 Honeysuckle Drive Newcastle West NSW 2302	The Chief Executive Officer Independent Pricing and Regulatory Tribunal Level 15, 2-24 Rawson Place Sydney NSW 2000		

Licence	Operating Licence obligation	2019 audit	Comments for the
clause		requirement	auditor
2	Water Conservation		
2.1	Catchment to water treatment plants		
2.1.1	 Hunter Water must calculate the System Yield either: (a) in accordance with the memorandum of understanding with the Department of Primary Industries Water referred to in clause 5.10.1(a); or (b) if no such memorandum of understanding is in effect, in accordance with a reasonable methodology that Hunter Water considers suitable. 	SC	
2.1.2	By 1 November 2018, or by a later date as approved by IPART, Hunter Water must submit to IPART a report outlining Hunter Water's water conservation strategy in relation to its system operating arrangements for Water Storage and Transmission (Water Conservation Strategy).	Audit	This is the first audit of this clause in this licence period.
2.1.3	 The Water Conservation Strategy must include: (a) identification and documentation of the existing water conservation activities; (b) a process for identifying additional options for conserving water; (c) a process for comparing these options; and 	Audit	This is the first audit of this clause in this licence period.
	(d) a process for selecting options for implementation		
2.1.4	By 1 September 2019, or by a later date as approved by IPART, Hunter Water must develop and submit to IPART a water conservation work program using the process set out in the Water Conservation Strategy.	Audit	This is the first audit of this clause in this licence period.
2.2	Water treatment plants to tap		
2.2.1	Hunter Water must ensure that the 5 year rolling average for annual residential water consumption calculated for each financial year is equal to or less than 215 kilolitres for each Property used for residential purposes which is connected to the Water Supply System (Water Conservation Target), until Hunter Water has obtained IPART's approval for the Economic Level of Water Conservation Methodology (in accordance with clauses 2.2.2 and 2.2.3), and developed a program of water conservation activities using the approved Economic Level of Water Conservation Methodology (in accordance with 2.2.4).	Audit	We last audited this clause in 2018. We assigned a Compliant grade in that audit.
	[Note: Clause 2.2.1 requires Hunter Water to maintain the Water Conservation Target that was in the immediate predecessor to this Licence while the Economic Level of Water Conservation Methodology is being approved and applied.]		

Licence clause	Operating Licence obligation	2019 audit requirement	Comments for the auditor
2.2.2	 By 1 November 2017, Hunter Water must submit to IPART for IPART's approval a report outlining Hunter Water's proposed approach to, and principles for, developing a methodology for determining its economic level of water conservation in relation to (at a minimum) the following elements: (a) water leakage (within and downstream of its water treatment plants); (b) water recycling; and (c) water efficiency (including demand management) 	Audit	Auditor should note that this requirement is outside of the audit period, however, we have included this clause in the 2019 audit because we did not audit this in 2018.
2.2.3	By 1 November 2018, or by a later date as approved by IPART, Hunter Water must submit to IPART for IPART's approval the proposed methodology for determining its economic level of water conservation in accordance with the approach and principles approved by IPART (Economic Level of Water Conservation Methodology). IPART may refuse approval of the methodology and require Hunter Water to resubmit it by a specified date after making changes requested by IPART, or approve the methodology subject to conditions. Hunter Water must comply with any such conditions.	Audit	Hunter Water provided IPART its proposed ELWC method on 24 January 2019. Hunter Water sought an extension of time on this requirement to 1 February 2019 and IPART approved the request.
2.2.4	By 1 September 2019, or by a later date as approved by IPART, Hunter Water must develop and submit a water conservation work program using the Economic Level of Water Conservation Methodology.	Audit	This is the first audit of this clause in this licence period.
2.2.5	Hunter Water must obtain IPART's written consent to make any changes to the Economic Level of Water Conservation Methodology (other than changes to correct minor grammatical or typographical errors).	SC	

Licence clause	Operating Licence obligation	2019 audit requirement	Comments for the auditor
3	Supply services and performance standards		
3.1	Drinking Water		
3.1.1	Hunter Water must maintain a Management System for Drinking Water that is consistent with the Australian Drinking Water Guidelines, except to the extent that NSW Health specifies otherwise in writing (the Drinking Water Quality Management System).	Audit	We last audited this clause in 2018. We assigned a Compliant Minor Shortcomings grade in that audit.
	[Note: It is expected that the Drinking Water Quality Management System will be consistent with the Framework for Management of Drinking Water Quality. However, where NSW Health considers it appropriate, the application of Australian Drinking Water Guidelines may be amended or added to to take account of Hunter		We will contact NSW Health to comment on Hunter Water's performance against this clause.
	Water's circumstances and/ or Drinking Water quality policy and practices within New South Wales.		Hunter Water has proposed to change the disinfection CCP and
	The Australian Drinking Water Guidelines has provisions relating to the prevention of use of non-potable water for potable purposes.]		revise the pH CCP critical limit at all water treatment plants. Hunter Water has informed IPART that this was agreed to with NSW Health (Report on Significant Changes, 29 March 2019).
			Auditor should refer to the following recommendations relevant to this clause (see Table 3): 2018-03 2018-04 2018-05 2018-06 2013-14-03 2013-14-04 2013-14-06 2013-14-13.
3.1.2	Hunter 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.	Audit	We last audited this clause in 2018. We assigned a Compliant grade in that audit. We will contact NSW Health to comment on Hunter Water's performance against this clause.

Licence clause	Operating Licence obligation	2019 audit requirement	Comments for the auditor	
3.2	Recycled Water			
3.2 3.2.1	Recycled Water Hunter Water must maintain a Management System for Recycled Water that is consistent with the Australian Guidelines for Water Recycling, except to the extent that NSW Health specifies otherwise in writing (the Recycled Water Quality Management System). [Note: It is expected that the Recycled Water Quality Management System will be consistent with the Australian Guidelines for Water Recycling, including the Framework for Management of Recycled Water Quality and Use. However, where NSW Health considers it appropriate, the application of the Australian Guidelines for Water Recycling may be amended or added to, to take account of Hunter Water's circumstances and/ or Recycled Water quality policy and practices within New South Wales.].	Audit	We last audited this clause in 2018. We assigned a Compliant Minor Shortcomings grade in that audit. We will contact NSW Health to comment on Hunter Water's performance against this clause. Hunter Water has proposed new CCPs for the supply of dual reticulation water to Chisholm and Gillieston Heights. Hunter Water is liaising with NSW Health in relation to these CCPs (Report on Significant Changes, 29 March 2019).	
			Auditor should refer to the following recommendations relevant to this clause (see Table 3): 2018-07 2018-08 2018-09 2013-14-03 2013-14-04 2013-14-06 2013-14-13 2016-17-06.	
3.2.2	Hunter 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	We last audited this clause in 2018. We assigned a Compliant grade in that audit. We will contact NSW Health to comment on Hunter Water's performance against this clause.	
Licence clause		Operating Licence obligation	2019 audit requirement	Comments for the auditor
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3.3	Sys	tem Performance Standards		
3.3.1	Wa	ter Pressure Standard	SC	
	(a)	Hunter Water must ensure that no more than 4,800 Properties experience a Water Pressure Failure in a financial year (Water Pressure Standard).		
	(b)	 A Property is taken to have experienced a Water Pressure Failure at each of the following times: i. when a person notifies Hunter Water that the Property has experienced a Water Pressure Failure and that Water Pressure Failure is confirmed by Hunter Water; or 		
		 when Hunter Water's systems identify that the Property has experienced a Water Pressure Failure. 		
	(c)	Despite clause 3.3.1(b), a Property will not be taken to have experienced a Water Pressure Failure if that Water Pressure Failure occurred only because of:		
		 a Planned Water Interruption or Unplanned Water Interruption; 		
		ii. water usage by authorised fire authorities in the case of a fire; or		
		iii) a short term or temporary operational problem (such as a main break) which is remedied within four days of its occurrence.		
3.3.2	Wa	ter Continuity Standard	SC	
	(a)	 Hunter Water must ensure that in a financial year: i. no more than 10,000 Properties experience an Unplanned Water Interruption that lasts more than five continuous hours; and 		
		ii. no more than 5,000 Properties experience three or more Unplanned Water Interruptions that each last more than one hour,		
	(Wa	ater Continuity Standard).		
	(b)	For the purposes of clause 3.3.2(a), Hunter Water must use the best available data (taking account of water pressure data where that data is available) to determine of:		
		i. whether a Property has experienced an Unplanned Water Interruption; and		
		ii. the duration of the Unplanned Water		
	(c)	If a Property experiences an Unplanned Water Interruption that was caused by a third party, that Property is taken not to have experienced an Unplanned Water Interruption for the purposes of clause 3.3.2(a).		

Licence clause	Operating Licence obligation	2019 audit requirement	Comments for the auditor
3.3.3	Wastewater Overflow Standard	SC	
	 a) Hunter Water must ensure that in a financial year: i) no more than 5,000 Properties experience an Uncontrolled Wastewater Overflow in dry weather; and ii) no more than 45 Properties experience three or more Uncontrolled Wastewater Overflow in dry weather, (Wastewater overflow Standard). 		
3.3.4	Hunter Water must survey its Customers by 30 June 2020 for the purpose of informing a review of System Performance Standards and rebates. [Note: Clause 3.3.4 is not intended to prevent Hunter	NR	
	 (a) surveying its Customers and Consumers for any lawful purpose at such times as it sees fit; or (b) b)using the survey required by that clause to survey its Customers and Consumers on topics additional to a survey its Customers and Consumers on topics additional to a survey its Customers and Consumers on topics additional to a survey its Customers and Consumers on topics additional to a survey its Customers and Consumers on topics additional to a survey its Customers and Consumers on topics additional to a survey its Customers and Consumers on topics additional to a survey its Customers and Consumers on topics additional to a survey its Customers and Consumers on topics additional to a survey its Customers and Consumers on topics additional to a survey its Customers and Consumers on topics additional to a survey its Customers and Consumers on topics additional to a survey its Customers and Consumers on topics additional to a survey its Customers and Consumers on topics additional to a survey its Customers and Consumers on topics additional topics additionadditionadditional		
	the topic referred to in that clause.]		
3.3.5	Interpretation of standards	NR	
	 (a) For the purposes of the Water Pressure Standard and Water Continuity Standard, 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 Hunter 		
	Water is to be counted as five separate Properties. However, a block of flats that only receives one bill from Hunter Water is to be counted as one Property.]		
	(b) For the purposes of the Wastewater Overflow Standard, a Multiple Occupancy Property is considered to be one Property.		
	[Note: For example, a complex of five townhouses where each townhouse receives a separate bill from Hunter Water is to be counted as one Property.]		
	(c) the case of any ambiguity in the interpretation or application of any of the standards set out in this clause 3.3, IPART's interpretation of the relevant standard or assessment of its application will prevail.		

Licence clause	Operating Licence obligation	2019 audit	Comments for the auditor
4	Organisational Systems Management	roquirointent	
4.1	Asset Management System		
4.1.1	By 31 December 2017, Hunter Water must develop a Management System for carrying out the functions authorised under this Licence that is consistent with the Australian Standard AS ISO 55001:2014 Asset management - Management systems - Requirements, or other standard approved by IPART on request by Hunter Water (the Asset Management System).	NR	
4.1.2	By 1 July 2018, Hunter Water must ensure that the Asset Management System is fully implemented and must, from that date, ensure that all relevant activities are carried out in accordance with the Asset Management System.	Audit	We last audited this clause in 2018. We assigned a Compliant grade in that audit. Auditor to check that the Asset Management System (AMS) is fully implemented, noting that Hunter Water achieved certification of its AMS on 11 July 2018 (certification audit conducted in June 2018) (Report on Significant Changes, 29 March 2019). Auditor should refer to the following recommendation relevant to this clause (see Table 3): 2016-17-08.
4.1.3	Until the Asset Management System has been implemented in accordance with clause 4.1.2, Hunter Water must ensure that all relevant activities are carried out in accordance with the previous asset management system that was required under the operating licence held by Hunter Water which commenced in 2012. [Note: This clause permits Hunter Water to transition its previous asset management system based on the Water Services Association of Australia's Aquamark benchmarking tool to the Australian Standard AS ISO 55001:2014 Asset management - Management systems – Requirements.].	NR	
4.2	Environmental management system		
4.2.1	Hunter Water must at all times maintain a Management System for carrying out the functions authorised under this Licence that is consistent with the Australian/New Zealand Standard AS/NZS ISO 14001:2016 Environmental management systems – Requirements with guidance for use, or other standard approved by IPART on request by Hunter Water (the Environmental Management System).	SC	

Licence clause	Operating Licence obligation	2019 audit requirement	Comments for the auditor
4.2.2	Hunter Water must fully implement, and carry out all relevant activities in accordance with, the Environmental Management System.	SC	
4.3	Quality Management System		
4.3.1	Hunter Water must at all times maintain a Management System for carrying out the functions authorised under this Licence that is consistent with the Australian/New Zealand Standard AS/NZS ISO 9001:2016 Quality management systems – Requirements, or other standard as approved by IPART on request by Hunter Water (the Quality Management System).	SC	
4.3.2	Hunter Water must fully implement, and carry out all relevant activities in accordance with, the Quality Management System.	SC	
5 5.1	Customers and stakeholder relations Customer Contract		
5.1.1	The terms and conditions of the Customer Contract are as set out in Schedule B of this Licence. [Note: Section 38 of the Act makes provision for the amondment of the Customer Contract 1	NR	
5.1.2	Before publishing a notice under section 38 of the Act for the purpose of varying the terms and conditions of the Customer Contract, Hunter Water must provide IPART with a copy of the notice.	SC	

Licence clause	Operating Licence obligation	2019 audit requirement	Comments for the auditor
5.2	Consumers		
5.2.1	Hunter Water's obligations under the Customer Contract relating to:	SC	
	(a) Complaint handling and Complaint resolution procedures; and		
	(b) redress (clause 16.3 of the Customer Contract) and claims for damages (clause 16.4 of the Customer Contract),		
	are extended to those Consumers who are not parties to the Customer Contract.		
5.3	Payment difficulties and actions for non-payment		
5.3.1	Hunter Water must maintain and fully implement the following:	SC	
	 a financial hardship policy that assists residential Customers and Consumers experiencing financial hardship to better manage their current and future bills; 		
	 (b) procedures relating to a payment plan for residential Customers and Consumers who are responsible for paying their bills and who are, in Hunter Water's opinion, experiencing financial hardship; 		
	(c) procedures for identifying the circumstances under which Hunter Water may disconnect or restrict a supply of water in a manner that will affect a Customer or Consumer; and		
	 (d) provisions for self-identification, identification by community welfare organisations and identification by Hunter Water of residential Customers and Consumers experiencing financial hardship, 		
	(the Procedure for Payment Difficulties and Actions for Non-payment).		
5.4	Customer advisory group		
5.4.1	Hunter Water must maintain and regularly consult with its Customers through a customer advisory group.	SC	
5.4.2	Hunter Water must utilise the customer advisory group to, among other things, obtain advice on the interests of Hunter Water's Customers, the Customer Contract and such other key issues related to Hunter Water's planning and operations as Hunter Water may determine, including the matters set out in section 12(1) of the Act, consistent with the Customer Advisory Group Charter.	SC	

Licence clause	Operating Licence obligation	2019 audit requirement	Comments for the auditor
5.4.3	Hunter Water:	SC	
	(a) must ensure that, at all times, the membership of the customer advisory group is appointed and determined by Hunter Water in accordance with the Customer Advisory Group Charter:		
	(b) must use its best endeavours to include, as members of the customer advisory group, at least one Customer representing each of the following categories:		
	i) business;		
	ii) organisations representing low income;		
	iii) Customers living in rural and urban fringe areas;		
	iv) residential;		
	v)local government;		
	vi) pensioners;		
	vii) Customers with disabilities;		
	vili) Indigenous Australians; and		
	diverse backgrounds; and		
	 (c) may include, as members of the customer advisory group, at least one person representing each of the following categories: 		
	i) business Consumers;		
	ii) residential Consumers; and		
	iii) environmental groups		
5.4.4	Hunter Water and members of the customer advisory group must, for the term of this Licence, maintain a charter that addresses all of the following issues.	SC	
	(a) the role of the customer advisory group:		
	 (b) how members and the Chair of the customer advisory group will be appointed 		
	(c) the term for which members are appointed		
	 (d) information on how the customer advisory group will operate; 		
	 (e) a description of the type of matters that will be referred to the customer advisory group and how those matters may be referred; 		
	(f) procedures for communicating the outcomes of the customer advisory group's work to the public;		
	 (g) procedures for monitoring issues raised at meetings of the customer advisory group and ensuring appropriate follow-up of those issues; 		
	(h) procedures for amending the charter; and		
	 funding and resourcing of the customer advisory group by Hunter Water, 		
	(Customer Advisory Group Charter).		

Licence clause	Operating Licence obligation	2019 audit requirement	Comments for the auditor
5.4.5	Hunter Water must provide the customer advisory group with information in Hunter Water's possession or under its control necessary to enable the customer advisory group to discharge the tasks assigned to it, other than information or documents that are confidential.	SC	
5.5	Internal complaints handling		
5.5.1	Hunter Water must maintain a procedure for receiving, responding to and resolving Complaints, which is consistent with the Australian/New Zealand Standard AS/NZS 10002:2014 – Guidelines for complaint management in organizations (the Internal Complaints Handling Procedure).	Audit	This is the first audit of this clause in this licence period.
5.5.2	Hunter 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 audit of this clause in this licence period.
5.6	External Dispute Resolution scheme		
5.6.1	Hunter Water must be a member of the Energy and Water Ombudsman NSW to facilitate the resolution, by a dispute resolution body, of disputes between Hunter Water and its Customers or Consumers.	SC	
5.7	Provision of information to Customers and the general public		
5.7.1	Hunter Water must prepare a pamphlet or pamphlets with the following information to Customers at least annually with their bills:	SC	
	 (a) a brief explanation of the Customer Contract and a summary of the key rights and obligations of Customers under the Customer Contract; (b) a brief explanation of the Precedure for Devent 		
	Difficulties and Actions for Non-payment;		
	(c) a brief explanation of rights of Customers to claim a rebate and the conditions that apply to those rights;		
	(d) information about the General Enquiry Process;(e) information about how to make a Complaint under		
	 the Internal Complaints Handling Procedure; and a brief explanation of the external dispute resolution service, how to access that service, and Customers rights to have a Complaint or dispute referred to Energy and Water Ombudsman NSW. 		

Licence clause	Operating Licence obligation	2019 audit requirement	Comments for the auditor
5.7.2	 Hunter Water must make a copy of the following documents available to any person, free of charge on its website for downloading and upon request through the General Enquiry Process: (a) the Customer Contract; (b) a pamphlet or pamphlets (as referred to in clause 5.7.1); (c) the Procedure for Payment Difficulties and Actions for Non-payment; (d) the Customer Advisory Group Charter; (e) customer advisory group minutes; (f) the Internal Complaints Handling Procedure; (g) information about the dispute resolution scheme provided by Energy and Water Ombudsman NSW; and (h) a map of the Area of Operations. 	Audit	This is the first audit of this clause in this licence period.
5.7.3	Hunter Water must update the pamphlet or pamphlets prepared under clause 5.7.1 and documents on its website under clause 5.7.2 to reflect any variations made to the information within 60 days of the commencement of the variations.	Audit	This is the first audit of this clause in this licence period.
5.8	Code of Conduct with WIC Act Licensee		
5.8.1	Hunter Water must use reasonable endeavours to cooperate with any WIC Act Licensee that seeks to establish with Hunter Water a code of conduct required under a licence under the WIC Act.	SC	
5.8.2	Where the Minister administering the WIC Act has established a code of conduct under clause 25 of the WIC Regulation, Hunter Water will be taken to have satisfied its obligation under clause 5.8.1 by applying the water industry code of conduct established by the Minister to the relevant WIC Act Licensee.	NR	
5.9	Memorandum of Understanding with NSW Health		
5.9.1	 Hunter Water must use its best endeavours to: (a) maintain a memorandum of understanding with NSW Health; and (b) comply with the memorandum of understanding maintained under clause 5.9.1(a). [Note: Clause 5.9.1 does not limit the persons with whom Hunter Water may enter into a memorandum of understanding.] 	SC	We will contact NSW Health to comment on Hunter Water's performance against this clause.
5.9.2	The purpose of the memorandum of understanding referred to in clause 5.9.1(a) is to form the basis for co- operative relationships between the parties to the memorandum of understanding. In particular, the purpose of the memorandum of understanding referred to in clause 5.9.1(a) 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 that is safe to drink.	NR	

Licence clause	Operating Licence obligation	2019 audit requirement	Comments for the auditor
5.9.3	The memorandum of understanding referred to in clause 5.9.1(a) must include arrangements for Hunter Water to report to NSW Health information on any events in relation to Hunter Water's systems or Services that might pose a risk to public health.	SC	We will contact NSW Health to comment on Hunter Water's performance against this clause.
5.9.4	Hunter Water must provide NSW Health with information relating to water quality in the manner and form specified by NSW Health within a reasonable period of time of receiving NSW Health's request.	SC	We will contact NSW Health to comment on Hunter Water's performance against this clause.
	[Note: The obligation in clause 5.9.4 is in addition to Hunter Water's obligation to comply with any information requests made under section 19 of the Public Health Act 2010 (NSW) by the Secretary of the NSW Ministry of Health.]		
5.10	Memorandum of Understanding with Department of Primary Industries - Water		
5.10.1	 Hunter Water must use its best endeavours to: a) maintain a memorandum of understanding (which may be referred to as a roles and responsibilities protocol) with the Department of Primary Industries Water in relation to: the roles and responsibilities for the Department of Primary Industries Water and Hunter Water in respect of the review and implementation of the Lower Hunter Water Plan; and calculation and reporting of System Yield; and (b) comply with the memorandum of understanding maintained under clause 5.10.1(a). 	SC	We will contact Department of Industry - Water to comment on Hunter Water's performance against this clause. We note the Department of Industry (the former Department of Primary Industries) is the relevant department for this clause, and will be replaced by the Department of Planning, Industry and Environment from 1 July 2019.
	understanding or a roles and responsibilities protocol.]		
5.10.2	The purpose of the memorandum of understanding referred to in clause 5.10.1(a) is to form the basis for a co-operative relationship between the parties to the memorandum of understanding. In particular, the purpose of the memorandum of understanding referred to in clause 5.10.1(a) is to recognise the role of Department of Primary Industries Water in assessing options to address water supply security in the lower Hunter region.	NR	

Licence clause	Operating Licence obligation	2019 audit requirement	Comments for the auditor
5.11	Memorandum of understanding with Fire and Rescue NSW		
5.11.1	Hunter Water must use its best endeavours to: (a) develop and enter into a memorandum of	Audit	We will contact Fire and Rescue NSW to comment on Hunter Water's
	understanding with FRNSW by 31 December 2017; and		clause.
	 (b) once the memorandum of understanding referred to in clause 5.11.1(a) is developed and entered into, comply with the memorandum of understanding. 		Auditor should refer to the following recommendation relevant to this clause (see Table 3):
	[Note: Clause 5.11.1 does not limit the persons with whom Hunter Water may enter into a memorandum of understanding.]		2018-11.
5.11.2	The purpose of the memorandum of understanding referred to in clause 5.11.1 is to form the basis for co- operative relationships between the parties to the memorandum of understanding. In particular, the purpose of clause 5.11.1 is to:	NR	
	 (a) develop the roles and responsibilities of the parties to the memorandum of understanding as they relate to each other; 		
	(b) identify the needs and constraints of the parties to the memorandum of understanding 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 to the memorandum of understanding.		
5.11.3	The memorandum of understanding referred to in clause 5.11.1 must require:	Audit	We will contact Fire and Rescue NSW to comment on whether the MoU
	 (a) the establishment of a working group, comprised of representatives from Hunter Water and FRNSW; and 		these conditions.
	(b) the working group to consider the following matters (at a minimum):		
	between Hunter Water and FRNSW;		
	 agreed timelines and a format for Hunter 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 Hunter Water to consult with FRNSW in the design of new assets and planning of system maintenance, where modelling indicates that minimum available flow and pressure may unduly affect firefighting in the network section under consideration; and 		
	 iv) other matters as agreed by both parties to the memorandum of understanding. 		

Licence clause	Operating Licence obligation	2019 audit requirement	Comments for the auditor
6	Performance monitoring and reporting		
6.1	Operational audits		
6.1.1	 IPART may annually, or from time to time as occasion requires, undertake, or may appoint an Auditor to undertake, an audit on Hunter Water's compliance with: (a) this Licence; (b) the Reporting Manual; and (c) any matters required by the Minister. 	NR	
	(Operational Audit).		
6.1.2	Hunter Water must provide to IPART or the Auditor all information in Hunter Water's possession, or under Hunter Water's custody or control, which is necessary or convenient for the conduct of the Operational Audit.	SC	
6.1.3	Without limiting clause 6.1.2, Hunter Water must provide to IPART or the Auditor any information necessary or convenient for the conduct of the Operational Audit which IPART or the Auditor requests in writing, within any reasonable period of time specified by IPART or the Auditor in writing.	SC	
6.1.4	For the purposes of any Operational Audit or verifying a report on an Operational Audit, Hunter Water must, within a reasonable period of time from receiving a request from IPART or an Auditor, permit IPART or the Auditor to:	SC	
	(a) access any works, premises or offices occupied by Hunter 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 purposes 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 Hunter Water that are maintained in relation to the performance of Hunter Water's obligations under this Licence (including obligations under the Reporting Manual); and 		
	 (e) e) discuss matters relevant to the Operational Audit or any report on the Operational Audit with Hunter Water, including Hunter Water's officers and employees. 		

Licence clause	Operating Licence obligation	2019 audit requirement	Comments for the auditor
6.2	Reporting Manual		
6.2.1	 Hunter Water must comply with all of its reporting obligations set out in the Reporting Manual, including in relation to: (a) water conservation; (b) supply services and performance standards; 	Audit	This is the first audit of this clause in this licence period. Auditor to note that Hunter
	 (c) organisational systems management; (d) customer and stakeholder relations; and (e) performance monitoring and reporting, including: i) IPART performance indicators; and ii) ii) the National Water Initiative Performance Indicators 		significant change report to IPART as required under this clause (Report on Significant Changes, 29 March 2019).
6.2.2	Hunter Water must maintain sufficient record systems to enable Hunter Water to report accurately in accordance with clause 6.2.1.	Audit	This is the first audit of this clause in this licence period.
6.2.3	In the case of any ambiguity in the interpretation or application of any requirements in the Reporting Manual, IPART's interpretation or assessment will prevail.	NR	
	[Note: The Reporting Manual identifies the details of when, what, to whom and how Hunter Water must report to IPART and NSW Health. The Reporting Manual also specifies what and how reports and other information must be made publicly available.]		
6.3	Provision of Information to IPART and Auditor		
6.3.1	Hunter Water must provide IPART or an Auditor with information relating to the performance of any of Hunter Water's obligations under clause 6.2 (including providing IPART with physical and electronic access to the records required to be kept under clause 6.2) within a reasonable period of time from Hunter Water receiving a request from IPART or an Auditor for that information	SC	
6.3.2	Hunter Water must provide IPART or an Auditor with such information as is reasonably required to enable IPART or an Auditor to conduct any review or investigation of Hunter Water's obligations under this Licence within a reasonable period of time from Hunter Water receiving a request from IPART or an Auditor for that information.	SC	
6.3.3	If Hunter Water contracts out any of its activities to any person (including a subsidiary) it must take all reasonable steps to ensure that, if required by IPART or an Auditor, any such persons provide information and do the things specified in this clause 6 as if that person were Hunter Water.	SC	

Licence clause	Operating Licence obligation	2019 audit requirement	Comments for the auditor
6.3.4	Where this Licence requires Hunter Water to provide information to IPART or an Auditor that is information to which:	SC	
	 (a) Section 24FF of the IPART Act applies; or (b) Section 24FF of the IPART Act does not apply but IPART or the Auditor has agreed to treat the information as though section 24FF of the IPART Act applies to that information, 		
	Hunter Water must, to the maximum extent permitted by the law, provide that information even if it is confidential.		

Recommendation number	Licence part	IPART's recommendation to the Minister	2018 audit findings, and status as reported by utility on 24 May 2019	Guidance for 2019 audit
2013-14-03 2013-14-04	Water quality (drinking water)	Within 6 months, Hunter Water should review Critical Control Points (CCPs) for each treatment plant, including:	Hunter Water has closed out parts (b) to (f).	Auditor to check completeness
2013-14-06 2013-14-13	 Clause 2.1.1 in 2012-2017 licence (equivalent clause 3.1.1 in current licence) Clause 2.1.2 (equivalent clause 3.1.2 in current licence) 	a) Review all CCP critical limits (including alarm delays), and monitoring points to ensure they reflect current practice, as agreed with NSW Health.	On track for part (a). All non-disinfection CCP critical limits have been previously agreed to with NSW Health. A workshop was conducted with NSW Health to agree on the approach to the revised disinfection CCP concept. Draft CCP Limits have since been prepared and submitted to NSW Health for feedback. A workshop with NSW Health is scheduled for May 2019 to discuss the proposed limits.	

Table 3 Recommendations / outstanding items from previous audits

Recommendation number	Licence part	IPART's recommendation to the Minister	2018 audit findings, and status as reported by utility on 24 May 2019	Guidance for 2019 audit
	Water quality (recycled water) - Clause 2.2.1 in 2012-2017 licence (equivalent clause 3.2.1 in current licence) - Clause 2.2.2 in 2012-2017 licence (equivalent clause 3.2.2 in current licence)	 Within 6 months, Hunter Water should review Critical Control Points (CCPs) for each treatment plant, including: a) Review all CCP critical limits (including alarm delays), and monitoring points to ensure they reflect current practice, as agreed with NSW Health c) Revise and review CCP documentation to clearly state location, parameters, target criteria, monitoring frequency, critical limits, corrective actions and responsibilities for each CCP e) Operational and critical limits must be set in SCADA as alarms, including delay times where appropriate. 	 utility on 24 May 2019 Hunter Water has closed out parts (b), (d) and (f). On track for parts (a), (c) and (e). a) Hunter Water has received comments from NSW Health on the validation report. The validation report. The validation report will be updated to address the comments raised. c) RWQMP's will be updated to reflect any changes from the review of the validation report. e) SCADA update requests will be completed once all above. 	Auditor to check completeness
			the RWQMP revision.	

Recommendation number	Licence part	IPART's recommendation to the Minister	2018 audit findings, and status as reported by utility on 24 May 2019	Guidance for 2019 audit
2016-17-06	Water quality (recycled water) Clause 2.2.1 in 2012- 2017 licence (equivalent clause 3.2.1 in current licence)	 By 30 September 2018, Hunter Water should: Develop a table in each scheme Recycled Water Quality Management Plan that documents the evidence for the selection of the Critical Control Point, its associated monitoring parameter(s) and limits. This should include sufficient document control to capture when changes are made and the basis of those changes. Consult with NSW Health on the validation testing program for the water recycling schemes. Specify the performance required of the ultraviolet (UV) units in their operating context and determine whether they are achieving this performance. Any failure in the performance of pre-validated UV units should be further investigated. 	On track. Hunter Water will address NSW Health's comments and update the report along with the RWQMP's by the 2019 operational audit.	Auditor to check completeness.
2016-17-08	Assets Clause 4.1.2 in 2012- 2017 licence (equivalent clause 4.1.2 in current licence)	By 30 June 2019, Hunter Water should fully implement an asset criticality and risk assessment approach that is consistent across all asset classes and consistent with the enterprise management framework.	On track. By 30 June 2019, Hunter Water expects to update and finalise its approach to asset criticality and risk assessment across all asset classes.	Auditor to check completeness.
2018-01	Licence context and authorisation Clause 1.8.1	 Hunter Water should take action to ensure that tankering charges are correctly applied, including by: a) 31 March 2019, the use of paper tanker delivery dockets is replaced by a digital capture (mobility) arrangement b) 30 June 2019, draft bill validation processes are implemented for tankered waste bills c) 31 December 2019, automated billing for the receipt of tankered waste is implemented as part of Hunter Water's proposed billing system upgrade. 	On track. Hunter Water completed the digital capture arrangement under part (a). Hunter Water is on track to complete the bill validation process under part (b). The project to implement a new billing system is on track under part (c).	Auditor to check completeness of (a) and (b). Auditor to check progress of (c) noting that the deadline is outside of this audit period.

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Recommendation number	Licence part	IPART's recommendation to the Minister	2018 audit findings, and status as reported by utility on 24 May 2019	Guidance for 2019 audit
2018-02	Licence context and authorisation Clause 1.8.1	By 1 September 2019, Hunter Water must report to IPART on the further progress made in contacting owners affected by the incorrect charging of the Environment Improvement Charge and notify the total of the refunds made, and any further actions to rectify this non-compliance.	On track. Hunter Water is preparing to update IPART in July 2019.	Auditor to check completeness.
2018-03	Supply services and performance standards Clause 3.1.1	By 30 June 2019, Hunter Water should have a clear and transparent risk assessment process. Hunter Water should review the current risk process to ensure that the risk process is clearly mapped out and documented so that all stakeholders are able to follow the process easily. Documentation of the risk process should include all relevant data that is used to inform the risk assessment.	On track. A catchment to tap risk assessment guideline document has been drafted and is expected to be finalised in June 2019.	Auditor to check completeness.
2018-04	Supply services and performance standards Clause 3.1.1	By 30 June 2019, Hunter Water should clearly identify as a hazard event 'receiving water from Central Coast Council' in the risk assessment and preventive/control measures must be documented and implemented.	On track. The risk workshop outcomes report is expected to be prepared in June 2019.	Auditor to check completeness.
2018-05	Supply services and performance standards Clause 3.1.1	By 30 June 2019, Hunter Water should prioritise the improvement actions identified in the 2018 risk assessment to ensure maintenance hygiene procedures are reviewed so that consistent hygiene practices are implemented and are auditable. These hygiene practices should include the disinfection of tools, personal hygiene (in relation to workwear), disinfection and storage of parts/pipes, working clearances to prevent contamination, flushing, reinstating a service and acceptance criteria.	On track. A detailed assessment of drinking water risks associated with water main repair and renewal works was completed in early 2019 and an action plan from this is being implemented.	Auditor to check completeness.

Recommendation number	Licence part	IPART's recommendation to the Minister	2018 audit findings, and status as reported by utility on 24 May 2019	Guidance for 2019 audit
2018-06	Supply services and performance standards Clause 3.1.1	 By 30 June 2019, Hunter Water should: a) Add reservoir inspection training to the training needs matrix for all positions undertaking reservoir inspections, to ensure training is current. b) Revise the Reservoir Inspection form to provide more specific guidance and refer to specific and measureable assessment criteria, where possible. For example, under Roof Hatches and Roof Sheeting, the inspection item: <i>"P1 – evidence of bird/vermin in reservoir or vent/opening not bird/vermin proof" could be revised to include a specific measurable assessment criterion: "P1 – evidence of bird/vermin in reservoir or vent/opening greater than "X"mm."</i> 	On track. A Training needs matrix is to be updated with reservoir inspection training and a revised form is expected to be in place by June 2019.	Auditor to check completeness.
2018-07	Supply services and performance standards Clause 3.2.1	By 30 June 2019, Hunter Water should ensure that critical limits are documented accurately in the RWQMP, including any time delays; ensure that the location of where the critical limit applies is accurately documented; and ensure that the critical limits are consistently documented across Hunter Water and Veolia documentation.	On track. Hunter Water's RWQMP are being reviewed.	Auditor to check completeness.

Recommendation number	Licence part	IPART's recommendation to the Minister	2018 audit findings, and status as reported by utility on 24 May 2019	Guidance for 2019 audit
2018-08	Supply services and performance standards Clause 3.2.1	 By 30 June 2019, Hunter Water should: a) Include the monitoring of UVT in the operational monitoring detailed in the site specific RWQMPs for recycled water schemes that rely on UV disinfection for primary disinfection b) Confirm that critical limits (for example UVT) are set in accordance with the available validation information c) For schemes that have online monitoring of UVT, implement an alarm and or shut down for when UVT falls outside the validated operational range for the UV system (e.g. 45% at Morpeth WWTW) d) For schemes that do not have online monitoring of UVT, establish appropriate monitoring processes, such as regular grab samples with identified corrective actions for when UVT falls outside the validated operational range specified by the manufacturer 	On track. The monitoring plans are being updated under part (a) Hunter Water is confirming the critical limits under part (b) SCADA requests forms are being finalised to reflect the required changes under (c) Monitoring has been included in weekly sampling under (d).	Auditor to check completeness.
2018-09	Supply services and performance standards Clause 3.2.1	By 30 June 2020, Hunter Water should investigate the establishment of online monitoring of UVT with alarms and or shutdowns at all sites that rely on UV disinfection for primary disinfection of recycled water	On track. Hunter Water to undertake this work will occur in conjunction with 2018-08.	Auditor to check progress noting that the due date is outside of this audit period.
2018-10	Organisational systems management Clause 4.2.2	By 30 June 2019, Hunter Water should ensure high risk issues in the Environmental Compliance Tracking Register are addressed within the allocated timeframe.	On track. Hunter Water is reviewing all outstanding items within the Environmental Compliance Tracking Register along with risk allocation.	Auditor to check completeness.

Recommendation number	Licence part	IPART's recommendation to the Minister	2018 audit findings, and status as reported by utility on 24 May 2019	Guidance for 2019 audit
2018-11	Customer and stakeholder relations Clause 5.11.1	By 30 June 2019, Hunter Water should use its best endeavours to develop and enter into a Memorandum of Understanding with Fire and Rescue NSW.	On track. Hunter Water expects to sign the MoU by 30 June 2019.	Auditor to check completeness.

Source: IPART, Hunter Water Corporation Operational Audit 2018, Report to the Minister, March 2019 and Hunter Water Corporation, Status Report on 2018 audit recommendations, 24 May 2019.

Audit vear	Location	Facility
2018	North Lambton	Maintenance denot
2018	North Lambion	Reservoir
	Lambton	Observed planned maintenance activity (faulty valve replacement works)
	Morpeth	Wastewater treatment works (including recycled water)
	Dungog	Water treatment plant
2017	Kurri Kurri	Wastewater Treatment Plant
	Gresford	Water Treatment Plant and Water Pump Station
	North Lambton	Maintenance Depot and Planned Maintenance repair
	Wallsend	Water Pump Station
	Elermore Vale	Reservoir
2016	Tomago Sandbeds	Borefields
	Lemon Tree Passage	Water Treatment Plant
	Karuah	Wastewater Treatment Plant and the reuse enterprise
	Boulder Bay	Wastewater Treatment Plant
2015	Edgeworth	Wastewater Treatment works
	KIWS (Kooragang Industrial Water Scheme), incl. Mayfield West plant	Advanced Water Treatment Plant (recycled water)
	Grahamstown	Spillway
		Water Treatment Plant
	Campvale	Pumping station
2014	Chichester	Dam
	Dungog	Water Treatment Plant
	Clarence	Sewage Treatment Plant
	Boags Hill	Inlet
	Seaham	Weir
2013	Branxton	Recycled Water Treatment Plant
	Grahamstown	Water treatment plant
		· · · ·
2012	Port Stephens	Lemon Tree Passage Water Treatment Plant
	Grahamstown	Dam
	Campvale	Pumping station
	Between Newcastle and Port Stephens	Tomago Sandbeds

Table 4 Previous field verification locations for Hunter Water Corporation

Audit year	Location	Facility
	Karuah	Sewage Treatment Plant
2011	Dungog	Water Treatment Plant
	Grahamstown	Water Treatment Plant
	n/a	Service reservoirs and storages
	n/a	Work sites – mains replacement and burst mains repair

D Operational audit report 2019 – Hunter Water





2019 Operational Audit of Hunter Water Corporation

Final Audit Report

#14093-10-001 Version 3.0

Independent Pricing and Regulatory Tribunal

February 2020



Document History

2019 Operational Audit of Hunter Water Corporation

Final Audit Report

Independent Pricing and Regulatory Tribunal

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Cobbitty Consulting Pty Ltd ABN: 45 164 692 488

PO Box 561, Bayswater VIC 3153 Telephone: +61 (0) 423 326 693 Email: jim.sly@cobbittyconsulting.com.au

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Glossary

Acronym/Term	Description		
ADWG (2011)	Australian Drinking Water Guidelines, 2011		
AGWR (2006)	Australian Guidelines for Water Recycling, 2006		
AMP	Asset Management Plan		
AOMS	Asset Operations Maintenance System		
CCAG	Customer and Community Advisory Group		
CIS	Customer Information System		
CMMS	Computerised Maintenance Management System		
СРІ	Consumer Price Index		
ΔCPI	Change in CPI calculated in accordance with the Hunter Water Determination (refer Table 3.1)		
DBYD	Dial Before You Dig		
Dol Water	Department of Industry – Water (formerly Department of Primary Industries Water)		
DOS	Disinfection Optimisation Strategy		
DWQIP	Drinking Water Quality Improvement Plan		
DWQMS	Drinking Water Quality Management System		
DWQMSM	Drinking Water Quality Management System Manual		
Ellipse	Enterprise Asset Management System used by Hunter Water		
EMS	Environmental Management System		
EMT	Executive Management Team		
ERM	Enterprise Risk Management (framework implemented by Hunter Water)		
FFWG	Fire Fighting Working Group (relates to the Memorandum of Understanding with Fire and Rescue NSW)		
FTP	File Transfer Protocol		
IPART	The Independent Pricing and Regulatory Tribunal (NSW)		
LHWP	Lower Hunter Water Plan		
MBR	Membrane Bioreactor		
MERI	Monitoring, evaluation, reporting and improvement (reports prepares in respect of implementation of the Lower Hunter Water Plan).		
ML	Megalitre (1 million litres)		
MoU	Memorandum of Understanding		
MST	Maintenance Schedule Task		
NATA	National Association of Testing Authorities		
OEM	Original Equipment Manufacturer		
OFI	Opportunity for Improvement		



Acronym/Term	Description
O&M	Operations and Maintenance
PARMS	Pipeline Asset and Risk Management System for Reticulation (PARMS) software
PFAS	Per- and poly-fluoroalkyl substances
рН	A measure of acidity or alkalinity of water
PHU	Public Health Unit (of NSW Health)
QA	Quality Assurance
QC	Quality Control
RWP	Recycled Water Plant
RWQMP	Recycled Water Quality Management Plan
RWQMS	Recycled Water Quality Management System
SCADA	Supervisory Control and Data Acquisition
SLG	Strategic Liaison Group (relates to the Memorandum of Understanding with Fire and Rescue NSW)
SOP	Standard Operating Procedure
TRIM	Total Records and Information Management
WATHNET	Water Headworks Network simulation model
UV	Ultra Violet (as it relates water disinfection using ultra violet light)
UVT	UV Transmissivity
VAMS	Veolia Asset Management System (computerised maintenance management system used by Veolia)
WFP	Water Filtration Plant
WSAA	Water Services Association of Australia
WTP	Water Treatment Plant
WWTW	Wastewater Treatment Works



Executive Summary

Auditor Declaration

This report presents the findings of an Operational Audit of Hunter Water Corporation's compliance with the requirements of its Operating Licence during the period 1 November 2018 to 31 October 2019. The audit was undertaken by Cobbitty Consulting, in association with Viridis Consultants, for the Independent Pricing and Regulatory Tribunal (IPART).

The audit team confirms that:

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

Major Findings

The audit team found that Hunter Water had performed well against the audited obligations over the audit period. Twenty one (21) clauses of the Operating Licence were audited, the findings in respect of which can be summarised as follows:

- Non-compliance (non-material) has been assigned in respect of two (2) clauses;
- Compliance (minor shortcomings) has been assigned in respect of one (1) clause; and
- Compliance has been awarded to all of the remaining eighteen (18) audited clauses.

The identified shortcomings relate to Pricing, Drinking water, Recycled water, and the provision of information to Customers and the general public.

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

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

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



Licence Part		Clause/Obligation	Compliance Grade/Comment ³
1.	Licence context and authorisation	1.8.1	Non-compliant (non-material) Hunter Water has declared non-compliance with this obligation in respect of the application of its stormwater charges. It was also found that the sewer discharge allowance for non-residential properties has been incorrectly applied. These non-compliances are not considered to have compromised Hunter Water's ability to achieve its defined objectives or assure controlled processes are implemented in setting prices and charges; the resultant risk in respect of customer relations and financial viability is considered low.
2.	Water Conservation	2.1.2	Compliant
		2.1.3	Compliant
		2.1.4	Compliant
		2.2.1	Compliant
		2.2.2	Compliant
		2.2.3	Compliant
		2.2.4	Compliant
3.	Supply services and performance standards	3.1.1	Compliant
		3.1.2	Compliant
		3.2.1	Non-compliant (non-material) The methodology for assessing water quality data is not documented and there is no evidence of its application for the Gillieston and Chisholm schemes; and verification monitoring frequencies are not consistent with AGWR guidance. These shortcomings are not considered to have compromised the ability of Hunter Water to achieve its defined objectives or assure controlled processes in managing risks to water quality; the resultant risk to public health is considered low.
		3.2.2	Compliant
4.	Organisational systems management	4.1.2	Compliant
5.	Customer and stakeholder	5.5.1	Compliant
	relations	5.5.2	Compliant

Table E.1 Summary of Audit Findings

³ Comment provided where less than full compliance assessed.



Licence Part	Clause/Obligation	Compliance Grade/Comment ³
	5.7.2	Compliant (minor shortcomings) Not all information is available can be readily identified or located by navigation or search from the Hunter Water website 'Home' page. This shortcoming is not considered to have compromised the ability of Hunter Water to achieve its defined objectives; the resultant risk in respect of customer and community relations is considered low.
	5.7.3	Compliant
	5.11.1	Compliant
	5.11.3	Compliant
6. Performance monitoring and	6.2.1	Compliant
reporting	6.2.2	Compliant

Table E.2	Summary of Assessed Progress in Respect of Previous Audit Recommendations
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Recommendation	Licence Reference⁴ and Operational Issue	Status/Comment⁵
2018-01	 Pricing (clause 1.8.1): Hunter Water should take action to ensure that tankering charges are correctly applied, including by: a) 31 March 2019, the use of paper tanker delivery dockets is replaced by a digital capture (mobility) arrangement b) 30 June 2019, draft bill validation processes are implemented for tankered waste bills c) 31 December 2019, automated billing for the receipt of tankered waste is 	Completed
	implemented as part of Hunter Water's proposed billing system upgrade.	
2018-02	<i>Pricing (clause 1.8.1):</i> By 1 September 2019, Hunter Water must report to IPART on the further progress made in contacting owners affected by the incorrect charging of the Environment Improvement Charge and notify the total of the refunds made, and any further actions to rectify this non-compliance.	Completed

⁴ Refer to the relevant section of this report and associated appendix for full details of previous recommendations.

⁵ Comment provided where less than recommendation has not been fully addressed (i.e. completed).



Recommendation	Licence Reference⁴ and Operational Issue	Status/Comment⁵
2013-14-03 2013-14-04 2013-14-06 2013-14-13	 Drinking Water (clauses 3.1.1 & 3.1.2).⁶ Within 6 months, Hunter Water should review Critical Control Points (CCPs) for each treatment plant, including: a) review all CCP critical limits (including alarm delays), and monitoring points to ensure they reflect current practice, as agreed with NSW Health. [Note: other elements of these recommendations, as they apply to Drinking Water, had been fully addressed at the time of the 2018 Operational Audit.] 	Completed.
2018-03	Drinking Water (clause 3.1.1): By 30 June 2019, Hunter Water should have a clear and transparent risk assessment process. Hunter Water should review the current risk process to ensure that the risk process is clearly mapped out and documented so that all stakeholders are able to follow the process easily. Documentation of the risk process should include all relevant data that is used to inform the risk assessment.	Completed
2018-04	Drinking Water (clause 3.1.1): By 30 June 2019, Hunter Water should clearly identify as a hazard event 'receiving water from Central Coast Council' in the risk assessment and preventive/control measures must be documented and implemented.	Completed
2018-05	Drinking Water (clause 3.1.1): By 30 June 2019, Hunter Water should prioritise the improvement actions identified in the 2018 risk assessment to ensure maintenance hygiene procedures are reviewed so that consistent hygiene practices are implemented and are auditable. These hygiene practices should include the disinfection of tools, personal hygiene (in relation to workwear), disinfection and storage of parts/pipes, working clearances to prevent contamination, flushing, reinstating a service and acceptance criteria.	Completed

⁶ Recommendations originally raised in respect of clauses 2.1.1 and 2.1.2 in the previous Hunter Water Corporation Operating Licence 2012-2017; clauses 3.1.1 and 3.1.2 are the equivalent clauses in the current Licence.



Recommendation	Licence Reference ⁴ and Operational Issue	Status/Comment ⁵
2018-06	 Drinking Water (clause 3.1.1): By 30 June 2019, Hunter Water should: a) Add reservoir inspection training to the training needs matrix for all positions undertaking reservoir inspections, to ensure training is current. b) Revise the Reservoir Inspection form to provide more specific guidance and refer to specific and measureable assessment criteria, where possible. For example, under Roof Hatches and Roof Sheeting, the inspection item: <i>"P1 – evidence of bird/vermin in reservoir or vent/opening not bird/vermin proof"</i> could be revised to include a specific measurable assessment criterion: 	Completed
	reservoir or vent/opening greater than "X"mm."	
2013-14-03 2013-14-04 2013-14-06 2013-14-13	 Recycled Water (clauses 3.2.1 & 3.2.2).⁷ Within 6 months, Hunter Water should review Critical Control Points (CCPs) for each treatment plant, including: a) review all CCP critical limits (including alarm delays), and monitoring points to ensure they reflect current practice, as agreed with NSW Health; c) revise and review CCP documentation to clearly state location, parameters, target criteria, monitoring frequency, critical limits, corrective actions and responsibilities for each CCP; and e) operational and critical limits must be set in SCADA as alarms, including delay times where appropriate. 	a) Ongoing c) and e) Completed <i>Hunter Water is awaiting NSW Health</i> <i>agreement to the final CCP critical limits.</i>
	recommendations, as they apply to Recycled Water, had been fully addressed at the time of the 2018 Operational Audit.]	

⁷ Recommendations originally raised in respect of clauses 2.2.1 and 2.2.2 in the previous Hunter Water Corporation Operating Licence 2012-2017; clauses 3.2.1 and 3.2.2 are the equivalent clauses in the current Licence.


Recommendation	Licence Reference ⁴ and Operational Issue	Status/Comment⁵	
2016-17-06	Water Quality; Recycled Water (clause 3.2.1): ⁸ By 30 September 2018, Hunter Water should:	Completed	
	 Develop a table in each scheme Recycled Water Quality Management Plan that documents the evidence for the selection of the Critical Control Point, its associated monitoring parameter(s) and limits. This should include sufficient document control to capture when changes are made and the basis of those changes. 		
	 Consult with NSW Health on the validation testing program for the water recycling schemes. 		
	 Specify the performance required of the ultraviolet (UV) units in their operating context and determine whether they are achieving this performance. Any failure in the performance of pre- validated UV units should be further investigated. 		
2018-07	Recycled Water (clause 3.2.1): By 30 June 2019, Hunter Water should ensure that critical limits are documented accurately in the RWQMP, including any time delays; ensure that the location of where the critical limit applies is accurately documented; and ensure that the critical limits are consistently documented across Hunter Water and Veolia documentation.	Completed	

⁸ Recommendation originally raised in respect of clause 2.2.1 in the previous Hunter Water Corporation Operating Licence 2012-2017; clause 3.2.1 is the equivalent clause in the current Licence.



Recommendation	Licence Reference ⁴ and Operational Issue	Status/Comment⁵
2018-08	 <i>Recycled Water (clause 3.2.1):</i> By 30 June 2019, Hunter Water should: a) Include the monitoring of UVT in the operational monitoring detailed in the site specific RWQMPs for recycled water schemes that rely on UV disinfection for primary disinfection; b) Confirm that critical limits (for example UVT) are set in accordance with the available validation information; c) For schemes that have online monitoring of UVT, implement an alarm and or shut down for when UVT falls outside the validated operational range for the UV system (e.g. 45% at Morpeth WWTW); and d) For schemes that do not have online monitoring of UVT, establish appropriate monitoring processes, such as regular grab samples with identified corrective actions for when UVT falls outside the validated operational range 	Completed
2018-09	Recycled Water (clause 3.2.1): By 30 June 2020, Hunter Water should investigate the establishment of online monitoring of UVT with alarms and or shutdowns at all sites that rely on UV disinfection for primary disinfection of recycled water.	Completed
2016-17-08	Asset Management System (clause 4.1.2). ⁹ By 30 June 2019, Hunter Water should fully implement an asset criticality and risk assessment approach that is consistent across all asset classes and consistent with the enterprise risk management framework.	Completed
2018-10	<i>Environmental Management System</i> (<i>clause 4.2.2</i>): By 30 June 2019, Hunter Water should ensure high risk issues in the Environmental Compliance Tracking Register are addressed within the allocated timeframe.	Completed

⁹ Recommendation originally raised in respect of clause 4.1.2 in the previous Hunter Water Corporation Operating Licence 2012-2017; clause 4.1.2 is the equivalent clause in the current Licence.



Recommendation	Licence Reference ⁴ and Operational Issue	Status/Comment⁵
2018-11	Memorandum of Understanding with Fire and Rescue NSW (clause 5.11.1):	Completed
	By 30 June 2019, Hunter Water should use its best endeavours to develop and enter into a Memorandum of Understanding with Fire and Rescue NSW.	

Recommendations

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

Table E.3 Audit Recommendations	Table E.3	Audit Recommendations
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Licence Part	Clause /Obligation	Recommendation
1. Licence context and authorisation	1.8.1	 REC-HWC-2019-01: It is recommended that by 30 June 2020, Hunter Water should correct its application of the sewer discharge allowance within the billing system; determine the number of customers affected and the incorrectly billed amounts; and report these details to IPART together with details of actions and/or further actions proposed. REC-HWC-2019-02: It is recommended that by 30 June 2020, Hunter Water must report to IPART on the further progress made in contacting past owners of properties affected by the incorrect charging of the Stormwater Drainage Charge, the total of the refunds made compared to the amount overcharged, and any further actions to be undertaken (if necessary) to rectify this non-compliance.
	3.2.1	 REC-HWC-2019-03: By 30 September 2020, Hunter Water should document the methodology for assessment of water quality data to inform risk assessment to ensure consistency across schemes. The assessment should include methods for trending and identifying problems. REC-HWC-2019-04: By 30 June 2020, Hunter Water should review the verification monitoring program for the Chisholm and Gillieston Heights recycled water schemes, to ensure microbiological testing is consistent with the advice provided in the AGWR for large high exposure schemes, and include weekly testing of clostridial spores and somatic coliphage, and monthly testing of adenovirus and cryptosporidium oocysts.



Licence Part	Clause /Obligation	Recommendation
5. Customer and stakeholder relations	5.7.2	REC-HWC-2019-05: It is recommended that by 30 June 2020, Hunter Water should ensure that all information required to be available on its website for downloading, or upon request through the General Enquiry Process, can be readily identified and located from the website 'Home' page by either menu navigation or using the search function.
Previous Recommendation 2018-01	1.8.1	REC-HWC-2019-06: It is recommended that by 31 March 2021, Hunter Water should ensure that the proposed functionality for fully automated tankered waste billing is incorporated into the new corporate billing system.



1. Introduction

1.1 Objectives

The objective of this audit was to assess, for the period from 1 November 2018 to 31 October 2019, Hunter Water Corporation's (Hunter Water's) performance against the terms and conditions (obligations) of:

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

1.2 Audit Method

1.2.1 Audit Scope

The scope of the 2019 Operational Audit of Hunter Water is specified in detail in the Request for Quote – RFQ 19/80; 2019 Public Water Utility Audits; it comprised:

- audit of Hunter Water's compliance with the obligations and requirements set out in its Operating Licence;¹⁰ and
- assessment of Hunter Water's progress in addressing outstanding recommendations arising from previous audits.

As outlined in its *Audit Guideline – Public Water Utilities*,¹¹ IPART adopts a risk-based approach in setting the scope of public water utility operational audits. The clauses/obligations against which Hunter Water's compliance has been assessed are identified in **Table 1.1**. Full details of the audit scope, as defined by IPART, are presented in **Appendix A**.

Licence Part		Clause/Obligation	
1.	Licence context and authorisation	1.8.1	
2.	Water Conservation	2.1.2; 2.1.3; 2.1.4; 2.2.1; 2.2.2; 2.2.3; 2.2.4	
3.	Supply services and performance standards	3.1.1; 3.1.2; 3.2.1, 3.2.2	
4.	Organisational systems management	4.1.2	
5.	Customer and stakeholder relations	5.5.1; 5.5.2; 5.7.2; 5.7.3; 5.11.1; 5.11.3	
6.	Performance monitoring and reporting	6.2.1; 6.2.2	

 Table 1.1
 Scope of 2019 Operational Audit of Hunter Water

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

¹⁰ Refer to **Section 1.3** for a discussion of the regulatory regime under which Hunter Water operates, including identification of its operating licence.

¹¹ IPART, Audit Guideline; Public Water Utilities (Issue PWUAG-Rev4), July 2019.



Recommendation	Licence Reference ^{12,13} and Operational Issue	
2018-01	 Pricing (clause 1.8.1): Hunter Water should take action to ensure that tankering charges are correctly applied, including by: a) 31 March 2019, the use of paper tanker delivery dockets is replaced by a digital capture (mobility) arrangement b) 30 June 2019, draft bill validation processes are implemented for tankered waste bills c) 31 December 2019, automated billing for the receipt of tankered waste is implemented as part of Hunter Water's proposed billing system upgrade. 	
2018-02	<i>Pricing (clause 1.8.1):</i> By 1 September 2019, Hunter Water must report to IPART on the further progress made in contacting owners affected by the incorrect charging of the Environment Improvement Charge and notify the total of the refunds made, and any further actions to rectify this non-compliance.	
2013-14-03 2013-14-04 2013-14-06 2013-14-13	 Drinking Water (clauses 3.1.1 & 3.1.2).¹⁴ Within 6 months, Hunter Water should review Critical Control Points (CCPs) for each treatment plant, including: a) review all CCP critical limits (including alarm delays), and monitoring points to ensure they reflect current practice, as agreed with NSW Health. [Note: other elements of these recommendations, as they apply to Drinking Water, had been fully addressed at the time of the 2018 Operational Audit.] 	
2018-03	Drinking Water (clause 3.1.1): By 30 June 2019, Hunter Water should have a clear and transparent risk assessment process. Hunter Water should review the current risk process to ensure that the risk process is clearly mapped out and documented so that all stakeholders are able to follow the process easily. Documentation of the risk process should include all relevant data that is used to inform the risk assessment.	
2018-04	<i>Drinking Water (clause 3.1.1):</i> By 30 June 2019, Hunter Water should clearly identify as a hazard event 'receiving water from Central Coast Council' in the risk assessment and preventive/control measures must be documented and implemented.	
2018-05	Drinking Water (clause 3.1.1): By 30 June 2019, Hunter Water should prioritise the improvement actions identified in the 2018 risk assessment to ensure maintenance hygiene procedures are reviewed so that consistent hygiene practices are implemented and are auditable. These hygiene practices should include the disinfection of tools, personal hygiene (in relation to workwear), disinfection and storage of parts/pipes, working clearances to prevent contamination. flushing, reinstating a service and acceptance criteria.	

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

¹² Refer to the relevant section of this report and associated appendix for full details of previous recommendations.

¹³ Clause reference relates to the *Hunter Water Corporation Operating Licence 2012-2017*.

¹⁴ Recommendations originally raised in respect of clauses 2.1.1 and 2.1.2 in the previous *Hunter Water Corporation Operating Licence* 2012-2017; clauses 3.1.1 and 3.1.2 are the equivalent clauses in the current Licence.



Recommendation	Licence Reference ^{12,13} and Operational Issue	
2018-06	 Drinking Water (clause 3.1.1): By 30 June 2019, Hunter Water should: a) Add reservoir inspection training to the training needs matrix for all positions undertaking reservoir inspections, to ensure training is current. b) Revise the Reservoir Inspection form to provide more specific guidance and refer to specific and measureable assessment criteria, where possible. For example, under Roof Hatches and Roof Sheeting, the inspection item: <i>P1 – evidence of bird/vermin in reservoir or vent/opening not bird/vermin proof</i> could be revised to include a specific measurable assessment criterion: <i>P1 – evidence of bird/vermin in reservoir or vent/opening greater than "X"mm.</i> 	
2013-14-03 2013-14-04 2013-14-06 2013-14-13	 Recycled Water (clauses 3.2.1 & 3.2.2).¹⁵ Within 6 months, Hunter Water should review Critical Control Points (CCPs) for each treatment plant, including: a) review all CCP critical limits (including alarm delays), and monitoring points to ensure they reflect current practice, as agreed with NSW Health; c) revise and review CCP documentation to clearly state location, parameters, target criteria, monitoring frequency, critical limits, corrective actions and responsibilities for each CCP; and e) operational and critical limits must be set in SCADA as alarms, including delay times where appropriate. [Note: other elements of these recommendations, as they apply to Recycled Water, had been fully addressed at the time of the 2018 Operational Audit.] 	
2016-17-06	 Water Quality; Recycled Water (clause 3.2.1).¹⁶ By 30 September 2018, Hunter Water should: Develop a table in each scheme Recycled Water Quality Management Plan that documents the evidence for the selection of the Critical Control Point, its associated monitoring parameter(s) and limits. This should include sufficient document control to capture when changes are made and the basis of those changes. Consult with NSW Health on the validation testing program for the water recycling schemes. Specify the performance required of the ultraviolet (UV) units in their operating context and determine whether they are achieving this performance. Any failure in the performance of pre-validated UV units should be further investigated. 	
2018-07	<i>Recycled Water (clause 3.2.1):</i> By 30 June 2019, Hunter Water should ensure that critical limits are documented accurately in the RWQMP, including any time delays; ensure that the location of where the critical limit applies is accurately documented; and ensure that the critical limits are consistently documented across Hunter Water and Veolia documentation.	

¹⁵ Recommendations originally raised in respect of clauses 2.2.1 and 2.2.2 in the previous Hunter Water Corporation Operating Licence 2012-2017; clauses 3.2.1 and 3.2.2 are the equivalent clauses in the current Licence.

¹⁶ Recommendation originally raised in respect of clause 2.2.1 in the previous Hunter Water Corporation Operating Licence 2012-2017; clause 3.2.1 is the equivalent clause in the current Licence.



Recommendation	Licence Reference ^{12,13} and Operational Issue	
2018-08	Recycled Water (clause 3.2.1): By 30 June 2019, Hunter Water should:	
	 a) Include the monitoring of UVT in the operational monitoring detailed in the site specific RWQMPs for recycled water schemes that rely on UV disinfection for primary disinfection; 	
	b) Confirm that critical limits (for example UVT) are set in accordance with the available validation information;	
	 For schemes that have online monitoring of UVT, implement an alarm and or shut down for when UVT falls outside the validated operational range for the UV system (e.g. 45% at Morpeth WWTW); and 	
	d) For schemes that do not have online monitoring of UVT, establish appropriate monitoring processes, such as regular grab samples with identified corrective actions for when UVT falls outside the validated operational range specified by the manufacturer.	
2018-09	Recycled Water (clause 3.2.1):	
	By 30 June 2020, Hunter Water should investigate the establishment of online monitoring of UVT with alarms and or shutdowns at all sites that rely on UV disinfection for primary disinfection of recycled water.	
2016-17-08	Asset Management System (clause 4.1.2):17	
	By 30 June 2019, Hunter Water should fully implement an asset criticality and risk assessment approach that is consistent across all asset classes and consistent with the enterprise risk management framework.	
2018-10	Environmental Management System (clause 4.2.2):	
	By 30 June 2019, Hunter Water should ensure high risk issues in the Environmental Compliance Tracking Register are addressed within the allocated timeframe.	
2018-11	Memorandum of Understanding with Fire and Rescue NSW (clause 5.11.1):	
	By 30 June 2019, Hunter Water should use its best endeavours to develop and enter into a Memorandum of Understanding with Fire and Rescue NSW.	

1.2.2 Audit Standard

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

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

1.2.3 Audit Steps

The audit was undertaken in accordance with the methodology outlined in IPART's *Audit Guideline – Public Water Utilities.*¹⁸ The audit steps are identified in **Table 1.3**.

¹⁷ Recommendation originally raised in respect of clause 4.1.2 in the previous *Hunter Water Corporation Operating Licence 2012-2017*; clause 4.1.2 is the equivalent clause in the current Licence.

¹⁸ IPART, Audit Guideline; Public Water Utilities (Issue PWUAG-Rev4), July 2019.

Table 1.3



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

Audit interviews and field verification site visits were undertaken during the three (3) day period 12 November 2019 to 14 November 2019. Interviews were conducted with Hunter Water representatives at Hunter Water's Newcastle offices. Field verification site visits were made to:

• Morpeth Recycled Water Plant;

Audit Steps¹⁹

- Chisholm No 2 Chlorination Facility;
- Chisholm urban development (recycled water network);
- Adamstown Heights Reservoirs; and
- Fern Bay (environmental improvement site).

1.2.4 Audit Team

The audit team comprised of the following:

- Jim Sly team lead and Lead Auditor;
- James Howey Lead Auditor;
- Karen Pither –Lead Auditor providing audit support; and
- Asoka Wijeratne Lead Auditor providing audit support.

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

IPART representatives Jamie Luke and Matthew Van Uffelen attended the audit inception and close-out meetings as observers, via teleconference. A list of Hunter Water representatives that attended audit interviews and/or field verification visits is provided in **Appendix B**; Hunter Water's Audit Coordination Team members Ben Silberberg, Matthew Wickens and Carly Reid Small attended throughout the audit.

¹⁹ IPART, Audit Guideline; Public Water Utilities (Issue PWUAG-Rev4), July 2019, section 3 and figure 3.1.



Licence Part		Clause/Obligation	Lead Auditor
1.	Licence context and authorisation	1.8.1	Jim Sly
2.	Water Conservation	2.1.2; 2.1.3; 2.1.4 2.2.1; 2.2.2; 2.2.3; 2.2.4	Jim Sly Jim Sly
3.	Supply services and performance standards	3.1.1; 3.1.2 3.2.1, 3.2.2	James Howey Karen Pither
4.	Organisational systems management	4.1.2	Jim Sly
5.	Customer and stakeholder relations	5.5.1; 5.5.2 5.7.2; 5.7.3 5.11.1; 5.11.3	Jim Sly Jim Sly Jim Sly
6.	Performance monitoring and reporting	6.2.1; 6.2.2	Jim Sly
Recommendations/Outstanding Items from Previous Audits		NWI Indicators – Water Resources.	Jim Sly

Table 1.4 Allocation of Audit Responsibilities

1.2.5 Audit Grades

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

Grades of compliance	Description		
Compliant	Sufficient evidence is available to confirm that the requirements have been met.		
Compliant (minor shortcomings)	Sufficient evidence is available to confirm that the requirements have been met apart from minor shortcomings which to date have not compromised the ability of the utility to achieve defined objectives or assure controlled processes, products or outcomes.		
Non-compliant (non-material)	Sufficient evidence is not available to confirm that the requirements have been met and the deficiency does not adversely impact the ability of the utility to achieve defined objectives or assure controlled processes, products or outcomes.		
Non-compliant (material)	Sufficient evidence is not available to confirm that the requirements have been met and the deficiency does adversely impact the ability of the utility to achieve defined objectives or assure controlled processes, products or outcomes.		
No Requirement	There is no requirement for the utility to meet this assessment criterion within the audit period.		

 Table 1.5
 Compliance Grades for Public Utilities²⁰

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²⁰ IPART, Audit Guideline; Public Water Utilities (Issue PWUAG-Rev4), July 2019, figure 2.1.



1.3 Regulatory Regime

Hunter Water Corporation is constituted under the *Hunter Water Act 1991* and is a statutory State-owned corporation pursuant to the *State Owned Corporations Act 1989*. It provides drinking water, wastewater, recycled water, and some stormwater services to a population approaching 600,000 people in homes and businesses across the Lower Hunter.

Pursuant to Section 12 of the *Hunter Water Act 1991*, Hunter Water can be granted an operating licence to authorise it to carry out its specified and other functions. For the purposes of this audit (which addresses the audit period 1 November 2018 to 31 October 2019), Hunter Water has been granted, and has been operating under the provisions of, the *Hunter Water Operating Licence 2017-2022*.

1.4 Quality Assurance Process

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

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

An independent peer review has been undertaken to ensure that the accuracy of each section of the report is checked through quality control steps and all audit judgements, conclusions and recommendations are validated. The independent review was undertaken by Bob Burford, who has held Exemplar Global lead auditor accreditation in respect of Drinking Water Quality Management Systems and ISO lead auditor certification in respect of Environmental Management Systems, Quality Management Systems, OHS Management Systems, Food Safety (Water) Management Systems and Information Security Management Systems.

As Audit Team Leader, Jim Sly has also reviewed the Audit Report prior to release.



2. Site Visit Report

2.1 Overview

As part of this audit, field verification site visits were made to a number of sites/facilities to verify how effectively Hunter 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:

- Morpeth Recycled Water Plant;
- Chisholm Urban Development (recycled water network);
- Chisholm No 2 Re-Chlorination Facility;
- Adamstown Heights Reservoirs; and
- Fern Bay (environmental improvement site).

Site verification visits to the Nelson Bay Water Treatment Plant, Anna Bay Water treatment Plant and Anna Bay Sandbeds (groundwater source) were also proposed; however, due to fire danger in the area, these facilities could not be accessed.

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 3**.

It is noted that Hunter Water has contracted Veolia Water Australia (Veolia) to provide operation and maintenance (mechanical and electrical) services at all of its treatment facilities. Accordingly, there is some reference to Veolia in the following sections; Veolia representatives were on site during the visit to the Morpeth Recycled Water Plant.

2.2 Morpeth (Chisholm) Recycled Water Plant

2.2.1 Facility description

The Morpeth Recycled Water Plant (RWP) is located at Morpeth, a suburb of the City of Maitland. The plant provides tertiary treatment of effluent (secondary treated wastewater) from the Morpeth Wastewater Treatment Works (WWTW).

The RWTP treatment processes include:

- Pre-chlorination;
- Pre-screening;
- Flocculation;
- Membrane filtration using ultrafiltration (UF);
- UV Disinfection;
- Chlorine Disinfection; and
- Product Water Storage.



Recycled water is supplied from the Product Water Tank and distributed to Chisholm for predominantly residential use. To maintain chlorine residual in the dual reticulation network, there is a re-chlorination facility approximately 1800 metres downstream of the treatment plant (refer **Section 2.3**).

At the time of inspection, the plant was operating but still within the proof of performance period; it had not yet been handed over to Hunter Water by the plant construction contractor, Comdain Infrastructure. Notwithstanding, Veolia was fully familiar with the plant and involved in its operation.

2.2.1 Inspection overview

Inspection of the treatment plant was undertaken by generally following the flow path through the plant. This was followed by a brief overview of Veolia's asset management practices and a review of critical control point settings in the SCADA system.

2.2.2 Asset management

Observations from an asset management perspective included the following:

- As the plant has been recently constructed and still under proof of performance, no comment is made in respect of condition.
- Pipework and equipment was generally well labelled; lilac colour coding (for recycled water) had been used where appropriate.
- Safety equipment such as showers and eye washes were in place.
- Chemical storage bunding was in place. The chemical delivery area was also appropriately bunded with discharge to the site waste tank. A spill response station was available on site.
- The construction contractor has provided maintenance schedules to Hunter Water. These are based essentially on the original equipment manufacturer (OEM) recommendations. The schedules package has been passed on to Veolia for implementation via its computerised maintenance management system (CMMS), VAMS (Veolia Asset Management System).
- Veolia has captured asset details and maintenance schedules in VAMS. Records for a sample of assets were reviewed; these are discussed in **Table 3.13**.

2.2.3 Water quality

The RWP takes secondary effluent from the Morpeth WWTW. Water is not taken when the Morpeth WWTW is operating in wet weather bypass mode. If the RWP is shutdown or cannot produce enough water, potable water top-up is provided into the Product Water Tank, which has an air gap.

The first process is an auto brush strainer followed by flocculation and then ultrafiltration (UF). Daily integrity tests are undertaken on the membranes. Reverse flush chemical clean in-place is undertaken as required. Trans-membrane pressure is reviewed every month to understand operational trends.

The plant was still within the final defects period and there were some issues with the UF turbidity analyser. This is used for monitoring at CCP1, so it needs to be rectified prior to commencement of supply. Other issues have been rectified, including the size of the feed pump (too small) and a static mix on the pre-chlorine, which has been removed to improve flows.



The UF filtrate is irradiated using ultra violet light. The critical limit for this is based on andenovirus (RED) (reduction equivalent dose). This is calculated by the instrument's PLC. It was unclear as to why a virus target pathogen was being used opposed to a protozoan, as protozoa are usually the limiting factors.

The next step is chlorination, which uses a plug flow contactor (buried) to get the required detention time. There have been some issues arising with the mix of chlorine in the contactor. It is hoped that these have been resolved with the addition of a second static mixer.

The SCADA system was reviewed during the audit and trends in the data for the direct integrity tests undertaken on 10 and 11 November 2019, which is a CCP for the UF process, were observed.

In the site office, the Daily Water Quality Test Sheets for 7 November 2019 were reviewed and it was noted that there were discrepancies between the online and bench instruments. The observed differences were significant, e.g. the treated water free chlorine was 1.16 mg/L on the bench instrument and 2.42 mg/L on the online instrument. These instruments are used for CCPs, so it is important that they are accurate, prior to handover from the RWP construction contractor.

2.3 Chisholm Urban Development (Recycled Water Network) and Chisholm No 2 Re-Chlorination Facility

2.3.1 Facility description

Recycled water is distributed to customers via a dual pipe network. This includes a separate meter and internal plumbing at each household or property. The dual reticulation pumping stations transfer the recycled water to 436 existing dwellings in Chisholm.

End uses of the high quality recycled water will be limited to garden watering, toilet flushing, outdoor uses and washing machines (optional). The recycled water will not be used for firefighting purposes or any other high-contact activities such as drinking, cooking, bathing, filling swimming pools or spas, etc.

The Chisholm No 2 Chlorination Facility is located on the transfer pipeline from the treatment plant, just prior to reaching the reticulation network. This is required to ensure that chlorine residual is maintained in the dual reticulation network, given its distance from the treatment plant.

At the time of inspection, the recycled water network was being supplied with potable water via temporary cross-connections. The introduction of recycled water was imminent.

2.3.2 Inspection overview

The site visit comprised an inspection of the re-chlorination facility followed by inspections at several locations within the reticulation network. This included the locations of the temporary cross-connections between the potable and recycled networks and a sample of property service connections.



2.3.3 Asset management

Principal observations from an asset management perspective included the following:

- As the infrastructure (both the chlorinator and reticulation network) has been recently constructed, no comment is made in respect of condition.
- Pipework and equipment at the chlorination facility was generally well labelled.
- Above ground reticulation infrastructure (valve and hydrant covers; valve marker posts) was appropriately coded. Hydrants were clamped to prevent use and colour coded signage was in place on light poles and kerbs.
- Riser pipes and meters on property connections were appropriately colour coded. Outdoor taps were colour coded with handles removed and adjacent signage in place.

2.3.4 Water quality

The Chisholm No 2 Chlorinator was originally designed as a sodium hypochlorite dosing facility; however, there were some concerns in maintaining the quality of the chemical given low usage. At the time of the inspection salt chlorination was being successfully trialled; this would not have the same chemical decomposition issues as the sodium hypochlorite system. Nonetheless, the sodium hypochlorite system will be kept as a redundancy.

The chlorinator will boost the residual free chlorine level to between 0.8 and 1.2 mg/L in order to deliver a 0.5 mg/L residual at the point of supply to the customer. This station was still being commissioned at the time of the inspection and the dosed recycled water was being returned to a sewer pump.

At the time of inspection, the scheme was being supplied with potable water. There had been five temporary cross-connections in place to feed the scheme, three of which had already been removed. The supply of recycled water was to commence in the week following the audit.

Hunter Water provided an overview of the work that has been completed to ensure there are no network or on-lot cross-connections. This included an inspection of every house, ground truthing of infrastructure and ensuring that current potable cross-connections were clearly located.

2.4 Adamstown Heights Reservoirs

2.4.1 Facility description

There are two reservoirs (tanks) at the Adamstown Heights Reservoir site.

Adamstown Heights No 1 Reservoir is a welded steel tank of approximately 30 metres diameter and 7.2 metres height; it has a storage capacity of approximately 5 ML. It has a welded steel roof, which can be accessed via an external ladder.

Adamstown Heights No 2 Reservoir is a welded steel tank of approximately 41 metres diameter and 7.6 metres height; it has a storage capacity of approximately 10 ML. It has a lightweight aluminium sheeted roof; a perimeter welded steel walkway can be accessed via an external stairway.



2.4.2 Inspection overview

The inspection focussed primarily on the No 2 Reservoir. This enabled inspection of the arrangements for tablet dosing of chlorine (refer Section 2.4.4) and the effectiveness of the roof sealing/vermin proofing.

The No 1 Reservoir was inspected from ground level and the roof of the No 2 Reservoir.

2.4.3 Asset management

Observations from an asset management perspective included the following:

- The tanks walls and coating were in reasonable condition. There was water staining at various locations due to the free fall of rainwater from the roof and over-painting of graffiti was evident. There was a small amount of graffiti at the time of the inspection.
- Security arrangements were in place. These included locked access to the external stairway and notification to the control centre was required prior to entry (access alarms are in place). A proximity sensor at the top of the stairway initiates broadcast of a security message advising that police have been alerted.
- The perimeter of the roof and a central vent were fitted with expanded metal grating. The roof appeared to be vermin proof.
- Roof sheeting appeared to be effectively sealed at joints, around access hatches, and around the central roof vent.
- Protective coating on the stairway, perimeter walkway and handrails was starting to deteriorate with some surface corrosion.
- Significant surface corrosion was observed on the roof of No 1 Reservoir. Maintenance or inspection records were requested to ensure that this had been recorded; these are discussed in **Table 3.13**.

2.4.4 Water quality

The reservoir is dosed with chlorine tablets to manage the chlorine levels, the target being 0.7 mg/L. ALS verification monitoring is used to adjust the tablet dosing and details are recorded in a spreadsheet. There is a winter and summer tablet dosing regime, as the chlorine residual decays more quickly in the summer months.

2.5 Fern Bay Chemical Dosing Facility (Environmental Improvement Site)

2.5.1 Facility description

This facility is a ferrous chloride odour management dosing system for the adjacent sewerage network. The site has a storage tank for ferrous chloride and dosing pumps contained in a secure building. There was a large bunded area outside to contain any spills.

The rationale for the site inspection to this facility was to observe the implementation of the Hunter Water environmental improvement plan, which included upgrades to chemical delivery bunding at ten high risk locations. Fern Bay is one of the facilities that were completed during the audit period.



2.5.2 Asset management

Although the site was visited primarily from an environmental perspective, the following observations were made:

- The facility appeared to be in generally good condition. All equipment and pipework was well labelled.
- The chemical storage and dosing equipment were all housed in the well bunded building. Level sensors/floats are in place to detect any spills; these would raise an alarm via the SCADA system.
- Safety features, including safety shower and eye wash, were in place. Chemical safety data sheets were available on site (although they are due for update).
- Both the dosing facility and adjacent sewage pumping station are inspected on a monthly basis. A sample of maintenance records was requested; these are discussed in **Table 3.13**.
- It is understood that the facility is scheduled for upgrade.

2.5.3 Environment

This site was inspected to review the new bunded area. This was a new sealed concrete bund, which appeared to be more than adequate to catch any spills from unloading tankers. There is a stormwater pit within the bund which drains to the sewer in normal times; it is closed to catch any spilt liquid whilst a chemical delivery is being made. This allows a slow release to sewer, preventing a slug of chemical that could upset the treatment process.



3. Detailed Audit Findings

3.1 Overview

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

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



3.2 Licence context and authorisation

3.2.1 Pricing (clause 1.8)

Table 3.1	Pricing (sub-clause 1.8.1)
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Sub-clause	Requirement	Compliance Grade
1.8.1	Subject to the terms of this Licence, the Act and the IPART Act, Hunter Water must set the level of fees, charges and other amounts payable for its Services in accordance with any applicable determination or determination under the IPART Act.	Non-compliant (non-material)

Risk

Failure to comply with the requirements of this obligation presents a risk that Hunter Water is either overcharging its customers or failing to recover the costs of providing the service.

Target for Full Compliance

Evidence that Hunter Water has set the level of fees, charges and other amounts payable for its Services in accordance with any applicable determination or determination under the IPART Act.

Obligation

This obligation requires Hunter Water to set fees and charges and other amounts payable for its Services in accordance with the relevant IPART Determinations.

Evidence sighted

- Hunter Water response to 2019 Audit Questionnaire.
- Hunter Water, *Statement of Compliance 2018-19*, 30 August 2019.
- Cobbitty Consulting, 2018 Operational Audit of Hunter Water Corporation; Final Audit Report (Version 3.0), 1 February 2019.
- IPART, Hunter Water Corporation; Maximum prices for water, sewerage, stormwater drainage and other services from 1 July 2016; Determination No. 4, June 2016.
- Letter dated 6 May 2019 from IPART to Hunter Water (re: *Consumer Price Index (CPI)* movements and pricing information regarding IPART determined prices for Hunter Water in 2019-20).
- Document: Pricing schedule endorsements (screenshot).
- MS Excel workbook: HW2007-1522 7.002 Schedule HW2007-1522 Price Schedule 2017-18 MASTER FINAL.xlsx.
- MS Excel workbook: Procedure HW2007-1522 Price Schedule 2018-19 MASTER FINAL.xlsx.
- MS Excel workbook: 2019 CPI Compliance Hunter Water Corporation Price Schedule Input Templ.
- Email dated 28 May 2019 from Hunter Water to IPART (re: Hunter Water 2019-20 Price Schedule).
- Hunter Water, IPART Annual Pricing Update 2019/2020; Test Summary (Version 1.0), 6 June 2019.
- Email dated 3 July 2019 from ABCorp to Hunter Water and response dated 3 July 2019 (re: Production 200 Samples), including attachment PDF_Proofs_HWCBILL_SORTED_20190703_015913_20190703.pdf.



- Document: Residential Water Usage, Sewer Service, Stormwater.
- Document: Non Res Water Usage, Sewer Service, Stormwater.
- Documents: Residential Bill Screenshot and Non-Residential Bill Screenshot.
- Email dated 10 December 2019 from Hunter Water to Cobbitty Consulting and IPART (re: 2019 Hunter Water Audits Pricing).
- Document: *Hydraulic application created 05 June, 2019.*
- Document: Hydraulic Assessment Screenshot.
- Letter dated 5 June 2019 from Hunter Water to [customer] (re: *Hydraulic Design Assessment for water service upgrade to include a fire hydrant service*).
- Document: Central Coast Water Supply Services-Bill Evidence.
- Document: Central Coast Water Bill (screenshot).
- Email dated 11 December 2019 from Hunter Water to Cobbitty Consulting (re: 2019 Hunter Water Audits – Pricing).

Summary of reasons for grade

Hunter Water demonstrated that, in most respects, it has calculated and applied fees, charges and other amounts payable for its Services in accordance with the applicable IPART Determination, principally the 2016 *Hunter Water Determination*. Checking of a sample of prices confirms that they have been correctly calculated and review of a sample of customer bills confirms that the prices have been correctly applied, with the exception that the sewer discharge allowance for non-residential properties has been incorrectly applied. On this basis, Hunter Water is assessed to be less than fully compliant with this obligation.

Hunter Water has also declared non-compliance in respect of the application of its Stormwater Charges, which relates to the application of charges based on incorrect catchment delineation information. Corrective action has been taken in respect of this issue.

In assessing the materiality of these non-compliances, consideration has been given to their impact on Hunter Water's ability to achieve its defined objectives and to assure its controlled processes, products, and outcomes. In this case the relevant objectives and outcomes are those related to customer service. From this perspective, Hunter Water has demonstrated an open and proactive approach both in declaring the non-compliance to customers and the regulator, and in the actions taken to address it. Furthermore, the stormwater charges issue has now has been substantially addressed with minimal further correction anticipated, and the materiality of the impact of both the stormwater charge and sewer discharge allowance issues is considered minimal from an overall perspective.

On this basis, a non-compliant (non-material) grade is assigned in respect of this obligation.

Discussion and notes

Overview:

Assessment of compliance in respect of this obligation has involved review of Hunter Water's annual price updating process and the more detailed assessment of a sample of prices/charges and their application.

In its *Statement of Compliance*,²¹ Hunter Water self-identified a non-compliance with this obligation; it had incorrectly billed an estimated 2,758 properties for stormwater drainage charges in the period from 1 July 2006 to 30 June 2019. IPART also identified this non-compliance, of which it

²¹ Hunter Water, *Statement of Compliance 2018-19*, 30 August 2019.



had been advised by Hunter Water in April 2019, in defining the scope of the audit; specifically, IPART noted that:²²

"Auditor should note that Hunter Water self-reported con-compliance with this clause in 2019 (email from Hunter Water to IPART, 17 April 2019) about errors in levying stormwater charges between 1 July 2006 and 30 June 2019."

In view of this non-compliance, and consistent with IPART's audit scope definition, the application of stormwater drainage charges was specifically included in the audit sample of prices/charges reviewed. A sample of water and wastewater charges, hydraulic design assessment charges and Central Coast Council Supply Service charges were also reviewed.

It is noted that prices/charges for both 2018/19 and 2019/20 were applicable during the audit period. A sample of 2018/19 prices were reviewed as part of the 2018 Operational Audit;²³ they have also been included in the current assessment, as applicable to the sample of prices assessed.

It is further noted that Hunter Water is in the process of replacing/upgrading its billing system. Implementation of the new system, previously scheduled for December 2019, has now been delayed until March 2020.

Determination and Price Schedule:

Hunter Water noted that its schedule of fees and charges is described in the IPART 2016 Price Determination,²⁴ (also referred to as the Hunter Water Determination). It is noted the Hunter Water's pricing arrangements during the audit period were also subject to:

- Pricing arrangements for recycled water and sewer mining; Sydney Water Corporation, Hunter Water Corporation, Gosford City Council and Wyong Shire Council, Determination No. 8, 2006 (Recycled Water and Sewer Mining Determination); and
- Maximum prices for connecting, or upgrading a connection, to a water supply, sewerage, or drainage system; Sydney Water, Hunter Water and Central Coast Council; Final Determination, October 2018, which replaced the following determinations applicable to Hunter Water:
 - *Pricing of Backlog Severage Services, Determination No. 4.1, 1997* (Backlog Sewerage Charges Determination);
 - o Developer Charges, Determination No. 9, 2000 (Developer Charges Determination).

The *Hunter Water Determination* (*Determination*, for the purposes of this report) details the maximum prices/charges that Hunter Water can levy with prices after the first year of the period for which prices have been determined to be calculated by application of changes in the Consumer Price Index (CPI). The value of the change in CPI (Δ CPI) is calculated in accordance with the *Determination* and advised annually by IPART. For example, IPART advised that the following change in CPI figures should be used in calculating prices for 2019/20:²⁵

- *Hunter Water Determination:* 5.5%.
- Recycled water and Sewer Mining Determination: 1.8%.

In its response to the Audit Questionnaire, Hunter Water advised that:

"Hunter Water has converted this price determination to our own spreadsheet schedule of prices, showing the calculation of various fees and charging, including appropriate application of IPART's determination relating to annual indexing (to reflect changes in the Consumer Price Index) and specific rounding rules. This is our master pricing spreadsheet for internal use, including annual updates of our prices."

²² Refer Appendix A.

²³ Cobbitty Consulting, 2018 Operational Audit of Hunter Water Corporation; Final Audit Report (Version 3.0), 1 February 2019, table 3.3.

²⁴ IPART, Hunter Water Corporation; Maximum prices for water, sewerage, stormwater drainage and other services from 1 July 2016; Determination No. 4, June 2016.

²⁵ Letter dated 6 May 2019 from IPART to Hunter Water (re: Consumer Price Index (CPI) movements and pricing information regarding IPART determined prices for Hunter Water in 2019-20).



The *Price Schedule* is updated annually generally in accordance with a *Price Update Procedure*, which sets out the step by step process to be implemented. Once updated, the *Price Schedule* is endorsed and approved, following which it is used as the basis for updating Hunter Water's billing system. Evidence of endorsement and approval of the 2019/20 *Price Schedule* was provided in the form of a screenshot showing online record of endorsements and approval in Hunter Water's document management system.²⁶

The *Price Schedule* for $2019/20^{27}$ was provided for review, which revealed that changes in CPI appeared to have been correctly applied (refer below for further discussion). The *Price Schedule* for $2018/19^{28}$ was reviewed as part of the 2018 Operational Audit.

Hunter Water advised that IPART provides a spreadsheet template in which it (Hunter Water) is required to submit the updated prices so that IPART can confirm the correct application of the CPI adjustments; this requirement was noted in the abovementioned letter from IPART, which required submission by 3 June 2019. Hunter Water demonstrated that it had submitted the completed template²⁹ to IPART on 28 May 2019.³⁰

Hunter Water advised that it undertakes extensive validation testing to ensure that updates to prices in its billing system are accurate; testing is undertaken in two stages. The first stage involves undertaking tests to validate all possible bill combinations. The outcomes of this testing process for the 2019/2020 pricing update are summarised in the *IPART Annual Pricing Update 2019/2020; Test Summary*³¹ report.

Review of the Test Summary reveals that:

- Testing was undertaken across the full scope of Hunter Water's charges 337 tests passed; no tests failed;
- One test in respect of 'Tankering charges Web App' was not run due to a known issue that was to be resolved and updated before any 2019/20 financial year fees were generated in August 2019; and
- Six issues related to rounding, which need to be addressed prior to the third billing cycle, were identified. If not corrected, these issues would result in over/under charging by one cent in each case.

The second stage of the validation process involves generation of a sample bill file by Hunter Water's bill printing service provider, in which each charge is checked by Hunter Water prior to printing and issue. Correspondence between the service provider and Hunter Water demonstrates Hunter Water's approval for bill printing to proceed.³²

Water and Wastewater Charges:

A sample of water service and usage charges, and sewerage connection and deemed usage charges were independently calculated to check values in Hunter Water's *Price Schedule*. This is summarised in the following table, which shows that all tested values were correctly calculated:³³

²⁶ Document: Pricing schedule endorsements (screenshot).

²⁷ MS Excel workbook: HW2007-1522 7.002 Schedule - HW2007-1522 Price Schedule 2017-18 MASTER FINAL.xkx.

²⁸ MS Excel workbook: Procedure - HW2007-1522 Price Schedule 2018-19 MASTER FINAL.xlsx.

²⁹ MS Excel workbook: 2019 CPI Compliance Hunter Water Corporation – Price Schedule Input Templ.._

³⁰ Email dated 28 May 2019 from Hunter Water to IPART (re: Hunter Water 2019-20 Price Schedule).

³¹ Hunter Water, IPART Annual Pricing Update 2019/2020; Test Summary (Version 1.0), 6 June 2019.

³² Email dated 3 July 2019 from ABCorp to Hunter Water and response dated 3 July 2019 (re: Production 200 Samples), including attachment *PDF_Proofs_HWCBILL_SORTED_20190703_015913_20190703.pdf*.

³³ Charges checked during the 2018 Operational Audit have been adopted (i.e. they have not been re-calculated).



Charge	ΔCPI (%)	Hunter Water calculated Charge			Auditor C	alculated	
	2017/18	2018/19	2019/20	2018/19		2019/20	
	2018/19			Det. Base	Value	Det. Base	Value
Water Supply Service Charge							
Metered Residential Properties	4.1 / 5.5	75.01	100.40	72.06	75.01	95.17	100.40
Metered Non-Residential Properties: 50mm meter	4.1 / 5.5	490.76	627.54	471.43	490.76	594.82	627.54
Metered Non-Residential Properties: 200mm meter	4.1 / 5.5	7,852.05	10.040.58	7,542.80	7,852.05	9,517.14	10,040.58
Water Usage Charge							
Filtered Water < 50,000L	4.1 / 5.5	2.34	2.37	2.25	2.34	2.25	2.37
Filtered Water > 50,000L (Dungog)	4.1 / 5.5	1.89	1.91	1.82	1.89	1.81	1.91
Filtered Water > 50,000L (Newcastle)	4.1 / 5.5	2.13	2.16	2.05	2.13	2.05	2.16
Sewerage Connection Charge							
Metered Residential Properties (House) /Unmetered Properties	4.1 / 5.5	740.60	758.51	711.43	740.60	718.97	758.51
Metered Multi-premises Residential Properties	4.1 / 5.5	592.47	625.77	569.14	592.47	593.15	625.77
Metered Non-Residential Properties: 100mm meter	4.1 / 5.5	21,888.41	18,962.75	21,026.33	21,888.41	17,974.17	18,962.75
Sewerage Deemed Usage Charge							
Residential Properties (House) /Unmetered Properties	n/a	80.40	80.40	-	80.40	-	80.40
Multi-premises Residential Properties	n/a	64.32	66.33	-	64.32	-	66.33
Non-Residential Properties	n/a	68.68	80.40	-	68.68	-	80.40

Note: "Det. Base" means the base price (pre-application of ΔCPI) published in the Determination.

Hunter Water's approach to derivation of the sewerage service charges, combining the connection charge, deemed usage charge and discharge factor, as shown in the *Price Schedule* was checked and found to be in order. It is noted that the *Determination* nominates a discharge factor of 0.75 for residential properties.

A check of the current (2019/20) residential water service and usage charges and residential sewerage charges published on the Hunter Water website revealed them to be consistent with the above table (where applicable), Hunter Water's *Price Schedule* and the *Determination*.

Hunter Water provided examples of Customer's bills as follows:

- Residential Customer (Account No: 8226 100 000) for period 1 March 2019 to 30 June 2019;³⁴ and
- Non-residential Customer (Account No: 2325 210 000) for period 1 March 2019 to 30 June 2019.³⁵

The Customer classification applicable to these examples was confirmed by CIS (Customer Information System) screenshots.³⁶

³⁴ Document: Residential - Water Usage, Sewer Service, Stormwater.

³⁵ Document: Non Res - Water Usage, Sewer Service, Stormwater.

³⁶ Documents: Residential Bill Screenshot and Non-Residential Bill Screenshot.



Review of the residential customer bill which confirmed that the water and sewer charges had been correctly calculated and applied, noting that pro-rating of annual charges is based on the number of days in the period. However, review of the non-residential bill revealed a discrepancy in calculation of the sewer discharge allowance;³⁷ all other water and sewer charges had been correctly calculated and applied.

The auditor's calculation resulted in a sewer discharge allowance of 32.88 kL (0.281 kL x 117 days) compared to 32.85 kL shown on the bill. Whilst this resulted in only a 2 cent difference in the credited amount in this case (\$22.03 compared to \$22.01), it may reflect a process error with greater implications across the customer base.

In response to a request for clarification and following investigation of the issue, Hunter Water confirmed that this discrepancy reflects a difference in the number of decimal places to which the daily discharge allowance was calculated.³⁸ Under the previous (2013) Determination, IPART nominated the annual allowance, which Hunter Water divided by the number of days in a year (365) to determine the daily allowance; this was calculated to four decimal places. However, under the current (2016) *Determination*, IPART has nominated a daily allowance which it has calculated using the same approach, but to three decimal places.

As Hunter Water has continued to calculate the daily allowance to four decimal places by using the previous methodology, this has resulted in a daily sewer discharge allowance of 0.2808 kL/day being used instead of the 0.281 kL/day nominated in the *Determination*. It is noted that the daily allowance is correctly shown to three decimal places in the *Price Schedule*.

Hunter Water advised that this discrepancy was present in each year of the current Determination period, with a slightly different rounding difference, and therefore slightly different bill impact, each year. It further indicated that it is working to determine the number of customers affected and the amounts that have been incorrectly billed.³⁹ The rounding difference may be positive or negative, resulting in over or undercharging respectively.

Whilst, on the basis of the above observations, the water and sewerage charges have in most cases been calculated and applied in accordance with the *Determination*, this discrepancy in the application of the sewer discharge allowance represents non-compliance with this obligation. Accordingly, it is recommended (**REC-HWC-2019-01**) that by 30 June 2020, Hunter Water should correct its application of the sewer discharge allowance within the billing system; determine the number of customers affected and the incorrectly billed amounts; and report these details to IPART together with details of actions and/or further actions proposed.

Although Hunter Water is yet to assess the impact of this discrepancy, the auditor has undertaken an assessment which indicates that the total amount overcharged over the three year period 2016/17 to 2018/19 amounts to approximately \$1,145. This assessment assumes that all non-residential properties (11,646 in 2018/19) have been affected. It is noted that continued application of the discrepancy would result in undercharging by a total of \$2,280 in 2019/20 alone. Therefore the impact of the discrepancy is considered to be immaterial.

Hydraulic Design Assessment Charges:

Hunter Water provided evidence of the three key elements of a design assessment, including:

 Application form from the customer requesting a design assessment – a completed *Technical* Services Application 2018-19 form dated 16 May 2019 seeking an assessment in respect of a proposed fire service upgrade at an existing commercial premises was provided.⁴⁰ It is noted

³⁹ Email dated 10 December 2019 from Hunter Water to Cobbitty Consulting and IPART (re: *2019 Hunter Water Audits – Pricing*). ⁴⁰ Document: *Hydraulic application created 05 June, 2019*.

³⁷ The 'sewer discharge allowance' is the volume of sewage that can be discharged from a property before a sewer usage charge is applied.

³⁸ Email dated 10 December 2019 from Hunter Water to Cobbitty Consulting and IPART (re: 2019 Hunter Water Audits - Pricing).



that fees for a hydraulic assessment were identified on the form (along with fees for other services); these were correctly shown (for 2018/19) as:⁴¹

- o Residential 25mm-40mm \$256.00 and >40mm \$307.00; and
- Non-residential 25mm-40mm \$367.00 and >40mm \$402.00.

As the existing service is 40mm, a fee of \$256.00 was identified as applicable.

- A screenshot from the billing system showing application of the charge.⁴²
- Letter to the customer confirming the outcome of the assessment (which also identified the size of the existing service connection, upon which the fee was based).⁴³ The fee, which had already been paid, was not identified in this letter.

On the basis of this example, it is assessed that the Hydraulic Design Assessment Charge was correctly applied.

Central Coast Water Supply Services:

The maximum prices that Hunter Water may levy for supplying the Central Coast Water Supply Services during the audit period, as calculated in accordance with the *Determination*, are:

- $2018/19 $0.66 \times 1.041 = $0.69 \text{ per kL}; \text{ and}$
- 2019/20 \$0.66 x 1.055 = \$0.70 per kL.

The water usage charges shown in the Price Schedule are consistent with these amounts.

As evidence that the charges had been correctly applied, Hunter Water provided a sample bill for water use during the period 26 January 2019 to 26 February 2019,⁴⁴ which showed that the 2018/19 charge had been correctly applied. A screenshot of the billing system showing application of the charge was also provided;⁴⁵ the total amount is consistent with the amount billed.

Stormwater Charges:

As noted above, Hunter Water self-identified non-compliance in respect of the application of its stormwater charges; it had incorrectly billed an estimated 2,758 properties⁴⁶ for stormwater drainage charges in the period from 1 July 2006 to 30 June 2019. It noted that the total number of customers is higher than the number of properties given the transfer of ownership of some land parcels during this time.

In its *Statement of Compliance*,⁴⁷ Hunter Water further advised that three types of billing errors had occurred:

"Category 1 – overcharging properties by applying a stormwater drainage charge when the property was not eligible (i.e. the property was not inside a gazetted stormwater catchment).

486 properties ...

Category 2 – overcharging properties by applying an incorrect stormwater charging category (i.e. properties receiving a non-residential land-size based charge that was inconsistent with the size of the property).

31 properties ...

⁴¹ Charges were consistent with the *Price Schedule* and were confirmed by the auditor to be consistent with the *Determination*.

⁴² Document: Hydraulic Assessment Screenshot.

⁴³ Letter dated 5 June 2019 from Hunter Water to [customer] (re: *Hydraulic Design Assessment for water service upgrade to include a fire hydrant service*).

⁴⁴ Document: Central Coast Water Supply Services-Bill Evidence.

⁴⁵ Document: Central Coast Water Bill (screenshot).

⁴⁶ This represents approximately 1% of Hunter Water's customers (residential and non-residential).

⁴⁷ Hunter Water, *Statement of Compliance 2018-19*, 30 August 2019.



Category 3 – undercharging properties by:

- *a)* Not levying charges to customers that were, in fact, eligible (i.e. within a gazetted stormwater drainage catchment).
- b) Applying an incorrect stormwater charging category (i.e. properties receiving a non-residential land-size based charge that was inconsistent with the size of the property).
- 2,241 properties across both (a) and (b)"

Hunter Water further advised that the billing errors had been caused by mismatches between property information and billing practice. Many of these issues stemmed from the transfer of property and billing data from Hunter Water's previous billing system into the current billing system that was implemented in 2006. The errors were broadly of two types:

- The underlying property details from the GIS that were migrated into the billing system were incorrect. During the audit interviews it was noted that the stormwater catchment area was gazetted in the 1950s on the basis of old maps and nomenclature, thereby leading to discrepancies in catchment delineation.
- Human error when manually creating new customers leads to billing practice being inconsistent with correct underlying property details.

Remedial action being taken by Hunter Water, and status as at the end of August 2019, was as follows:⁴⁸

- Category 1 properties the overcharged amount has been credited to the accounts of
 properties that still have the same owner; this amounts to approximately 72% of the amount
 overcharged to these properties (67% of the total amount overcharged (Categories 1 and 2)).
 Hunter Water had advised the property owners of the error and the action taken; an offer of
 a cash refund had also been provided. Hunter Water was continuing to implement action to
 locate and pay a refund to customers that no longer own affected properties; 2% of the
 amount overcharged to these customers had been refunded.
- Category 2 properties these charges need to be manually reviewed and corrected. Once assessed, current owners of properties will be credited (as for Category 1 properties). If any previous owners of affected properties are impacted, action will be taken to locate and contact them (again as for Category 1 properties).
- Category 3 properties correction of charges for these properties was being addressed; 38% had been rectified from 1 July 2019 with the remainder expected to have been rectified by 31 October 2019. Hunter Water does not intend to bill these customers for the undercharged amounts.

An update of progress at the time of preparing the draft audit report (early December 2019), revealed the following:⁴⁹

- Category 1 properties a further 24 customers that no longer own affected properties had been located and refunds paid. In total, 12% of such customers had been located and 5% of the amount overcharged to these customers repaid.
- Category 2 properties review and correction of charges in respect of these properties remains ongoing, subject to completion of a verification and reclassification program which is being implemented to ensure that all customers are being billed correctly.
- Category 3 properties Hunter Water continues to work through the correction of charges for these properties.

⁴⁸ Hunter Water, *Statement of Compliance 2018-19*, 30 August 2019.

⁴⁹ Email dated 11 December 2019 from Hunter Water to Cobbitty Consulting (re: 2019 Hunter Water Audits - Pricing).



Hunter Water is implementing controls to prevent recurrence of this error. The introduction of the new billing system will use property data from the GIS as the 'source of truth' for billing purposes; this will remove human influence from this part of the billing process, thereby preventing mismatches between property characteristics and billing practice. The new billing system will contain a number of quality assurance reports focussed on identifying and rectifying any mismatches that may occur.

Prior to implementation of the new billing system, Hunter Water has developed interim controls to identify any inconsistencies in underlying customer information, and where necessary rectify any errors prior to billing; and to ensure that information in the GIS is accurate and correctly reflected in billing practice.

Hunter Water anticipates that from 31 October 2019 all customers will be correctly billed for future stormwater drainage charges; and that by 30 June 2020, it will locate and provide credits or refunds to as many previous owners that were overcharged as possible.

Whilst the incorrect charging of stormwater drainage charges over a period of thirteen years clearly represents non-compliance with this obligation, given that Hunter Water has and currently continues to implement appropriate corrective actions, it is not considered necessary to make a recommendation to do so. However, in order to monitor ongoing progress in respect of this issue, it is recommended (**REC-HWC-2019-02**) that by 30 June 2020, Hunter Water must report to IPART on the further progress made in contacting past owners of properties affected by the incorrect charging of the Stormwater Drainage Charge, the total of the refunds made compared to the amount overcharged, and any further actions to be undertaken (if necessary) to rectify this non-compliance.

In assessing the impact of the incorrect charging, it is noted that 1.1% of Hunter Water's customers have been affected; 0.2% overcharged by an average of approximately \$1,175 per property, and 0.9% undercharged (or not charged) by an average of approximately \$935 per property. Whilst a significant impact for the individual customers (where overcharged), this is not considered to reflect a material impact from an overall perspective.

Recommendations

The following recommendations are made in respect of this obligation:

- **REC-HWC-2019-01:** It is recommended that by 30 June 2020, Hunter Water should correct its application of the sewer discharge allowance within the billing system; determine the number of customers affected and the incorrectly billed amounts; and report these details to IPART together with details of actions and/or further actions proposed.
- **REC-HWC-2019-02:** It is recommended that by 30 June 2020, Hunter Water must report to IPART on the further progress made in contacting past owners of properties affected by the incorrect charging of the Stormwater Drainage Charge, the total of the refunds made compared to the amount overcharged, and any further actions to be undertaken (if necessary) to rectify this non-compliance.

Opportunities for improvement

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



Supplemental information

In its response to the Audit Questionnaire, Hunter Water noted that the Price Update Procedure is:

"... only for update and approval of the price schedule, it is not an end-to-end process that covers updating the Customer Information System ('billing system') with new prices, testing/validation."

Hunter Water further advised that:

"It is our intention to consider the creation of a full end-to-end procedure (and address OFI-HWC-2017/18-01: "It is suggested Hunter Water considers developing a comprehensive 'end-to-end' procedure detailing its annual price updating process."):

- Ahead of 1 July 2020 when we are required to introduce new price structures and levels as determined by IPART in our end-of-term price review (our current four-year pricing period is in the final year).
- After our new billing system ('Velocity') is introduced (currently expected late 2019)."

The proposed action in response to this previously identified opportunity for improvement is supported.



3.3 Water Conservation

3.3.1 Catchment to water treatment plants

Table 3.2Catchment to water treatment plants (sub-clause 2.1.2)			
Sub-clause	Requirement	Compliance Grade	
2.1.2	By 1 November 2018, or by a later date as approved by IPART, Hunter Water must submit to IPART a report outlining Hunter Water's water conservation strategy in relation to its system operating arrangements for Water Storage and Transmission (Water Conservation Strategy).	Compliant	

Risk

Target for Full Compliance

Failure to have an effective Water Conservation Strategy in place presents a high risk that Hunter Water's operations may not be optimal in respect of water conservation.

Evidence that a report outlining Hunter Water's Water Conservation Strategy had been submitted to IPART by 1 November 2018, or later approved date.

Obligation

This obligation requires Hunter Water to submit a report outlining its Water Conservation Strategy in relation to its operations under this Licence to IPART. Such report was to be submitted by 1 November 2018, or later approved date.

Evidence sighted

- Hunter Water response to 2019 Audit Questionnaire.
- Hunter Water, Water Conservation Strategy (For water storages and transmission to water treatment plants (as per Clause 2.1 of Hunter Water's 2017-22 Operating Licence), October 2018.
- Email dated 31 October 2018 from Hunter Water to IPART (re: Hunter Water's Water Conservation Strategy).
- Email dated 16 September 2019 from IPART to Hunter Water (re: Email receipt water conservation strategy).

Summary of reasons for grade

Hunter Water demonstrated that it had submitted a report outlining its Water Conservation Strategy in relation to its system operating arrangements for Water Storage and Transmission to IPART on 31 October 2018, which was prior to the required date of 1 November 2018. Accordingly, Hunter Water is considered to have demonstrated compliance with this obligation.

Discussion and notes

Hunter Water advised that it had submitted a report outlining its Water Conservation Strategy in relation to its system operating arrangements for Water Storage and Transmission to IPART on 31 October 2018. As evidence it provided:

Water Conservation Strategy;⁵⁰

⁵⁰ Hunter Water, Water Conservation Strategy (For water storages and transmission to water treatment plants (as per Clause 2.1 of Hunter Water's 2017-22 Operating Licence), October 2018.



- Email correspondence from Hunter Water to IPART demonstrating that the report was submitted on 31 October 2018;⁵¹ and
- Email correspondence from IPART to Hunter Water confirming that the report had been received on 31 October 2018.⁵²

Recommendations

There are no recommendations in respect of this obligation.

Opportunities for improvement

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

Supplemental information

No supplemental information is provided in respect of this obligation.

⁵¹ Email dated 31 October 2018 from Hunter Water to IPART (re: Hunter Water's Water Conservation Strategy).

⁵² Email dated 16 September 2019 from IPART to Hunter Water (re: *Email receipt - water conservation strategy*).



Sub-clause	Requirement	Compliance Grade
2.1.3	The Water Conservation Strategy must include:	
	a) identification and documentation of the existing water conservation activities;	
	b) a process for identifying additional options for conserving water;	Compliant
	c) a process for comparing these options; and	
	d) a process for selecting options for implementation.	
D . 1		

Table 3.3 Catchment to water treatment plants (sub-clause 2.1.3)

Risk

Target for Full Compliance

Failure to have an effective Water Conservation Strategy in place presents a high risk that Hunter Water's operations may not be optimal in respect of water conservation. Furthermore, it is essential that appropriate processes are in place for the identification, evaluation and selection of options for conserving water. Evidence that the Water Conservation Strategy includes the requisite information.

Obligation

This obligation requires that the Water Conservation Strategy, i.e. the report submitted pursuant to clause 2.1.2, identifies existing water conservation activities and processes for identifying, comparing and selecting additional water conservation activities for implementation.

Evidence sighted

- Hunter Water response to 2019 Audit Questionnaire.
- Hunter Water, Water Conservation Strategy (For water storages and transmission to water treatment plants (as per Clause 2.1 of Hunter Water's 2017-22 Operating Licence), October 2018.

Summary of reasons for grade

Review of the Water Conservation Strategy confirmed that it addressed each of the requisite matters, including identification of existing water conservation activities, and processes for identifying, comparing and selecting additional water conservation activities for implementation. Accordingly, Hunter Water is assessed to have demonstrated compliance with this obligation.

Discussion and notes

Review of the *Water Conservation Strategy*⁵³ confirms that it addresses the requisite matters, as follows:

- Existing water conservation activities are identified in section 3 existing activities include:
 - The *Lower Hunter Water Plan*, which was developed by the Metropolitan Water Directorate in close consultation with Hunter Water, government agencies, stakeholders and the community. The Plan identifies a mix of water supply and demand measures that aim to assure water security in drought, as well as reliable supplies to meet the

⁵³ Hunter Water, Water Conservation Strategy (For water storages and transmission to water treatment plants (as per Clause 2.1 of Hunter Water's 2017-22 Operating Licence), October 2018.



region's longer-term needs. Hunter Water is responsible for implementing many of the actions in the Plan.

- *Water Resilience Program*, a key aspect of which is the delivery of water conservation measures coordinated through the governance mechanism of a Water Conservation Working Group. This group meets monthly and reports against several water conservation initiatives, the majority of which are targeted at reducing potable water consumption; however, they have an indirect impact on the conservation of water from the untreated component of the Hunter Water system.
- Source Operating Strategy, which ensures that Hunter Water's bulk water sources are operated in a manner that maximises water storage levels, while also considering source water quality and ensuring compliance with regulatory requirements that govern the operation of the bulk water assets.
- *Conservation policies and programs*, which include evaporation programs, leakage programs, and leakage reduction projects at Grahamstown WTP.
- A process for identifying additional options for water conservation is outlined in section 4

 this section of the report indicates that water conservation objectives are an inherent part of Hunter Water's *Strategic Asset Management Plan*, which sets out the priorities, framework and process for decision making within Hunter Water, including decision making in respect of new options for water conservation and service efficiency improvements. The *Strategic Asset Management Plan* is the delivery mechanism for Hunter Water's overarching Asset Management Strategy.

Water conservation planning, through which additional options for water conservation are identified, is delivered through the abovementioned Water Resilience Program. Hunter Water identifies water conservation as a 'first response' strategy for maximising the service life of its available water resources against the backdrop of a growing population and demand for water in the region. It is seeking to forestall the next increment to its water storage capacity by 10-years or more in recognition of the potential social, environmental and economic impacts of such action; this further underlines the need to maintain a focus on water conservation opportunities.

A process for comparing and selecting options is outlined in section 5 – this section of the report indicates that all proposals for changes that can significantly affect operating procedures and capital expenditure within Hunter Water must go through a formal review and Executive approval process, with final sign-off at Board level. Proposals with a water conservation focus would follow this process; demonstration of a robust business case for any proposal is a key requirement.

Proposals for new programs and expenditures go through a Gateway approval process, with a business case submitted for approval at each Gateway (project phase); a progressively greater level of detail and analysis is required as the proposal moves forward. Key elements of the business case(s) include: identification of a problem, opportunity or significant risk; alignment with the business strategy; consideration of options and alternatives; economic analysis (e.g. cost-benefit analysis); commercial analysis; details of budget and finance implications; and timing and project risk analysis. All proposals are reviewed on their merits and in the context of competing proposals, strategic priorities and budget availability.

Water conservation initiatives focused on management of storages and raw water transmission would be considered against other opportunities for conservation and supply protection/enhancement within the business with a view to determining their relative effectiveness, cost and alignment with Hunter Water obligations and objectives.

Recommendations

There are no recommendations in respect of this obligation.



Opportunities for improvement

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

Supplemental information

No supplemental information is provided in respect of this obligation.



Sub-clause	Requirement	Compliance Grade
2.1.4	By 1 September 2019, or by a later date as approved by IPART, Hunter Water must develop and submit to IPART a water conservation work program.	
		Compliant

Table 3.4 Catchment to water treatment plants (sub-clause 2.1.4)

Risk

Failure to have a water conservation work program in place presents a high risk that Hunter Water's may not implement appropriate measures to ensure that its operations are optimal in respect of water conservation. Evidence that a water conservation work program had been submitted to IPART by 1 September 2019, or later approved date.

Target for Full Compliance

Obligation

This obligation requires Hunter Water to develop a water conservation work program using the process set out in the Water Conservation Strategy and submit it to IPART. Such work program was to be submitted by 1 September 2019, or later approved date.

Evidence sighted

- Hunter Water response to 2019 Audit Questionnaire.
- Hunter Water, Water Conservation Report; September 2019 (Version 1.0), 30 August 2019.
- Email dated 30 August 2019 from Hunter Water to IPART (re: Hunter Water's 1 September reports for 2018-19).
- Email dated 30 August 2019 from IPART to Hunter Water (re: Hunter Water's 1 September reports for 2018-19).

Summary of reasons for grade

Hunter Water demonstrated that it had prepared a water conservation work program, which includes programs/projects applicable to the 'catchment to water treatment plants' component of it water supply system, and that it had submitted the work program (documented in the *Water Conservation Report 2018-19*) to IPART by 1 September 2019 as required. Accordingly, Hunter Water is assessed to have demonstrated compliance with this obligation.

Discussion and notes

In its response to the Audit Questionnaire, Hunter Water advised that it had developed a water conservation work program and had submitted such program to IPART on 30 August 2019. The work program is contained in the *Water Conservation Report 2018-19.*⁵⁴

Review of the *Water Conservation Report 2018-19* confirms that it includes a 'Five Year Water Conservation Work Program'. It is noted that whilst the majority of projects/programs are focussed on the 'water treatment plants to taps' component of the water supply system, some are related to the 'catchment to water treatment plants' component. For example, the 'Point sources' program includes replacement of sections of the Chichester Truck Gravity Main, which often has leaks, and various projects at the Grahamstown WTP that are currently being implemented.

⁵⁴ Hunter Water, Water Conservation Report; September 2019 (Version 1.0), 30 August 2019.



Furthermore, the report discusses other initiatives that have been considered but not necessarily implemented. These include/relate to, for example: Hunter Water's Source Operating Strategy and Bulk Supply Procedure; evaporation reduction (from dams); and leakage in storage and transmission infrastructure.

As evidence that the water conservation work program had been submitted by 1 September 2019, Hunter Water provided:

- Email correspondence from Hunter Water to IPART demonstrating that the report was submitted on 30 August 2019;⁵⁵ and
- Email correspondence from IPART to Hunter Water confirming that the report had been received on 30 August 2019.⁵⁶

Recommendations

There are no recommendations in respect of this obligation.

Opportunities for improvement

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

Supplemental information

No supplemental information is provided in respect of this obligation.

⁵⁵ Email dated 30 August 2019 from Hunter Water to IPART (re: *Hunter Water's 1 September reports for 2018-19*).

⁵⁶ Email dated 30 August 2019 from IPART to Hunter Water (re: Hunter Water's 1 September reports for 2018-19).



3.3.2 Water treatment plants to taps

Table 3.5		
Sub-clause	Requirement	Compliance Grade
2.2.1	Hunter Water must ensure that the 5 year rolling average for annual residential water consumption calculated for each financial year is equal to or less than 215 kilolitres for each Property used for residential purposes which is connected to the Water Supply System (Water Conservation Target), until Hunter Water has obtained IPART's approval for the Economic Level of Water Conservation Methodology (in accordance with clauses 2.2.2 and 2.2.3), and developed a program of water conservation activities using the approved Economic Level of Water Conservation Methodology (in accordance with 2.2.4). [Note: Clause 2.2.1 requires Hunter Water to maintain the Water Conservation Target that was in the immediate	Compliant
	predecessor to this Licence while the Economic Level of Water Conservation Methodology is being approved and applied.]	

Risk

Target for Full Compliance

Failure to comply with this obligation presents a high risk. Failure to meet the Water Conservation Target may have significant operational impacts on both the supply-demand balance and capacity of the water supply network, with consequential financial implications. Evidence that the 5 year rolling average annual residential water consumption for each financial year is equal to or less than the target 215 kilolitres for each residential Property.

Obligation

This obligation requires Hunter Water to ensure that annual residential water consumption for each financial year is equal to or less than the Water Conservation Target, i.e. the 5 year rolling average water consumption is equal to or less than 215 kilolitres.

Evidence sighted

- Hunter Water response to 2019 Audit Questionnaire.
- Hunter Water, Compliance and Performance Report; September 2019 (Version 1.0), 30 August 2019.
- BoM/NWI Parties/WSAA, National urban water utility performance reporting framework: Indicators and definitions handbook, January 2018.
- MS Excel workbook: Average Consumptions Connections Calculation.xlsx.
- MS Excel workbook: Number of Properties Connected.xlsx.


Summary of reasons for grade

Hunter Water reported that the 5-year rolling average annual residential water consumption for the 2018/19 financial year was 171.8 kL/property, which is significantly less than the 215 kL/property Water Conservation Target. Furthermore, it demonstrated that it has developed and implements a procedure for calculating this performance characteristic which is consistent with the guidance presented in the *National urban water utility performance reporting framework: Indicators and definitions handbook.*

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

Discussion and notes

In its response to the Audit Questionnaire, Hunter Water advised as follows:

Hunter Water calculates annual residential water consumption in accordance with the National urban water utility performance reporting framework: Indicators and definitions handbook.

The 5-year rolling average annual residential water consumption for the 2018-19 financial year was 171.8 kL/property. This result is calculated in Average Consumptions Connections Calculation.xls.

The data used to calculate the average annual residential water consumption is from our Customer Information System (CIS). The required reports from CIS that we use are:

- Water consumption report
- Number of properties connected report

We generate the data to use for NPR indicator W8.3 from a standard water consumption report from CIS. We use relevant information from this report to calculate W8.3.

From this report we extract the residential water consumption for each residential premise type (RES-CT, RES-SA, RES-SU, RES-MO, COM-RES and OTHER SM).

OTHER SM (strata master) are added at the end of the calculations, as the demand is not part of the single dwelling or multiple dwelling (flats/units).

Potable water top up to the recycled water system (52 ML) and adjustments for meter lag and reservoir level changes (-141 ML) were added to residential consumption. Prior to 2016-17, meter lag and reservoir adjustments were not made to NPR values.

Connected residential water supply properties are derived using a 'standard report'. The report examines service agreements in the billing system. Where a single service connection contains more than one dwelling, such as for flats and units, multiple properties are counted. For properties with a water service agreement, an excel template is used to aggregate the total number of residential properties with a residential Premise Type attribute.

As noted above, Hunter Water advised that the 5-year rolling average annual residential water consumption for the 2018/19 financial year was 171.8 kL/property. This was reported as 172 kL/property in the *Compliance and Performance Report*,⁵⁷ and is significantly less than the 215 kL/property Water Conservation Target.

As also noted, Hunter Water calculates annual residential water consumption in accordance with the *National urban water utility performance reporting framework: Indicators and definitions handbook*.⁵⁸ It is determined as:

Annual Residential Consumption per Property = <u>Total volume of water supplied to residential properties (W8)</u> Number of connected residential properties: water supply (C2)

⁵⁷ Hunter Water, Compliance and Performance Report; September 2019 (Version 1.0), 30 August 2019.

⁵⁸ BoM/NWI Parties/WSAA, National urban water utility performance reporting framework: Indicators and definitions handbook, January 2018.



Where:

W8 = W8.3 + W20+ W28.4

- = [W8.3—Volume of water supplied to residential customers]
 - + [W20—Volume of recycled water supplied to residential customers]
 - + [W28.4—Volume of urban stormwater supplied to residential customers]

The volume of water supplied to residential customers (W8.3) is determined by extracting a standard water consumption report from the CIS (Customer Information System), which provides water consumption data for each residential premise type. Water consumption for OTHER SM (strata master) premise type is added at the end of the calculations, as this element of demand is not included in the demand from single dwelling or multiple dwelling (flats/units) premise types. The extracted data is then used to calculate the total residential consumption in the *Average Consumptions Connections Calculation* workbook;⁵⁹ the total residential consumption in 2018/19 was 41,273 ML.

Adjustments are made for potable top-up water to the recycled water system, and for meter lag and reservoir level change. These amounted to +85 ML and -141.1 ML respectively in 2018/19.60

Hunter Water did not supply any recycled water or stormwater to residential properties during 2018/19; accordingly, both W20 and W28.4 = 0.

The number of residential properties: water supply (C2) is derived from a standard report, extracted from the CIS, to determine the number of properties connected to Hunter Water services. As noted above, the report examines service agreements in the billing system and where a single service connection supplies more than one dwelling, such as for flats and units, multiple properties are counted. The total number of residential properties with residential premise type attributes is determined accordingly.⁶¹

The annual residential consumption per property and average annual residential consumption per property are calculated in the *Average Consumptions Connections Calculation* workbook; these were 171.7 kL/property and 171.8 kL/property respectively in 2018/19.

Recommendations

There are no recommendations in respect of this obligation.

Opportunities for improvement

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

Supplemental information

No supplemental information is provided in respect of this obligation.

⁵⁹ MS Excel workbook: Average Consumptions Connections Calculation.xlsx.

⁶⁰ Derivation of these figures reviewed as part of the NWI Indicators Audit (of Water Resources indicators) undertaken in conjunction with this audit.

⁶¹ MS Excel workbook: Number of Properties Connected.xlsx.



Sub-clause	Requirement	Compliance Grade
2.2.2	By 1 November 2017, Hunter Water must submit to IPART for IPART's approval a report outlining Hunter Water's proposed approach to, and principles for developing a methodology for determining its economic level of water conservation in relation to (at a minimum) the following elements:	Compliant
	a) water leakage (within and downstream of its water treatment plants);	
	b) water recycling; and	
	c) water efficiency (including demand management).	

Table 3.6Water treatment plants to taps (sub-clause 2.2.2)

Risk

Target for Full Compliance

Failure to comply with this obligation presents a high risk. Ensuring that the approach to, and principles for, developing a methodology for determining the economic level of water conservation are robust is essential to the development of an effective methodology. Evidence that Hunter Water has submitted a report outlining its approach to, and principles for, developing a methodology for determining its economic level of water conservation to IPART for approval, and that it had done so by 1 November 2017.

Obligation

This obligation requires Hunter Water to develop and submit to IPART for approval, a report outlining Hunter Water's proposed approach to, and principles for developing a methodology for determining its economic level of water conservation. Such report must address matters including (at a minimum) water leakage, water recycling and water efficiency, and must have been submitted to IPART by 1 November 2017.

Evidence sighted

- Hunter Water response to 2019 Audit Questionnaire.
- Hunter Water, Economic Level of Water Conservation (ELWC) Methodology; Principles and Approach Report (Version 1.0), October 2017.
- Letter dated 25 October 2017 Hunter Water to IPART (re: Economic Level of Water Conservation

 Principles and Approach for Developing the Methodology).
- Email dated 26 October 2017 from Hunter Water to IPART (re: Hunter Water ELWC Principles and Approach - for IPART approval).
- Email dated 14 November 2017 from IPART to Hunter Water (re: Hunter Water ELWC Principles and Approach Document).
- Document: Response to IPART Secretariat questions of 14 Nov 2017 v1.0.
- Hunter Water, Economic Level of Water Conservation (ELWC) Methodology; Principles and Approach Report (Version 2.0), November 2017.
- Email correspondence dated 21 November 2017 from Hunter Water to IPART (re: Hunter Water ELWC Principles and Approach Document).



Summary of reasons for grade

Hunter Water demonstrated that it had submitted a report outlining its proposed approach to, and principles for, developing a methodology for determining its economic level of water conservation to IPART for approval prior to 1 November 2017 and that IPART had subsequently approved a revised version of the report. Furthermore, as implied by IPART's approval, review of the revised report confirms that it addresses the requisite requirements, i.e. water leakage, water recycling and water efficiency.

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

Discussion and notes

In its response to Audit Questionnaire, Hunter Water advised that:

A report outlining Hunter Water's proposed approach to, and principles for, developing a methodology for determining its Economic Level of Water Conservation (ELWC) was submitted to IPART on 26 October 2017.

IPART Secretariat provided feedback on the principles and approach on 14 November 2017.

Hunter Water submitted to IPART on 21 November 2017a revised principles and approach that addressed the Secretariat's feedback. This included a response to each of the Secretariat's questions.

IPART wrote to Hunter Water on 30 November 2017 advising that the Tribunal had approved Hunter Water's report outlining its approach to, and principles for developing its ELWC.

As evidence that it had fulfilled this obligation, Hunter Water provided:

- Economic Level of Water Conservation (ELWC) Methodology; Principles and Approach Report (Version 1.0)⁶² as submitted to IPART on 26 October 2017;
- Letter dated 25 October 2017 Hunter Water to IPART regarding submission of the *Principles* and Approach Report;⁶³
- Email correspondence dated 26 October 2017 from Hunter Water to IPART demonstrating that the *Principles and Approach Report* and covering letter were submitted on that date (prior to 1 November 2017);⁶⁴
- Email correspondence dated 14 November 2017 from IPART to Hunter Water seeking clarification in respect of the *Principles and Approach Report*;⁶⁵
- Document setting out Hunter Water's response to questions raised in IPART's email correspondence dated 14 November 2017;⁶⁶
- Economic Level of Water Conservation (ELWC) Methodology; Principles and Approach Report (Version 2.0)⁶⁷ as submitted to IPART on 21 November 2017;
- Email correspondence dated 21 November 2017 from Hunter Water to IPART demonstrating that the revised *Principles and Approach Report* and response to questions raised by IPART were submitted to IPART on that date;⁶⁸ and

 ⁶² Hunter Water, Economic Level of Water Conservation (ELWC) Methodology; Principles and Approach Report (Version 1.0), October 2017.
 ⁶³ Letter dated 25 October 2017 Hunter Water to IPART (re: Economic Level of Water Conservation – Principles and Approach for Developing the Methodology).

⁶⁴ Email dated 26 October 2017 from Hunter Water to IPART (re: Hunter Water ELWC Principles and Approach - for IPART approval).

⁶⁵ Email dated 14 November 2017 from IPART to Hunter Water (re: *Hunter Water ELWC Principles and Approach Document*). ⁶⁶ Document: Response to IPART Secretariat questions of 14 Nov 2017 v1.0.

⁶⁷ Hunter Water, *Economic Level of Water Conservation (ELWC) Methodology; Principles and Approach Report* (Version 2.0), November 2017.

⁶⁸ Email correspondence dated 21 November 2017 from Hunter Water to IPART (re: *Hunter Water ELWC Principles and Approach Document*).



 Letter dated 30 November 2017 from IPART to Hunter Water noting that Hunter Water had submitted the original report in accordance with the Licence obligation and advising IPART's approval of the revised report.

It is therefore apparent that Hunter Water had submitted a report outlining its proposed approach to, and principles for developing a methodology for determining its economic level of water conservation to IPART for approval prior to 1 November 2017 and that IPART had subsequently approved a revised version of the report. Furthermore, as implied by IPART's approval, review of the revised report confirms that it addresses the requisite requirements, i.e. water leakage, water recycling and water efficiency.

Recommendations

There are no recommendations in respect of this obligation.

Opportunities for improvement

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

Supplemental information

No supplemental information is provided in respect of this obligation.



Sub-clause	Requirement	Compliance Grade
2.2.3	By 1 November 2018, or by a later date as approved by IPART, Hunter Water must submit to IPART for IPART's approval the proposed methodology for determining its economic level of water conservation in accordance with the approach and principles approved by IPART (Economic Level of Water Conservation Methodology). IPART may refuse approval of the methodology and require Hunter Water to resubmit it by a specified date after making changes requested by IPART, or approve the methodology unconditionally, or approve the methodology subject to conditions. Hunter Water must comply with any such conditions.	Compliant

Table 3.7 Water treatment plants to taps (sub-clause 2.2.3)

Risk

Failure to comply with this obligation presents a high risk. Ensuring that the methodology for determining the economic level of water conservation is robust is essential if the potential economic, operational and environmental benefits of water conservation are to be realised.

Target for Full Compliance

Evidence that Hunter Water has submitted its Economic Level of Water Conservation Methodology to IPART for approval, and that it had done so by 1 November 2018. Evidence that Hunter Water has responded to IPART's approval or non-approval of the methodology, as appropriate.

Obligation

This obligation requires Hunter Water to develop and submit to IPART for approval, its proposed methodology for determining its economic level of water conservation (i.e. its Economic Level of Water Conservation Methodology). The methodology is to be developed in accordance with the approach and principles approved by IPART pursuant to clause 2.2.2 of the Licence, and must have been submitted to IPART by 1 November 2018. Hunter Water must also respond to IPART's approval or non-approval of the methodology, as appropriate.

Evidence sighted

- Hunter Water response to 2019 Audit Questionnaire.
- Hunter Water, Economic Level of Water Conservation Methodology; Discussion Paper (Version 2.0), September 2018.
- Email dated 20 September 2018 from Hunter Water to IPART (re: *Hunter Water Discussion Paper: ELWC Methodology*).
- Hunter Water internal email dated 20 September 2018 (re: *Customer and Community Advisory Committee*).
- Document: File note Distribution of ELWC methodology discussion paper to WSAA.
- Email dated 21 September 2018 from Hunter Water to the Institute of Sustainable Futures (re: *Hunter Water Discussion Paper: Economic Level of Water Conservation methodology*).
- Email dated 21 September 2018 from Hunter Water to parties to the Lower Hunter Water Plan (re: *Economic Level of Water Conservation*).



- Letter dated 5 October 2018 from Hunter Water to IPART (re: *Economic Level of Water Conservation Methodology Extension of Time*).
- Letter dated 22 October 2018 from IPART to Hunter Water (re: *Economic Level of Water Conservation (ELWC) Methodology* – *Extension of Time*).
- Letter dated 26 October 2018 from IPART to Hunter Water (re: *Economic Level of Water Conservation Methodology Discussion Paper*).
- Hunter Water, Economic Level of Water Conservation Methodology (Version 1.0), 24 January 2019.
- Letter dated 24 January 2019 from Hunter Water to IPART (re: *Economic Level of Water Conservation (ELWC) Methodology*).
- Email dated 24 January 2019 from Hunter Water to IPART (re: *Hunter Water's proposed* ELWC methodology).
- Letter dated 7 March 2019 from IPART to Hunter Water (re: Hunter Water's Economic Level of Water Conservation Methodology).
- Email dated 8 March 2019 from IPART to Hunter Water (re: *Hunter Water's ELWC*).
- Hunter Water, Economic Level of Water Conservation Methodology (Version 2.0), 12 August 2019.
- Letter dated 12 August 2019 from Hunter Water to IPART (re: Revised Economic Level of Water Conservation Methodology (ELWC method)).
- Email correspondence dated 20 August 2019 from Hunter Water to IPART (re: *Hunter Water's ELWC methodology updated for zero option value*).
- Email correspondence dated 20 August 2019 from IPART to Hunter Water (re: Hunter Water's ELWC methodology - updated for zero option value).

Summary of reasons for grade

Hunter Water demonstrated that it had submitted its proposed methodology for determining its economic level of water conservation (i.e. its *Economic Level of Water Conservation Methodology*) to IPART for approval, and that IPART had subsequently provided conditional approval. The proposed methodology was submitted prior to 1 February 2019, a later date approved by IPART consistent with the provisions of this obligation. Hunter Water subsequently submitted a revised *Economic Level of Water Conservation Methodology*, which had been updated in accordance with IPART's conditional approval of the proposed methodology.

Furthermore, as implied by IPART's approval, review of the revised *Economic Level of Water Conservation Methodology* confirms that it had been developed in accordance with the approach and principles previously approved by IPART (refer Table 3.6).

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

Discussion and notes

In its response to Audit Questionnaire Hunter Water advised that:

"Hunter Water developed its proposed ELWC methodology in accordance with the principles and approach approved by IPART (see licence clause 2.2.2).

In September 2018, we released a discussion paper inviting feedback from customers, the community and external stakeholders. The paper was published on Hunter Water Your Voice, our online forum to facilitate two-way conversations to help shape our region's water future. We also wrote to a range of stakeholders with a specific interest in water conservation, regulatory economics and community representation."



Hunter Water further advised (in its response to the Audit Questionnaire) that:

- IPART was the only stakeholder to submit a written response to the abovementioned discussion paper.
- On 5 October 2018, Hunter Water sought an extension of time for development of its Economic Level of Water Conservation Methodology. An extension of time to 1 February 2019 was granted by IPART on 22 October 2018.
- Hunter Water submitted its proposed methodology to IPART on 24 January 2019, i.e. prior to the extended submission date. IPART provided conditional approval of the methodology on 8 March 2019.
- Hunter Water submitted a revised Level of Water Conservation Methodology to IPART on 20 August 2019.

As evidence that it had fulfilled this obligation (as outlined above), Hunter Water provided:

- Economic Level of Water Conservation Methodology; Discussion Paper as issued to customers, the community and external stakeholders;⁶⁹
- Email correspondence dated 20 September 2018 from Hunter Water to IPART demonstrating issue of the *Discussion Paper* for comment.⁷⁰ It notes that the *Discussion Paper* is available to the public and identifies the stakeholders from which input was to be sought. It also forecasts a formal request for an extension of time for submission of the *Economic Level* of *Water Conservation Methodology*;
- Hunter Water internal email dated 20 September 2018 confirming upload of the *Discussion* Paper to the YourVoice online forum and distribution to members of the Customer and Community Advisory Committee (CCAG);⁷¹
- File note with screenshot demonstrating that an article seeking feedback in response to the Discussion Paper had been posted to the Water Services Association of Australia (WSAA) Community of practice online forum;⁷²
- Email correspondence dated 21 September 2018 from Hunter Water to the Institute of Sustainable Futures seeking comment in response to the *Discussion Paper*,⁷³
- Email correspondence dated 21 September 2018 from Hunter Water to parties to the Lower Hunter Water Plan seeking comment in response to the *Discussion Paper*,⁷⁴
- Letter dated 5 October 2018 from Hunter Water to IPART seeking an extension of time for submission of the *Economic Level of Water Conservation Methodology*⁷⁵
- Letter dated 22 October 2018 from IPART to Hunter Water granting approval of an extension of time for submission of the *Economic Level of Water Conservation Methodology* to 1 February 2019;⁷⁶
- Letter dated 26 October 2018 from IPART to Hunter Water providing comments in response to the *Discussion Paper*,⁷⁷

⁶⁹ Hunter Water, Economic Level of Water Conservation Methodology; Discussion Paper (Version 2.0), September 2018.

⁷⁰ Email dated 20 September 2018 from Hunter Water to IPART (re: Hunter Water Discussion Paper: ELWC Methodology).

⁷¹ Hunter Water internal email dated 20 September 2018 (re: *Customer and Community Advisory Committee*).

⁷² Document: File note - Distribution of ELWC methodology discussion paper to WSAA.

⁷³ Email dated 21 September 2018 from Hunter Water to the Institute of Sustainable Futures (re: *Hunter Water Discussion Paper: Economic Level of Water Conservation methodology*).

⁷⁴ Email dated 21 September 2018 from Hunter Water to parties to the Lower Hunter Water Plan (re: *Economic Level of Water Conservation*).

⁷⁵ Letter dated 5 October 2018 from Hunter Water to IPART (re: *Economic Level of Water Conservation Methodology – Extension of Time*).

⁷⁶ Letter dated 22 October 2018 from IPART to Hunter Water (re: *Economic Level of Water Conservation (ELWC) Methodology* – *Extension of Time*).



- Hunter Water's proposed Economic Level of Water Conservation Methodology,⁷⁸
- Letter dated 24 January 2019 from Hunter Water to IPART regarding submission of the Economic Level of Water Conservation Methodology;⁷⁹
- Email correspondence dated 24 January 2019 from Hunter Water to IPART demonstrating that the *Economic Level of Water Conservation Methodology* and covering letter were submitted on that date (prior to 1 February 2019);⁸⁰
- Letter dated 7 March 2019 from IPART to Hunter Water advising conditional approval of the *Economic Level of Water Conservation Methodology* subject to "… *Hunter Water setting the option* value of water to zero, as proposed, and maintaining it at zero until the Tribunal decides otherwise". IPART also requested that Hunter Water provide a revised version of the *Economic Level of Water Conservation Methodology* that reflects the Tribunal's decision;⁸¹
- Email correspondence dated 8 March 2019 from IPART to Hunter Water providing a copy of IPART's letter dated 7 March 2019;⁸²
- Hunter Water's revised *Economic Level of Water Conservation Methodology*,⁸³ which was updated to reflect the zero option value for water in accordance with the Tribunal's (IPART's) decision;
- Letter dated 12 August 2019 from Hunter Water to IPART regarding submission of the revised *Economic Level of Water Conservation Methodology*;⁸⁴
- Email correspondence dated 20 August 2019 from Hunter Water to IPART demonstrating that the revised *Economic Level of Water Conservation Methodology* and covering letter were submitted on that date;⁸⁵ and
- Email correspondence dated 20 August 2019 from IPART to Hunter Water acknowledging receipt of the revised *Economic Level of Water Conservation Methodology* and covering letter.⁸⁶

It is therefore apparent that Hunter Water had submitted its proposed methodology for determining its economic level of water conservation (i.e. its *Economic Level of Water Conservation Methodology*) to IPART for approval, and that IPART had subsequently provided conditional approval. The proposed methodology was submitted prior to 1 February 2019, a later date approved by IPART consistent with the provisions of this obligation. Hunter Water subsequently provided a revised *Economic Level of Water Conservation Methodology*, which had been updated in accordance with IPART's conditional approval of the proposed methodology.

Furthermore, as implied by IPART's approval, review of the revised *Economic Level of Water Conservation Methodology* confirms that it had been developed in accordance with the approach and principles previously approved by IPART (refer Table 3.6).

Recommendations

There are no recommendations in respect of this obligation.

 ⁷⁷ Letter dated 26 October 2018 from IPART to Hunter Water (re: *Economic Level of Water Conservation Methodology Discussion Paper*).
 ⁷⁸ Hunter Water, *Economic Level of Water Conservation Methodology* (Version 1.0), 24 January 2019.

⁷⁹ Letter dated 24 January 2019 from Hunter Water to IPART (re: *Economic Level of Water Conservation (ELWC) Methodology*).

⁸⁰ Email dated 24 January 2019 from Hunter Water to IPART (re: Hunter Water's proposed ELWC methodology).

⁸¹ Letter dated 7 March 2019 from IPART to Hunter Water (re: Hunter Water's Economic Level of Water Conservation Methodology).

⁸² Email dated 8 March 2019 from IPART to Hunter Water (re: Hunter Water's ELWC).

⁸³ Hunter Water, Economic Level of Water Conservation Methodology (Version 2.0), 12 August 2019.

⁸⁴ Letter dated 12 August 2019 from Hunter Water to IPART (re: *Revised Economic Level of Water Conservation Methodology (ELWC method)*).

⁸⁵ Email correspondence dated 20 August 2019 from Hunter Water to IPART (re: *Hunter Water's ELWC methodology - updated for zero option value*).

⁸⁶ Email correspondence dated 20 August 2019 from IPART to Hunter Water (re: Hunter Water's ELWC methodology - updated for zero option value).



Opportunities for improvement

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

Supplemental information

No supplemental information is provided in respect of this obligation.



Sub-clause	Requirement	Compliance Grade
2.2.4	By 1 September 2019, or by a later date as approved by IPART, Hunter Water must develop and submit a water conservation work program using the Economic Level of Water Conservation Methodology.	Compliant

Table 3.8 Water treatment plants to taps (sub-clause 2.2.4)

Risk

Target for Full Compliance

Failure to comply with this obligation presents a high risk. In the absence of a defined water conservation work program, there is a risk that Hunter Water's water conservation objectives and targets may not be realised. Evidence that Hunter Water has developed a water conservation work program using the Economic Level of Water Conservation Methodology, and has submitted the work program to IPART by 1 September 2019.

Obligation

This obligation requires Hunter Water to develop a water conservation work program using the Economic Level of Water Conservation Methodology, and to submit the work program to IPART by 1 September 2019.

Evidence sighted

- Hunter Water response to 2019 Audit Questionnaire.
- Hunter Water, Water Conservation Report; September 2019 (Version 1.0), 30 August 2019.
- Email dated 30 August 2019 from Hunter Water to IPART (re: *Hunter Water's 1 September reports for 2018-19*).
- Email dated 30 August 2019 from IPART to Hunter Water (re: Hunter Water's 1 September reports for 2018-19).

Summary of reasons for grade

Hunter Water demonstrated that it had prepared a water conservation work program, which includes programs/projects applicable to the 'water treatment plants to taps' component of its water supply system, and that it had submitted the work program (documented in the *Water Conservation Report 2018-19*) to IPART by 1 September 2019 as required. Furthermore, initiatives included in the work program had been assessed using the *Economic Level of Water Conservation Methodology*.

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

Discussion and notes

In its response to the Audit Questionnaire, Hunter Water advised that it had developed a water conservation work program and had submitted such program to IPART on 30 August 2019. The work program is contained in the *Water Conservation Report 2018-19.*⁸⁷

Review of the *Water Conservation Report 2018-19* confirms that it includes a 'Five Year Water Conservation Work Program'. The majority of projects/programs are focussed on the 'water treatment plants to taps' component of the water supply system, to which this obligation relates;

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⁸⁷ Hunter Water, Water Conservation Report; September 2019 (Version 1.0), 30 August 2019.



however, some are related to the 'catchment to water treatment plants' component.

Initiatives related to the 'water treatment plants to taps' component of the water supply system include (for example):

- Water Check-up program under which plumbing assistance will be provided to support
 customers who use more than average quantities of water on their property. The program
 will offer a site visit by a plumber to help investigate reasons for the customer's high water
 use; practical water savings advice; and minor repairs or water efficiency improvements
 during the site visit.
- *Council water resilience* Hunter Water will partner with local councils to identify opportunities for improved water efficiency and alternative water source opportunities (e.g. recycled water or stormwater).
- *Pressure management* reducing pressure in high pressure areas to reduce leaks and water-main breaks (which also inconvenience customers), whilst extending the life of water mains and equipment.

In the Water Conservation Report 2018-19, Hunter Water notes that:88

"Hunter Water has applied the Economic Level of Water Conservation (ELWC) methodology to help us determine whether programs are economically efficient. The methodology considers social and environmental costs and benefits in addition to the cost of the program and the water saved."

A brief summary of the Economic Level of Water Conservation Methodology is included in the report.89

Each of the initiatives included in the work program have been assessed against the Economic Level of Water Conservation.⁹⁰ The levelised cost; value of water saved (time over which benefits are expected to be realised); conditions under which the initiative is assessed to be economically efficient; the forecast annual extent of the initiative; and the water savings potential are identified in each case.

Hunter Water estimates that the Economic Level of Water Conservation for the five year period 2019/20 to 2023/24 is 2.6 ML/day, based on the dam level 68% (as at 1 July 2019) and a value of water of \$2.37 per kL to \$3.55 per kL.⁹¹

As evidence that the water conservation work program had been submitted by 1 September 2019, Hunter Water provided:

- Email correspondence from Hunter Water to IPART demonstrating that the report was submitted on 30 August 2019;⁹² and
- Email correspondence from IPART to Hunter Water confirming that the report had been received on 30 August 2019.⁹³

Recommendations

There are no recommendations in respect of this obligation.

Opportunities for improvement

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

⁸⁸ Hunter Water, Water Conservation Report; September 2019 (Version 1.0), 30 August 2019, section 1.3.

⁸⁹ Hunter Water, Water Conservation Report; September 2019 (Version 1.0), 30 August 2019, appendix A.2.

⁹⁰ Hunter Water, Water Conservation Report; September 2019 (Version 1.0), 30 August 2019, section 3.1 (table 3.1).

⁹¹ Hunter Water, Water Conservation Report; September 2019 (Version 1.0), 30 August 2019, section 3.1.

⁹² Email dated 30 August 2019 from Hunter Water to IPART (re: *Hunter Water's 1 September reports for 2018-19*).

⁹³ Email dated 30 August 2019 from IPART to Hunter Water (re: Hunter Water's 1 September reports for 2018-19).



Supplemental information

No supplemental information is provided in respect of this obligation.



3.4 Supply services and performance standards

3.4.1 Drinking Water (clause 3.1)

Table 3.9 Drinking Water (sub-clause 3.1.1)

Sub-clause	Requirement	Compliance Grade
3.1.1	Hunter Water must maintain a Management System for Drinking Water that is consistent with the Australian Drinking Water Guidelines, except to the extent that NSW Health specifies otherwise in writing (the Drinking Water Quality Management System).	Compliant
	[Note: It is expected that the Drinking Water Quality Management System will be consistent with the Framework for Management of Drinking Water Quality. However, where NSW Health considers it appropriate, the application of Australian Drinking Water Guidelines may be amended or added to, to take account of Hunter Water's circumstances and/or Drinking Water quality policy and practices within New South Wales.	
	The Australian Drinking Water Guidelines has provisions relating to the prevention of use of non-potable water for potable purposes.]	

Risk

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

Target for Full Compliance

Evidence that a Drinking Water Quality Management System is established, maintained and kept up to date, and that it is consistent with the *Australian Drinking Water Guidelines*, and any additional requirements of NSW Health.

Obligation

This obligation requires Hunter Water to maintain a Drinking Water Quality Management System that is consistent with the requirements of the *Australian Drinking Water Guidelines*, subject to any specific requirements of NSW Health.

Evidence sighted

Hunter Water response to 2019 Audit Questionnaire.

Further evidence for each ADWG Element as listed in the following.

Element 1:

- HW2006-2968 41 44.001 Policy Drinking Water Policy.PDF.
- HW2012-441 23 1.029 Procedure Managing Legal and Other Requirements.DOC.
- HW2013-421 9.007 Register Summary of Corporate Reporting Requirements XLS.
- HW2013-421 9.006 Register Legal and Other Requirements Quality.XLS.



- HW2012-778 88.001 Schedule Compliance Calendar August 2019.XLS.
- HW2007-900 27 19.004 Corporate Emergency Management Plan.PDF.
- HW2011-662 14 5.006 Procedure Emergency Communications Plan.DOC.
- HW2014-1242 4 2.006 Business Resilience Calendar.XLS.
- HW2015-1449 1 5.013 Data Veolia Staff Contact Details.XLS.
- HW2015-1449 1 5.015 File note Lab Staff Contact Details.DOC.
- HW2006-1448 57 4.011 Minutes Hunter Water NSW Health Liaison Committee Meeting - 12 June 2019.DOCX.
- Agreement MOU_Executed Version_HWC and Fire Rescue NSW_17 June 2019.PDF.
- Agreement MoU between NSW Health and Hunter Water November 2018.PDF.

Element 2:

- HW2015-1365 16.008 Plan Hunter Water and Central Coast Council Drinking Water Transfer Scheme.PPT.
- HW2015-1365 16.001 Plan Flow Diagram Anna Nelson Bay Water Supply System.
- HW2015-1343 21 4.003 Report Anna and Nelson Bay WTP Risk Outcomes Report.PDF.
- HW2015-705 1.001 Anna Bay WTP.PDF.
- HW2015-705 1.006 Nelson Bay WTP.PDF.
- S09-13 16 1.005 Distribution Network.PDF.
- HW2015-1365 18.013 Report Hunter Water and Central Coast Council Drinking Water Transfer Scheme Risk Assessment Summary Report.PDF.
- HW2015-1343 21 4.001 Report Anna and Nelson Bay WTP Risk Update Briefing Paper.PDF.
- HW2015-1343 21 4.003 Report Anna and Nelson Bay WTP Risk Outcomes Report.PDF.
- HW2008-704 17.004 Procedure Enterprise Risk Management Framework.DOC.
- HW2015-1303 6.002 Report Catchment to Tap Water Quality Risk Assessment Guideline.DOC.
- Distribution Network Risk Assessment Sent to NSW Health.xlsx.
- HW2015-1365 1.014 Register Hunter Water and Central Coast Council Drinking Water Transfer Scheme.XLSX.
- Register Anna and Nelson Bay WTP Risk Register DRAFT.XLS.

Element 3:

- HW2015-1365 18.013 Report Hunter Water and Central Coast Council Drinking Water Transfer Scheme Risk Assessment Summary Report.PDF.
- HW2015-1343 21 4.001 Report Anna and Nelson Bay WTP Risk Update Briefing Paper.PDF.
- HW2015-1343 21 4.003 Report Anna and Nelson Bay WTP Risk Outcomes Report.PDF.
- HW2014-778 15 2.004 Register Anna Bay WTP CCP Limit Table.PDF.
- HW2014-778 15 2.009 Register Nelson Bay WTP CCP Limit Table.PDF.



- HW2014-778 15 2.001 Plan Veolia CCP Exceedance Response.PDF.
- HW2017-1005 5 7.002 Minutes Disinfection CCP Meeting NSW Health Nov 2018.DOC.
- HW2017-1005 5 7.005 Minutes Disinfection CCP Meeting NSW Health Jan 2019.DOC.
- HW2017-836 1.001 Presentation Disinfection CCP Presentation to NSW Health Jan 2019.PPT.
- HW2017-836 1.005 Minutes 13-05-209 Meeting NSW Health and Hunter Water on CCP Disinfection Changes.DOC.
- HW2017-836 1.010 Email 21-6-19 to NSW Health Letter on proposed drinking water CCPs.MSG.
- Distribution Network Risk Assessment Sent to NSW Health.xlsx.
- HW2015-1365 1.014 Register Hunter Water and Central Coast Council Drinking Water Transfer Scheme.XLSX.
- Business Case Revised Business Case DOS Stage 1B May 2019.docx.

Element 4:

- MAN-2951-2 HW Anna Bay WTP Plant Operating Manual.PDF.
- MAN-2970-1 HW Nelson Bay WTP Plant Operating Manual.PDF.
- HW2015-1449 1 11.001 Screenshot OurSafety Intranet Page.JPG.
- HW2015-1449 1 5.024 Screenshot Asset Operation Intranet Page.JPG.
- WIS-3180-3 Water Treatment Sampling.
- HW2014-778 15 2.001 Plan Veolia CCP Exceedance Response.PDF.
- HW2006-2247 34 11.001 Agreement Contract for Supply and Delivery of Bulk Chemicals - CS0525 IXOM.PDF.
- HW2015-1449 1 5.061 Presentation Screenshot Approved Produces and Manufacturers Internet Page.JPG.
- COA log spreadsheet Screenshot.JPG.
- PRO-6185 HW WTP Bulk Chemical Ordering, Delivery and Quality Management.PDF.
- HW2015-1449 7.014 Report SCADA Alarms Report.PDF.
- Notification of water quality events of potential public health significance to NSW Health.
- Treatment Operations Contract CS0341 Practice Note PN111 Drinking Water Standards.
- HW2014-1579 2.001 Data Nelson Bay WTP.XLS.
- HW2014-1579 2.007 Data Anna Bay WTP.XLSB.
- HW2008-947 8 0.001 Email FW Emailing Coal Point No. 2 Res 03.07.18.MSG.
- SDS HTH_FREXUS DURATION TABLETS.
- Procedure Hypochlorite Tablet Validation.docx.
- 19-0795-01-02 Calcium Hypo Tablets19CH130.029.
- 19-1189-01-04 Calcium Hypo Tablets #19CH131 132 172 173.
- CERTIFICATE OF CONFORMITY-June to December 2019--68 Sticks.



Element 5:

- HW2006-2906 2 6.006 Water Quality Monitoring Plan.
- HW2013-421 22.001 Standard for managing incidents.DOC.
- HW2010-1986 8.023 Procedure Water Quality Exception Reporting.DOC.
- HW2006-2906 4 6.023 Procedure to notify NSW Health of events with potential public health impact.DOC.
- HW2014-778 15 2.004 Register Anna Bay WTP CCP Limit Table.PDF.
- HW2014-778 15 2.009 Register Nelson Bay WTP CCP Limit Table.PDF.
- HW2014-778 15 2.001 Plan Veolia CCP Exceedance Response.PDF.
- HW2015-1449 1 11.041 Customer Complaints Handling Standard.PDF.
- HW2015-1449 1 11.049 Customer Complaints Handling Guidelines.PDF.
- HW2008-235 7.001 Service Fault Map.PDF.
- Extract from contract, procedural changes.PDF.
- HW2015-1449 7.013 Article Example WQ incident record Integrum.JPG.
- HW2008-947 8/ 0.001 Email FW: Emailing: Coal Point No. 2 Res 03.07.18.MSG.
- HW2006-1417 32 8.004 Network Operations Report July 2019.docx.
- Data CURRENT DOSING RATES AND LABDATA.XLS.

Element 6:

- HW2007-900 27 19.004 Corporate Emergency Management Plan.PDF.
- HW2007-900 27 19.001 Plan v7 Corporate Emergency Management Plan, August 2018.DOCX
- HW2011-662 14 5.006 Procedure Emergency Communications Plan.DOC.
- HW2006-2906 4 6.023 Procedure Water Quality Notification to NSW Health.DOC.
- HW2006-1448 53 3.003 Guideline Criteria for Notification to NSW Health Drinking Water Quality.XLS.
- HW2007-900 29 52.001 State Exercise Proposal Brief.DOC.
- HW2007-900 29 52.006 Exercise Need, Aim and Objectives Brief.
- HW2015-1449 1 5.013 Data Veolia Staff Contact Details.XLS.
- HW2015-1449 1 5.015 File note Lab Staff Contact Details.DOC.
- Schedule Business Resilience Yearly Event 2019.XLSX.

Element 7:

- HW2015-1449 1 9.040 Drinking Water Quality Awareness Training Material.
- HW2015-1449 1 9.012 DWQ Compliance Training Material.PDF.
- Register IMS Training and Competency Needs Register 2019.PDF.
- Training Calendar Aug View 2019.PDF.
- Training Calendar Sept View 2019.PDF.



Training Calendar -Oct View 2019.PDF.

Element 8:

- HW2015-1055 7.002 Guideline 2017+3 Strategy.PDF.
- <u>https://yourvoice.hunterwater.com.au/ccag.</u>
- HW2015-1449 7.007 Article Your Voice Web Page.JPG.
- HW2015-1449 7.008 Article Customer and Community Advisory Group Web Page.JPG.
- Training Matrix Veolia HW Contract October 2019.pdf.
- https://twitter.com/HunterWater/status/1201383384208920576.
- <u>https://hunterwater.com.au/Water-and-Sewer/Water-Supply/Operating-Tomago-Sandbeds.aspx</u>.
- https://hunterwater.com.au/Water-and-Sewer/Water-Supply/Water-Quality/PFAS.aspx.
- <u>https://www.hunterwater.com.au/Resources/Documents/Other-Reports/Water-Quality-Monthly-Reports/Monthly-Drinking-Water-Quality-Summary--October-2019.pdf</u>

Element 9:

- HW2018-604 3 1.004 Framework Research and Development Strategy 29 Nov 2018.
- HW2015-1449 7.011 Article Research and Development Workspace.
- HW2015-1449 1 5.060 Presentation Screenshot Hunter Water Design Manual Page.JPG.
- HW2007-2744 5.082 Guideline QG052 Design Validation Guideline.DOC.
- HW2015-1449 1 11.023 Appendix A (Drinking Water Quality Management Plan).PDF.
- HW2015-1055 7.002 Guideline 2017+3 Strategy.
- HW2015-1449 1 11.023 Appendix A (Drinking Water Quality Management Plan).
- HW2006-2906 10 2.005 Register Drinking Water Quality Improvements Plan.

Element 10:

- HW2015-1449 1 9.008 Article Screenshot of TRIM Workspace.JPG.
- HW2012-441 9 1.002 Procedure Manage Document Control.DOC.
- PRO-129-2 Documented Information Procedure.PDF.
- PRO-2944-1 HW Records Management.PDF.
- HW2012-807 21.005 Report Water Quality Summary August 2019.DOC.
- HW2007-1642 39 2.012 Report Hunter Water Monthly Fluoride Report June 2019.XLS.
- HW2006-1448 41 10.007 Report Quarterly to NSW Health Drinking Water and Recycled Water Quality Exceptions April to June 2019.DOC.

Element 11:

- HW2013-421 11.002 Procedure Conduct Management System Internal Audit.DOC.
- HW2013-421 9.001 Register Management Systems Triennial Audit Programme 2018-2021.XLS.
- HW2015-106 7 2.001 Register ALS Lab Contract Audit Register.XLS.



- HW2014-778 40.011 Register WTP Audit Register Water Treatment Operations.XLS.
- HW2006-1417 15 17.001 Statement Water Quality Committee Terms of Reference – March 2018.DOC.
- HW2015-1303 6.002 Guideline Catchment to Tap Water Quality Risk Assessment Guideline.DOC.
- HW2015-1365 18.013 Report Hunter Water and Central Coast Council Drinking Water Transfer Scheme Risk Assessment Summary Report.PDF.
- HW2015-1365 18.006 Report Anna and Nelson Bay WTP Risk Assessment Summary Report.
- HW2006-1417 32 6.001 Report WQ Report May 2019.PDF.
- HW2006-1417 32 8.004 Network Operations Report July 2019.DOC.
- Section 3 from MCR CS0341 October 2019 Draft.pdf.
- Q3 2019 Water Treatment Performance Review Workshop Report.pdf.
- HW2006-1417 15 17.001 Statement Water Quality Committee Terms of Reference – March 2018.DOC.
- HW2015-1303 9.001 Report Hunter Water Drinking Water Quality Management System.

Element 12:

- HW2013-1447 2.031 Report Management Systems Review 2019 April 2019.DOC.
- HW2013-1447 2.032 Presentation Management System Review Meeting May 2019.PPT.
- HW2013-1447 2.033 Minutes Management Review May 2019.DOC.
- HW2006-2906 10 2.005 Register Drinking Water Quality Improvement Plan.XPS.
- HW2006-1417 30 6.007 Minutes July 2019 WQCM.DOC.
- PRO-120-1 Management Review Procedure.PDF.
- HW2015-1303 9.001 Report Hunter Water Drinking Water Quality Management System.

Summary of reasons for grade

Hunter Water's Drinking Water Quality Management System (DWQMS) covers the intent of the *Australian Drinking Water Guidelines* (ADWG) well and was found to be compliant with the requirements of this clause. The *Drinking Water Quality Management System Manual* (DWQMSM) is a reference document linking the documents, procedure, register and systems that constitute the quality management system. It clearly identified the relevant information. In some instances additional material was used to determine compliance with the ADWG; even though it may have not been referenced it was readily accessible. The DWQMSM concept is good in that it references all of the relevant components and does not duplicate material.

This approach did not quite deliver satisfactory outcomes in one instance, which relates to communication with stakeholders. In element 1, the mechanisms used to engage with stakeholders are not well defined and an OFI has been identified in respect of this issue.

Discussion and notes

Maintenance of the Drinking Water Quality Management System consistent with each ADWG Element is discussed below.



Element 1:

The Australian Drinking Water Guidelines (ADWG) require organisational support and long-term commitment by senior executive to support an effective drinking water quality management plan (DWQMP). This is to be demonstrated through a drinking water policy, detailed regulatory and formal requirements and the engagement of stakeholders. Hunter Water has met these requirements.

Drinking Water Policy

Hunter Water has a drinking water policy,⁹⁴ which is consistent with the ADWG. The policy has been signed by the Managing Director. Since the policy was signed there is a new Acting Chief Executive Officer. The policy is due to be reviewed in June 2020.

Regulatory and Formal Requirements

Hunter Water has a procedure⁹⁵ for identifying and managing legal and other requirements. Details of the requirements are in two registers, one for reporting⁹⁶ and one for legal and other requirements,⁹⁷ which appears to contain the relevant legal requirements. There is also a calendar,⁹⁸ which is used to track compliance requirements.

Engaging Stakeholders

The ADWG⁹⁹requires that stakeholders who could affect, or be affected by, decisions or activities of the drinking water supplier are identified, appropriate mechanisms are developed for their involvement and the list is regularly updated. The *Drinking Water Quality Management System Manual* (DWQMSM) references the *Emergency Management Plan*¹⁰⁰ as containing the stakeholder list, which is an emergency contact list. The plan mentions some of the relevant stakeholders, but it is not a definitive list nor does it mention engagement outside of an incident of emergency. Hunter Water does have Memorandum of Understanding (MoU) in place with NSW Health,¹⁰¹ Department Primary Industry and Water and Fire & Rescue NSW.¹⁰² The MoU with NSW Health defines establishment of the Joint Operational Group (JOG) quarterly meetings and the Fire & Rescue NSW MoU specifies an annual Strategic Liaison Group (SLG) meeting and a quarterly Fire Fighting Working Group meeting.

Veolia operates Hunter Water's treatment plants and there is regular liaison through a weekly catch up between the respective operational water quality teams. Representatives of Veolia and Australian Laboratory Services Pty Ltd (ALS) are also included in the monthly Water Quality Committee¹⁰³ meetings.

Hunter Water meets the requirements for engagement with stakeholders; however, the documents referenced in the DWQMSM should be revised to include those that detail liaison, as opposed to contact lists.

OFI-HWC-2019-01: It would be beneficial to have a consolidated list of stakeholders who could affect, or be affected by, decisions or activities of Hunter Water. The list or register could then document how and when Hunter Water contacts each stakeholder. It could also include a consolidated list of stakeholder engagement processes from various MoUs, contracts and terms of reference.

⁹⁴ HW2006-2968 41 44.001 Policy - Drinking Water Policy.

⁹⁵ HW2012-441 23 1.029 Procedure - Managing Legal and Other Requirements.

⁹⁶ HW2013-421 9.007 Register - Summary of Corporate Reporting Requirements.

⁹⁷ HW2013-421 9.006 Register - Legal and Other Requirements - Quality.

⁹⁸ HW2012-778 88.001 Schedule - Compliance Calendar - August.

⁹⁹ NHMRC. Australian Drinking Water Guidelines 2011.

¹⁰⁰ HW2007-900 27 19.004 Corporate Emergency Management Plan.

¹⁰¹ Agreement - MoU between NSW Health and Hunter Water - November 2018.

¹⁰² Agreement - MOU_Executed Version_HWC and Fire Rescue NSW_17 June 2019.

¹⁰³ HW2006-1448 57 4.011 Minutes - Hunter Water NSW Health Liaison Committee Meeting - 12 June 2019.



Element 2:

The ADWG require that Hunter Water documents pertinent information about the drinking water supply system, assesses long-term water quality and undertakes hazard identification and risk assessment. Hunter Water meets the requirements of this element.

Water Supply System Analysis

An appropriate team to undertake the risk assessment is to be assembled. This is detailed in Appendix F of the *Risk Assessment Summary Report*.¹⁰⁴

System analysis is undertaken through the risk assessment process, which is reviewed every 5 years. The briefing paper for Anna and Nelson Bay¹⁰⁵ risk assessments was provided as evidence. The briefing paper includes pertinent details of the supply systems, including details of the borefields, the treatment processes, and the reticulation network.

Process Flow Diagrams have been prepared for each water treatment plant (WTP). Flow diagrams were provided for Nelson¹⁰⁶ and Anna Bay¹⁰⁷. These diagrams show, critical control points (CCP), area of responsibility, online monitoring, chemical dosing, and process flow.

Assessment of Water Quality Data

Historical data trends for WTPs are provided in the risk assessment briefing reports.¹⁰⁸ Appendix C of the briefing reports contains a summary of water quality data and Appendix D presents time-series plots. The report includes data from 2014 to 2019. As well as the data the briefing paper also contains details of exceedance over the same period. Time series plots have been developed for appropriate parameters.

Hazard Identification and Risk Assessment

Hunter Water has a corporate risk assessment methodology that is applied to all risk assessments, the Enterprise Risk Assessment Framework.¹⁰⁹ The framework includes definitions for consequence, likelihood, a risk matrix as well as risk appetite. Specific action is required, based on the level of controlled risk. A new guideline has been developed in response to previous Recommendation 2018-03 to explain the catchment to tap risk assessment process.¹¹⁰ This is a useful document mapping out the risk assessment process and interactions between individual risk assessments. This document is discussed further in Table 4.4.

Risk assessments were provided for Anna and Nelson Bay.¹¹¹ These risk assessments were completed within the audit period. A new template was utilised for the assessment and it is considerably clearer than the previous template and meets all the requirements of the ADWG.

The WTP risk assessments cover the system specific risks, including those that may present in the distribution system. The Distribution Network Risk Assessment¹¹² covers the generic risks regarding the operation of the distribution system.

Element 3:

The ADWG require that Hunter Water has preventive measures and multiple barriers in place to prevent hazardous events or reduce them to acceptable levels. From these barriers and preventive measures, CCPs are to be identified which are essential to prevent a hazard or reduce it to an acceptable level. Hunter Water was able to demonstrate that it met the requirements of this

¹⁰⁴ HW2015-1343 21 4.003 Report - Anna and Nelson Bay WTP Risk Outcomes Report.

¹⁰⁵ HW2015-1343 21 4.001 Report - Anna and Nelson Bay WTP Risk Update Briefing Paper.

¹⁰⁶ HW2015-705 1.006 Nelson Bay WTP.

¹⁰⁷ HW2015-705 1.001 Anna Bay WTP.

¹⁰⁸ HW2015-1343 21 4.001 Report - Anna and Nelson Bay WTP Risk Update Briefing Paper.

¹⁰⁹ HW2008-704 17.004 Procedure Enterprise Risk Management Framework.

¹¹⁰ HW2015-130/6.002 Report – Catchment to Tap Water Quality Risk Assessment Guideline.

¹¹¹ Register – Anna and Nelson Bay WTP Risk Register – DRAFT.XLS.

¹¹² Distribution Network Risk Assessment Sent to NSW Health.



element.

Preventive Measures and Multiple Barriers

Preventive measures are identified through the risk assessment process. For the catchment and WTPs, they are in the WTP risk assessments (the *Anna and Nelson Bay Risk Assessment*¹¹³ and the *Hunter Water and Central Coast Council Drinking Water Transfer Scheme Risk Assessment*¹¹⁴ were provided as examples), and for the distribution they are in the Distribution System Risk Assessment.¹¹⁵ The preventive measures for the catchment and plant are summarised in the risk summary reports (the *Anna and Nelson Bay Water Treatment Plants: Drinking Water Quality Risk Outcomes Report*¹¹⁶ and the *Hunter Water and Central Coast Council Drinking Water Transfer Scheme: Drinking Water Quality Risk Outcomes Report*¹¹⁷ were supplied as evidence). Both the supplied reports detail preventive measures in section 6.3. A table lists preventive measures by process and there is some reference to the entity that will undertake the action.

The Risk Outcome Reports discussed events for which the risk exceeded Hunter Water's risk appetite and proposed additional preventive measures or other appropriate mitigation to further reduce the risks.

The Disinfection Optimisation Strategy (DOS) has been an ongoing process for Hunter Water and it has continued to improve chlorination levels throughout the distribution system. It is currently at Stage 1B, which will see the installation of mixing and improved chemical dosing of distribution reservoirs.¹¹⁸

Critical Control Points (CCPs)

CCPs have been identified and are detailed in the CCP Limit Tables for the treatment plants; the Anna Bay WTP¹¹⁹ and Nelson Bay WTP¹²⁰ CCP Limit Tables have been provided. CCP7 is in the distribution system and is managed by Hunter Water. This document provides the information for CCPs as required in the ADWG. The CCPs were reviewed as part of the September 2019 risk assessment.

There is an outstanding recommendation for CCPs. CCPs were to be reviewed to the satisfaction of NSW Health. A significant amount of work has been undertaken, especially in relation to chlorine disinfection C.t. This is further discussed in Table 4.3.

Element 4:

The ADWG require that Hunter Water has appropriate process control, which is achieved through the documentation of procedures, monitoring program, and corrective actions in response to excursions. In addition, this element requires that equipment is capable and maintained and that appropriate chemicals and materials are being used in the water supply system. Hunter Water has demonstrated that it meets these requirements.

Operational Procedures

Operational procedures for the WTPs are available through Hunter Water's 'Reservoir' intranet workspace and Veolia's Document Management System (BMS), which has replaced 'On Tap'. Both document management systems were observed during the audit. All relevant staff have access to these systems.

¹¹³ Register – Anna and Nelson Bay WTP Risk Register – DRAFT.XLS.

¹¹⁴ HW2015-1365 1.014 Register - Hunter Water and Central Coast Council Drinking Water Transfer Scheme.

¹¹⁵ Distribution Network Risk Assessment Sent to NSW Health

¹¹⁶ HW2015-1365 18.006 Report – Anna and Nelson Bay WTP Risk Assessment Summary Report.

¹¹⁷ HW2015-1365 18.013 Report - Hunter Water and Central Coast Council Drinking Water Transfer Scheme Risk Assessment Summary Report.

¹¹⁸ Business Case - Revised Business Case - DOS Stage 1B - May 2019.

¹¹⁹ HW2014-778 15 2.004 Register – Anna Bay WTP CCP Limit Table.

¹²⁰ HW2014-778 15 2.009 Register - Nelson Bay WTP CCP Limit Table.



These procedures have been compiled into a manual for each WTP. The Nelson Bay WTP¹²¹ and Anna Bay¹²² Operating Manuals were provided as evidence. These are detailed operational procedures covering plant operations during normal and abnormal events.

Procedures for the distribution network are available through the 'OurSafety'¹²³ and the 'Asset Operations'¹²⁴ intranet web pages. These were viewed during the audit. New integrated work instructions cover quality, environmental and safety. The procedure *Notification of water quality* events of potential public health significance to NSW Health¹²⁵ was viewed onsite.

Veolia has an intranet site that provides access to all Hunter Water Contract related documents. The BMS contains all company documents; this intranet site provides a convenient way to quickly navigate to contract specific documents and information.

Operational Monitoring

The CCP Tables for each plant detail the operational envelopes for CCPs, critical operational points and other monitoring, including grab sampling. They also specify the location, if the monitoring is online and continuous, or grab samples, and the frequency of non-continuous sampling. In addition to this, Hunter Water has a detailed monitoring plan¹²⁶ that includes operational and verification monitoring, undertaken by Veolia and ALS.

The Practice Note document PN111¹²⁷ details the monitoring required under the contract. This is currently under review. The requirements of the practice note are reflected in the CCP Limit Tables. In addition to the specific chemical requirements there is a general catchall that parameters must be under the ADWG Health Based Guideline.

The plant spreadsheets^{128,129} detail the grab sample monitoring that operators are required to undertake with the Daily and Weekly Datasheets.

Corrective Action

Corrective actions at the WTP are undertaken in accordance with the *Veolia CCP Exceedance Response Plan.*¹³⁰ This plan details the responses to be undertaken when the CCP limits are exceeded (alert and critical), as well as action to be taken if the limits for the Critical Operational Points (COPs) are exceeded. Details of notifications are also included in this plan.

Operational data is entered into the plant spreadsheets and these uses conditional formatting to change cell colour to identify out of specification results. The spreadsheet is also capable of sending an email to the supervisor group for out of specification results. Online instruments alarm through the SCADA system.¹³¹

Veolia and Hunter Water are notified in the instance of a laboratory sample that is out of specification.¹³²

Equipment Capability and Maintenance

Maintenance for WTPs is managed by Veolia in the Veolia Asset Management System (VAMS) to ensure that assets operate to the required level of performance. Maintenance scheduling on the distribution system is managed using Hunter Water's corporate asset management system

¹²¹ MAN-2970-1 HW - Nelson Bay WTP Plant Operating Manual.

¹²² MAN-2951-2 HW - Anna Bay WTP Plant Operating Manual.

¹²³ HW2015-1449 1 11.001 Screenshot OurSafety Intranet Page.

¹²⁴ HW2015-1449 1 5.024 Screenshot Asset Operation Intranet Page.

¹²⁵ Notification of water quality events of potential public health significance to NSW Health.

¹²⁶ HW2006-2906 2 6.006 Water Quality Monitoring Plan.

¹²⁷ Treatment Operations Contract CS0341 Practice Note PN111 – Drinking Water Standards.

¹²⁸ HW2014-1579 2.001 Data - Nelson Bay WTP.

¹²⁹ HW2014-1579 2.007 Data - Anna Bay WTP.

¹³⁰ HW2014-778 15 2.001 Plan - Veolia CCP Exceedance Response Plan.

¹³¹ HW2015-1449 7.014 Report – SCADA Alarms Report.

¹³² HW2008-947 8 0.001 Email - FW Emailing Coal Point No. 2 Res 03.07.18.



(Ellipse). Maintenance schedules were observed during the interviews and based on the sample observed appeared to be appropriate. Asset management is considered in depth in section 3.5.1.

Chemicals and Materials

Hunter Water has approved suppliers for materials and chemicals who are slected through a market tender process managed by the Procurement team. The contract with Ixom Operations Pty Ltd¹³³ for the supply of chlorine gas and sodium hypochlorite was provided as evidence.

Hunter Water has a page on its internet for approved products and coating, as well as a list of suppliers for each product.¹³⁴ Water infrastructure is to comply with the *Water Supply Code of Australia-Hunter Water Edition*.

Veolia has separate contracts for chemicals (although these were not sighted during the audit).

Chlorine tablets are dosed into reservoirs to manage chlorine levels; they are identified as being suitable for water treatment in the material safety data sheet.¹³⁵ Hunter Water has a procedure for acceptance of chlorine tablets for reservoir dosing based on the reported maximum impurity concentration.¹³⁶

Element 5:

The ADWG require Hunter Water to prepare a monitoring program to verify the quality of drinking water. Verification is to include customer satisfaction, the evaluation of results and appropriate corrective action to out of specification results. Hunter Water has demonstrated compliance with this element.

Drinking Water Quality Monitoring

Verification monitoring is detailed in the *Water Quality Monitoring Plan.*¹³⁷ This details the locations, frequency and parameters to be monitored. ALS undertakes verification monitoring on behalf of Hunter Water. Veolia also undertakes some of the verification monitoring at the WTPs. The monitoring plan specifies monitoring undertaken by both ALS and Veolia. This is the minimum requirement; more monitoring may be undertaken if there is a business need.

The Water Quality Monitoring Plan meets the requirements of the ADWG.

Consumer Satisfaction

Hunter Water has a customer complaint standard¹³⁸ that sets a broad framework for the management of customer complaints. Complaints are handled in accordance with the Customer Complaints Handling Guidelines.¹³⁹ Complaints are recorded into AOMS (Asset Operations Maintenance System) and the job categories are assigned using the service fault map.¹⁴⁰ Complaints are only registered in the Case Management Portal if the Customer expresses dissatisfaction with Hunter Water; otherwise water quality complaints are managed through AOMS. A summary of customer complaint information is reported monthly to the Board and to the Water Quality Committee.¹⁴¹

¹³³ HW2006-2247 34 11.001 Agreement - Contract for Supply and Delivery of Bulk Chemicals - CS0525 IXOM.

¹³⁴ HW2015-1449 1 5.061 Presentation - Screenshot Approved Produces and Manufacturers Internet Page.

¹³⁵ SDS HTH_FREXUS DURATION TABLETS.

¹³⁶ Procedure - Hypochlorite Tablet Validation.

¹³⁷ HW2006-2906 2 6.006 Water Quality Monitoring Plan.

¹³⁸ HW2015-1449 1 11.041 Customer Complaints Handling Standard.

¹³⁹ HW2015-1449 1 11.049 Customer Complaints Handling Guidelines.

¹⁴⁰ HW2008-235 7.001 Service Fault Map.

¹⁴¹ HWC response to the 2019 Audit Questionnaire.



Short-term Evaluation of Results

Under its contract, ALS is required to contact Hunter Water by email and phone within 2 hours of the results of any health-based exceedances under their contract being available and confirmed.¹⁴²

There is a monthly network operations report¹⁴³ that details the following:

- customer complaints;
- thematic mapping of chlorine residuals, pH, temperature, and manganese;
- PFAS results; and
- chlorine targets.

The Water Quality Committee meets monthly to review water quality monitoring data,^{144,145} as well as performance, CCPs and incidents.

Corrective Action

Upon a non-conformance that is treatment related, Veolia has a CCP Exceedance Response Plan, which details the response to treatment issues.

In general, exceedances to ADWG health guidelines are responded to in accordance with the *Corporate Emergency Management Plan.*¹⁴⁶ Hunter Water has a procedure for Water Quality Exception Reporting,¹⁴⁷ which covers the process of actioning microbial water quality test exceptions. Issues are tracked using Integrum.

Low chlorine results are used to adjust chlorine dosing at the plants and in the network. The tablet dosing spreadsheet¹⁴⁸ provides guidance on the number of tablets to dose for each reservoir, winter and summer depending on the chlorine concentration in the reservoir.

Element 6:

The ADWG require Hunter Water to have a considered and controlled response to incidents or emergencies. Protocols are required for clear internal and external communication and incident and emergency response. It was found that Hunter Water did not provide sufficient evidence to demonstrate that a contact list, which met the requirements of the ADWG, was available in the instance of an event.

Communication

The *Corporate Emergency Management Plan*¹⁴⁹ provides the corporate level framework for the management and communication required for incidents and emergencies. It contains a list of key contacts for emergencies, internal and Veolia. In addition to the general notification protocols, there is the *NSW Health – notification procedure*¹⁵⁰ and *Notification Criteria*.¹⁵¹ For issues that arise at the WTPs, Veolia has its *CCP Exceedance Response Plan*,¹⁵² which contains notification requirements.

¹⁴² Extract from contract, procedural changes.

¹⁴³ HW2006-1417 32 8.004 Network Operations Report – July 2019.

¹⁴⁴ HW2006-1417 32 8.019 Minutes - August 2019 Water Quality Committee.

¹⁴⁵ HW2006-1417 32 5.010 Minutes – May 2019 Water Quality Committee.

¹⁴⁶ HW2007-900 27 19.004 Corporate Emergency Management Plan.

¹⁴⁷ HW2010-1986 8.023 Procedure - Water Quality Exception Reporting.

¹⁴⁸ Data - CURRENT DOSING RATES AND LABDATA.

¹⁴⁹ HW2007-900 27 19.004 Corporate Emergency Management Plan.

¹⁵⁰ HW2006-2906 4 6.023 Procedure - Water Quality Notification to NSW Health.

¹⁵¹ HW2006-1448 53 3.003 Guideline - Criteria for Notification to NSW Health - Drinking Water Quality.

¹⁵² HW2014-778 15 2.001 Plan – Veolia CCP Exceedance Response.



The *Emergency Response Communications Plan*¹⁵³ is there for emergencies or major incidents and identifies how a Communication Coordinator is responsible for handling internal and external communication and acts as a central location for links to useful documents and information required in an incident response.

The *Emergency Response Communications Plan* contains a detailed plan for communication with the relevant internal and external stakeholders. Stakeholder contact details are documented in the *Corporate Emergency Management Plan*;¹⁵⁴ these are updated every six months.^{155,156}

Emergency Response Protocols

The Emergency Management Plan covers all of Hunter Water's area of operations. It determines what constitutes an emergency or major incident and provides guidance to respond. Roles and responsibilities are identified in the plan. It contains links to a number of checklists that would be useful in the instance of an incident or emergency to ensure that important issues do not get overlooked.

The plan steps through the stages of an incident from activation through to demobilisation and debrief. Hunter Water uses Integrum to track and record details of Minor and Moderate incidents. Major incidents and emergencies/crisis require the establishment of an Incident Team and setup of the Incident Control Room.

Element 7:

The ADWG require that Hunter Water makes employees and contractors aware of drinking water quality management and that employees are appropriately trained to fulfil their role. Hunter Water was found to have met these requirements.

Employee Awareness and Training

Hunter Water staff undertake induction training, which includes the Drinking Water Awareness¹⁵⁷ training. This program contains a general overview of drinking water quality management, including what can happen if it goes wrong.

Staff of both Hunter Water and Veolia are required to undertake Drinking Water Quality Compliance¹⁵⁸ training. This training material is more technical and contains more detail on risk management, CCPs and operational actions to be undertaken.

Employee Training

Hunter Water has a detailed training matrix that sets out the training requirements for the various position titles.¹⁵⁹ Training is scheduled using an Outlook Training Calendar.¹⁶⁰

The Learning and Development group coordinates training across Hunter Water. Ellipse is used to record training dates and expiry dates; TRIM is used to retain certificates and competency assessments.

Hunter Water's contract with Veolia (treatment operations service provider) requires Veolia to employ "*plant operator that are competent to perform their duties*"; this includes qualifications, "*holding or working towards Certificate III in Water Industry Operations*".

¹⁵³ HW2011-662 14 5.006 Emergency Response Communications Plan.

¹⁵⁴ HW2007-900 27 19.001 Plan – v7 Corporate Emergency Management Plan, August 2018.

¹⁵⁵ Schedule - Business Resilience Yearly Event 2019.

¹⁵⁶ Additional evidence demonstrating that a stakeholder contact list is maintained and updated every six months was provided subsequent to issue of the Revised Draft Audit Report. The contact list was inadvertently omitted from the June 2019 version of the *Corporate Emergency Management Plan* that was initially provided as evidence and is referenced elsewhere in this report, but was reinstated in the November 2019 version (i.e. subsequent to the audit period).

¹⁵⁷ HW2015-1449 1 9.040 Drinking Water Quality Awareness Training Material.

¹⁵⁸ HW2015-1449 1 0.012 DWQ Compliance Training Material.

¹⁵⁹ Register – IMS Training and Competency Needs Register 2019.

¹⁶⁰ Training Calendar – Aug View 2019; Training Calendar – Sept View 2019; Training Calendar – Oct View 2019



Veolia has a training matrix¹⁶¹ that details a broad range of training from induction, safety and technical by the positions involved in delivery of the contract.

ALS, as the laboratory services contractor, is NATA accredited (for the relevant services), which requires the employment of trained staff and being subject to competency audits as required.

Element 8:

The ADWG require that Hunter Water has a two-way communication program delivering both education and consultation.

Community Consultation

Hunter Water's 2017+3 Plan¹⁶² provides a foundation for customer engagement and greater transparency in service provision. Among the objectives is to understand customer, consumer and community needs and expectations, actively participate in the community and be responsive to the needs of customers. In developing its long-term plans Hunter Water has stated that it will undertake a program of engagement to gather insights and guide plans.

Hunter Water's Customer and Community Advisory Group (CCAG) meets three times per year to discuss a range of operational and planning matters. It has representatives from a range of community sectors, including environmental, local government and education. Minutes from these meetings were available on Hunter Water's website.¹⁶³

Communication

Hunter Water's communication program with its consumers is managed by the Community and Stakeholder Team.

Hunter Water's website has a 'Water Quality' section,¹⁶⁴ which explains the details of water treatment, catchment management and includes a monthly water quality monitoring report.¹⁶⁵

Information is made available to the wider community through the Hunter Water website. This includes annual reports, policies, plans and strategies. Hunter Water also utilise social media; an example is the @HunterWater Twitter account, which is very active in informing the community, including posts on issues such as drought response and advertising a community information session at the Belmont Library.¹⁶⁶

Element 9:

The ADWG require that Hunter Water commits to research and development (R&D) activities, such as undertaking investigative studies, the validation of processes, and the selection and design of new equipment. This is to ensure continual improvement and ongoing capability to meet drinking water requirements. Hunter Water has demonstrated that it has met the requirements of this element.

Investigative Studies and Research Monitoring

Hunter Water has a *Research and Development Strategy*¹⁶⁷ which sets out the framework for R&D. The strategy is owned and implemented by the Science and Innovation Team to deliver the 2017+3 Plan.¹⁶⁸ Investment in research is directed by the Science and Innovation Team which is responsible for developing and implementing the R&D Strategy.

¹⁶¹ Training Matrix - Veolia HW Contract - October 2019.

¹⁶² HW2015-1055 7.002 Guideline - 2017+3 Strategy.

¹⁶³ https://yourvoice.hunterwater.com.au/ccag

¹⁶⁴ https://www.hunterwater.com.au/Water-and-Sewer/Water-Supply/Water-Quality/.

¹⁶⁵ https://www.hunterwater.com.au/Resources/Documents/Other-Reports/Water-Quality-Monthly-Drinking-Water-Quality-Summary---October-2019.pdf

¹⁶⁶ https://twitter.com/HunterWater/status/1201383384208920576

¹⁶⁷ HW2018-604 3 1.004 Framework - Research and Development Strategy 29 Nov 2018

¹⁶⁸ HW2015-1055 7.002 Guideline - 2017+3 Strategy.



The strategy details a number of collaborations in section 4.2 and actions in section 5; these include projects with Water Services Association Australia, and Water Research Australia. Although, not detailed in the strategy, an Innovation Committee has been established between Veolia Treatment Operations and Hunter Water, which is detailed in Veolia's Drinking Water Quality Management Plan.¹⁶⁹ This allows Veolia to utilise its global R&D program and implement new technologies in Hunter Water's WTPs.

R&D projects can be identified through DWQMP risk assessments. If funding or collaboration is required to undertake these it is put to the Innovation Committee. If additional funding is not required, investigations can be undertaken by operations. These are added to the Drinking Water Quality Improvement Plan.¹⁷⁰

Validation of Processes

Hunter Water's design validation process is explained in the *Design Validation Guideline*¹⁷¹ document which is a part of the Asset Creation Framework. The purpose of the process is to ensure that the resulting asset is capable of meeting the requirements for the specified application or intended use. This guideline covers projects that will be undertaken by Hunter Water, but not the WTP contractor. The Veolia Drinking Water Quality Management Plan includes high-level details of validation processes to be implemented when plants are commissioned or when processes are changed.

Design of Equipment

Hunter Water has adopted the Water Services Association of Australia (WSAA) Water Supply Code (WSA03) and has details of asset design standards on its intranet page 'Water & Sewer Design Manuals'.¹⁷²

Element 10:

The ADWG require that Hunter Water develops an appropriate records and document management system. Also, that effective internal and external reporting is undertaken. Hunter Water has demonstrated that they have fulfilled the requirements of this element.

Management of Documentation and Records

Hunter Water uses HP Records Manager (TRIM) as its record management system. Document control is managed using Integrum. Veolia, the Treatment Operations Service Provider, has migrated from a SharePoint system called 'OnTap' to BMS (google-based). Hunter Water also has a SharePoint site 'Reservoir' that it uses to provide information on its DWQMS. All of these systems were viewed during the audit. It is noted that the DWQMSM still references Veolia's 'On Tap' system; this will need to be updated.

The process for document management and control is in the *Procedure – Manage Document Control.*¹⁷³ This procedure details the steps required for the creation, review, and retirement of documents.

Many of the documents and records used for the operation of the WTPs are maintained by Veolia. Veolia has its own records management procedure¹⁷⁴ for the Hunter Water contract and uses a corporate document management procedure.¹⁷⁵

In undertaking the audit, it was apparent that there are appropriate records management systems in place. The DWQMSM references TRIM, ALS's LabWare and Veolia's 'On Tap'. There are a

¹⁶⁹ HW2015-1449 1 11.023 Appendix A (Drinking Water Quality Management Plan).

¹⁷⁰ HW2006-2906 10 2.005 Register – Drinking Water Quality Improvements Plan.

¹⁷¹ HW2007-2744 5.082 Guideline – QC052 Design and Validation Guideline.

¹⁷² HW2015-1449 1 5.060 Presentation – Screenshot Hunter Water Design Manual Page.

¹⁷³ HW2012-441 9 1.002 Procedure – Manage Document Control.

¹⁷⁴ PRO-2944-1 HW - Records Management. ¹⁷⁵ PRO 129 2 Documented Information Procedure adf.

¹⁷⁵ PRO-129-2 Documented Information Procedure.pdf



number of other systems used, which are mentioned throughout the DWQMSM and referenced on drinking water SharePoint site. These include the following:

- Integrum incidents;
- SCADA online data;
- EnviroSys laboratory data;
- Ellipse asset management; and
- Plant Spreadsheets a lot of operational information is stored in these spreadsheets.

OFI-HWC-2019-02: Hunter Water references the location/system that different records are stored in Element 10 of the DWQMSM. Also, the training required to operate these systems should be in the training matrix.

Reporting

Reporting to IPART and NSW Health is covered in the *Hunter Water Reporting Manual Operating Licence 2017-2022.*¹⁷⁶ The Compliance Calendar¹⁷⁷ is used to track regulatory reporting. The DWQMSM¹⁷⁸ discusses internal and external reporting and, since the last audit, this has been revised to include a list of the internal reports.

The Veolia Drinking Water Quality Management Plan¹⁷⁹ details reporting to Hunter Water; this includes 'as required' reporting in relation to specific issues and regular monthly contract reports. This is undertaken in accordance with the contract practice notes.¹⁸⁰

There is also a high-level of verbal reporting and communication between Hunter Water and Veolia through the following meetings:

- weekly catch up between the operational water quality teams;
- monthly treatment operational and process meetings; and
- monthly Collaborative Management Group.

Element 11:

The ADWG require that Hunter Water reviews long-term drinking water quality results and audit the drinking water management systems to ensure that preventive strategies are effective and being implemented properly. Hunter Water has demonstrated that it has met the requirements of this element.

Long-term Evaluation of Results

Long-term trends are analysed as part of the risk assessment process. A summary of water quality data analysis is contained in the briefing papers discussed in Element 2. WTP risk assessments are reviewed approximately every operating licence period.

Veolia reports on the rolling year period in the monthly report to Hunter Water.¹⁸¹ Veolia has internal reports for longer terms periods, for example up to 5 years, to keep track and compare performance.¹⁸²

Audit of Drinking Water Quality Management

Hunter Water's Integrated Management System (IMS) requires an internal audit program. An

¹⁷⁶ Hunter Water Reporting Manual Operating Licence 2017-2022.

¹⁷⁷ HW2012-778 77.001 Data – Compliance Calendar.

¹⁷⁸ HW2015-1303 9.001 Report - Hunter Water Drinking Water Quality Management System.

¹⁷⁹ HW2015-1449 1 11.023 Drinking Water Quality Management Plan – Veolia.

¹⁸⁰ Procedure - PN111 - Drinking Water Standards.

¹⁸¹ Section 3 from MCR CS0341 - October 2019 Draft.

¹⁸² Q3 2019 Water Treatment Performance Review Workshop Report.



internal audit procedure¹⁸³ has been developed, which details the steps of undertaking an audit. The following audit registers have been developed:

- Internal management systems;
- ALS Contract; and
- WTP Audit.

The DWQMSM¹⁸⁴ sets out other auditing and verification activities required by Hunter Water as follows:

- Under the Treatment Operations Contract, Veolia is required to establish and implement a DWQMS
 assessed by an independent DWQMS qualified auditor as being fully compliant with the requirements
 of the ADWG Framework for Management of Drinking Water Quality.
- The Treatment Operations team also undertakes procedure-based site inspection audits of the WTPs.
- The Laboratory Services Provider is required to establish and maintain NATA accreditation during the contract term. Monthly audits of sampling and testing procedures are conducted by Hunter Water staff.

The Water Quality Committee is responsible in endorsing the outcomes of internal and external audits.¹⁸⁵

Element 12:

The ADWG require that Hunter Water's senior executive support and are involved in drinking water quality management and there is continual improvement to overall drinking water quality performance. This element has been met by Hunter Water.

Review by Senior Executive

The Hunter Water DWQMSM¹⁸⁶ states that an annual Integrated Management System Review Meeting is held with the Executive Management Team. The Drinking Water Quality Management System is considered as a subsection and incorporated into the review as shown by the highlights presentation;¹⁸⁷ however, this is very high-level. The report¹⁸⁸ for the review shows that the performance of the DWQMS was considered during the meeting.

The Water Quality Committee reviews the performance of the DWQMS in greater depth through the monthly committee meetings.¹⁸⁹

Drinking Water Quality Management Improvement Plan

Hunter Water maintains all drinking water quality management improvement actions in a corporate register, the Drinking Water Quality Improvement Plan (DWQIP).¹⁹⁰

The progress of the DWQIP is updated and reported through the monthly Water Quality Committee as a standing agenda item.¹⁹¹

Recommendations

There are no recommendations in respect of this obligation.

¹⁸³ HW2013-421 11.002 Procedure - Conduct management System Internal Audit.

¹⁸⁴ HW2015-1303 9.001 Report - Hunter Water Drinking Water Quality Management System.

¹⁸⁵ HW2006-1417 15 17.001 Statement - Water Quality Committee Terms of Reference - March 2018.

¹⁸⁶ HW2015-1303 9.001 Report - Hunter Water Drinking Water Quality Management System.

¹⁸⁷ HW2013-1447 2.032 Presentation – Management System Review Meeting – May 2019.

¹⁸⁸ HW2013-1447 2.031 Report – Management System Review 2019 – April 2019.

¹⁸⁹ HW2006-1417 15 17.001 Statement - Water Quality Committee Terms of Reference - March 2018.

¹⁹⁰ HW2006-2906 10 2.005 Register – Drinking Water Quality Improvement Plan.

¹⁹¹ HW2006-1417 30 6.007 Minutes – July 2018 WQCM.



Opportunities for improvement

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

- **OFI-HWC-2019-01:** It would be beneficial to have a consolidated list of stakeholders who could affect, or be affected by, decisions or activities of Hunter Water. The list or register could then document how and when Hunter Water contacts each stakeholder. It could also include a consolidated list of stakeholder engagement processes from various MoUs, contracts and terms of reference.
- **OFI-HWC-2019-02:** Hunter Water references the location/system that different records are stored in Element 10 of the DWQMSM. Also, the training required to operate these systems should be in the training matrix.

Supplemental information

Veolia operates the bores based on required flow, Hunter Water monitors water quality from the bores via ALS grab samples, and these are discussed at water quality meetings. Quality does not change rapidly, but there is online turbidity monitoring on the combined raw water, and a PLC at the plant controls which bores are used. The number of bores selected is determined by the flow needed into the plant, and the need to minimise flow variation. Bores are cycled through to keep them as fresh as possible. Hunter Water decides which bores are available for use. Bores that don't meet quality requirements are tagged out by Hunter Water.

There is an auto shutdown on the raw water online turbidity control.

Alkalinity is low in the bore water. This is aggressed using lime at Anna Bay and caustic at Nelson Bay; this a legacy issue. Sites are visited daily but not staffed. There are two operators who travel between the three bay plants.

Anna Bay WTP can start automatically but is normally operated manually so the plant runs while operators are present as it might only run for a couple of hours a day to fill the reservoir. The WTP will shut down automatically once the reservoir is full.



Sub-clause	Requirement	Compliance Grade
3.1.2	Hunter 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.	Compliant

Table 3.10 Drinking Water (sub-clause 3.1.2)

Risk

If the Drinking Water Quality Management System is not fully implemented, there is a high risk that Hunter Water may not be able to effectively manage risks to drinking water quality and protect public health. Evidence that the Drinking Water Quality Management System is fully implemented and that all relevant activities are carried out in accordance with the System, and to the satisfaction of NSW Health.

Target for Full Compliance

Obligation

This obligation requires Hunter Water to ensure that its Drinking Water Quality Management System is fully implemented and that all activities are carried out in accordance with the Drinking Water Quality Management System and to the satisfaction of NSW Health.

Evidence sighted

Hunter Water response to 2019 Audit Questionnaire.

Further evidence for each ADWG Element as listed in the following.

Element 1:

- HW2015-1449 1 9.040 Drinking Water Quality Awareness Training Material.PDF.
- HW2013-421 9.007 Register Summary of Corporate Reporting Requirements XLS.
- HW2013-421 9.006 Register Legal and Other Requirements Quality.XLS.
- HW2012-441 23 1.029 Procedure Managing Legal and Other Requirements.DOC.
- HW2006-1417 15 17.001 Statement Water Quality Committee Terms of Reference – March 2018.DOC.
- HW2006-1417 32 5.010 Minutes May 2019 Water Quality Committee.DOCX.
- Ellipse Screenshot Asplundh Tree Expert (Aust) P/L.
- HW2015-1449 1 5.013 Data Veolia Staff Contact Details.XLSX.
- HW2015-1449 1 5.015 File note Lab Staff Contact Details.
- HW2006-1417 32 5.010 Minutes May Water Quality Committee.DOCX.

Element 2:

- HW2015-1365 16.008 Plan Hunter Water and Central Coast Council Drinking Water Transfer Scheme.PPT.
- HW2015-1365 1.014 Register Hunter Water and Central Coast Council Drinking Water Transfer Scheme.
- HW2015-1365 16.001 Plan Flow Diagram Anna/Nelson Bay Water Supply System.PPT.



- HW2015-705 1.001 Anna Bay WTP.PDF.
- HW2015-705 1.006 Nelson Bay WTP.PDF.
- S09-13 16 1.005 Distribution Network.PDF.
- HW2015-1444 8.001 Checklist DWQMS Flow Diagram.DOC.
- HW2006-1417 32 8.019 Minutes August 2019 Water Quality Committee.DOC.
- HW2006-2906 8 33.014 Drinking Water Quality Risk Assessment Calendar.XLS.
- Distribution Network Risk Assessment Sent to NSW Health.xlsx.
- HW2015-1343 21 4.001 Report Anna and Nelson Bay WTP Risk Update Briefing Paper.PDF.

Element 3:

- HW2014-778/15/2.004 Register Anna Bay WTP CCP Limit Table.
- HW2014-778/15/2.009 Register Nelson Bay WTP CCP Limit Table.
- Article Anna Bay WTP Critical Limits.
- Article Nelson Bay WTP Critical Limits.
- Schedule Compliance Calendar September 2019.XLS.
- 20191014 ABWTP PMT.pdf.
- 20191014 NBWTP PMT.pdf.
- HW2014-1579 2.001 Data Nelson Bay WTP.XLS.
- HW2014-1579 2.007 Data Anna Bay WTP.XLSB.
- ResInspectionForm_AdamstownHeights1_2_2019.
- Register CWT-Reservoir Inspection Report Register.
- 1-TEM-12400 HW Reservoir Inspection.
- HW2016 284 5 3.013 Form Stormwater near Hospital 4/8/2019.
- HW2014-778 15 2.001 Plan Veolia CCP Exceedance Response.
- HW2006-1417 32 8.004 Network Operations Report July 2019.
- Elevated turbidity at Anna Bay WTP CWT outlet on 11th November 2019.docx.
- Data CURRENT DOSING RATES AND LABDATA.XLS.
- 20191009 AB WTP Daily Data Sheet.
- 20191009 AB WTP Daily WQ Test Sheet.

Element 4:

- Reservoir SharePoint page.JPG.
- Veolia on tap screen shot.JPG.
- HW2014-1579 2.007 Data Anna Bay WTP.XLS.
- HW2014-1579 2.001 Data Nelson Bay WTP.XLS.
- FM-HWT-20-7271 Nelson Bay Weekly PMT Duties.xlsx Sheet1.PDF.



- HW2015-1365 18.013 Report Hunter Water and Central Coast Council Drinking Water Transfer Scheme Risk Assessment Summary Report.PDF.
- HW2015-1343 21 4.001 Report Anna and Nelson Bay WTP Risk Update Briefing Paper.PDF.
- HW2006-1417 32 8.008 Email Zone Mean Trends Update for July 2019.MSG.
- HW2006-1417 32 8.004 Network Operations Report July 2019.DOC.
- COA log spreadsheet Screenshot.JPG.
- Chemical delivery work permit template.
- PRO-6185 HW WTP Bulk Chemical Ordering, Delivery and Quality Management.PDF.
- 20191014 ABWTP PMT.pdf.
- 20191014 NBWTP PMT.pdf.
- ResInspectionForm_AdamstownHeights1_2_2019.
- HW2006-1417 32 5.010 Minutes May 2019 Water Quality Committee.
- Reservoir Inspection Register.

Element 5:

- HW2014-1579/2.007 Data Anna Bay WTP.
- HW2014-1579/2.001 Data Nelson Bay WTP.
- HW2015-1365 18.013 Report Hunter Water and Central Coast Council Drinking Water Transfer Scheme Risk Assessment Summary Report.PDF.
- HW2015-1343 21 4.001 Report Anna and Nelson Bay WTP Risk Update Briefing Paper.PDF.
- HW2006-1417 32 6.001 Report WQ Report May 2019.PDF.
- HW2006-1448/41/10.007 Report Quarterly to NSW Health Drinking Water and Recycled Water Quality Exceptions April to June 2019.DOC.
- HW2015-1449 1 11.041 Customer Complaints Handling Standard.PDF.
- HW2015-1449 1 11.049 Customer Complaints Handling Guidelines.PDF.
- Maitland Vale No 1 Res 30-4-19 Final Response 1_5_19 (Amended).
- HW2013-421 22.001 Standard for managing incidents.DOC.
- HW2010-1986 8.023 Procedure Water Quality Exception Reporting.DOC.
- HW2006-2906 4 6.023 Procedure to notify NSW Health of events with potential public health impact.DOC.
- HW2014-778 15 2.001 Plan Veolia CCP Exceedance Response.PDF.
- HW2015-1449/7.013 Article Example WQ incident record Integrum.JPG.
- AOMS582402_DirtyWaterComplaint_Adamstown.JPG.
- AOMS581266_DirtyWaterComplaint_NorthLambton.JPG.
- AOMS581018_PlannedFlushing_AnnaBay.JPG.
- HW2006-1417 32 8.004 Network Operations Report July 2019.



- HW2006-2906 2 6.006 Water Quality Monitoring Plan.doc.
- CERTIFICATE OF CONFORMITY-June to December 2019--68 Sticks.

Element 6:

- HW2006-1448/41 10.007 Report Quarterly to NSW Health Drinking Water and Recycled Water Quality Exceptions April to June 2019.DOC.
- HW2007-900 29 50.020 Email to NSW Health re Chichester Algae Update Samples Collected on 4th July.MSG.
- HW2007-900 29 50.021 Email from NSW Health RE: Chichester Algae Update Samples Collected on 4th July.MSG.
- HW2007-900 29 50.026 Email to NSW Health re Results for toxin and phytoxigene analysis - Chichester source.MSG.
- Guideline Blue-Green Algae Management Plan Potable Water Sources updated August 2019 (currently under review).pdf.
- Integrum Report CHAK-57A263.
- Integrum Report CHAK-449922.
- MAN-2799-2 HW Incident and Emergency Management.

Element 7:

- HWC Training Snapshot Fin Yr 2018-2019.PDF.
- HW2015-1449 1 5.016 Report Lab Staff Training Record Example.PDF.
- Training Records.xlsx Training Register.PDF.
- ACMM training evidence.PDF.
- TechnicalCompetencyHandbook.PDF.
- Veolia monthly contractor report August 2019.pdf.

Element 8:

- https://yourvoice.hunterwater.com.au/ccag.
- <u>https://yourvoice.hunterwater.com.au/</u>.
- https://www.hunterwater.com.au/Community/Events/Community-Events.aspx.
- <u>https://www.hunterwater.com.au/Community/Customer-Panel-and-Community-Surveys/Join-Hunter-Waters-Customer-Panel.aspx</u>.
- <u>https://hunterwater.com.au/Resources/Documents/Community/consultative-forum-papers/Updated-CCF-Charter---Approved-27-April-2017.pdf</u>.
- <u>https://hunterwater.com.au/Water-and-Sewer/Water-Supply/Operating-Tomago-Sandbeds.aspx</u>.
- https://hunterwater.com.au/Water-and-Sewer/Water-Supply/Water-Quality/PFAS.aspx.
- <u>https://twitter.com/HunterWater.</u>



Element 9:

- 58146-PLN-COM-001 Dungog WTP Upgrade Commissioning Management Plan Rev 1 Final.PDF.
- HW2006-1448/57/4.005 Presentation Proposed Strategy for Management of Thermophilic Amoeba Risk.PDF.
- HW2006-1448 57 4.003 Email Geosmin vs Customer Complaints Chichester Source -09/06/2019.MSG.
- Simulating optimisations for NOM removal.
- Fellowships Bendigo, Barwon to look at biofiltrations for NOM removal and algal toxins.
- Business Case Revised Business Case DOS Stage 1B May 2019.docx.
- Business Case Preliminary Project Business Case DOS Stage 2 2018.docx.
- HW2015-1449 1 5.060 Presentation Screenshot Hunter Water Design Manual Page.

Element 10:

- Article document review date from Integrum example 1.JPG.
- Article document review date from Integrum example 2.JPG.
- Article document review date from Integrum example 3.JPG.
- Article Record Management Workspace.JPG.
- Veolia monthly contractor report August 2019.pdf.
- HW2006-1417 32 8.004 Network Operations Report July 2019.docx.
- HW2006-1448 41 10.007 Quarterly to NSW Health DW and RW Quality Exceptions April to June 2019.DOC.
- HW2006-1417 32 6.001 Report WQ Report May 2019.pdf.
- Hunter-Water-Annual-Report-Final-Version-2019.pdf.

Element 11:

- HW2015-1365 18.013 Report Hunter Water and Central Coast Council Drinking Water Transfer Scheme Risk Assessment Summary Report.
- HW2015-1343 21 4.001 Report Anna and Nelson Bay WTP Risk Update Briefing Paper.
- HW2013-1447 17 3.010 Email Fw: Hunter Water report.MSG.
- HW2014-778 15 26.008 Report Annual Audit of Veolia's Drinking Water Quality Management System - Viridis Consultants - August 2019.PDF.
- HW2006-1417 32 6.001 Report WQ Report May 2019.PDF.
- HW2006-1417 32 8.004 Network Operations Report July 2019.DOC.
- HW2006-1448 57 4.008 Report Drinking Water Quality Improvement Plan June 2019.
- <u>https://www.hunterwater.com.au/Water-and-Sewer/Water-Supply/Water-Quality/Water-Quality.aspx</u>.
- HW2015-106 7 2.001 Register ALS Lab Contract Audit Register.XLS.
- HW2014-778 40.011 Register WTP Audit Register Water Treatment Operations.XLS.


- Section 3 from MCR CS0341 October 2019 Draft.
- Q3 2019 Water Treatment Performance Review Workshop Report.
- HW2006-1417 32 5.010 Minutes May 2019 Water Quality Committee.DOCX.

Element 12:

- HW2013-1447 2.031 Report Management Systems Review 2019 April 2019.DOC.
- HW2013-1447 2.032 Presentation Management System Review Meeting May 2019.PPT.
- HW2013-1447 2.033 Minutes Management Review May 2019.DOC.
- HW2006-1417 32 5.010 Minutes May 2019 Water Quality Committee.DOC.
- HW2006-2906 10 2.005 Register Drinking Water Quality Improvement Plan.XPS.
- HW2006-1448 57 4.008 Report Drinking Water Quality Improvement Plan – June 2019.DOC.
- HW2006-1448 57 4.011 Minutes Hunter Water NSW Health Liaison Committee Meeting – 12 June 2019.DOC.
- HW2018-198 10.010 Report EXECUTIVE brief Water System Performance – June 2019.PDF.
- Hunter Water Drinking Water Quality Management System.pdf.
- HW2006-1417 15 17.001 Statement Water Quality Committee Terms of Reference – March 2018.
- HW2006-1417 32 8.019 Minutes August 2019 Water Quality Committee.
- HW2006-1417 32 5.010 Minutes May 2019 Water Quality Committee.
- HW2018-198 10.010 Report EXECUTIVE brief Water System Performance – June 2019.pdf

Summary of reasons for grade

This obligation is in relation to the implementation the DWQMS and based on the audit evidence it was determined that Hunter Water has implemented the system. The systems that have been developed with major contractors appear to be working well and there is a high level of engagement. As the DWQMS has matured it has resulted in improved drinking water quality.

Discussion and notes

Implementation of the Drinking Water Quality Management System is discussed below by ADWG Element.

Element 1:

Hunter Water is required to implement the requirements of Element 1 of the DWQMS. Hunter Water was found to be compliant with the requirements of this element.

Drinking Water Policy

Hunter Water has a drinking water policy,¹⁹² which is available on the Hunter Water website, physically at head office on the wall (viewed on Head Office wall) and on the intranet site (Reservoir).

¹⁹² HW2006-2968 41 44.001 Policy - Drinking Water Policy.



Induction awareness training¹⁹³ includes details of the policy.

Reservoir portal – drinking water policy is linked on the portal. There is a page for each element, and links to the relevant documents. Policy is within the current review period and signed. Next review due is June 2020.

Regulatory and Formal Requirements

The procedure¹⁹⁴ for identifying and managing legal and other requirements requires an annual review of legal requirements, which are in the Legal and Other Requirements Register.¹⁹⁵ Changes in legislation are discussed at Water Quality Committee meetings; it is a standing agenda item in the Terms of Reference.¹⁹⁶ Evidence that this occurs can be seen in the minutes of a Water Quality Committee meeting.¹⁹⁷ Changes to legal requirements are disseminated from these meeting back to staff.

The change history of the register shows when it was last updated, the most recent being on10 October 2019. This was to include the MoU with Fire & Rescue NSW.

The Compliance Calendar¹⁹⁸ is used to track regulatory requirements and has been kept up to date and is current.

Engaging Stakeholders

Contact details of key contractors are held in Ellipse; the record for Asplunch Tree Experts P/L¹⁹⁹ was provided as evidence. More detailed contact lists are in place for Veolia²⁰⁰ and ALS.²⁰¹ Monthly Water Quality Committee meetings are undertaken; these include staff from both Veolia and ALS. A sample of minutes was provided as evidence.²⁰²

Minutes²⁰³ were provided for the Hunter Water/NSW Health Liaison Committee meeting held on 12 June 2019 to demonstrate that engagement is taking place.

Element 2:

Hunter Water is required to implement the requirements of Element 2 of the DWQMS. Hunter Water was found to be compliant with the requirements of this element.

Water Supply System Analysis

The flow diagrams for Anna Bay²⁰⁴ and Nelson Bay²⁰⁵ were reviewed as part of the risk assessment process, which was undertaken on 20 September 2019 and some updates were identified. The flow charts could not be verified during the audit but were discussed in the interviews. Details of the schemes seemed to be consistent with the WTPs based on discussions.

Details of the schemes are in the briefing paper²⁰⁶, which was last prepared in September 2019.

Assessment of Water Quality Data

Water quality data assessments for the Anna Bay and Nelson Bay schemes were last updated as part of the risk assessment and are detailed in the briefing paper. The risk assessment was

¹⁹³ HW2015-1449 1 9.040 Drinking Water Quality Awareness Training Material.

¹⁹⁴ HW2012-441 23 1.029 Procedure - Managing Legal and Other Requirements.

¹⁹⁵ HW2013-421 9.006 Register - Legal and Other Requirements – Quality.

¹⁹⁶ HW2006-1417 15 17.001 Statement - Water Quality Committee Terms of Reference.

¹⁹⁷ HW2006-1417 32 5.010 Minutes - May 2019 Water Quality Committee.

¹⁹⁸ HW2012-778 88.001 Schedule - Compliance Calendar – August 2019.

¹⁹⁹ Ellipse Screenshot - Asplundh Tree Expert (Aust) P/L.

²⁰⁰ HW2015-1449 1 5.013 Data – Veolia Staff Contact Details.

²⁰¹ HW2015-1449 1 5.015 File note – Lab Staff Contact Details.

²⁰² HW2006-1417 32 5.010 Minutes – May Water Quality Committee.

²⁰³ HW2006-1448 57 4.011 Minutes - Hunter Water NSW Health Liaison Committee Meeting - 12 June 2019.

²⁰⁴ HW2015-705 1.001 Anna Bay WTP.

²⁰⁵ HW2015-705 1.006 Nelson Bay WTP.

²⁰⁶ HW2015-1343 21 4.001 Report – Anna and Nelson Bay WTP Risk Update Briefing Paper.



previously updated in 2016, which is within the five-year period specified in the Risk Assessment Calendar.²⁰⁷

Hazard Identification and Risk Assessment

As stated above, the risk assessments for Anna Bay and Nelson Bay were undertaken during the audit period and in accordance with the Risk Assessment Calendar.

The risk assessment for the treatment plants could not be 'ground-truthed' in this instance; however, they seem to be consistent with documentation and discussions. The risk assessment identified eight hazardous events that were 'out of appetite' against the risk framework.²⁰⁸ At the time of the audit risk mitigations had not been adopted as the report was still draft and comment were being sought. None of the issues identified posed a significant threat to water quality.

In addition, a risk assessment was undertaken during the audit period for the transfer of potable water between Hunter Water and Central Coast Council.²⁰⁹ This was identified as a gap in the risk assessment process at the last risk assessment and was subject to a previous audit recommendation. This is discussed further in Table 4.5. This process was well implemented and was valuable in improving operational control of water transfers. It helped to foster improved collaboration and moved away from a more transactional relationship.

Element 3:

Hunter Water is required to implement the requirements of Element 3 of the DWQMS. Hunter Water was found to be compliant with the requirements of this element.

Preventive measures and Multiple Barriers

Implementation of preventive measures was reviewed during the audit. Due to the bush fire risk, the Anna Bay and Nelson Bay WTPs could not be visited; however, the Weekly PMT Duties^{210,211} checklists were provided as evidence. These demonstrated that general operation and maintenance activities are undertaken. The plant spreadsheets show that calibrations and chemical delivery inspections are undertaken. Daily datasheets²¹² and water quality sheets²¹³ provide operators with a checklist and are used to collect plant information.

An inspection of the Adamstown Heights Reservoir was undertaken as part of the audit. This confirmed that preventive measures in the network are being undertaken. This reservoir is dosed with chlorine tablets to achieve a target chlorine concentration of 0.7 mg/L. A spreadsheet is used to calculate the required number of tablets and record the number dosed²¹⁴.

A completed reservoir inspection form²¹⁵ was provided as evidence. The reservoir inspection process has been subject to a number of improvements as a result of a previous audit recommendation. This is discussed further in Table 4.7.

Veolia also has an inspection program for the tanks at the WTPs, the *CWT-Reservoir Inspection Report Register*²¹⁶ was observed during the audit as well as the *1-TEM-12400 HW* – *Reservoir Inspection*.²¹⁷ The inspections are programmed using the Veolia Asset Management System

- ²¹⁰ 20191014 NBWTP PMT.
- 211 20191014 ABWTP PMT.
- ²¹² 20191009 AB WTP Daily Data Sheet.
- ²¹³ 20191009 AB WTP Daily WQ Test Sheet.

²¹⁵ ResInspectionForm_AdamstownHeights1_2_2019.

²⁰⁷ HW2006-2906 8 33.014 Drinking Water Quality Risk Assessment Calendar.

²⁰⁸ HW2015-1365 18.006 Report - Anna ad Nelson Bay WTP Risk Assessment Summary Report.

²⁰⁹ HW2015-1365 1.014 Register – Hunter Water and Central Coast Council Drinking Water Transfer Scheme.

²¹⁴ Data - CURRENT DOSING RATES AND LABDATA.

²¹⁶ Register - CWT-Reservoir Inspection Report Register.

²¹⁷ 1-TEM-12400 HW – Reservoir Inspection.



(VAMS). Reservoir inspection checklists for Anna and Nelson Bay WTPs were provided as evidence.²¹⁸

The catchment inspection program for Anna and Nelson Bay was also discussed during the audits. Hunter Water undertakes catchment inspections four times a year; work orders are generated by Ellipse. A completed catchment surveillance form,²¹⁹ which includes details of how to undertake inspections, was sighted.

One of the preventive measures is the selection of bores based on water quality. This is undertaken by Hunter Water based on ALS water quality testing. Hunter Water can take bores out of service using SCADA. Veolia can only utilise the bores that are in service.

The *Network Operations* Report – July 2019^{220} demonstrated the progress made to improve the chlorine residual barrier in the network. It demonstrated that at the time of the report all areas experienced a chlorine residual.

Critical Control Points

Critical limits, as well as the other limits and targets, are coded into SCADA. There are two levels of SCADA; local SCADA at the plants, which contains the operational limits, and the Head Office SCADA, which has the critical limits coded in. The SCADA limits were compared to the documented limits and they appear to be consistent based on the sample observed for the Anna Bay and Nelson Bay WTP (SCADA was reviewed at Head Office). NSW Health requested that the SCADA limits at locations operated by Veolia be reviewed. This audit found that the SCADA setpoints matched those in the plan.

From a review of trends on SCADA it could be seen that a turbidity critical limit alarm had been triggered on 11 November 2019 at Anna Bay WTP and that the plant correctly shut down after 3 minutes.²²¹

Veolia has a procedure for the response to CCP exceedances.²²² This procedure describes the course of action to take if there is an exceedance.

Element 4:

Hunter Water is required to fulfil the requirements of Element 4 of the DWQMS. Sufficient evidence was provided to demonstrate that these requirements have been met.

Operational Procedures

Based on a review of plant spreadsheets,^{223,224} daily checklists,^{225,226} reservoir inspection checklist²²⁷ and staff interviews, it was considered that operational procedures were being followed.

Operational Monitoring

Operational monitoring is detailed in the CCP Tables.²²⁸ Details of monitoring are recorded in the respective WTP spreadsheet; the Anna and Nelson Bay WTP spreadsheets were provided as evidence. Hunter Water uses the EnviroSys Environmental Data Management System to store water quality data. The plant spreadsheet extracts new operational data every day and sends an

²¹⁸ 20191003 NBWTP Reservoir; 20191004 ABWTP Reservoir.

²¹⁹ HW2016 284 5 3.013 Form – Stormwater near Hospital - 4/8/2019

²²⁰ HW2006-1417 32 8.004 Network Operations Report – July 2019.

²²¹ Elevated turbidity at Anna Bay WTP CWT outlet on 11th November 2019.

²²² HW2014-778 15 2.001 Plan - Veolia CCP Exceedance Response.

²²³ HW2014-1579 2.001 Data – Nelson Bay WTP.

²²⁴ HW2014-1579 2.007 Data – Anna Bay WTP.

²²⁵ 20191014 ABWTP PMT.

²²⁶ 20191014 NBWTP PMT.

²²⁷ ResInspectionForm_AdamstownHeights1_2_2019.

²²⁸ HW2014-778 15 2.005 Register - Dungog WTP CCP Limit Table.



automatic email with a CSV file attached. EnviroSys can upload this data to the database. In this way Hunter Water has a complete set of operational data.

The SCADA system is the corporate database used for storing online operational measurements; the system was viewed during the site inspections. WTP online data is accessible by Hunter Water and Veolia.

There was one exceedance of a critical limit during the audit period; on 3 April 2019, free chlorine was greater than 4.5 mg/L for 17 minutes at Four Mile Creek.²²⁹ This has resulted in changes to the way reservoirs are taken off-line. The issue was caused by chlorine being dosed into a point where there was no flow, due to maintenance. Once the main was brought back into service and the flow resumed, a slug of chlorine was supplied. There were no complaints arising from this incident. As a result of this incident, an interim change was to get approval prior to any work on a chlorinator and also to implement a standard change and turn off the chlorinator at the start of a job and turn it back on at the end of the work. Where there is a high-risk, isolation plans will be developed for the job.

Corrective Action

Plant spreadsheet for Anna Bay and Nelson Bay was shown during the audit. If there is a non-compliant result, an email is sent to a group of supervisors. Also, the Data Check tab in the plant spreadsheet includes commentary and action taken on items in the spreadsheet that are out of specification.

Veolia creates annotations on SCADA trends to explain anomalies.

Excursions in the distribution system are noted in the corporate risk and compliance management system (Integrum).

Equipment capability and maintenance

The plant spreadsheet is also used to record the calibration of laboratory and online instruments. Weekly calibrations for the instruments were observed in the spreadsheet.

Inspections of the Clear Water Tank were also noted in the Veolia Reservoir Inspection Register.230

Materials and Chemicals

Chemical deliveries are supervised by either Hunter Water or Veolia staff, depending on whether the delivery is for the WTP or a re-chlorination site in the distribution network. Details of deliveries at the WTP are recorded in the WTP spreadsheets. Certificates of analysis are received for supplied chemicals; a number were sighted.^{231,232} Delivery dockets²³³ are received for all chemicals supplied. Veolia has a chemical delivery procedure²³⁴ that includes acceptance criteria for the bulk chemical received.

Element 5:

Hunter Water is required to fulfil the requirements of Element 5 of the DWQMS. Sufficient evidence was provided to demonstrate that these requirements have been met.

Drinking Water Quality Monitoring

Verification monitoring is detailed in the *Water Quality Monitoring Plan*.²³⁵ This details the locations, frequency and parameters to be monitored. All monitoring data is stored on EnviroSys.

²³⁴ PRO-6185 HW - WTP Bulk Chemical Ordering, Delivery and Quality Management – 1.

²²⁹ HW2006-1417 32 5.010 Minutes - May 2019 Water Quality Committee.

²³⁰ Reservoir Inspection Register.

²³¹ HW2015-1449 1 11.038 Certificate of Analysis 4239252.

²³² CERTIFICATE OF CONFORMITY-June to December 2019--68 Sticks.

²³³ ATD - IXOM delivery docket.

²³⁵ HW2006-2906 2 6.006 Water Quality Monitoring Plan.



A sample of data, *E. coli* monitoring for the Nelson Bay and Anna Bay schemes over the period November 2018 to October 2019, was reviewed to determine compliance with the monitoring plan. The program states that a minimum of 5 samples are required a fortnight and that 6 samples will be undertaken. During the audit period an average of 6 samples were taken a fortnight, as required by the plan.

Customer Satisfaction

Customer complaints are recorded in Hunter Water's corporate AOMS. A summary of customer complaint information is reported, including to the Water Quality Committee, on a monthly basis in the *Network Operations Report*.²³⁶ The *Network Operations Report* shows a summary of complaints.

A sample of complaints in AOMS was reviewed.²³⁷ There is a trigger for an email notification when a number of complaints are received (e.g. more than three in a day) or if there is one health complaint. This email will be copied to the Executive Manager. The Contact Centre would also communicate directly if there is an increase in complaints. The Systems Controller, Contact Centre and Network Operations are all in the same room and are able to communicate quickly.

Short-term Evaluation of Results

A sample of a laboratory notification was provided; this was a Water Quality Exception report²³⁸ for high total coliforms in Maitland Vale No 1 Reservoir on 30 April 2019.

Corrective Action

Water quality issues are to be entered into Integrum for follow-up and close out. A sample incident was provided as evidence and the system was reviewed onsite. The incident provided showed that Hunter Water responded to a water quality complaint and took water quality samples the next day and reported the issue to NSW Health the same day as the issue was reported.²³⁹

Element 6:

Hunter Water is required to fulfil the requirements of Element 6 of the DWQMS. Sufficient evidence was provided to demonstrate that these requirements have been met.

Communication

There were four significant emergencies during the audit period; these were:

- Jesmond 1350mm scour leak repair January 2019;
- Chichester Dam algae event May 2019;
- Chichester Dam Microcystis June 2019; and
- Maitland widespread low pressure and water outages.

A sample of the communications for the June 2019 Microcystis event in Chichester Dam were provided to demonstrate that NSW Health is being appropriately notified. NSW Health was notified the day the results were reviewed and made aware of the action being undertaken.²⁴⁰ This included notifying non-potable water customers north of Dungog WTP that the water was unsafe

AOMS581018_PlannedFlushing_AnnaBay.

²³⁶ HW2006-1417 32 8.004 Network Operations Report – July 2019.

²³⁷ AOMS582402_DirtyWaterComplaint_Adamstown; AOMS581266_DirtyWaterComplaint_NorthLambton;

²³⁸ Maitland Vale No 1 Res 30-4-19 – Final Response 1_5_19 (Amended).

²³⁹ HW2015-1449 7.013 Article - Example WQ incident record - Integrum.

²⁴⁰ HW2007-900 29 50.020 Email - to NSW Health re Chichester Algae - Update - Samples Collected on 4th July.



to drink (these customers received untreated water).

The Quarterly Exceptions Report²⁴¹ was provided for April to June 2019. It is noted that the event in Chichester Dam is not in the report, as although it warranted an early warning/notification, it was not an exceedance of a health limit.

Incident and Emergency Response Protocols

The incident on the 4 June 2019 would be categorised by the Algae Management Plan²⁴² as a Level 3. The samples were tested for toxins and none were detected.²⁴³ The main issue was taste and odour related to geosmin. Powdered Activated Carbon was dosed to manage this issue. Two Integrum records were created for this ongoing event and details of notification to NSW Health were noted. The required details of the event management were contained in emails.

The Integrum records²⁴⁴ were lacking detail and appeared to be most useful for tracking corrective actions. It would be an improvement to maintain more detailed records of incidents (**OFI-HWC-2019-03**).

High algae levels can also have operational impacts at the water treatment plant. If significant issues arise, Veolia has an Incident and Emergency Manual.²⁴⁵ The Veolia incident register was viewed during the audit and the same algae event triggered a notification due to a reduction in water production at the Dungog WTP (0472-W-DUN).

Element 7:

Hunter Water is required to fulfil the requirements of Element 7 of the DWQMS. Sufficient evidence was provided to demonstrate that these requirements have been met.

Employee Awareness and Involvement

Hunter Water requires all staff to attend a Corporate Induction Program, which includes drinking water management and the requirements of the ADWG. Progress against scheduled training requirements is reported monthly in the Hunter Water Training Snapshot.²⁴⁶ Training is broken down into five categories:

- Business;
- Environmental;
- Technical;
- WHS; and
- Corporate Compliance.

The report provided showed the total number of training sessions scheduled; however, it did not show the number of Drinking Water Quality Awareness training sessions that were scheduled and undertaken.

OFI-HWC-2019-04: Show the number of drinking water quality awareness training sessions that are scheduled and undertaken in the Training Snapshot report.

Employee Training

Hunter Water undertakes training and details are stored in Ellipse, which manages the renewal, as required. Records of training for Hunter Water staff were viewed in Ellipse.

²⁴¹ HW2006-1448 41 10.007 - Quarterly to NSW Health - DW and RW Quality Exceptions April to June 2019.

 ²⁴² Guideline – Blue-Green Algae Management Plan Potable Water Sources updated August 2019 (currently under review).pdf.
 ²⁴³ HW2007-900 29 50.026 Email - to NSW Health re Results for toxin and phytoxigene analysis - Chichester source.MSG.

 ²⁴⁴ Integrum Report – CHAK-57A263 and Integrum Report – CHAK-449922.

 ²⁴⁵ MAN-2799-2 HW – Incident and Emergency Management.

²⁴⁶ HWC Training Snapshot Fin Yr 2018-2019.



WTP contractor's training, as required under the contract, is reported monthly.²⁴⁷ This shows that all operators have a Certificate II Water Industry Operations, except a new starter that needs to be enrolled. Also, that four operators have a Certificate III and four are working towards this qualification.

The laboratory contractor is required to maintain NATA certification, which requires employees to be trained accordingly.

Element 8:

Hunter Water is required to fulfil the requirements of Element 8 of the DWQMS. Sufficient evidence was provided to demonstrate that these requirements were met.

Community Consultation

Hunter Water has a Customer and Community Advisory Group (CCAG), which is made up of community representatives that meet three times per annum to fulfil the following objectives:

- "To seek wider consultation with the Lower Hunter community on emerging operational issues
- To disseminate information to the general public on Hunter's Water's efforts at improving water supply and wastewater service delivery
- To review consultation strategies, programs and activities being undertaken and/or proposed by Hunter Water
- To promote stakeholder engagement in decision making
- To make recommendations to management in relation to the above, as appropriate^{2,248}

The meeting agenda and minutes are available on the 'Your Voice' website.²⁴⁹

Hunter Water has a Customer Panel, whereby customers can sign up to receive an online survey four times a year. 250

Hunter Water has developed the 'Your Voice' website so that "*customers and community can participate in the decisions that affect their lives*". This webpage provides details of current project and allows customer and the community to make submissions on major projects such as the proposed desalination plant at Belmont. Feedback and questions can also be asked on projects.²⁵¹

Communication

Hunter Water uses a range of methods to improve community awareness, including its website and social media such as the Hunter Water Twitter account.²⁵² The Twitter account is very active, and it can be seen that Hunter Water uses it to communicate to customers.

Communication programs are also developed on major projects or issues as they arise. An example of this is the commencement of water extraction from the Tomago Sandbeds.²⁵³ There are potential PFAS risks associated with operation of the Tomago Sandbeds. Information in relation to this is also available on the website.²⁵⁴

²⁴⁷ Veolia monthly contractor report - August 2019.

²⁴⁸ <u>https://hunterwater.com.au/Resources/Documents/Community/consultative-forum-papers/Updated-CCF-Charter---</u> <u>Approved-27-April-2017.pdf</u>.

²⁴⁹ <u>https://yourvoice.hunterwater.com.au/ccag</u>.

²⁵⁰ <u>https://www.hunterwater.com.au/Community/Customer-Panel-and-Community-Surveys/Join-Hunter-Waters-Customer-Panel-aspx</u>

²⁵¹ <u>https://yourvoice.hunterwater.com.au/</u>

²⁵² <u>https://twitter.com/HunterWater</u>

²⁵³ <u>https://hunterwater.com.au/Water-and-Sewer/Water-Supply/Operating-Tomago-Sandbeds.aspx</u>

²⁵⁴ https://hunterwater.com.au/Water-and-Sewer/Water-Supply/Water-Quality/PFAS.aspx



Hunter Water organises community events to promote a two-way conversation with customers; these are advertised on the Hunter Water website.²⁵⁵

Element 9:

Hunter Water is required to fulfil the requirements of Element 9 of the DWQMS. Sufficient evidence was provided to demonstrate that these requirements have been met.

Investigative Studies and Research Monitoring

Hunter Water has been running the Disinfection Optimisation Strategy (DOS) since 2014. Business cases for Stages 1B²⁵⁶ and 2²⁵⁷ have been provided to illustrate the implementation of the project. As well as being a detailed investigation into chlorine levels in the distribution system, Stage1B will also investigate use of bubble mixers, which is hoped to involve lower maintenance and operational costs than conventional mixers. Hunter Water has stated that:

"As of 2019, approximately 95% of customers now achieve this target due to increasing chlorine dosing at the treatment plants, however there are still isolated areas that continue to experience low residual concentrations. Another issue associated with existing chlorine dosing is a lack of control on chlorine levels in some areas due to dosing being in the form of tablets in reservoirs with poor mixing. This also presents an unacceptable safety risk due to staff needing to climb onto roofs to dose the tablets. These issues are being addressed by the next iteration of the DOS (Stage 1B) which will improve mixing at the highest priority 10 reservoirs, implement new dosing systems into some of these reservoirs using hypochlorite, and upgrade 5 chlorinators in the network. An upgrade to one chlorinator (Toronto) is complete while the remainder of the high priority work will be completed by December 2020. Additional work on lower priority sites will be completed in 2024."

Hunter Water has been participating in research with a number of partners. This includes a project looking at the ability to monitor ATP (adenosine triphosphate) as a rapid test for microbiological activity in water.

Validation of Processes

An upgrade at the Dungog WTP has been underway to install filter to waste, new alum dosing system, a new pre- & post-lime dosing system, and a pre- and post-dosing system. Hunter Water has stated that:

"a major upgrade of the Dungog Water Treatment Plant has been underway over the duration of the audit period. The upgrades consist of civil, mechanical, electrical and process works including but not limited to upgraded chemical containment systems, new individual filter to waste capability, upgraded pre and post lime dosing system."

The Commissioning Management Plan²⁵⁸ has been provided, which details:

- Performance requirements;
- Commissioning Methodology;
- Implementation of the commissioning program;
- Training for the operators; and
- Requirements for successful completion.

Design of Equipment

Hunter Water has adopted the Water Services Association of Australia (WSAA) Water Supply Code (WSA03) and has details of asset design standards on its intranet page 'Water & Sewer

²⁵⁵ https://www.hunterwater.com.au/Community/Events/Community-Events.aspx

 $^{^{256}}$ Business Case - Revised Business Case - DOS Stage 1B - May 2019.docx.

²⁵⁷ Business Case - Preliminary Project Business Case DOS Stage 2 - 2018.docx.

²⁵⁸ 58146-PLN-COM-001 Dungog WTP Upgrade Commissioning Management Plan Rev 1 - Final.



Design Manuals'.259

Element 10:

Hunter Water is required to fulfil the requirements of Element 10 of the DWQMS. Sufficient evidence was provided to demonstrate that these requirements have been met.

Management of Documents and Records

Throughout the audit, Hunter Water and Veolia demonstrated the systems in place for managing documents and records, including demonstrating the location and easy access to drinking water documents and records. All of the following systems were observed during the audit:

- Reservoir Hunter Water's intranet workspace;²⁶⁰
- BMS Veolia document management system;
- Hunter Water Portal Intranet site used by Veolia for the Hunter Water Contract;
- TRIM document management;²⁶¹
- Integrum incident management,²⁶² internal audits and document management;^{263,264,265}
- Ellipse asset management records;
- EnviroSys monitoring data;
- SCADA Operational monitoring data;
- AOMS Customer complaints and work orders; and
- VAMS Veolia Asset Management System.

Reporting

Reports referenced in the DWQMS were produced over the audit period, including:

- Network performance report;²⁶⁶
- Hunter Water Exception Report to NSW Health;²⁶⁷
- Monthly contract report Veolia to Hunter Water;²⁶⁸ and
- Monthly Drinking Water Quality Summary.²⁶⁹

In addition, Hunter Water produced the *Annual Report 2019*,²⁷⁰ which gives customers and stakeholders an overview of activities and performance over the last year.

Element 11:

Hunter Water is required to fulfil the requirements of Element 11 of the DWQMS. Sufficient evidence was provided to demonstrate that these requirements have been met.

²⁵⁹ HW2015-1449 1 5.060 Presentation – Screenshot Hunter Water Design Manual Page.

²⁶⁰ Article - Record Management Workspace.PNG.

²⁶¹ Article - Record Management Workspace.PNG.

²⁶² HW2015-1449 7.013 Article - Example WQ incident record - Integrum.

²⁶³ Article - document review date from Integrum – example 1.

²⁶⁴ Article - document review date from Integrum – example 2.

²⁶⁵ Article - document review date from Integrum – example 3.

²⁶⁶ HW2006-1417 32 8.004 Network Operations Report - July 2019.

²⁶⁷ HW2006-1448 41 10.007 - Quarterly to NSW Health - DW and RW Quality Exceptions April to June 2019.DOC.

²⁶⁸ Veolia monthly contractor report - August 2019.pdf.

²⁶⁹ HW2006-1417 32 6.001 Report - WQ Report May 2019.pdf.

²⁷⁰ Hunter-Water-Annual-Report-Final-Version-2019.pdf.



Long-term Evaluation of Results

Long-term water quality results are reviewed as part of the risk assessment process, which is undertaken every five years on a rolling basis. A summary of water quality from catchment to tap for each individual system can be found in the relevant risk assessment briefing papers.^{271,272}

Veolia reports on the rolling year period in the monthly report to Hunter Water.²⁷³ Veolia has internal reports for longer term periods; for example, up to 5 years to keep track and compare performance.²⁷⁴

Audit of Drinking Water Quality Management

Hunter Water conducted audits of both of their main contractors, Veolia and ALS. Audit registers were provided to demonstrate the audits undertaken.^{275,276} There were eleven audits of ALS including sampling and various test methods. Six (6) audits of the WTP contractor, Veolia, were undertaken, including spot checks of operational activities and chemical dosing systems.

During the audit period Hunter Water also had its IMS audited by an external auditor.²⁷⁷ The following systems were audited, and certification was maintained:

- ISO 55001:2014;
- ISO 9001:2015;
- ISO 14001:2015;
- AS/NZS 4801:2001; and
- OHSAS 18001:2007.

Under the IMS, internal audits of the management system are undertaken. The DWQMS is considered to be a sub-component of the quality management system.

Veolia also had an independent audit of its DWQMP undertaken by a Lead Drinking Water QMS Auditor, as required under the contract.²⁷⁸

Audits are reviewed and approved by the Water Committee and this was demonstrated in the May 2019 Minutes²⁷⁹ where audits of ALS and Veolia's independent audit were discussed.

Hunter Water is also subject to annual Operating Licence audits coordinated by IPART.

Element 12:

Hunter Water is required to fulfil the requirements of Element 12 of the DWQMS. Sufficient evidence was provided to demonstrate that Hunter Water has met these requirements.

Review by Senior Executive

The Hunter Water DWQMSM²⁸⁰ states that an annual Integrated Management System Review Meeting is held with the Executive Management Team. The Drinking Water Quality

²⁷¹ HW2015-1365 18.013 Report - HW and CCCl DW Transfer Scheme Risk Assessment Summary Report.PDF.

²⁷² HW2015-1343 21 4.001 Report - Anna and Nelson Bay WTP Risk Update Briefing Paper.PDF.

²⁷³ Section 3 from MCR CS0341 - October 2019 Draft.

²⁷⁴ Q3 2019 Water Treatment Performance Review Workshop Report.

²⁷⁵ HW2015-106 7 2.001 Register - ALS Lab Contract Audit Register.

²⁷⁶ HW2014-778 40.011 Register - WTP Audit Register - Water Treatment Operations.

²⁷⁷ HW2013-1447 17 3.010 Email - Fw Hunter Water report.

²⁷⁸ HW2014-778 15 26.008 Report - Annual Audit of Veolia's Drinking Water Quality Management System - Viridis Consultants - August 2019.PDF

²⁷⁹ HW2006-1417 32 5.010 Minutes - May 2019 Water Quality Committee.

²⁸⁰ Hunter Water Drinking Water Quality Management System.



Management System is considered as a subsection and incorporated into the review as shown by the highlights presentation;²⁸¹ however, this is very high-level. The report²⁸² for the review shows that the performance of the DWQMS was considered during the meeting.

The Water Quality Committee review the performance of the DWQMS in greater detail through the monthly committee meetings.²⁸³

Drinking Water Quality Management Improvement Plan

The progress of the DWQIP is reported monthly through the Water Quality Committee as a standing agenda item.²⁸⁴

The Drinking Water Quality Improvement Plan²⁸⁵ was provided as evidence. On review of the register it could be seen that it is being maintained and there were no overdue items. There were a number of items that were due during December 2019 that were identified as being 'on track'. However, this included instances where the same action was required at multiple locations.

Progress on the improvement plan is discussed at the quarterly meetings with NSW Health.²⁸⁶ This is a good mechanism, providing a quarterly opportunity to assess the progress against the improvement plan. A summary is also included in the monthly EMT report.²⁸⁷

Improvement actions from the Central Coast Council drinking water transfer could be seen in the improvement plan. Improvement items from the Nelson Bay and Anna Bay risk assessment were not included because the final report had not been approved at the time of the audit.

Recommendations

There are no recommendations in respect of this obligation.

Opportunities for improvement

The following opportunity for improvement has been identified in respect of this sub-clause:

- **OFI-HWC-2019-03:** It would be an improvement if more detailed records are maintained regarding incidents. Much of the detail is held in emails and the Integrum records contain the minimum information.
- **OFI-HWC-2019-04:** Show the number of drinking water quality awareness training sessions that are scheduled and undertaken in the Training Snapshot report.

Supplemental information

There was a recycled water main in the Gillieston Heights Recycled Water Scheme that was repurposed as a potable water main. This was a colour coded (purple) recycled water main that had not been used. Instead of laying a duplicate water main, repurposing this pipe was considered to be better value to the customer. The risk of a wrong connection is managed by documenting it on GIS. It is noted that only Hunter Water or a Hunter Water contractor will connect to this main and the location does not have recycled water adjacent to it.

²⁸¹ HW2013-1447 2.032 Presentation - Management System Review Meeting - May 2019.

²⁸² HW2013-1447 2.031 Report - Management System Review 2019 - April 2019.

²⁸³ HW2006-1417 32 8.019 Minutes - August 2019 Water Quality Committee.

²⁸⁴ HW2006-1417 32 5.010 Minutes - May 2019 Water Quality Committee.

²⁸⁵ HW2006-2906 10 2.005 Register - Drinking Water Quality Improvement Plan.

²⁸⁶ HW2006-1448 57 4.011 Minutes - Hunter Water NSW Health Liaison Committee Meeting - 12 June 2019.

²⁸⁷ HW2018-198 10.010 Report - EXECUTIVE brief - Water System Performance - June 2019.



3.4.2 Recycled Water (clause 3.2)

Table 3.11 Recycled Water (sub-clause 3.2.1)			
Sub-clause	Requirement	Compliance Grade	
3.2.1	Hunter Water must maintain a Management System for Recycled Water that is consistent with the Australian Guidelines for Water Recycling, except to the extent that NSW Health specifies otherwise in writing (the Recycled Water Quality Management System).	Non-compliant (non-material)	
	[Note: It is expected that the Recycled Water Quality Management System will be consistent with the Australian Guidelines for Water Recycling, including the Framework for Management of Recycled Water Quality and Use. However, where NSW Health considers it appropriate, the application of the Australian Guidelines for Water Recycling may be amended or added to, to take account of Hunter Water's circumstances and/ or Recycled Water quality policy and practices within New South Wales.]		

Table 3.11 Recycled Water (sub-clause 3.2.1)

Risk

Without a comprehensive Recycled Water Quality Management System, there is a high risk that Hunter Water may not be able to effectively manage risks to recycled water quality, thereby posing risks to both public health and the environment.

Target for Full Compliance

Evidence that a Recycled Water Quality Management System is established, maintained, and kept up to date, and that it is consistent with the *Australian Guidelines for Water Recycling*, and any additional requirements of NSW Health.

Obligation

This obligation requires Hunter Water to maintain a Recycled Water Quality Management System that is consistent with the requirements of the *Australian Guidelines for Water Recycling*, subject to any specific requirements of NSW Health.

Evidence sighted

Hunter Water response to 2019 Audit Questionnaire.

Further evidence for each AGWR Element as listed in the following.

Element 1:

- Hunter Water, Corporate Recycled Water Quality Management Plan (HW2008-1592/20/22.001), 09/2019.
- Veolia Water, Veolia Morpeth RWTP RWQMP (MAN-12356-1), 8/10/2019.
- Hunter Water, Chisholm and Gillieston Heights Recycled Water Quality Management Plan (Final), 30/09/2019.
- Hunter Water, Dual Reticulation Communication Examples, 2018.
- Hunter Water, Recycled Water Policy 2017-2020 (HW2015-1469/16/3.001), 30/06/2017.
- Veolia Water, Veolia Recycled Water Policy, 27/06/2019.



Element 2:

- Hunter Water, Chisholm and Gillieston Heights Recycled Water Quality Management Plan (Final), 30/09/2019.
- Hunter H2O, Chisholm and Gillieston Heights Recycled Water Scheme HACCP (Rev 5), 24/09/2019.
- Hunter Water, Corporate Recycled Water Quality Management Plan (HW2008-1592/20/22.001), 09/2019.

Element 3:

- Hunter Water, Corporate Recycled Water Quality Management Plan (HW2008-1592/20/22.001), 09/2019.
- Hunter H2O, Chisholm and Gillieston Heights Recycled Water Scheme HACCP (Rev 5), 24/09/2019.
- Hunter Water, Chisholm and Gillieston Heights Recycled Water Quality Management Plan (Final), 30/09/2019.
- Hunter Water, Establishment and Review of Recycled Water CCPs (HW2008-1592/5/1.004), 27/06/2017.
- Hunter Water, Chisholm and Gillieston Heights Recycled Water Quality Management Plan (Final), 30/09/2019.
- Veolia Water, Veolia Morpeth RWTP RWQMP (MAN-12356-1), 8/10/2019.
- Hunter H2O, Chisholm and Gillieston Heights Recycled Water Scheme HACCP (Rev 5), 24/09/2019.
- Veolia Water, Veolia Morpeth RWTP RWQMP (MAN-12356-1), 8/10/2019.

Element 4:

- Hunter Water, Corporate Recycled Water Quality Management Plan (HW2008-1592/20/22.001), 09/2019.
- Veolia Water, Veolia Morpeth RWTP RWQMP (MAN-12356-1), 8/10/2019.
- Comdain Infrastructure, OM-Manual Chisholm Morpeth WWTW (Draft-C), 30/10/2018.
- Hunter Water, Recycled Water Quality Monitoring and Communication (HW2008-1592/6/1.019), 30/09/2019.
- Hunter Water, Chisholm and Gillieston Heights Recycled Water Quality Management Plan (Final), 30/09/2019.
- Hunter Water, Morpeth RWTP Plant Worksheet, undated.
- Veolia Water, Veolia Morpeth RWTP Daily Duties (TEM-12327-1), 03/10/2019.
- Hunter Water, Chisholm and Gillieston Heights Recycled Water Quality Management Plan (Final), 30/09/2019.
- Hunter Water, Morpeth RWTP Plant Worksheet, undated.
- Veolia Water, Veolia Morpeth RWTP Daily Duties (TEM-12327-1), 03/10/2019.
- Hunter Water, Screenshot: Hunter Water Approved Products, undated.
- Veolia Water, Veolia Aluminium Chlorohydrate Ordering and Delivery, 01/10/2019.



- Veolia Water, Veolia Citric Acid Ordering Delivery and Testing (WI-HW-20-7837-2), 30/09/2019.
- Veolia Water, Veolia Sodium Hydroxide Ordering Deliveries Testing (WI-HW-20-7846-3), 01/10/2019.

Element 5:

- Hunter Water, Corporate Recycled Water Quality Management Plan (HW2008-1592/20/22.001), 09/2019.
- Hunter Water, Recycled Water Quality Monitoring Plan (HW2008-1592/30/4.004), 30/09/2019.
- Veolia Water, Morpeth WWTW Sampling Guide Sheet (TEM-2919-2), 20/06/2019.
- Hunter Water, Chisholm and Gillieston Heights Recycled Water Quality Management Plan (Final), 30/09/2019.
- Hunter Water, Recycled Water Quality Monitoring Plan (HW2008-1592/30/4.004), 30/09/2019.
- Hunter Water, Customer Complaints Management Standard, March 2018.
- Hunter Water, Customer Complaints Management Guideline, March 2018.
- Hunter Water, Recycled Water Quality Monitoring and Communication (HW2008-1592/6/1.019), 30/09/2019.
- Hunter Water, Dual Reticulation Recycled Water Call Centre Guideline, 05/2019
- Hunter Water, Dual Reticulation Communication Examples, 2018
- Hunter Water, PN110 Recycled Water Standards CMG Endorsed (HW2013-215/11), 08/2019.
- Hunter Water, Dual Reticulation Recycled Water Quality Exception Reporting (HW2014-778/40/8).
- Hunter Water, PN110 Recycled Water Standards CMG Endorsed (HW2013-215/11), 08/2019.
- Hunter Water, File Note Hunter Water audit response to non-compliant rating, undated.

Element 6:

- Hunter Water, Corporate Recycled Water Quality Management Plan (HW2008-1592/20/22.001), 09/2019.
- Hunter Water, Corporate Emergency Management Plan (HW2007-900/27/19.003), 18/06/2019.
- Hunter Water, Emergency Response Communications Plan (HW2011-662 14 5.006), January 2019.
- Hunter Water, Dual Reticulation Recycled Water Quality Exception Reporting (HW2014-778/40/8),
- Hunter Water, Procedure: Notify NSW Health of Events with Potential Public Health Impact (HW2006-2906/4/6.023), 27/09/2019.
- Hunter Water, Criteria for Notification to NSW Health (HW2006-2906/4/6.008), undated.
- Hunter Water, PN110 Recycled Water Standards CMG Endorsed (HW2013-215/11),



08/2019.

- Hunter Water, Procedure: Recycled Water Quality Incident Response (HW2008-1592/8/2.002), 30/09/2019.
- Veolia Water, HW Incident and Emergency Management Manual (MAN-2799), 11/02/2019.

Element 7:

- Hunter Water, Corporate Recycled Water Quality Management Plan (HW2008-1592/20/22.001), 09/2019.
- Comdain Infrastructure, Comdain Training Plan (Rev B Draft), 12/12/2018.
- Hunter Water, Dual Reticulation Recycled Water Call Centre Guideline, 05/2019.
- Hunter Water, Example of AOMS user guide Water Quality Chlorine05/2012.
- Hunter Water, Presentation: Hunter Water Recycled Water Dual Reticulation Awareness Training (Final), undated.
- Hunter H2O, Chisholm and Gillieston Heights Recycled Water Scheme HACCP (Rev 5), 24/09/2019.
- Hunter Water, Veolia Training Matrix.
- Comdain Infrastructure, Comdain Training Plan (Rev B Draft), 12/12/2018.
- Hunter Water, Dual Reticulation Communication Examples, 2018.

Element 8:

- Hunter Water, RW Treatment Plants Community Engagement Gillieston Heights and Chisholm (Draft), 11/2017.
- Hunter Water, RW CE Gillieston Heights and Chisholm Pipeline Installation and Delivery, 11/2017.
- Hunter Water, Recycled Water Community Education (Draft), 04/2018 <u>https://yourvoice.hunterwater.com.au/</u>

Element 9:

- Hunter Water, Corporate Recycled Water Quality Management Plan (HW2008-1592/20/22.001), 09/2019.
- Hunter Water, Validation Testing Program for Water Recycling Schemes, 09/2019.
- Hunter H2O, Validation Report Chisholm and Gillieston Heights Recycled Water Schemes (Final), 08/03/2019.
- Hunter H2O, Validation Report Chisholm and Gillieston Heights Recycled Water Schemes (Final), 08/03/2019.
- Atura, A Research Proposal, Consolidation of Helminth Risk Management for Recycled Water, undated.



Element 10:

- Hunter Water, Corporate Recycled Water Quality Management Plan (HW2008-1592/20/22.001), 09/2019.
- Hunter Water, Control of work Practice Documents Standard (HW2013-421/22.002), 08/10/2019.
- Hunter Water, Manage Document Control Procedure (HW2012-441/9/1.002), 16/11/2017.
- Veolia Water, Veolia Document Retention Procedure (PRO-439-1), 13/03/2018.
- Hunter Water, Minutes: Management System Review Meeting Minutes May 2019 (HW2013-1447/2.033), 06/05/2019.
- Hunter Water, Compliance and Performance Report 2018-19 (v1.0), 30/08/2019.
- https://www.hunterwater.com.au/About-Us/Our-Organisation/Governance/Regulatory-Reporting.aspx

Element 11:

- Hunter Water, Corporate Recycled Water Quality Management Plan (HW2008-1592/20/22.001), 09/2019.
- Veolia Water, Minutes: Recycled Water Aug 19 Meeting (HW-16-7612-1), 16/09/2019.
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- Hunter Water, Compliance and Performance Report 2018-19 (v1.0), 30/08/2019.
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- Hunter Water, Screenshot: Compliance Calendar July 2018.

Element 12:

- Hunter Water, Corporate Recycled Water Quality Management Plan (HW2008-1592/20/22.001), 09/2019.
- Hunter Water, Minutes: Management System Review Meeting Minutes May 2019 (HW2013-1447/2.033), 06/05/2019.
- Hunter Water, Minutes: Hunter Water NSW Health Liaison Committee Meeting (HW2006-1448/57/4.011), 12/06/2019.
- Hunter Water, Minutes: Management System Review Meeting Minutes May 2019 (HW2013-1447/2.033), 06/05/2019.
- Hunter Water, Presentation: Management System Review Meeting May 2019, 05/2019.
- Hunter Water, Management Systems Review Report April 2019, 04/2019.
- Hunter Water, Recycled Water Improvement Plan (HW2008-1592/14/2.002), 30/09/2019.
- Hunter Water, Screenshot: Compliance Calendar July 2018.



Summary of reasons for grade

Hunter Water provided evidence that it has maintained a Management System for Recycled Water that is consistent with the Australian Guidelines for Water Recycling (AGWR), except to the extent that NSW Health specifies otherwise in writing, for all elements of the AGWR, other than Elements 2 and 5.

NSW Health did not specify any specific requirements for recycled water management in its letter submission²⁸⁸ dated 5 July 2019.

The methodology for the assessment of water quality data required under Element 2 is not documented and there was no evidence of the assessment undertaken for the Gillieston and Chisholm schemes. A recommendation (**REC-HWC-2019-03**) has been identified to document the data assessment methodology to ensure consistency across risk assessments.

Due to the lack of a methodology for water quality data analysis and the absence of water quality data analysis for the Gillieston and Chisholm scheme risk assessments, Hunter Water was found to be non-compliant (non-material) for this requirement. The non-compliance was considered non-material because the risk assessment did comprehensively identify hazards and hazardous events despite the lack of evidence of water quality data assessment.

The scheme specific Recycled Water Quality Management Plan (RWQMP) for Gillieston and Chisholm proposes significantly lower frequencies of monitoring for microbiological indictors of protozoa and viruses than those quoted in the AGWR. Additionally, the verification testing comprised of only 12 samples taken over 3 weeks. The AGWR does include provisions to base the frequency of verification monitoring on risk, however, in the absence of any long-term data, it would be difficult to determine the risk for the Hunter Water dual reticulation schemes. A recommendation (**REC-HWC-2019-04**) has been identified to review the verification monitoring program and revise the frequencies to align with the AGWR, which should include weekly testing of clostridial spores and somatic coliphage, and monthly testing of adenovirus and cryptosporidium oocysts.

Due to the discrepancy between the AGWR and the proposed verification monitoring program for Gillieston Heights and Chisholm, Hunter Water is assessed as non-compliant (non-material). The non-compliance was considered non-material because Hunter Water has validated the treatment processes to demonstrate that it is capable of achieving the pathogen log reductions, and the proposed monitoring program does include the monitoring of microbiological indicators. Additionally, critical control points (CCPs) have been established to take action should treatment performance deviate from required ranges.

Discussion and notes

Maintenance of the Recycled Water Quality Management System to be consistent with each AGWR Element is discussed below.

Element 1:

Hunter Water provided sufficient evidence to demonstrate that it has maintained the components of the Recycled Water Quality Management System in accordance with this AGWR Element.

Responsible use of recycled water

The AGWR Framework requires the involvement of agencies with responsibilities and expertise in protection of public and environmental health. The design, management, and regulation of recycled water schemes should be undertaken by agencies and operators with sufficient expertise.

Hunter Water provided the *Corporate Recycled Water Quality Management Plan*²⁸⁹ (RWQMP) which details the internal stakeholders (Table 1-1) and the external stakeholders (Table 1-2) that are

²⁸⁸ NSW Health, Submission, (no reference), 5/7/2019.



involved with Hunter Water's recycled water operations. External stakeholders identified in Table 2-1 include relevant health and environmental authorities and Veolia Water Operations (Veolia), the organisation that operates and maintains the WWTW on Hunter Water's behalf. The health and environmental authorities identified in Table 1-2 are expected to have sufficient expertise. Hunter Water provided the Veolia RWQMP²⁹⁰ for the Morpeth recycled water scheme that details Veolia's approach to managing recycled water.

Regulatory and formal requirements

The AGWR Framework requires all relevant regulatory and formal requirements to be identified and documented. The governance of recycled water schemes for individual agencies, designers, installers, operators, maintainers, owners and users of recycled water needs to be identified. The responsibilities of designers, installers, maintainers, operations employees, contractors, and end users need to be understood and communicated. The requirements need to be periodically reviewed and processes updated where required.

Hunter Water provided the Corporate RWQMP²⁹¹ and the scheme specific RWQMP for Chisholm and Gillieston Heights.²⁹² The Corporate RWQMP summarises the requirements of relevant legislation, guidelines, the operating licence, Memoranda of Understanding, industry codes and formal agreements. The site specific RWQMP identifies additional requirements such as the NSW State Government's Building and Sustainability Index (BASIX) requirements.

The scheme specific RWQMP for Chisholm and Gillieston Heights indicates that Hunter Water communicates requirements for recycled water within customer contracts and through targeted campaigns, such as fact sheets and flyers. A document²⁹³ containing copies of factsheets and letters to customers confirmed the process.

The document history indicates that the RWQMP is reviewed at least annually and it was discussed during the audit that the legal requirements are reviewed and updated at this time.

The AGWR Framework requires the governance for a recycled water scheme to be clearly identified and understood. Governance issues include responsibilities and duties of individual agencies, designers, installers, operators, maintainers, owners, and users of recycled water.

Hunter Water provided the Corporate RWQMP which details how different stakeholders are related to the recycled water scheme and how the governance framework applies. The scheme specific RWQMP for Chisholm and Gillieston Heights details the governance of the dual reticulation schemes. A fact sheet²⁹⁴ was provided which details how recycled water is governed. This also sets out the customer's and agencies responsibilities, such as permitted uses, details of plumbing inspections and BASIX requirements.

The AGWR Framework requires a registry of relevant regulations and other requirements to be readily accessible. The registry should be regularly reviewed and updated. Responsibilities for this must be identified and communicated.

The regulatory and other requirements are documented in the Corporate RWQMP and in the scheme specific RWQMP. The document history of the Corporate RWQMP indicates that it is reviewed and has been updated at least annually since 2014. Hunter Water communicates requirements via the intranet and internet. Agencies are engaged in a number of ways including being involved in risk assessment workshops and attending meetings.

Recycled water customers are made aware of their requirements through the fact sheets and other communiqués as detailed in the RWQMP. The Customer Contract also details recycled water requirements.

²⁸⁹ Hunter Water, Corporate Recycled Water Quality Management Plan (HW2008-1592/20/22.001), 09/2019.

²⁹⁰ Veolia Water, Veolia Morpeth RWTP RWQMP (MAN-12356-1), 8/10/2019.

²⁹¹ Hunter Water, Corporate Recycled Water Quality Management Plan (HW2008-1592/20/22.001), 09/2019.

²⁹² Hunter Water, Chisholm and Gillieston Heights Recycled Water Quality Management Plan (Final), 30/09/2019.

²⁹³ Hunter Water, *Dual Reticulation Communication Examples*, 2018.

²⁹⁴ Hunter Water, *Dual Reticulation Communication Examples*, 2018.



Partnerships and engagement of stakeholders (including the public)

The AGWR Framework requires all agencies with responsibilities for water resources and use of recycled water to be identified and the list of relevant agencies regularly updated. Partnerships with agencies or organisations need to be established to support the effective management of recycled water schemes. Stakeholders (including the public) affecting, or affected by, decisions or activities related to the use of recycled water need to be identified. Users of recycled water need to be engaged and their responsibilities need to be identified and understood. Mechanisms and documentation for stakeholder commitment and involvement need to be developed.

Hunter Water provided the Corporate RWQMP²⁹⁵ that details the external stakeholders that are considered Hunter Water's partners in recycled water management. The Corporate RWQMP also includes a description of how recycled water users are engaged through user agreements and annual on-site meetings with bulk recycled water customers. The Chisholm and Gillieston Heights RWQMP states that recycled water users have responsibilities as detailed in the communication information provided.²⁹⁶

Recycled water policy

The AGWR Framework requires a recycled water policy, endorsed by senior managers, to be developed and implemented within an organisation or by participating agencies. The policy must be visible and communicated, understood and implemented by employees and contractors.

Hunter Water provided its recycled water policy,²⁹⁷ which was approved on 30 June 2017, and is scheduled for its next review on 30 June 2020. Hunter Water provided the Veolia *Water Quality Policy*,²⁹⁸ with an issue date of 27 June 2019 which includes the protection of public health in relation to recycled water schemes.

Hunter Water communicates its policy to staff during training and awareness activities, including induction and the policy is displayed at offices and relevant WWTWs.

Element 2:

Hunter Water did not demonstrate that it has maintained the components of the Recycled Water Quality Management System in accordance with this AGWR Element because there is insufficient detail about the assessment of water quality data undertaken to inform risk assessments and there is limited information available on the assessment of data for the Chisholm and Gillieston Heights risk assessment.

Source of recycled water, intended uses, receiving environments and routes of exposure

The AGWR Framework requires sources of water, intended uses, routes of exposure, receiving environments, endpoints and effects to be identified and inadvertent or unauthorised uses considered.

The Corporate RWQMP provides a broad overview of the sources and intended uses, receiving environments and routes of exposure and refers to the scheme specific RWQMPs for further details. The RWQMP for Chisholm and Gillieston Heights²⁹⁹ provides site specific details on the sources of effluent; the Farley and Morpeth Wastewater Treatment Works (WWTW), and an indication of the treatment processes at those WWTW.

Intended and 'non-intended' uses are detailed in Table 2-1. Table 2-2 details the routes of exposure for intended and unauthorised uses, including a range of cross connections types. Receiving environments and endpoints are not explicitly detailed; however, they are related to the

²⁹⁵ Hunter Water, Corporate Recycled Water Quality Management Plan (HW2008-1592/20/22.001), 09/2019.

²⁹⁶ Hunter Water, Dual Reticulation Communication Examples, 2018.

²⁹⁷ Hunter Water, Recycled Water Policy 2017-2020 (HW2015-1469/16/3.001), 30/06/2017.

²⁹⁸ Veolia Water, Veolia Recycled Water Policy, 27/06/2019.

²⁹⁹ Hunter Water, Chisholm and Gillieston Heights Recycled Water Quality Management Plan (Final), 30/09/2019.



uses such as garden watering and other intended uses. Table 2-1 also includes onsite preventive measures for receiving environments.

Recycled water system analysis

The AGWR Framework requires pertinent information to be assembled and key characteristics of the recycled water system to be considered and documented. A team with appropriate knowledge and expertise should be assembled and a flow diagram of the recycled water system from the source to the application or receiving environments constructed. The recycled water system analysis should be periodically reviewed.

The Chisholm and Gillieston Heights RWQMP and *Chisholm and Gillieston Heights Recycled Water* Scheme HACCP Report³⁰⁰ contain details of the risk assessment team. A description of the WWTW and the treatment process descriptions are included for the Farley and Morpeth WWTW. Descriptions of the Recycled Water Treatment Plants (RWTPs) are detailed in the scheme specific RWQMP and the HACCP Report.

Flow diagrams are included in the Chisholm and Gillieston Heights RWQMP for the WWTW and RWTPs. The HACCP Report indicates that the flow diagram components were reviewed to identify hazards and risks within each node in the recycled water system. The site inspection to the Chisholm RWTP confirmed that the flow diagram was consistent with the infrastructure observed on site.

Assessment of water quality data

The AGWR Framework requires historical data about sewage to be assembled, as well as data from treatment plants and of recycled water supplied to users. Gaps in data should be identified and the reliability of data assessed. Data should be assessed using tools such as control charts and trends analysis, to identify trends and potential problems.

The Corporate RWQMP301 states that:

'In supporting risk assessment and review processes, a summary of relevant data is collated and presented as part of a process of preparing for the risk assessments for each WWTW. The summary is reviewed prior to, and during, each risk assessment and review cycle for each RWQMP.'

Hunter Water's questionnaire response states that "*The assessment of quality data was undertaken during the risk assessment process and is detailed within the recycled water quality management plans and recycled water risk assessment HACCP report*"; however, there was no data analysis provided in the HACCP Report and there is no mention of data analysis in the 'risk assessment approach' section of the HACCP Report. There is no mention of the methodology for assessment of water quality data or details of the assessment that was undertaken for the Chisholm and Gillieston Heights risk assessment. There was no documentation of analysis to identify trends and potential problems. A recommendation (**REC-HWC-2019-03**) has been identified to document the methodology of undertaking an assessment of water quality to ensure consistency across risk assessments.

Hazard identification and risk assessment

The AGWR Framework requires the approach to hazard identification and risk assessment, which considers both public and ecological health, to be defined. The hazard identification and risk assessment should incorporate any changes to the system. These processes should be periodically reviewed and updated. Hazards and hazardous events for each component of the recycled water system should be identified and documented. The level of risk for each identified hazard or hazardous event should be estimated. Inadvertent and unauthorised use or discharge should be considered. Significant risks and document priorities for risk management should be determined. The major sources of uncertainty associated with each hazard and hazardous event should be identified and actions to reduce uncertainty considered.

³⁰⁰ Hunter H2O, Chisholm and Gillieston Heights Recycled Water Scheme HACCP (Rev 5), 24/09/2019.

³⁰¹ Hunter Water, Corporate Recycled Water Quality Management Plan (HW2008-1592/20/22.001), 09/2019.



The Corporate RWQMP details the risk assessment process for recycled water which includes public and environmental health. The risk assessment methodology for the Chisholm and Gillieston Heights risk assessment is detailed in the HACCP report and includes assessment of 'raw' risk, identification of controls (preventive measures), assessment of the effectiveness of the preventive measures and identification of 'mitigated' risk.

The Corporate RWQMP states that "The major sources of uncertainty associated with each hazard and hazardous event are implicitly considered in undertaking risk assessments and if there are significant uncertainties arising, actions are considered to reduce those. Uncertainties are not assessed explicitly for each risk and if there is no follow up action it can be assumed that either the uncertainty was low, or the uncertainty was not material and did not need following up." It was noted that the previous audit report included an opportunity for improvement that Hunter Water documents the process for the assessment of uncertainty and includes documentation to confirm that it has been assessed; for example, notations in the risk assessment. Hunter Water has identified areas of uncertainty in the HACCP report for Chisholm and Gillieston Heights. Recommendations for reducing uncertainty in data are included in the HACCP report and within the detail of the risk registers; there was some discussion where relevant about uncertainty in data and unreliable data. Hunter Water advised that it will reassess the uncertainty as more operational data becomes available, which is considered appropriate.

Element 3:

Hunter Water provided sufficient evidence to demonstrate that it has maintained the components of the Recycled Water Quality Management System in accordance with this AGWR Element.

Preventive measures and multiple barriers

The AGWR Framework requires existing preventive measures to be identified for the whole system for each significant hazard or hazardous event, and the residual risk estimated. Alternative or additional preventive measures that are required to ensure risks are reduced to acceptable levels should be identified. Preventive measures and strategies, addressing each significant risk, should be documented.

The risk assessment methodology in the Corporate RWQMP³⁰² includes a step to determine whether the control measures proposed will reduce the risks down to an acceptable level and to identify additional control measures. The HACCP Report³⁰³ for Gillieston and Chisholm includes documentation of the assessment of preventive measures for each hazard and hazardous event and the estimation of mitigated (residual) risk. The Corporate RWQMP states that "*Risk* assessment review and revision processes are being rolled out gradually, with a few schemes being updated annually." It was discussed during the audit that these are being done at a rate of approximately two per year. The Gillieston and Chisholm risk assessments were undertaken in the audit period.

The RWQMP for Chisholm and Gillieston Heights³⁰⁴ details the multiple barriers identified to manage recycled water hazards.

Critical control points

The AGWR Framework requires preventive measures throughout the recycled water system to be assessed in order to identify critical control points and establish mechanisms for operational control. Critical control points (CCPs), critical limits and target criteria should be documented.

Hunter Water provided the *Standard-Establishment and Review of Recycled Water CCPs*³⁰⁵ which details the process for assessing preventive measures to identify CCPs. The process is consistent with

³⁰² Hunter Water, Corporate Recycled Water Quality Management Plan (HW2008-1592/20/22.001), 09/2019.

³⁰³ Hunter H2O, Chisholm and Gillieston Heights Recycled Water Scheme HACCP (Rev 5), 24/09/2019.

³⁰⁴ Hunter Water, Chisholm and Gillieston Heights Recycled Water Quality Management Plan (Final), 30/09/2019.

³⁰⁵ Hunter Water, Establishment and Review of Recycled Water CCPs (HW2008-1592/5/1.004), 27/06/2017.



the principles for CCPs detailed in the AGWR. CCPs are documented in the scheme specific RWQMPs.^{306,307} The Standard includes responsibilities for approving CCPs and seeking feedback from NSW Health. CCPs are protected in SCADA from change without approval.

The HACCP Report³⁰⁸ for Gillieston and Chisholm details the assessment of CCPs for the dual reticulation schemes. The Hunter Water scheme specific RWQMP includes the CCPs for the dual reticulation schemes, the definition of critical limits, the rationale for choosing the parameters, and the logic of how the critical limits correspond to the pathogen log reduction targets adopted for the schemes. Table 4-1 of the RWQMP provides details of the parameters, frequencies, alarm set points, critical limits, and the corrective actions.

The Veolia RWQMP³⁰⁹ for Morpeth details the CCPs for the Chisholm recycled water scheme including the parameters to be monitored, the locations, frequencies, alert and critical limits, and the corrective actions.

Mechanisms for operational control are documented in the scheme specific RWQMPs and largely rely on automatic shutdowns or plant bypasses when a critical limit is breached to prevent the potential supply of out-of-specification recycled water.

Element 4:

Hunter Water provided sufficient evidence to demonstrate that it has maintained the components of the Recycled Water Quality Management System in accordance with this AGWR Element.

Operational procedures

The AGWR Framework requires the identification of procedures for all processes and activities applied within the whole recycled water system from source to use. The procedures should be documented and complied into an Operations Manual.

Hunter Water has developed operational procedures for the management of recycled water as detailed in the Corporate RWQMP. Documents are stored using TRIM and are available via the recycled water workspace. The risk assessment identifies a number of operational procedures that are linked to preventive measures and these are carried over to the site specific RWQMPs, prepared by Hunter Water and Veolia. The site specific RWQMPs for Morpeth include CCP response charts detailing the actions to take when an alert or critical limit is exceeded.

The *Draft Operations and Maintenance Manual* for Morpeth RWTP³¹⁰ was provided as evidence of establishment of operational procedures for the RWTP. This is still in draft format as the scheme has not yet commenced operation, and Veolia and Hunter Water are testing the procedures to ensure that they achieve the desired outcomes.

Operational monitoring

The AGWR Framework requires monitoring protocols to be developed for operational performance of the recycled water supply system, including the selection of operational parameters and criteria, and the routine analysis of results. Monitoring protocols should be documented in an operational monitoring plan.

The *Standard*- Recycled Water Quality Monitoring and Communication³¹¹ details the WWTW operational monitoring requirements for Veolia operators, and includes online monitoring, ongoing equipment performance checks and routine inspections.

Table 4-1 of the scheme specific RWQMP³¹² contains details of operational monitoring of CCPs and other important process steps. Operational monitoring of CCPs and a number of other

³⁰⁶ Hunter Water, Chisholm and Gillieston Heights Recycled Water Quality Management Plan (Final), 30/09/2019.

³⁰⁷ Veolia Water, Veolia Morpeth RWTP RWOMP (MAN-12356-1), 8/10/2019.

³⁰⁸ Hunter H2O, Chisholm and Gillieston Heights Recycled Water Scheme HACCP (Rev 5), 24/09/2019.

³⁰⁹ Veolia Water, Veolia Morpeth RWTP RWQMP (MAN-12356-1), 8/10/2019.

³¹⁰ Comdain Infrastructure, OM-Manual Chisholm - Morpeth WWTW (Draft-C), 30/10/2018.

³¹¹ Hunter Water, Recycled Water Quality Monitoring and Communication (HW2008-1592/6/1.019), 30/09/2019.



operational parameters occurs via SCADA, with additional grab sampling undertaken where relevant. Veolia has also developed WWTW worksheets³¹³ and Daily Duties lists³¹⁴ detailing operational monitoring to be undertaken.

Reticulation processes and operational monitoring in the network are detailed in the scheme specific Recycled Water Quality Management Plan.³¹⁵ Operational monitoring in the network for the dual reticulation schemes includes eight (8) sites in Gillieston and six (6) in Chisholm, as detailed in the Table 5-1. The sites were selected based on the locations in the network.

Operational corrections

The AGWR Framework requires procedures to be established and documented for corrective actions to be taken where operational parameters are not met. Rapid communication systems should be established to deal with unexpected events.

Table 4-1 provides scheme specific information on operational corrections in response to operational parameters not being met. In general, exceedance of a critical limit will trigger an automatic shutdown or bypass within the SCADA system. The *Standard-Recycled Water Quality Monitoring and Communication*³¹⁶ details the detection of, responses to, and investigation of recycled water quality operational issues.

Equipment capability and maintenance

The AGWR Framework requires recycled water operators to ensure that equipment performs adequately and provides sufficient flexibility and process control and that a program for regular inspection and maintenance of all equipment, including monitoring equipment is established.

Veolia has developed WWTW worksheets³¹⁷ and duties lists³¹⁸ detailing daily checks of equipment and plant to be undertaken on a daily basis. Veolia manages ongoing equipment capability and maintenance via its Veolia Asset Management System (VAMS). Hunter Water schedules electrical and mechanical maintenance for each recycled water scheme. These schedules are stored within the maintenance module of Hunter Water's 'Ellipse' system. The Ellipse system was demonstrated during the audit and included a record of maintenance actions raised. Maintenance activity managed and recorded in VAMS is entered into Ellipse.

For the distribution network, maintenance work orders are raised within Ellipse. Tasks include inspection and maintenance of electrical and mechanical equipment and reservoir inspections.

Materials and chemicals

The AGWR Framework requires recycled water operators to ensure that only approved materials and chemicals are used and to establish documented procedures for evaluating chemicals, materials, and suppliers.

Hunter Water maintains an approved products list on its website³¹⁹ that outlines the process for having products approved for use in the Hunter Water area of operations and there is a list of approved chemicals and equipment. The Corporate RWQMP indicates that Veolia manages chemicals used for recycled water treatment. Veolia provided a range of procedures for managing chemicals:

³¹² Hunter Water, Chisholm and Gillieston Heights Recycled Water Quality Management Plan (Final), 30/09/2019.

³¹³ Hunter Water, Morpeth RWTP Plant Worksheet, undated.

³¹⁴ Veolia Water, Veolia Morpeth RWTP Daily Duties (TEM-12327-1), 03/10/2019.

³¹⁵ Hunter Water, Chisholm and Gillieston Heights Recycled Water Quality Management Plan (Final), 30/09/2019.

³¹⁶ Hunter Water, Recycled Water Quality Monitoring and Communication (HW2008-1592/6/1.019), 30/09/2019.

³¹⁷ Hunter Water, Morpeth RWTP Plant Worksheet, undated.

³¹⁸ Veolia Water, Veolia Morpeth RWTP Daily Duties (TEM-12327-1), 03/10/2019.

³¹⁹ Hunter Water, *Screenshot: Hunter Water Approved Products*, undated.



- Veolia Aluminium Chlorohydrate Ordering and Delivery;³²⁰
- Veolia Citric Acid Ordering Delivery and Testing,³²¹ and
- Veolia Sodium Hydroxide Ordering Deliveries Testing.³²²

The procedures identify the responsibilities for chemical management, the details of site-specific chemicals, including concentrations, storage capacity, when to reorder, and checks undertaken when accepting a chemical order. The acceptance process includes performing chemical and physical analysis on deliveries and recording the detail of chemical deliveries on the plant spreadsheet.

Element 5:

Hunter Water did not demonstrate that it has maintained the components of the Recycled Water Quality Management System in accordance with this AGWR Element because the verification program for the Chisholm and Gillieston Heights recycled water schemes is not consistent with the AGWR and does not adequately identify microbiological indicators and frequencies of monitoring.

Recycled water quality monitoring

The AGWR Framework requires the characteristics to be monitored and the monitoring points and frequencies to be determined.

The *Recycled Water Quality Monitoring Plan*³²³ documents the verification monitoring for Hunter Water's recycled water schemes. The Monitoring Plan includes a table for each scheme, which contain the parameters, frequency and limits from AGWR where relevant. Parameters include microbiological, physical and chemical characteristics consistent with AGWR guidance. The frequencies generally include weekly *E. coli* and faecal coliforms, where relevant.

Veolia has prepared a sampling guide³²⁴ to ensure operators understand how the frequency requirements should be complied with.

The Chisholm and Gillieston Heights verification monitoring program in Table 5-1 of the scheme specific RWQMP³²⁵ includes weekly testing of *E. coli* and total coliforms at the water tank, and monthly testing of *Clostridium spp* spores and *Somatic coliphage*, and these two are noted as 'operational indicators'.

Table 5-6 of the AGWR identifies weekly testing of clostridial spores and somatic coliphage, and monthly testing of adenovirus and cryptosporidium oocysts for all large high exposure schemes. The text from Table 5-5 of AGWR states:

"For higher exposure schemes systems (eg for a typical dual-reticulation system) E.coli testing could be undertaken more frequently and monitoring would ideally include weekly testing for coliphage and clostridial spores (median E. coli <1 per 100 mL, somatic coliphage <1 plaque forming unit per 100 mL, Clostridium perfringens <1 per L), and in some cases may include monthly or quarterly pathogen testing (eg Cryptosporidium, viruses)."

The scheme specific RWQMP proposes significantly lower frequencies for microbiological indictors of protozoa and virus than the AGWR. Additionally, the verification testing comprised of only 12 samples taken over 3 weeks. The AGWR does include provisions to base the frequency of verification monitoring on risk; however, in the absence of any long-term data, it

³²⁰ Veolia Water, Veolia Aluminium Chlorohydrate Ordering and Delivery, 01/10/2019.

³²¹ Veolia Water, Veolia Citric Acid Ordering Delivery and Testing (WI-HW-20-7837-2), 30/09/2019.

³²² Veolia Water, Veolia Sodium Hydroxide Ordering Deliveries Testing (WI-HW-20-7846-3), 01/10/2019.

³²³ Hunter Water, Recycled Water Quality Monitoring Plan (HW2008-1592/30/4.004), 30/09/2019.

³²⁴ Veolia Water, Morpeth WWTW Sampling Guide Sheet (TEM-2919-2), 20/06/2019.

³²⁵ Hunter Water, Chisholm and Gillieston Heights Recycled Water Quality Management Plan (Final), 30/09/2019.



would be difficult to determine the risk for the Hunter Water dual reticulation schemes. A recommendation (**REC-HWC-2019-04**) has been identified to review the verification monitoring program and revise the frequencies to align with the AGWR, which should include weekly testing of clostridial spores and somatic coliphage, and monthly testing of adenovirus and cryptosporidium oocysts.

In response to the draft audit report, Hunter Water made a submission³²⁶ to justify the proposed monitoring frequency of microbiological indicators; however, the initial non-compliant (non-material) grading was maintained due to the following considerations:

- The AGWR provides guidance on the parameters and frequencies that should be included in an ongoing verification monitoring program, which recommends weekly monitoring of *E. coli*, somatic coliphage and clostridial spores. The site specific RWQMP proposes monthly monitoring of somatic coliphage and clostridial spores, which reduces the annual monitoring sample number from 52 per parameter to 12.
- Only three weeks of commissioning verification sampling had been undertaken (at the time of the audit), which is not considered adequate to account for variation of operation and seasonal variation.
- It is acknowledged that the monitoring frequency may be based on risk; however, at present the data available would not be considered adequate to quantify the risk, and take variation and operational performance into consideration.

Application site and receiving environment monitoring

The AGWR Framework requires the characteristics to be monitored and the points at which monitoring will be undertaken should be determined for the application and receiving environment monitoring.

The scheme specific RWQMP for Chisholm and Gillieston Heights states that there are no special end user responsibilities relating to the environment other than those that apply to the use of recycled water generally, e.g. to prevent ponding and inform Hunter Water of any significant issues possibly associated with recycled water use. Table 2-2 indicates that recycled water is not intended for release to natural watercourses (discharge to surrounding environment). The RWQMP states that long-term data from the verification monitoring program will be compared to trigger levels to assess whether the water contains too much of any substance such that it might impact soils or water.

For non-dual reticulation schemes, recycled water customers are responsible for undertaking sampling of the recycled water application site and this is documented in the Corporate RWQMP.

Documentation and reliability

The AGWR Framework requires a sampling plan for each characteristic to be established and documented, including the location and frequency of sampling, ensuring that monitoring data is representative and reliable.

As detailed above, the *Recycled Water Quality Monitoring Plan*³²⁷ includes a table for each scheme, which contain the parameters, frequency and limits from AGWR where relevant. Parameters include microbiological, physical and chemical characteristics consistent with AGWR guidance. The frequencies generally include weekly *E. coli* and faecal coliforms, where relevant.

The verification monitoring program for the dual reticulation schemes is inconsistent with the frequencies detailed in the AGWR, and a recommendation has been identified to address the inconsistency (**REC-HWC-2019-04**).

³²⁶ Hunter Water, File Note – Hunter Water audit response to non-compliant rating, undated.

³²⁷ Hunter Water, Recycled Water Quality Monitoring Plan (HW2008-1592/30/4.004), 30/09/2019.



Satisfaction of users of recycled water

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

Hunter Water has a corporate *Customer Complaints Management Standard*⁵²⁸ and *Customer Complaints Management Guideline*³²⁹ which details Hunter Water's approach to managing customer complaints. It includes roles and responsibilities, a flow diagram for the complaints handling process and details of Hunter Water's case management portal (CMP) for handling complaints. The Standard details the training of people with responsibilities for handling complaints.

The Standard-Recycled Water Quality Monitoring and Communication³³⁰ includes instruction to Veolia to notify Hunter Water of any complaints regarding recycled water. The Dual Reticulation Recycled Water Call Centre Guideline³³¹ details the process for dealing with calls and complaints from customers within a dual reticulation area, including suggested scripting.

The Hunter Water Corporate RWQMP details the process for confirming the satisfaction of recycled water customers. The annual customer audit program is the identified process for specific bulk recycled water customers. Additionally, for the new dual reticulation recycled water scheme at Gillieston Heights, the Factsheet³³² with 'Frequently Asked Questions' includes details on how customers can contact at Hunter Water with feedback or if further information is required.

Short-term evaluation of results

The AGWR Framework requires the establishment of procedures for the short-term review of monitoring data and satisfaction of users of recycled water and the development of mechanisms for internal and external reporting, where required.

Standard-Recycled Water Quality Monitoring and Communication details the process for monitoring performance, including quality analysis, reporting and communication of results. The Practice Note, *PN110 - Recycled Water Standards*³³³ details the analysis of performance and the types of reporting that Veolia is required to undertake. Additionally, under the contract for laboratory analysis with ALS, there are communication mechanisms for immediate notification of out-of-specification results. These reports flag analytes that are out of range against the required quality. The reporting requirements for routine sampling are detailed in the scheme specific RWQMP.

The *Dual Reticulation Recycled Water Quality Exception Reporting*³³⁴ procedure details the short-term evaluation of results from the dual reticulation schemes and how the results of the evaluation are to be reported.

Corrective responses

The AGWR Framework requires procedures for corrective responses to non-conformance or feedback from users of recycled water and rapid communication systems to deal with unexpected events to be established and documented.

The Practice Note, *PN110* - *Recycled Water Standards*³³⁵ details the responses that Veolia must undertake in response to a non-conformance.

³²⁸ Hunter Water, Customer Complaints Management Standard, March 2018.

³²⁹ Hunter Water, Customer Complaints Management Guideline, March 2018.

³³⁰ Hunter Water, Recycled Water Quality Monitoring and Communication (HW2008-1592/6/1.019), 30/09/2019.

³³¹ Hunter Water, Dual Reticulation Recycled Water Call Centre Guideline, 05/2019.

³³² Hunter Water, *Dual Reticulation Communication Examples*, 2018.

³³³ Hunter Water, PN110 - Recycled Water Standards - CMG Endorsed (HW2013-215/11), 08/2019.

³³⁴ Hunter Water, Dual Reticulation Recycled Water Quality Exception Reporting (HW2014-778/40/8).

³³⁵ Hunter Water, PN110 - Recycled Water Standards - CMG Endorsed (HW2013-215/11), 08/2019.



Element 6:

Hunter Water provided sufficient evidence to demonstrate that it has maintained the components of the Recycled Water Quality Management System in accordance with this AGWR Element.

Communication

The AGWR Framework requires the definition of communication protocols with the involvement of relevant agencies and the preparation of a contact list of key people, agencies and stakeholders. A public and media communications strategy should be developed.

The *Corporate Emergency Management Plan*³³⁶ discusses public and media strategies including identifying that a Communications Coordinator is responsible for handling all internal and external communications during an incident and developing an emergency response communications plan. The *Emergency Response Communications Plan*³³⁷ details the strategy for communicating an incident and includes a list of internal and external stakeholders including relevant government agencies that may need to be notified in the event of an emergency.

Hunter Water has prepared a specific procedure related to dual reticulation incident responses, the *Dual Reticulation Recycled Water Exception Reporting*³³⁸ procedure that details the reporting and communication in response to an event or incident in the dual reticulation systems.

Notification of Water Quality Events of Potential Public Health Significance to NSW Health³³⁹ provides detail on how a significant event should be reported to NSW Health. *Criteria for Notification to* NSW Health³⁴⁰ provides the criteria and conditions where NSW Health must be notified. Practice Note, *PN110* - Recycled Water Standards³⁴¹ provides guidance on how Veolia must communicate with Hunter Water in a significant event.

Incident and emergency response protocols

The AGWR Framework requires the definition of potential incidents and emergencies. It also requires that procedures and response plans should be documented with the involvement of relevant agencies. Employees should be trained and emergency response plans tested regularly. Any incidents or emergencies should be investigated and protocols revised as necessary.

The overarching *Corporate Emergency Management Plan*³⁴² details Hunter Water's framework for managing incidents and emergencies. Within the Incident Categorisation Guide, recycled water has its own category. The case of a critical limit exceedance without supply to customers is considered 'moderate'. Cases where customers are supplied, where there is unconfirmed ingestion with illness or an unconfirmed cross connection, it is considered 'major'. Cases of a confirmed cross connection or ingestion with illness are a 'crisis' or 'emergency'.

The *Procedure-* Recycled Water Quality Incident Notification and Response details the actions to be implemented in response to a recycled water quality event, a notifiable event or incident being defined as:

- Recycled water quality monitoring results;
- Customer complaints;
- Inspections;
- External advice;

³³⁶ Hunter Water, Corporate Emergency Management Plan (HW2007-900/27/19.003), 18/06/2019.

³³⁷ Hunter Water, Emergency Response Communications Plan (HW2011-662 14 5.006019) January 2019.

³³⁸ Hunter Water, Dual Reticulation Recycled Water Quality Exception Reporting (HW2014-778/40/8).

³³⁹ Hunter Water, Procedure: Notify NSW Health of Events with Potential Public Health Impact (HW2006-2906/4/6.023), 27/09/2019.

³⁴⁰ Hunter Water, Criteria for Notification to NSW Health (HW2006-2906/4/6.008), undated.

³⁴¹ Hunter Water, PN110 - Recycled Water Standards - CMG Endorsed (HW2013-215/11), 08/2019.

³⁴² Hunter Water, Corporate Emergency Management Plan (HW2007-900/27/19.003), 18/06/2019.



- Equipment or process malfunction;
- CCP process failure; and
- Confirmed environmental incident.

The *Hunter Water, Procedure: Recycled Water Quality Incident Response*³⁴³ details the process for managing incidents in the dual reticulation network and other recycled water schemes. It details the critical limits for each recycled water scheme and the steps that should be followed when responding to recycled water quality events, notifiable events and incidents.

Under the *Corporate Emergency Response Plan*, Hunter Water undertakes exercises to test the emergency protocols.

Veolia has established an *Incident and Emergency Management Manual*³⁴⁴ and *Incident and Emergency Response Procedures*³⁴⁵ detailing Veolia's incident management framework.

Element 7:

Hunter Water provided sufficient evidence to demonstrate that it has maintained the components of the Recycled Water Quality Management System in accordance with this AGWR Element.

Operator, contractor and end user awareness and involvement

The AGWR Framework requires the development of mechanisms and communication procedures to increase operator, contractor, and end user awareness of, and participation in, recycled water quality management and environmental protection.

The *Corporate* RWQMP³⁴⁶ identifies induction programs, risk workshops, guidelines and manuals, divisional updates, SOPs, RWQMPs, meetings and committees as mechanisms for increasing awareness and involvement. Examples of communications procedures and programs provided for this audit include:

- *Comdain Training Plan*³⁴⁷ which details the awareness training for contractors working on the Morpeth RWTP;
- Dual Reticulation Recycled Water Call Centre Guideline³⁴⁸ detailing the process for making call centre officers aware of recycled water management;
- Example of AOMS user guide Water Quality Chlorine³⁴⁹ which provides awareness insights for call centre staff receiving calls about chlorine odour in the drinking water network, which could indicate a cross connection;
- Presentation: Hunter Water Recycled Water Dual Reticulation Awareness Training³⁵⁰ which documents training materials prepared for the dual reticulation schemes; and
- *Chisholm and Gillieston Heights* Recycled Water Scheme HACCP³⁵¹ which demonstrates the inclusion of internal and external stakeholders in the risk assessment, raising awareness about the risk associated with recycled water use for dual reticulation.

Operator, contractor and end user training

The AGWR Framework requires that operators, contractors, and end users maintain the appropriate experience and qualifications. Training needs should be identified, and resources

³⁴³ Hunter Water, Procedure: Recycled Water Quality Incident Response (HW2008-1592/8/2.002), 30/09/2019.

³⁴⁴ Veolia Water, HW Incident and Emergency Management Manual (MAN-2799), 11/02/2019.

³⁴⁵ Veolia Water, HW - Incident and Emergency Response Procedures -1 (PRO-2803), 15/01/2019.

³⁴⁶ Hunter Water, Corporate Recycled Water Quality Management Plan (HW2008-1592/20/22.001), 09/2019.

³⁴⁷ Comdain Infrastructure, *Comdain Training Plan* (Rev B - Draft), 12/12/2018.

³⁴⁸ Hunter Water, *Dual Reticulation Recycled Water Call Centre Guideline*, 05/2019.

³⁴⁹ Hunter Water, Example of AOMS user guide - Water Quality - Chlorine, 05/2012.

³⁵⁰ Hunter Water, Presentation: Hunter Water Recycled Water Dual Reticulation Awareness Training (Final), undated.

³⁵¹ Hunter H2O, Chisholm and Gillieston Heights Recycled Water Scheme HACCP (Rev 5), 24/09/2019.



should be available to support training programs. Training should be documented, and records of all training sessions maintained.

The Corporate RWQMP documents the overarching approach to training for Hunter Water and Veolia in relation to the WWTW and the recycled water schemes. The scheme specific RWQMP further details the training requirements for the dual reticulation schemes including for recycled water users.

Veolia staff are contractually required to be appropriately trained in operations and Veolia has prepared a *Veolia Training Matrix*³⁵² that outlines the modules that relevant staff must complete and have competency in, which includes Certificate II and III in Water Operations for treatment operators and recycled water awareness for operators, maintenance staff and other relevant team members. The *Comdain Training Plan*³⁵³ details the training requirements for construction contractors working on the Morpeth RWTP.

The Chisholm and Gillieston Heights RWQMP states that recycled water users have responsibilities as detailed in the communication information provided,³⁵⁴ which includes information about the risks associated with and the safe use of recycled water.

Attendance sheets are maintained to record all training undertaken (refer to assessment of Table 3.12).

Element 8:

Hunter Water provided sufficient evidence to demonstrate that it has maintained the components of the Recycled Water Quality Management System in accordance with this AGWR Element.

Consultation with users of recycled water and the community

The AGWR Framework requires the assessment of requirements for effective involvement of users of recycled water and the community and the development of a comprehensive strategy for consultation.

The Corporate RWQMP provides an overview of how Hunter Water consults with the community and users of recycled water which includes the Hunter Water website, customer agreements, and direct and targeted consultation on a case by case basis. Examples of a targeted consultation processes include the program for the dual reticulation schemes, whereby specific consultation plans were developed for different stages of the project including:

- Construction of recycled water treatment plants (construction impacts only);³⁵⁵
- Construction of water and recycled water pipelines (construction impacts only);³⁵⁶ and
- Community engagement and education: residential recycled water.³⁵⁷

The wider community is kept informed using updates via the Hunter Water website, newsletters and direct contact with interested community groups. Hunter Water has a customer contact centre and an email enquiries system to provide answers to any questions the public may have. Hunter Water's website provides information to the public on recycled water schemes, quality, and developments.

Communication and education

The AGWR Framework requires the development of an active two-way communication program to inform users of recycled water and promote awareness of recycled water quality issues. Such a

³⁵² Hunter Water, Veolia Training Matrix.

³⁵³ Comdain Infrastructure, Condain Training Plan (Rev B - Draft), 12/12/2018.

³⁵⁴ Hunter Water, Dual Reticulation Communication Examples, 2018.

³⁵⁵ Hunter Water, RW Treatment Plants Community Engagement Gillieston Heights and Chisholm (Draft), 11/2017.

³⁵⁶ Hunter Water, RW CE Gillieston Heights and Chisholm Pipeline Installation and Delivery, 11/2017.

³⁵⁷ Hunter Water, Recycled Water Community Education (Draft), 04/2018.



program should include the provision of information on the impacts of unauthorised use and the benefits of recycled water use.

The Corporate RWQMP provides an overview of how Hunter Water consults with the community and users of recycled water. Hunter Water has established the 'Your Voice' program,³⁵⁸ which is a two-way communication program that allows customers to register and be involved in consultation on Hunter Water projects. The 'Your Voice' web page includes recycled water projects. The 'Frequently Asked Questions' page for the Gillieston Heights project includes details about permitted and non-permitted uses, and the benefits of using recycled water.

Element 9:

Hunter Water provided sufficient evidence to demonstrate that it has maintained the components of the Recycled Water Quality Management System in accordance with this AGWR Element.

Validation of processes

The AGWR framework requires processes and procedures to be validated to ensure they control hazards effectively. When variations occur, processes should be revalidated.

The Corporate RWQMP provides an overview of how Hunter Water validates its recycled water procedures and processes. Hunter Water provided the *Validation Testing Program for Water Recycling Schemes*³⁵⁹ which documents the validation of the recycled water schemes. The validation approach includes assessment of each treatment barrier to validate the log reduction achieved and to ensure that the critical limits are set appropriately. The program includes using manufacturer's documentation and guarantees, assessment of performance and literature review.

A specific validation program was developed for the dual reticulation schemes, as documented in the *Validation Report.*³⁶⁰ The validation report details the required pathogen log reduction targets for the use and the proposed log reduction values that will be claimed, which are consistent with the AGWR.

The validation approach includes use of manufacturer's specifications and validation literature to demonstrate validation against the US EPA Membrane Filtration Guidance Manual and the Guidelines for Validating Treatment Processes for Pathogen Reduction (Department of Health Victoria, 2013) for the validation of membrane treatment processes and the suitability of the critical limits.

US EPA UV Disinfection Guidance Manual (UVDGM, 2005) and Guidelines for Validating Treatment Processes for Pathogen Reduction (Department of Health Victoria, 2013) and manufacturers' validation literature were relied upon for validating the UV disinfection systems.

Validation of the chlorine disinfection involves the calculation of C.t. based upon the Smart Water Fund report (as referenced by NSW Office of Water, *Recycled Water Information Sheet 8*, April 2015), which developed C.t. values from studies of the inactivation of the Coxsackie B5 (CB5) virus.

The Corporate RWQMP includes provisions for revalidation of treatment processes when processes change.

Design of equipment

The AGWR framework requires design of new equipment and infrastructure to be validated to ensure continuing reliability.

The Corporate RWQMP provides an overview of how Hunter Water validates its new recycled water equipment and infrastructure. The *Validation Report*³⁶¹ for the new water recycling schemes at Gillieston Heights Chisholm was provided as evidence of a framework for the design of new

³⁵⁸ https://yourvoice.hunterwater.com.au/

³⁵⁹ Hunter Water, Validation Testing Program for Water Recycling Schemes, 09/2019.

³⁶⁰ Hunter H2O, Validation Report - Chisholm and Gillieston Heights Recycled Water Schemes (Final), 08/03/2019.

³⁶¹ Hunter H2O, Validation Report - Chisholm and Gillieston Heights Recycled Water Schemes (Final), 08/03/2019.



equipment.

Investigative studies and research monitoring

The AGWR Framework requires programs to be established to increase understanding of the recycled water supply system and use of this information to improve management of the recycled water supply system.

The Corporate RWQMP provides an overview of how gaps in knowledge are identified, reviewed, and prioritised with future research to be primarily focused on protecting public health and the environment, improving recycled water quality, and understanding the supply system.

An example of a project initiated within the audit period was a collaborative research project for Helminth risk assessments with SA Water.³⁶²

Element 10:

Hunter Water provided sufficient evidence to demonstrate that it has maintained the components of the Recycled Water Quality Management System in accordance with this AGWR Element.

Management of documentation and records

The AGWR Framework requires the documentation of information pertinent to all aspects of recycled water quality management and the development of a document control system to ensure current versions are in use. A records management system should be established and all employees should be trained to complete records. Documentation should be reviewed periodically and revised as necessary.

The Corporate RWQMP provides an overview of the management of documents and records. All recycled water documents are stored in TRIM. Integrum is used to track approvals and revision requirements. All documents are reviewed regularly. The Hunter Water Intranet provides TRIM support and regular training is provided.

Hunter Water has established a corporate standard *Control of Work Practice Documents and Manage Document Control*⁵⁶³ which includes instructions on requirements for controlling documents, document approval, and review schedules. The Hunter Water *Manage Document Control Procedure*³⁶⁴ details the process for changing a procedure, for example in response to a regulatory or business change. Veolia has established a *Document Retention Procedure*³⁶⁵ that describes the document retention requirements for specified classes of documents and individual safety, health, environment, and quality records.

Reporting

The AGWR Framework requires procedures for effective internal and external reporting to be established and the production of an annual report aimed at users of recycled water, regulatory authorities, and stakeholders.

The Corporate RWQMP details the internal and external reporting undertaken by Hunter Water, including annual meetings with recycled water end-users for non-dual reticulation schemes and provision of data to them as per the supply agreements.

Internal reporting includes Management System Review Meetings³⁶⁶ held with the executive management to report on audit results and management system performance. Recycled Water is also captured in the Enterprise Risk Management strategy and is reported in the corporate risk profile and monitored by Executive Management.

³⁶² Atura, A Research Proposal, Consolidation of Helminth Risk Management for Recycled Water, undated.

³⁶³ Hunter Water, Control of work Practice Documents Standard (HW2013-421/22.002), 08/10/2019.

³⁶⁴ Hunter Water, Manage Document Control Procedure (HW2012-441/9/1.002), 16/11/2017.

³⁶⁵ Veolia Water, Veolia Document Retention Procedure (PRO-439-1), 13/03/2018.

³⁶⁶ Hunter Water, Minutes: Management System Review Meeting Minutes May 2019 (HW2013-1447/2.033), 06/05/2019.



Hunter Water produces an annual Compliance and Performance Report³⁶⁷ which is publicly available on its website³⁶⁸ and includes recycled water compliance and performance.

Element 11:

Hunter Water provided sufficient evidence to demonstrate that it has maintained the components of the Recycled Water Quality Management System in accordance with this AGWR Element.

Long-term evaluation of results

The AGWR Framework requires that long-term data to assess performance and identify problems should be collected, evaluated, and the results documented and reported.

Veolia provides long-term evaluation results for each scheme in monthly recycled water operational meetings. During each monthly recycled water meeting³⁶⁹ between Hunter Water and Veolia, the long-term data spreadsheets relevant to a specific recycled water scheme are presented and discussed. The spreadsheet for Cessnock³⁷⁰ (for example) includes trending of data from October 2014 to September 2019. Where trends appear to be deviating, the possible causes of deviations are considered for further action. Action could require involvement from Veolia (operations or technical assistance) or Hunter Water. Long term data spreadsheets are maintained by Veolia and made available to Hunter Water on a shared FTP site.

Long term review of performance is undertaken in the integrated management system review process. An *Integrated Management System review report*³⁷¹ that was circulated prior to the review meeting provides evidence of long-term evaluation of performance and monitoring results.

Hunter Water produces an annual *Compliance and Performance Report*⁵⁷² which is publicly available on its website³⁷³ and includes long term review of recycled water compliance and performance.

Audit of recycled water quality management

The AGWR Framework requires processes for internal and external audits to be established and the audit results to be documented and communicated.

An internal audit schedule, the *Management Systems Triennial Audit Programme-(2018/19-20/2021)*³⁷⁴ has been developed to monitor the Hunter Water management system. External audits are conducted as part of the Operating Licence. The outcomes of audits are discussed as part of the management system review undertaken with the executive management.

Audit outcomes (recommendations and actions) are tracked via reports and monitored in the compliance calendar.³⁷⁵

Element 12:

Hunter Water provided sufficient evidence to demonstrate that it has maintained the components of the Recycled Water Quality Management System in accordance with this AGWR Element.

Review by senior managers

The AGWR Framework requires senior managers to review the effectiveness of the management system and evaluate the need for change.

³⁶⁷ Hunter Water, Compliance and Performance Report 2018-19 (v1.0), 30/08/2019.

³⁶⁸ https://www.hunterwater.com.au/About-Us/Our-Organisation/Governance/Regulatory-Reporting.aspx

³⁶⁹ Veolia Water, Minutes: Recycled Water Aug 19 Meeting (HW-16-7612-1), 16/09/2019.

³⁷⁰ Hunter Water, Spreadsheet: Long Term Trends Cessnock.

³⁷¹ Hunter Water, Management Systems Review Report April 2019, 04/2019.

³⁷² Hunter Water, Compliance and Performance Report 2018-19 (v1.0), 30/08/2019.

³⁷³ <u>https://www.hunterwater.com.au/About-Us/Our-Organisation/Governance/Regulatory-Reporting.aspx</u>

³⁷⁴ Hunter Water, Register: Management System - Triennial Audit Program 2018-2021 (HW2013-421/9.001).

³⁷⁵ Hunter Water, Screenshot: Compliance Calendar July 2018.



A management system review meeting³⁷⁶ is held with the EMT to report on management system performance. A quarterly Hunter Water and NSW Health liaison meeting³⁷⁷ is also used to provide information on system performance. Any significant changes will be reviewed for satisfaction by NSW Health.

Integrated Management System Review Meeting Minutes³⁷⁸ provide details of the discussions of the management review. The Integrated Management System Review Meeting Presentation³⁷⁹ provides the details of the review meeting. The Integrated Management System report³⁸⁰ includes a discussion of process performance, non-compliances, results of audits and any changes in risk.

Recycled water quality management improvement plan

The AGWR Framework requires a recycled water quality management improvement plan to be developed and the plan to be communicated and implemented. Improvements should be monitored for effectiveness.

Hunter Water has developed an *Improvement Plan*³⁸¹ which is an excel spreadsheet for tracking improvement action. Improvement items go from a risk assessment into a management plan and are discussed monthly with Veolia. The *Improvement Plan* is reported upon in the management system review meeting, with sections about overdue actions. Relevant actions also fall into the compliance calendar,³⁸² e.g. operational audit recommendations.

Recommendations

The following recommendations have been made in respect of this obligation:

Element 2

• **REC-HWC-2019-03:** By 30 September 2020, Hunter Water should document the methodology for assessment of water quality data to inform risk assessment to ensure consistency across schemes. The assessment should include methods for trending and identifying problems.

Element 5

• **REC-HWC-2019-04:** By 30 June 2020, Hunter Water should review the verification monitoring program for the Chisholm and Gillieston Heights recycled water schemes, to ensure microbiological testing is consistent with the advice provided in the AGWR for large high exposure schemes, and include weekly testing of clostridial spores and somatic coliphage, and monthly testing of adenovirus and cryptosporidium oocysts.

Opportunities for improvement

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

Supplemental information

No supplemental information is provided in respect of this obligation.

³⁷⁶ Hunter Water, *Minutes: Management System Review Meeting Minutes May 2019* (HW2013-1447/2.033), 06/05/2019.

³⁷⁷ Hunter Water, Minutes: Hunter Water NSW Health Liaison Committee Meeting (HW2006-1448/57/4.011), 12/06/2019.

³⁷⁸ Hunter Water, Minutes: Management System Review Meeting Minutes May 2019 (HW2013-1447/2.033), 06/05/2019.

³⁷⁹ Hunter Water, Presentation: Management System Review Meeting May 2019, 05/2019.

³⁸⁰ Hunter Water, Management Systems Review Report April 2019, 04/2019.

³⁸¹ Hunter Water, Recycled Water Improvement Plan (HW2008-1592/14/2.002), 30/09/2019.

³⁸² Hunter Water, Screenshot: Compliance Calendar July 2018.

Sub-clause	Requirement	Compliance Grade
3.2.2	Hunter 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.	Compliant

Table 3.12 Recycled Water (sub-clause 3.2.2)

Risk

If the Recycled Water Quality Management System is not fully implemented, there is a high risk that Hunter Water may not be able to effectively manage risks to recycled water quality, thereby posing risks to both public health and the environment. Evidence that the Recycled Water Quality Management System is fully implemented and that all relevant activities are carried out in accordance with the System, and to the

Target for Full Compliance

satisfaction of NSW Health.

Obligation

This obligation requires Hunter Water to ensure that its Recycled Water Quality Management System is fully implemented and that all activities are carried out in accordance with the Recycled Water Quality Management System and to the satisfaction of NSW Health.

Evidence sighted

Hunter Water response to 2019 Audit Questionnaire.

Further evidence for each AGWR Element as listed in the following.

Element 1:

- Hunter Water, Civil Recycled Water Course Attendance Sheet, 14/05/2019.
- Hunter Water, Comdain Training Attendance Record, 22/11/2018.
- Comdain Infrastructure, Comdain Training Plan (Rev B Draft), 12/12/2018.
- Hunter Water, Call Centre Recycled Water Attendance, 05/2019.
- Hunter Water, Example of AOMS user guide Water Quality Chlorine, 05/2012.
- Hunter Water, Presentation: Hunter Water Recycled Water Dual Reticulation Awareness Training (Final), undated.
- Veolia Water, Morpeth WWTW CCP Training (TEM-1520), 01/10/2019.
- Hunter Water, Training Report WWTW Operations Staff, 01/10/2019.
- Hunter Water, Veolia Training Matrix.
- Hunter Water, Minutes: Hunter Water NSW Health Liaison Committee Meeting (HW2006-1448/57/4.011), 12/06/2019.
- Hunter H2O, Chisholm and Gillieston Heights Recycled Water Scheme HACCP (Rev 5), 24/09/2019.
- Hunter Water, Dual Reticulation Communication Examples, 2018.
- Hunter Water, Corporate Recycled Water Quality Management Plan (HW2008-1592/20/22.001), 09/2019.



- Hunter Water, Chisholm and Gillieston Heights Recycled Water Quality Management Plan (Final), 30/09/2019.
- Hunter Water, Recycled Water Policy 2017-2020 (HW2015-1469/16/3.001), 30/06/2017.
- Veolia Water, Veolia Recycled Water Policy, 27/06/2019.

Element 2:

- Hunter Water, Corporate Recycled Water Quality Management Plan (HW2008-1592/20/22.001), 09/2019.
- Hunter H2O, Chisholm and Gillieston Heights Recycled Water Scheme HACCP (Rev 5), 24/09/2019.
- Hunter Water, Chisholm and Gillieston Heights Recycled Water Quality Management Plan (Final), 30/09/2019.
- Hunter Water, Dual Reticulation Recycled Water Report, 25/09/2019.

Element 3:

- Hunter Water, Corporate Recycled Water Quality Management Plan (HW2008-1592/20/22.001), 09/2019.
- Hunter Water, Chisholm and Gillieston Heights Recycled Water Quality Management Plan (Final), 30/09/2019.
- Hunter H2O, Validation Report Chisholm and Gillieston Heights Recycled Water Schemes (Final), 08/03/2019.
- Hunter Water, Dual Reticulation Communication Examples, 2018.
- H.L.Mulane, Final Plumbing Inspection Report, 14/03/2019.
- Hunter Water, Gillieston Heights RW Network Southern End Cross-Connection Removal Advice, undated.
- Hunter Water, Memo: Lesson Learnt Chisholm Cross Connection Trial 2 October 2018 (HW2014-778/40/8.126).
- Hunter Water, Dual Reticulation Recycled Water Call Centre Guideline, 05/2019.
- Hunter Water, Call Centre Recycled Water Attendance.
- Veolia Water, Veolia Morpeth RWTP RWQMP (MAN-12356-1), 8/10/2019.
- Hunter Water, Farley and Morpeth CCP Site Acceptance Test, undated.
- Veolia Water, SCADA Change Request Morpeth RWTP (HW2014-778/27/2), 17/01/2019.
- Veolia Water, Email: SCADA Alarm CCP and EPA Compliance, 24/09/2019.
- Hunter Water, Report: SCADA Alarms CCP and EPA Compliance, 24/09/2019.
- Hunter Water, Morpeth RWTP Plant Worksheet, undated.

Element 4:

- Hunter Water, Corporate Recycled Water Quality Management Plan (HW2008-1592/20/22.001), 09/2019.
- Comdain Infrastructure, OM-Manual Chisholm Morpeth WWTW (Draft-C), 30/10/2018.


- Hunter Water, Dual Reticulation Recycled Water Quality Exception Reporting (HW2014-778/40/8).
- Hunter Water, Work Instruction 003 Working on Sewer Rising Mains and Effluent Water Mains (HW2013-421/6.098).
- Veolia Water, Hygiene Guidelines when Working between Veolia Hunter Waste Water and Water Treatment Facilities (PRO-10414-1).
- Veolia Water, Veolia Morpeth RWTP Daily Duties (TEM-12327-1), 03/10/2019.
- Hunter Water, Morpeth RWTP Plant Worksheet, undated.
- Hunter Water, Farley and Morpeth CCP Site Acceptance Test, undated.
- Veolia Water, Email: SCADA Alarm CCP and EPA Compliance, 24/09/2019.
- Hunter Water, Report: SCADA Alarms CCP and EPA Compliance, 24/09/2019.
- Hunter Water, Morpeth RWTP Plant Worksheet, undated.
- Veolia Water, Spreadsheet: Veolia Asset Management System (VAMS) 2019 Morpeth WWTW.
- Veolia Water, Veolia Aluminium Chlorohydrate Ordering and Delivery, 01/10/2019.
- Veolia Water, Veolia Citric Acid Ordering Delivery and Testing (WI-HW-20-7837-2), 30/09/2019.
- Veolia Water, Veolia Sodium Hydroxide Ordering Deliveries Testing (WI-HW-20-7846-3), 01/10/2019.

Element 5:

- Hunter Water, Recycled Water Quality Monitoring Plan (HW2008-1592/30/4.004), 30/09/2019.
- Hunter Water, PN110 Recycled Water Standards CMG Endorsed (HW2013-215/11), 08/2019.
- Comdain Infrastructure, Chisholm Recycled Water Scheme Verification Report (Rev 3), 14/06/2019.
- Hunter Water, NSW Health Comments on Environmental Monitoring, undated.
- Hunter Water, Recycled Water Quality Monitoring Plan (HW2008-1592/30/4.004), 30/09/2019.
- Hunter Water, Chisholm and Gillieston Heights Recycled Water Quality Management Plan (Final), 30/09/2019.
- Veolia Water, Veolia Morpeth RWTP RWQMP (MAN-12356-1), 8/10/2019.
- Hunter Water, Spreadsheet Product Water E. coli Quality, undated.
- Hunter Water, Dual Reticulation Recycled Water Call Centre Guideline, 05/2019.
- Hunter Water, Call Centre Recycled Water Attendance.
- Hunter Water, Dual Reticulation Communication Examples, 2018.
- Veolia Water, Email: SCADA Alarm CCP and EPA Compliance, 24/09/2019.
- Hunter Water, Report: SCADA Alarms CCP and EPA Compliance, 24/09/2019.
- Hunter Water, Spreadsheet: Dual Reticulation Recycled Water Report, 25/09/2019.



Element 6:

- Hunter Water, Drinking Water and Recycled Water Quality Exceptions July to September 2018, 30/09/2018.
- Hunter Water, Integrum Report to NSW Health, 10/09/2018.
- Veolia Water, Veolia Branxton WWTW Elevated Turbidity Incident Report (HW-9-7942-1), 03/07/2015.
- Hunter Water, Integrum Report to NSW Health, 10/09/2018.
- Hunter Water, Spreadsheet: Veolia Incident Register for Morpeth WWTW.
- NSW Health, State Exercise Proposal Brief (HW2007-900/29/52.001).
- Hunter Water, RW Dual Retic Awareness Training Attendance Sheet, 28/08/2019.

Element 7:

- Hunter Water, Civil Recycled Water Course Attendance Sheet, 14/05/2019.
- Hunter Water, Call Centre Recycled Water Attendance, 05/2019.
- Hunter Water, Comdain Training Attendance Record, 22/11/2018.
- Veolia Water, Morpeth WWTW CCP Training (TEM-1520), 01/10/2019.
- Hunter Water, Training Report WWTW Operations Staff, 01/10/2019.
- Hunter Water, Dual Reticulation Communication Examples, 2018.
- Hunter Water, Comdain Training Attendance Record, 22/11/2018.
- Hunter Water, Civil Recycled Water Course Attendance Sheet, 14/05/2019.

Element 8:

- Hunter Water, RW Treatment Plants Community Engagement Gillieston Heights and Chisholm (Draft), 11/2017.
- Hunter Water, RW CE Gillieston Heights and Chisholm Pipeline Installation and Delivery, 11/2017.
- Hunter Water, Recycled Water Community Education (Draft), 04/2018.
- Hunter Water, Dual Reticulation Communication Examples, 2018.

Element 9:

- Hunter H2O, Validation Report Chisholm and Gillieston Heights Recycled Water Schemes (Final), 08/03/2019.
- Comdain Infrastructure, Appendix C Treatment Process Flow Diagram (As Constructed), 18/02/2019.
- R. Dwyer, D. Burt, K. Sawyer & M. Robin Collins, Appendix D Pall 2014 UNH Final Report UGA 621C UF Membrane Challenge, 18/06/2014.
- CERCL, Appendix E1 04AL20 Validation Certificate, 29/11/2013.
- Trojan Technologies, Appendix E2 UVDGM Equivalency Report TrojanUVFit 04AL20, 20/09/2013.
- Carollo Engineers, Appendix E3 UVFIT 04AL20 Validation Certificate, 10/02/2011.



- Trojan Technologies, Appendix E4 NWRI 2003 Validation Report TrojanUVFit04AL20, 24/10/2017.
- Hunter Water, Validation Testing Program for Water Recycling Schemes, 09/2019.
- Hunter H2O, Validation Report Chisholm and Gillieston Heights Recycled Water Schemes (Final), 08/03/2019.
- Hunter Water, Farley and Morpeth CCP Site Acceptance Test.
- Atura, A Research Proposal, Consolidation of Helminth Risk Management for Recycled Water, undated.

Element 10:

- Hunter Water, Control of work Practice Documents Standard (HW2013-421/22.002), 08/10/2019.
- Hunter Water, Manage Document Control Procedure (HW2012-441/9/1.002), 16/11/2017.
- Veolia Water, Veolia Document Retention Procedure (PRO-439-1), 13/03/2018.
- Hunter Water, Minutes: Management System Review Meeting Minutes May 2019 (HW2013-1447/2.033), 06/05/2019.
- Hunter Water, Presentation: Management System Review Meeting May 2019, 05/2019.
- Hunter Water, Recycled Water Meeting Sep 2019, 17/09/2019.
- Hunter Water, Compliance and Performance Report 2018-19 (v1.0), 30/08/2019.
- <u>https://www.hunterwater.com.au/About-Us/Our-Organisation/Governance/Regulatory-Reporting.aspx</u>.

Element 11:

- Veolia Water, Minutes: Recycled Water Aug 19 Meeting (HW-16-7612-1), 16/09/2019.
- Hunter Water, Spreadsheet: Long Term Trends Cessnock.
- Hunter Water, Management Systems Review Report April 2019, 04/2019.
- Hunter Water, Compliance and Performance Report 2018-19 (v1.0), 30/08/2019.
- <u>https://www.hunterwater.com.au/About-Us/Our-Organisation/Governance/Regulatory-Reporting.aspx</u>.
- Hunter Water, Register: Management System Triennial Audit Program 2018-2021 (HW2013-421/9.001).
- Hunter Water, Minutes: Management System Review Meeting Minutes May 2019 (HW2013-1447/2.033), 06/05/2019.
- Hunter Water, Screenshot: Compliance Calendar July 2018.

Element 12:

- Hunter Water, Minutes: Management System Review Meeting Minutes May 2019 (HW2013-1447/2.033), 06/05/2019.
- Hunter Water, Minutes: Hunter Water NSW Health Liaison Committee Meeting (HW2006-1448/57/4.011), 12/06/2019.
- Hunter Water, Minutes: Management System Review Meeting Minutes May 2019 (HW2013-1447/2.033), 06/05/2019.



- Hunter Water, Presentation: Management System Review Meeting May 2019, 05/2019.
- Hunter Water, Management Systems Review Report April 2019, 04/2019.
- Hunter Water, Recycled Water Improvement Plan (HW2008-1592/14/2.002), 30/09/2019.
- Hunter Water, Screenshot: Compliance Calendar July 2018.

Discussion and notes

Hunter Water provided evidence that it is implementing its Recycled Water Quality Management System. NSW Health provided a letter³⁸³ to Hunter Water indicating its satisfaction with the status of the Chisholm/Gillieston Heights RWQMP; however, the letter was provided outside the audit period.

Implementation of the Recycled Water Quality Management System is discussed below by AGWR Element.

Element 1:

Hunter Water provided sufficient evidence to demonstrate the requirements of this element are fully implemented and carried out in accordance with the Recycled Water Quality Management System and supporting documents.

Responsible use of recycled water

Hunter Water provided records of attendance at training for internal stakeholders and contractors. This training addressed recycled water awareness, including responsible use of recycled water. The internal stakeholders who received training included teams that have responsibilities under the RWQMP, including call centre teams and civil teams. Records of awareness trainings include:

- Civil Recycled Water Course Attendance Sheet;³⁸⁴
- Comdain Training Attendance Record;³⁸⁵
- Comdain Training Plan;³⁸⁶
- Call Centre Recycled Water Attendance;³⁸⁷
- Example of AOMS user guide Water Quality Chlorine;³⁸⁸
- Presentation: Hunter Water Recycled Water Dual Reticulation Awareness Training;³⁸⁹
- Morpeth WWTW CCP Training;³⁹⁰
- Training Report WWTW Operations Staff;³⁹¹ and
- Veolia Training Matrix.³⁹²

The *Veolia Training Matrix* includes a specific module entitled 'recycled water/CCP'. The *Comdain Training Plan* includes modules for plant infrastructure, discharge parameters, performance, and operation of treatment steps. This training includes modules delivered by manufacturers to ensure that the operation of the new RWTP was undertaken by operators with sufficient expertise

³⁸³ NSW Health, Letter – Dual Reticulation Satisfaction, 2 November 2019.

³⁸⁴ Hunter Water, *Civil Recycled Water Course Attendance Sheet*, 14/05/2019.

³⁸⁵ Hunter Water, Comdain Training Attendance Record, 22/11/2018.

³⁸⁶ Comdain Infrastructure, Comdain Training Plan (Rev B - Draft), 12/12/2018.

³⁸⁷ Hunter Water, *Call Centre Recycled Water Attendance*, 05/2019.

³⁸⁸ Hunter Water, Example of AOMS user guide - Water Quality - Chlorine, 05/2012.

³⁸⁹ Hunter Water, Presentation: Hunter Water Recycled Water Dual Reticulation Awareness Training (Final), undated.

³⁹⁰ Veolia Water, Morpeth WWTW CCP Training (TEM-1520), 01/10/2019.

³⁹¹ Hunter Water, Training Report WWTW Operations Staff, 01/10/2019.

³⁹² Hunter Water, Veolia Training Matrix.



during the commissioning period.

Hunter Water provided evidence³⁹³ of engagement with agencies including NSW Health at Liaison Committee meetings and risk workshops, as detailed in the *Chisholm and Gillieston Heights Recycled Water Scheme HACCP Report.*³⁹⁴ Evidence of engagement with recycled water customers was provided in a document containing communication examples³⁹⁵ which included information on responsible use of recycled water.

Regulatory and formal requirements

Relevant regulatory and formal requirements are detailed within the recycled water quality management plans which are reviewed regularly. The document history of the Corporate RWQMP³⁹⁶ and the scheme specific RWQMP for Chisholm and Gillieston Heights³⁹⁷ indicates that the RWQMPs are reviewed at least annually and it was discussed during the audit that the legal requirements are reviewed and updated at this time.

Regulatory requirements are communicated to internal stakeholders through the awareness training programs detailed above.

Relevant regulatory requirements are communicated to customers within customer contracts and through targeted campaigns, such as fact sheets and flyers. A document³⁹⁸ containing copies of factsheets and letters to customers confirmed the process.

Identify governance for individual agencies, operators, owners and users of recycled water

The scheme specific RWQMP for Chisholm and Gillieston Heights details the governance of the dual reticulation schemes, and a factsheet³⁹⁹ was provided which details how users of recycled water are made aware of governance and the customer's and agencies responsibilities, such as permitted uses, details of plumbing inspections and BASIX requirements.

Hunter Water communicates governance of recycled water to internal stakeholders through the awareness training programs detailed above.

Review requirements

The regulatory and other requirements are documented in the Corporate RWQMP and in the scheme specific RWQMPs. The document history of the Corporate RWQMP indicates that it is reviewed and has been updated at least annually since 2014.

Hunter Water communicates requirements to the intranet and internet. Recycled water customers are made aware of their requirements through the fact sheets and other communiqués as detailed in the RWQMP. The Customer Contract also details recycled water requirements.

Partnerships and engagement of stakeholders (including the public)

Hunter Water provided the Corporate RWQMP⁴⁰⁰ that details the external stakeholders that are considered Hunter Water's partners in recycled water management. The Corporate RWQMP also includes a description of how recycled water users are engaged through user agreements and annual on-site meetings with bulk recycled water customers.

The Chisholm and Gillieston Heights RWQMP states that recycled water users have responsibilities as detailed in the communication information provided.⁴⁰¹

³⁹³ Hunter Water, Minutes: Hunter Water NSW Health Liaison Committee Meeting (HW2006-1448/57/4.011), 12/06/2019.

³⁹⁴ Hunter H2O, Chisholm and Gillieston Heights Recycled Water Scheme HACCP (Rev 5), 24/09/2019.

³⁹⁵ Hunter Water, *Dual Reticulation Communication Examples*, 2018.

³⁹⁶ Hunter Water, Corporate Recycled Water Quality Management Plan (HW2008-1592/20/22.001), 09/2019.

³⁹⁷ Hunter Water, Chisholm and Gillieston Heights Recycled Water Quality Management Plan (Final), 30/09/2019.

³⁹⁸ Hunter Water, *Dual Reticulation Communication Examples*, 2018.

³⁹⁹ Hunter Water, Dual Reticulation Communication Examples, 2018.

⁴⁰⁰ Hunter Water, Corporate Recycled Water Quality Management Plan (HW2008-1592/20/22.001), 09/2019.

⁴⁰¹ Hunter Water, *Dual Reticulation Communication Examples*, 2018.



Recycled water policy

Hunter Water provided the *Recycled Water Policy*,⁴⁰² which was approved by the Managing Director. During the audit, the policy was visible in a prominent place in the Hunter Water Head Office and at the Morpeth WWTW. Hunter Water provided the Veolia *Water Quality Policy*,⁴⁰³ with an issue date of 27 June 2019 which was visible at the Morpeth WWTW.

Element 2:

Hunter Water provided sufficient evidence to demonstrate the requirements of this element are fully implemented and carried out in accordance with the Recycled Water Quality Management System and supporting documents.

Source of recycled water, intended uses, receiving environments and routes of exposure

The *Chisholm and Gillieston Heights* Recycled Water Scheme HACCP Report⁴⁰⁴ was provided as evidence of identification of sources of effluent, routes of exposure for intended and unauthorised uses, including a range of cross connections types. Receiving environments and endpoints are not explicitly detailed; however, they are related to the uses such as garden watering and other intended uses, which are included. Table 2-1 also includes onsite preventive measures for receiving environments.

The *HACCP Report* also includes an assessment of pathogen log reductions required for the intended uses, which takes into account general characteristics of raw sewage and the treatment requirements to make the recycled water safe for the proposed uses. The identified log reduction targets are consistent with the guidance provided in the AGWR.

Recycled water system analysis

The scheme specific RWQMP for Chisholm and Gillieston Heights⁴⁰⁵ details the recycled water scheme components and includes process flow diagrams for the Morpeth and Farley WWTW and RWTPs. The site inspection to the Morpeth RWTP confirmed the accuracy of the flow diagram for the Morpeth RWTP, with the treatment components, dosing points and monitoring locations reflected in the documentation.

The *HACCP* Report details the recycled water system analysis that were undertaken during the development of the recycled water schemes, with risk assessment workshops undertaken in 2016, 2017, 2018 and 2019, which included system assessments.

Assessment of water quality data

Hunter Water provided the *Dual Reticulation Recycled Water Report*⁴⁰⁶ as evidence of assessment of water quality data. The report included weekly data for August and September 2019 for a range of microbiological, chemical, and physical parameters that are indicators of recycled water quality. The *HACCP Report* provided details of risk assessments that were undertaken prior to data becoming available for the new schemes, but does include recommendations for improving data collection and reassessment of risk once more data becomes available after the system commences operation.

Hazard identification and risk assessment

The *HACCP Report* details the risk assessment process and the outcomes of the risk workshops undertaken in 2016, 2017, 2018 and 2019 and includes assessment of 'raw' risk, identification of controls (preventive measures), assessment of the effectiveness of the preventive measures and identification of 'mitigated' or residual risk. Risk registers were produced for each risk

⁴⁰² Hunter Water, Recycled Water Policy 2017-2020 (HW2015-1469/16/3.001), 30/06/2017.

⁴⁰³ Veolia Water, Veolia Recycled Water Policy, 27/06/2019.

⁴⁰⁴ Hunter H2O, Chisholm and Gillieston Heights Recycled Water Scheme HACCP (Rev 5), 24/09/2019.

⁴⁰⁵ Hunter Water, Chisholm and Gillieston Heights Recycled Water Quality Management Plan (Final), 30/09/2019.

⁴⁰⁶ Hunter Water, *Dual Reticulation Recycled Water Report*, 25/09/2019.



assessment, detailing the assessment of raw and mitigated risk for each hazard or hazardous event, the current and existing preventive measures, and the assessment of the adequacy of each preventive measure in reducing the risk.

Review of the HACCP Report indicates that the risk assessment methodology detailed within the Corporate RWQMP was largely applied and adapted where necessary for the assessment for the new dual reticulation schemes. The RWQMP for Chisholm and Gillieston Heights summarises the outcomes of the risk assessment processes. Twenty-six (26) separate risks were identified and assessed during the workshop including:

- 17 for the wastewater and recycled water treatment systems;
- 7 the reticulation system; and
- 2 for the end user.

Three medium and two high residual risks were identified, with further improvement actions proposed to reduce them to an acceptable level and reassessment once more data becomes available to quantify the risk better. The HACCP Report includes recommendations to reduce uncertainty in the data. Uncertainty is also noted where relevant within the risk registers.

Element 3:

Hunter Water provided sufficient evidence to demonstrate the requirements of this element are fully implemented and carried out in accordance with the Recycled Water Quality Management System and supporting documents.

Preventive measures and multiple barriers

The RWQMP for Chisholm and Gillieston Heights⁴⁰⁷ details the multiple barriers and preventive measures identified to manage recycled water hazards. The assessment of the effectiveness of the multiple barriers is documented in the *Validation Report*⁴⁰⁸ which is further discussed in respect of Element 9 below.

The HACCP Report includes the risk registers from each risk assessment for Chisholm and Gillieston Heights which documents the preventive measures for each hazard or hazardous event.

During the audit, the management of cross connections was discussed as an important preventive measure for managing recycled water risk in dual reticulation schemes. Hunter Water demonstrated the extensive programs that have been implemented to prevent cross connections within the dual reticulation network. These include:

- programs to communicate with recycled water customers and residents;⁴⁰⁹
- details of plumbing inspections undertaken within the dual reticulation network;⁴¹⁰ 100% of properties have been inspected;
- cross connection removal activities;⁴¹¹
- cross connection investigations;⁴¹²
- training of call centre staff.^{413,414}

In addition to the above, it was discussed during the site inspections that the reticulation network has been fully inspected, and the system 'ground-truthed' to confirm the GIS and mapping of the

⁴⁰⁷ Hunter Water, Chisholm and Gillieston Heights Recycled Water Quality Management Plan (Final), 30/09/2019.

⁴⁰⁸ Hunter H2O, Validation Report - Chisholm and Gillieston Heights Recycled Water Schemes (Final), 08/03/2019.

⁴⁰⁹ Hunter Water, *Dual Reticulation Communication Examples*, 2018.

⁴¹⁰ H.L.Mulane, Final Plumbing Inspection Report, 14/03/2019.

⁴¹¹ Hunter Water, Gillieston Heights RW Network Southern End Cross-Connection Removal Advice, undated.

⁴¹² Hunter Water, Memo: Lesson Learnt - Chisholm Cross Connection Trial 2 October 2018 (HW2014-778/40/8.126).

⁴¹³ Hunter Water, Dual Reticulation Recycled Water Call Centre Guideline, 05/2019.

⁴¹⁴ Hunter Water, Call Centre Recycled Water Attendance.



system and that appropriate marking of scheme infrastructure has been applied, for example, lilac markings on valves. The markings, lilac pipes and signage were observed during the site inspection to the Chisholm dual reticulation area.

Critical control points

The CCPs for Chisholm and Gillieston Heights are detailed in the Hunter Water and Veolia site specific RWQMPs.^{415,416} During the site inspection to the Morpeth RWTP, the implementation of the CCPs was observed. The walk through of the RWTP confirmed the locations of the monitoring points, and the instrumentation was observed, and consistent with the RWQMPs. The implementation of the CCPs was confirmed through observation of the SCADA system at the Morpeth WWTW. The SCADA system includes the alarms and automatic shutdowns that are triggered when a critical or action limit is breached to prevent the supply of out-of-specification recycled water. The parameters limits, as well as the time delays were confirmed for each CCP at the Morpeth RWTP.

The Farley and Morpeth CCP Site Acceptance Test⁴¹⁷ was provided as evidence of confirmation of the CCP implementation upon hand over from the contractors, Comdain, at the Farley and Morpeth RWTPs. Within the detail of the acceptance test report there are items such as confirming that alarms will be raised and that bypasses will be triggered when the critical limits are breached.

There is a process for changing SCADA limits to ensure that critical limits are not changed without approval and documentation. A record of a SCADA change request⁴¹⁸ was provided as evidence of this process being implemented.

An email⁴¹⁹ and report⁴²⁰ were provided to demonstrate that CCP compliance is reviewed and reported by Veolia to Hunter Water daily. CCP alarms are also documented and recorded on the *Plant Worksheet*⁴²¹ which is updated to a secure file share FTP site every two days. The worksheet can be accessed by relevant team members within Hunter Water, in addition to the SCADA system that can be accessed by Hunter Water to observe plant performance and CCP compliance in real time.

Element 4:

Hunter Water provided sufficient evidence to demonstrate the requirements of this element are fully implemented and carried out in accordance with the Recycled Water Quality Management System and supporting documents.

Operational procedures

The Corporate RWQMP details a range of operational procedures developed by Hunter Water, and the development of operational procedures for processes under the control of Veolia. The retention and retrieval of procedures from the document control system (TRIM) was observed during the audit.

The RWTP construction contractor, Comdain has provided a draft O&M Manual^{A22} for the operation of the RWTPs and this will be tested and incorporated into the O&M manuals by Veolia. Comdain have provided a 'task list' that will be filtered by Veolia to determine appropriate frequencies for each task within the RWTP.

⁴¹⁵ Hunter Water, Chisholm and Gillieston Heights Recycled Water Quality Management Plan (Final), 30/09/2019.

⁴¹⁶ Veolia Water, Veolia Morpeth RWTP RWQMP (MAN-12356-1), 8/10/2019.

⁴¹⁷ Hunter Water, Farley and Morpeth CCP Site Acceptance Test, undated.

⁴¹⁸ Veolia Water, *SCADA Change Request Morpeth RWTP* (HW2014-778/27/2), 17/01/2019.

⁴¹⁹ Veolia Water, *Email: SCADA Alarm CCP and EPA Compliance*, 24/09/2019.

⁴²⁰ Hunter Water, Report: SCADA Alarms CCP and EPA Compliance, 24/09/2019.

⁴²¹ Hunter Water, Morpeth RWTP Plant Worksheet, undated.

⁴²² Comdain Infrastructure, OM-Manual Chisholm - Morpeth WWTW (Draft-C), 30/10/2018.



Operational procedures provided as evidence include:

- Dual Reticulation Recycled Water Quality Exception Reporting;⁴²³
- Work Instruction 003 Working on Sewer Rising Mains and Effluent Water Mains (HW2013-421/6.098);⁴²⁴ and
- Hygiene Guidelines when Working between Veolia Hunter Waste Water and Water Treatment Facilities.⁴²⁵

Operational monitoring

CCP monitoring is undertaken via the SCADA system at the WWTWs and RWTPs. The implementation of operational monitoring was observed during the site inspection of the Morpeth RWTP. The operators showed the SCADA system, including trending of recent performance. Operators demonstrated that the operational monitoring of CCPs is implemented in accordance with the site specific RWQMPs, prepared by Hunter Water and Veolia.

Hunter Water provided the *Veolia Morpeth RWTP Daily WQ Test Sheet*⁴²⁶ that details the daily tasks to be undertaken by operators. Veolia operators complete a Plant Worksheet⁴²⁷ daily with operational data, which is shared with Hunter Water via the shared FTP site.

Operational corrections

Table 4-1 of the *Chisholm and Gillieston Heights* RWQMP details corrective actions for critical control point and critical operational point exceedances. The operational corrections for the exceedance of critical limits and time delays are largely reliant on automatic shutdowns and bypasses. The *Farley and Morpeth CCP Site Acceptance Test*⁴²⁸ was provided as evidence of the establishment of the shutdowns and bypasses. Alarms have also been tested to ensure that there are systems for rapid communication to deal with unexpected events.

An email⁴²⁹ and report⁴³⁰ were provided to demonstrate that operational corrections are recorded and reported to Hunter Water daily. In the example report provided, the action taken, such as 'alarm raised' was noted.

Equipment capability and maintenance

Hunter Water schedules electrical and mechanical maintenance through the Ellipse system, which was demonstrated during the audit and included a record of maintenance actions raised. Veolia tracks daily tasks via the *Plant Worksheet*. Veolia manages ongoing equipment capability and maintenance via the Veolia Asset Management System. An example⁴³¹ of the VAMS System was provided as evidence of implementation of the maintenance and inspection program. The example included item ID, task description (such as inspection, yearly test or performance check), frequency, location, resources required, and task instructions.

Materials and chemicals

The chemicals used at the WWTW are managed by Veolia. Chemical deliveries are recorded on

⁴²⁴ Hunter Water, Work Instruction 003 - Working on Sever Rising Mains and Effluent Water Mains (HW2013-421/6.098).

⁴²⁸ Hunter Water, Farley and Morpeth CCP Site Acceptance Test, undated.

⁴²³ Hunter Water, *Dual Reticulation Recycled Water Quality Exception Reporting* (HW2014-778/40/8).

⁴²⁵ Veolia Water, Hygiene Guidelines when Working between Veolia Hunter Waste Water and Water Treatment Facilities (PRO-10414-1).

⁴²⁶ Veolia Water, Veolia Morpeth RWTP Daily Duties (TEM-12327-1), 03/10/2019.

⁴²⁷ Hunter Water, Morpeth RWTP Plant Worksheet, undated.

⁴²⁹ Veolia Water, *Email: SCADA Alarm CCP and EPA Compliance*, 24/09/2019.

⁴³⁰ Hunter Water, Report: SCADA Alarms CCP and EPA Compliance, 24/09/2019.

⁴³¹ Veolia Water, Spreadsheet: Veolia Asset Management System (VAMS) 2019 Morpeth WWTW.



the *Plant Worksheet*. The spreadsheet, showing the date, delivery number and any relevant comments about the delivery, consistent with the relevant procedures,^{432,433,434} was provided as evidence.

During the audit, it was discussed that the chemical selection for the dual reticulation schemes was assessed during the risk assessment and an example of an outcome, is that only 'food grade' Aluminium chlorohydrate is used at the RWTP to manage any potential risk associated with accidental consumption.

In dual reticulation network materials used for recycled water must comply with the relevant plumbing codes and standards. It was discussed during the site inspection of the dual reticulation area that the locations of all recycled water pipes and fitting have been mapped in the GIS system and 'ground-truthed'. For the scheme components that could be observed, the correct types of materials and colour coding was sighted.

Element 5:

Hunter Water provided sufficient evidence to demonstrate the requirements of this element are fully implemented and carried out in accordance with the Recycled Water Quality Management System and supporting documents.

Recycled water quality monitoring

Veolia provide Hunter Water with weekly reports detailing sample results for the required quality parameters. This report flags those analytes that are out of range against the required quality. The reporting requirements for routine sampling is detailed in the *Recycled Water Quality Monitoring Plan*,⁴³⁵ scheme specific RWQMP and the relevant section of the *Contract Practice Note PN110*.⁴³⁶

Hunter Water has a contract with ALS to provide the analysis of samples. ALS provides weekly reports detailing sample results that do not meet specifications. During the audit, Hunter Water was requested to extract a sample⁴³⁷ of the *E. coli* data from the Morpeth and Farley RWTPs which demonstrated a minimum of weekly testing of *E. coli* at both RWTPs, which is consistent with the RWQMP. The results indicated 100% compliance with the water quality specification and AGWR recommended criteria when the plant was operating.

Commissioning verification of the dual reticulation schemes is detailed within the *Chisholm and Gillieston Heights Recycled Water Scheme Verification Report*⁴³⁸ which indicated that the treatment plants meet the microbiological targets and product water was free of the microbiological indicator organisms that were tested (*E. coli, Clostridium perfringens* and somatic coliphage). Chemical and physical parameters were also analysed for the verification period.

Application site and receiving environment monitoring

Hunter Water provided a screenshot⁴³⁹ of the marked-up scheme specific RWQMP that included comments from the NSW Health Public Health Unit (PHU) that stated "*There are no end user environmental responsibilities*". Whilst no receiving environmental testing is proposed, the verification program for the Morpeth and Gillieston schemes includes testing of nutrients (TP and TN) in the product water as well as chemical sand physical parameters.

⁴³² Veolia Water, Veolia Aluminium Chlorohydrate Ordering and Delivery, 01/10/2019.

⁴³³ Veolia Water, Veolia Citric Acid Ordering Delivery and Testing (WI-HW-20-7837-2), 30/09/2019.

⁴³⁴ Veolia Water, Veolia Sodium Hydroxide Ordering Deliveries Testing (WI-HW-20-7846-3), 01/10/2019.

⁴³⁵ Hunter Water, Recycled Water Quality Monitoring Plan (HW2008-1592/30/4.004), 30/09/2019.

⁴³⁶ Hunter Water, PN110 - Recycled Water Standards - CMG Endorsed (HW2013-215/11), 08/2019.

⁴³⁷ Hunter Water, Spreadsheet – Product Water *E. coli* Quality, undated.

⁴³⁸ Comdain Infrastructure, Chisholm Recycled Water Scheme Verification Report (Rev 3), 14/06/2019.

⁴³⁹ Hunter Water, NSW Health Comments on Environmental Monitoring, undated.



Documentation and reliability

Hunter Water provided the *Recycled Water Quality Monitoring Plan*⁴⁴⁰ and the Hunter Water and Veolia site specific RWQMPs^{441,442} as evidence of establishment of a sampling plan. The sample⁴⁴³ extract from the database demonstrated that the Chisolm and Farley scheme *E. coli* monitoring is implemented.

Satisfaction of users of recycled water

Hunter Water provided the *Dual Reticulation Recycled Water Call Centre Guideline*⁴⁴⁴ and the *Call Centre Recycled Water Attendance Record*⁴⁴⁵ as evidence of the establishment and implementation of a process for handling and responding to customer complaints and enquiries.

Hunter Water provided a direct contact for customers in the dual reticulation areas during the consultation phase in the 'Your Voice' package provided in the Factsheet.⁴⁴⁶

Short-term evaluation of results

During the audit, Hunter Water demonstrated the EnviroSys data recording system for laboratory data and results of laboratory analysis. A result from 11 October 2019 was shown, that contained a comment relating to an unexpected result that was noted during short term evaluation. All data is reviewed on Fridays, including data that is not flagged. Additionally, if there is a change in data this will also be checked. There is a rolling summary of data in the weekly report, which allows trends or issues to be identified. An email⁴⁴⁷ and reports^{448,449} were provided to demonstrate short term evaluation of results.

Corrective responses

An email and reports (noted above) were provided to demonstrate a process for documenting the corrective response taken when a non-complaint result is received.

Element 6:

Hunter Water provided sufficient evidence to demonstrate the requirements of this element are fully implemented and carried out in accordance with the Recycled Water Quality Management System and supporting documents.

Communication

Hunter Water provided the *Drinking Water and Recycled Water Quality Exceptions July to September* 2018 Report⁴⁵⁰ as evidence of communication of water quality exceptions and implementation of the exceptions reporting procedure. Hunter Water records details of incidents in its Integrum system. A record from Integrum⁴⁵¹ was provided as evidence of reporting an incident to the PHU.

Incident and emergency response protocols

Hunter Water provided evidence of the implementation of the incident processes including the

⁴⁴⁰ Hunter Water, Recycled Water Quality Monitoring Plan (HW2008-1592/30/4.004), 30/09/2019.

⁴⁴¹ Hunter Water, Chisholm and Gillieston Heights Recycled Water Quality Management Plan (Final), 30/09/2019.

⁴⁴² Veolia Water, Veolia Morpeth RWTP RWQMP (MAN-12356-1), 8/10/2019.

⁴⁴³ Hunter Water, Spreadsheet – Product Water *E. coli* Quality, undated.

⁴⁴⁴ Hunter Water, *Dual Reticulation Recycled Water Call Centre Guideline*, 05/2019.

⁴⁴⁵ Hunter Water, *Call Centre Recycled Water Attendance*.

⁴⁴⁶ Hunter Water, Dual Reticulation Communication Examples, 2018.

⁴⁴⁷ Veolia Water, *Email: SCADA Alarm CCP and EPA Compliance*, 24/09/2019.

⁴⁴⁸ Hunter Water, Report: SCADA Alarms CCP and EPA Compliance, 24/09/2019.

⁴⁴⁹ Hunter Water, Spreadsheet: Dual Reticulation Recycled Water Report, 25/09/2019.

⁴⁵⁰ Hunter Water, Drinking Water and Recycled Water Quality Exceptions July to September 2018, 30/09/2018.

⁴⁵¹ Hunter Water, Integrum Report to NSW Health, 10/09/2018.



Drinking Water and Recycled Water Quality Exceptions July to September 2018 Report, Veolia Branxton WWTW Elevated Turbidity Incident Report,⁴⁵² an Integrum record⁴⁵³ and the Spreadsheet: Veolia Incident Register for Morpeth WWTW.⁴⁵⁴

Evidence of Hunter Water's intention to be involved in training exercise is demonstrated through the *State Exercise Proposal Brief*,⁴⁵⁵ which proposes to undertake an exercise in October 2019. Evidence of training in recycled water incident management was demonstrated in the *RW Dual Retic Awareness Training Attendance Sheet*.⁴⁵⁶

Element 7:

Hunter Water provided sufficient evidence to demonstrate the requirements of this element are fully implemented and carried out in accordance with the Recycled Water Quality Management System and supporting documents.

Operator, contractor and end user awareness and involvement

Hunter Water and Veolia delivered a range of awareness training programs during the audit period, examples of the awareness training for the dual reticulation schemes include:

- Civil Recycled Water Course Attendance Sheet,⁴⁵⁷
- Call Centre Recycled Water Attendance;⁴⁵⁸
- Comdain Training Attendance Record;⁴⁵⁹
- Morpeth WWTW CCP Training;⁴⁶⁰
- and Training Report WWTW Operations Staff.⁴⁶¹

Operator, contractor and end user training

Hunter Water provided records of operator, contractor and end user training including:

- information packages sent to end users in the dual reticulation network;⁴⁶²
- Veolia Training records Morpeth WWTW CCP Training⁴⁶³ and Training Report WWTW Operations Staff,⁴⁶⁴ which demonstrate that operational staff have achieved the training requirements detailed in the training plan;
- Comdain Training records⁴⁶⁵ demonstrating implementation of training programs for contractors;
- information packages sent to end users in the dual reticulation network⁴⁶⁶ demonstrating the implementation of programs for end users; and
- Training records from Hunter Water staff demonstrating the implementation of internal training processes.^{467,468}

⁴⁵² Veolia Water, Veolia Branxton WWTW Elevated Turbidity Incident Report (HW-9-7942-1), 03/07/2015.

⁴⁵³ Hunter Water, Integrum Report to NSW Health, 10/09/2018.

⁴⁵⁴ Hunter Water, Spreadsheet: Veolia Incident Register for Morpeth WWTW.

⁴⁵⁵ NSW Health, State Exercise Proposal Brief (HW2007-900/29/52.001).

⁴⁵⁶ Hunter Water, RW Dual Retic Awareness Training Attendance Sheet, 28/08/2019.

⁴⁵⁷ Hunter Water, *Civil Recycled Water Course Attendance Sheet*, 14/05/2019.

⁴⁵⁸ Hunter Water, *Call Centre Recycled Water Attendance*, 05/2019.

⁴⁵⁹ Hunter Water, Comdain Training Attendance Record, 22/11/2018.

⁴⁶⁰ Veolia Water, Morpeth WWTW CCP Training (TEM-1520), 01/10/2019.

⁴⁶¹ Hunter Water, Training Report WWTW Operations Staff, 01/10/2019.

⁴⁶² Hunter Water, *Dual Reticulation Communication Examples*, 2018.

⁴⁶³ Veolia Water, Morpeth WWTW CCP Training (TEM-1520), 01/10/2019.

⁴⁶⁴ Hunter Water, Training Report WWTW Operations Staff, 01/10/2019.

⁴⁶⁵ Hunter Water, Comdain Training Attendance Record, 22/11/2018.

⁴⁶⁶ Hunter Water, *Dual Reticulation Communication Examples*, 2018.

⁴⁶⁷ Hunter Water, *Civil Recycled Water Course Attendance Sheet*, 14/05/2019.

⁴⁶⁸ Hunter Water, Call Centre Recycled Water Attendance, 05/2019.



Element 8:

Hunter Water provided sufficient evidence to demonstrate the requirements of this element are fully implemented and carried out in accordance with the Recycled Water Quality Management System and supporting documents.

Consultation with users of recycled water and the community

Hunter Water provided evidence of consultation with the community for the dual reticulation scheme:

- Construction of recycled water treatment plants (construction impacts only);⁴⁶⁹
- Construction of water and recycled water pipelines (construction impacts only);⁴⁷⁰ and
- Community engagement and education: residential recycled water.⁴⁷¹

The examples noted above demonstrate that Hunter Water has developed targeted consultation plans as detailed in the Corporate RWQMP.

Communication and education

Hunter Water has established the 'Your Voice' program, which is a two-way communication program that allows customers to register and be involved in consultation on Hunter Water projects. The web page includes recycled water projects. The 'Frequently Asked Questions' page for the Gillieston Heights project includes details about permitted and non-permitted uses, and the benefits of using recycled water.

Hunter Water also provided the examples of communication with the community on recycled water which included letters, fridge magnets and fact sheets.⁴⁷²

Element 9:

Hunter Water provided sufficient evidence to demonstrate the requirements of this element are fully implemented and carried out in accordance with the Recycled Water Quality Management System and supporting documents.

Validation of processes

The *Validation* Report⁴⁷³ for the dual reticulation scheme was provided as evidence of validation of processes and procedures during the audit period and includes the results of the validation. Supporting information includes:

- Appendix C Treatment Process Flow Diagram (As Constructed);⁴⁷⁴
- Appendix D Pall 2014 UNH Final Report UGA 621C UF Membrane Challenge;⁴⁷⁵
- Appendix E1 04AL20 Validation;476
- Appendix E2 UVDGM Equivalency Report TrojanUVFit 04AL20;477
- Appendix E3 UVFIT 04AL20 Validation Certificate;⁴⁷⁸ and

⁴⁶⁹ Hunter Water, RW Treatment Plants Community Engagement Gillieston Heights and Chisholm (Draft), 11/2017.

⁴⁷⁰ Hunter Water, RW CE Gillieston Heights and Chisholm Pipeline Installation and Delivery, 11/2017.

⁴⁷¹ Hunter Water, Recycled Water Community Education (Draft), 04/2018

⁴⁷² Hunter Water, *Dual Reticulation Communication Examples*, 2018.

⁴⁷³ Hunter H2O, Validation Report - Chisholm and Gillieston Heights Recycled Water Schemes (Final), 08/03/2019.

⁴⁷⁴ Comdain Infrastructure, Appendix C - Treatment Process Flow Diagram (As Constructed), 18/02/2019.

⁴⁷⁵ R. Dwyer, D. Burt, K. Sawyer & M. Robin Collins, *Appendix D - Pall 2014 UNH Final Report UGA 621C UF Membrane Challenge*, 18/06/2014.

⁴⁷⁶ CERCL, Appendix E1 - 04AL20 Validation Certificate, 29/11/2013.

⁴⁷⁷ Trojan Technologies, Appendix E2 - UVDGM Equivalency Report TrojanUVFit 04AL20, 20/09/2013.

⁴⁷⁸ Carollo Engineers, Appendix E3 - UVFIT 04AL20 Validation Certificate, 10/02/2011.



Appendix E4 - NWRI 2003 Validation Report TrojanUVFit04AL20.479

The *Validation Testing Program for Water Recycling Schemes*⁴⁸⁰ details the validation of Hunter Water's recycled water schemes and critical limits.

Design of equipment

The *Validation Report*⁴⁸¹ for the dual reticulation scheme details how the new equipment at the Morpeth and Farley RWTPs has been validated. The *Farley and Morpeth CCP Site Acceptance Test*⁴⁸² demonstrates that Hunter Water and Veolia have implemented processes for confirming the performance of treatment processes prior to handover from the contractor, Comdain.

Investigative studies and research monitoring

An example of an investigative study project initiated within the audit period was a collaborative research project for Helminth risk assessments with SA Water.⁴⁸³ The project proposal was provided and included a commitment from Hunter Water to be involved in the project.

Element 10:

Hunter Water provided sufficient evidence to demonstrate the requirements of this element are fully implemented and carried out in accordance with the Recycled Water Quality Management System and supporting documents.

Management of documentation and records

The *Control of Work Practice Documents Standard*⁴⁸⁴ includes instructions on requirements for controlling documents, document approval and review schedules. The Hunter Water *Manage Document Control Procedure*⁴⁸⁵ details the process for changing a procedure, for example in response to a regulatory or business change. Veolia has established a *Document Retention Procedure*⁴⁸⁶ that describes the document retention requirements for specified classes of documents and individual safety, health, environment and quality records.

During the audit the TRIM system was demonstrated with documents searched and retrieved, document history and control details were shown. Veolia also demonstrated search and retrieval of its documents and records during the audit.

Reporting

Hunter Water provided evidence of internal reporting processes including:

- Minutes: Management System Review Meeting Minutes⁴⁸⁷ and presentation;⁴⁸⁸ and
- Recycled Water Meeting Sep 2019.⁴⁸⁹

Hunter Water produces an annual *Compliance and Performance* Report⁴⁹⁰ which is publicly available on its website⁴⁹¹ and includes recycled water compliance and performance.

⁴⁷⁹ Trojan Technologies, Appendix E4 - NWRI 2003 Validation Report TrojanUVFit04AL20, 24/10/2017.

⁴⁸⁰ Hunter Water, Validation Testing Program for Water Recycling Schemes, 09/2019.

⁴⁸¹ Hunter H2O, Validation Report - Chisholm and Gillieston Heights Recycled Water Schemes (Final), 08/03/2019.

⁴⁸² Hunter Water, Farley and Morpeth CCP Site Acceptance Test.

⁴⁸³ Atura, A Research Proposal, Consolidation of Helminth Risk Management for Recycled Water, undated.

⁴⁸⁴ Hunter Water, Control of work Practice Documents Standard (HW2013-421/22.002), 08/10/2019.

⁴⁸⁵ Hunter Water, Manage Document Control Procedure (HW2012-441/9/1.002), 16/11/2017.

⁴⁸⁶ Veolia Water, Veolia Document Retention Procedure (PRO-439-1), 13/03/2018.

⁴⁸⁷ Hunter Water, *Minutes: Management System Review Meeting Minutes May 2019* (HW2013-1447/2.033), 06/05/2019.

⁴⁸⁸ Hunter Water, Presentation: Management System Review Meeting May 2019, 05/2019.

⁴⁸⁹ Hunter Water, Recycled Water Meeting Sep 2019, 17/09/2019.

⁴⁹⁰ Hunter Water, Compliance and Performance Report 2018-19 (v1.0), 30/08/2019.

⁴⁹¹ https://www.hunterwater.com.au/About-Us/Our-Organisation/Governance/Regulatory-Reporting.aspx



Element 11:

Hunter Water provided sufficient evidence to demonstrate the requirements of this element are fully implemented and carried out in accordance with the Recycled Water Quality Management System and supporting documents.

Long-term evaluation of results

Long-term results are reviewed for each scheme and reported in monthly recycled water operational meetings⁴⁹² between Hunter Water and Veolia. Evidence of data analysis was provided in a spreadsheet example for the Cessnock scheme.⁴⁹³

An *Integrated Management System review report*⁴⁹⁴ was provided as further evidence of long-term review of data that is circulated prior to the review meetings. Hunter Water produces an annual *Compliance and Performance Report*⁴⁹⁵ which is publicly available on its website⁴⁹⁶ and includes long term review of recycled water compliance and performance.

Audit of recycled water quality management

An internal audit schedule, the *Management Systems Triennial Audit Programme-(2018/19-20/2021)*⁴⁹⁷ was provided as evidence of a program for internal auditing. External audits are conducted as part of the Operating Licence. Audit outcomes (recommendations and actions) are communicated at review meetings,⁴⁹⁸ tracked via reports and monitored in the compliance calendar.⁴⁹⁹

Element 12:

Hunter Water provided sufficient evidence to demonstrate the requirements of this element are fully implemented and carried out in accordance with the Recycled Water Quality Management System and supporting documents.

Review by senior managers

Evidence of review by senior management includes the record of a *Management System Review Meeting*.⁵⁰⁰ Evidence of a quarterly Hunter Water and NSW Health liaison meeting⁵⁰¹ was also provided as evidence of review.

Integrated Management System Review Meeting Minutes⁵⁰² provide details of the discussions of the management review. The Integrated Management System Review Meeting presentation⁵⁰³ provides the details of the review meeting. The Integrated Management System report⁵⁰⁴ includes a discussion of process performance, non-compliances, results of audits and any changes in risk.

Recycled water quality management improvement plan

Hunter Water provided the *Improvement Plan*⁵⁰⁵ which included 19 current items out of a total of 161 items added since 2015, indicating that Hunter Water has completed more than 140

⁴⁹⁷ Hunter Water, Register: Management System - Triennial Audit Program 2018-2021 (HW2013-421/9.001).

⁴⁹² Veolia Water, Minutes: Recycled Water Aug 19 Meeting (HW-16-7612-1), 16/09/2019.

⁴⁹³ Hunter Water, Spreadsheet: Long Term Trends Cessnock.

⁴⁹⁴ Hunter Water, Management Systems Review Report April 2019, 04/2019.

⁴⁹⁵ Hunter Water, Compliance and Performance Report 2018-19 (v1.0), 30/08/2019.

⁴⁹⁶ https://www.hunterwater.com.au/About-Us/Our-Organisation/Governance/Regulatory-Reporting.aspx

⁴⁹⁸ Hunter Water, Minutes: Management System Review Meeting Minutes May 2019 (HW2013-1447/2.033), 06/05/2019.

⁴⁹⁹ Hunter Water, Screenshot: Compliance Calendar July 2018.

⁵⁰⁰ Hunter Water, *Minutes: Management System Review Meeting Minutes May 2019* (HW2013-1447/2.033), 06/05/2019.

⁵⁰¹ Hunter Water, Minutes: Hunter Water NSW Health Liaison Committee Meeting (HW2006-1448/57/4.011), 12/06/2019.

⁵⁰² Hunter Water, Minutes: Management System Review Meeting Minutes May 2019 (HW2013-1447/2.033), 06/05/2019.

⁵⁰³ Hunter Water, Presentation: Management System Review Meeting May 2019, 05/2019.

⁵⁰⁴ Hunter Water, *Management Systems Review Report April 2019*, 04/2019.

⁵⁰⁵ Hunter Water, Recycled Water Improvement Plan (HW2008-1592/14/2.002), 30/09/2019.



improvement actions in the last four years (approximately). The *compliance calendar*⁵⁰⁶ included actions to be taken as a result of an operational audit.

Recommendations

There are no recommendations in respect of this obligation.

Opportunities for improvement

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

Supplemental information

It was discussed during the audit that the chlorine analyser for the disinfection CCP was not marrying up with the bench testing. Veolia indicated that it was working with the contractor and supplier to rectify this prior to recycled water being supplied to customers. As recycled water had not yet been supplied, this was not considered within the scope of the audit, however, worthy of noting.

⁵⁰⁶ Hunter Water, Screenshot: Compliance Calendar July 2018.



3.5 Organisational systems standards

3.5.1 Asset management system (clause 4.1)

Table 3.13 Asset management system (sub-clause 4.1.2)

Sub-clause	Requirement	Compliance Grade
4.1.2	By 1 July 2018, Hunter Water must ensure that the Asset Management System is fully implemented and must, from that date, ensure that all relevant activities are carried out in accordance with the Asset Management System.	Compliant

Risk

Failure to fully implement its Asset Management System presents a high level of operational risk that Hunter Water may not be able to effectively manage the safe and reliable performance of its assets as required to meet its business objectives.

Target for Full Compliance

Evidence that that Hunter Water has fully implemented its Asset Management System and that all relevant activities are carried out in accordance with the Asset Management System by 1 July 2018.

Obligation

This obligation requires Hunter Water to fully implement its Asset Management System and carry out all relevant activities in accordance with Asset Management System, i.e. in accordance with the processes and procedures that together comprise the Asset Management System.

Evidence sighted

- Hunter Water response to 2019 Audit Questionnaire.
- Cobbitty Consulting, 2018 Operational Audit of Hunter Water Corporation; Final Audit Report (Version 3.0), 1 February 2019.
- Bureau Veritas, Bureau Veritas Certification; Management System Certification ... Surveillance 1 of the AMS, 17 May 2019.
- Hunter Water, Asset Management Policy (Version 3), June 2018.
- Hunter Water, Strategic Asset Management Plan (Version 2.0), June 2018.
- Hunter Water, Compliance and Performance Report; September 2019 (Version 1.0), 30 August 2019.
- Deloitte, Hunter Water Corporation; Internal Audit of Critical Assets, July 2019.
- Hunter Water, Principles of Enterprise Risk Management (ERM) Approach, undated.
- Hunter Water, Standard; Enterprise Risk Management (version 1), 31 October 2018.
- Hunter Water, Risk Appetite Statement (Version 3.0), 29 November 2018.
- Hunter Water, Guideline; Enterprise Risk Management Considering future and emerging influences on our risk position, undated.
- MS Excel workbook: Asset Management System (eLearning) Dec 18.
- Hunter Water, Treatment Plant Maintenance Audit Form; Paxton WWTW, 11 September 2019.
- Hunter Water, Treatment Plant Maintenance Audit Form; Cessnock WWTW, 11 September 2019.



- Hunter Water, CS0341 Treatment Operations Contract Practice Note; PN102 Operator Competency (Version 1.0), September 2013.
- Email dated 3 December 2019 from Hunter Water to Cobbitty Consulting and IPART (re: Veolia operator competency requirements).
- Zip file: Training Course Examples (Veolia).
- PowerPoint presentation: Clause 4.1.2 Asset Management System Presentation Tuesday.
- PowerPoint Presentation: Clause 4.1.2 Sustainable Wastewater program Presentation Tuesday.
- HunterH₂O, Reservoir Roof Structural Condition Survey and Assessment: Adamstown Heights 1 (Version B), 26 July 2019.
- HunterH₂O, Reservoir Roof Structural Condition Survey and Assessment: Adamstown Heights 2 (Version C), 26 July 2019.
- Document: Clause 4.1.2 Asset Systems Management Thursday Screenshot of CDU preventative maintenance tasks.
- MS Excel workbook: *Fern Bay 3 CDU MST*.
- MS Excel workbook: Fern Bay 3 CDU Work Orders.
- Minutes of AMS Steering Committee Meeting held on 4 July 2019 (HW2016-406/9/3.009).
- Minutes of AMS Steering Committee Meeting held on 19 September 2019 (HW2016-406/9/3.010).

Summary of reasons for grade

On the basis of the observations made and evidence reviewed, it is apparent that having achieved certification of its Asset Management System in June 2018, and maintained certification based on an external surveillance audit conducted in May 2019, Hunter Water has continued to fully implement, and undertake it activities in accordance with, the Asset Management System. Furthermore, Hunter Water has continued to implement an extensive range of improvement initiatives during the audit period.

Of particular note is the robust and transparent application of risk management principles in all asset management decision making. This ensures that Hunter Water achieves its desire to focus on the 'most reasonable outcome' in developing and managing its assets.

Accordingly, Hunter Water is considered to have demonstrated compliance with this obligation.

Discussion and notes

Overview:

Assessment of compliance in respect of this obligation has involved review of Hunter Water's overall approach to the management of its assets under its ISO 55001 certified Asset Management System. This has included review of the system documentation and records of implementation.

In addition to the overall approach, consideration has been given to a sample of the specific improvement initiatives implemented during the audit period and the field implementation of asset management practices. This assessment has been based on observations made during the field verification site visits, an overview of which is provided in **Section 2**.

As noted in **Section 2.1**, Hunter Water has contracted Veolia to provide operation and maintenance (mechanical and electrical) services at all of its treatment facilities. Accordingly, some consideration has been given to these arrangements as they relate to management of the assets.



It is noted that progress in addressing previous recommendation 2016/17-08, which relates to the implementation of an asset criticality and risk assessment approach that is consistent across all asset classes and consistent with the enterprise risk management framework, is addressed in **Table 4.13**.

Maintenance of Certification:

As reported in respect of the 2018 Operational Audit,⁵⁰⁷ Hunter Water's Asset Management System was certified as being consistent with AS ISO 55001:2014 *Asset management – Management systems – Requirements* in June 2018. A surveillance audit of the Asset Management System was conducted by Hunter Water's certification agency in May 2019.⁵⁰⁸

The audit identified minor non-compliances in respect of completion of asset management plans, document control, annual process inspections, and training and development. Several observations were made, and a number of opportunities identified, some of which applied to other management systems in addition to the Asset Management System.

The audit resulted in an overall finding/recommendation:

"Certification continued subject to a satisfactory corrective action plan on findings raised."

Hunter Water has documented a summary of the minor non-compliances, observations and opportunities for improvement identified by the audit and developed an action plan in response to the findings. This has included the conduct of a root cause analysis in respect of the non-compliances and identification of the corrective action that is to be undertaken. Responsibility and timelines for implementation have also been identified.

Hunter Water submitted the action plan to Bureau Veritas, as required, on 1 July 2019. Bureau Veritas responded advising that it: "... accepted your root causes and corrective actions". Furthermore, it congratulated Hunter Water: "...for implementing actions based on OBS and OFP".⁵⁰⁹

Asset Management Documentation:

Asset management documentation is available on the Hunter Water intranet. A screenshot showing an overview of the system indicates that the Asset Management System consists of three key categories, as follows:

- Strategy covers strategic asset management; risk management; strategic planning and leadership;
- Life Cycle covers planning; creation; operations; maintenance; and renewal and disposal;
- People and Information covers asset standards; asset information; roles and responsibilities; working groups and committees; training and awareness; and customers.

The principal strategic asset management documentation includes the *Asset Management Policy*⁵¹⁰ and *Strategic Asset Management Plan*.⁵¹¹ Both documents were most recently updated in June 2018, so no review or update was required during the audit period. The *Asset Management Policy* (for example) is next scheduled for review in June 2021.

Life cycle management of the asset portfolio is addressed at a tactical level in Hunter Water's Asset Management Plans. The ongoing development of these documents is discussed below.

Hunter Water has a mature program for the creation and maintenance of (for example) its asset standards, which provide technical guidance for the implementation of management practice.

⁵⁰⁷ Cobbitty Consulting, 2018 Operational Audit of Hunter Water Corporation; Final Audit Report (Version 3.0), 1 February 2019, table 3.13.

⁵⁰⁸ Bureau Veritas, Bureau Veritas Certification; Management System Certification ... Surveillance 1 of the AMS, 17 May 2019.

⁵⁰⁹ "OBS" refers to audit observations; "OFI" refers to opportunities for improvement.

⁵¹⁰ Hunter Water, Asset Management Policy (Version 3), June 2018.

⁵¹¹ Hunter Water, *Strategic Asset Management Plan* (Version 2.0), June 2018.



Improvement initiatives:

<u>General</u>:

In its *Compliance and Performance* Report,⁵¹² Hunter Water outlined a number of initiatives that it had implemented during the audit period (principally during the 2018/19 financial year). A selection of these were discussed during the audit, as follows:

Asset Management System / Critical assets audit:

Hunter Water advised that it takes a 'whole of business' view to the management of its critical assets. Whilst historically it has classified assets as critical/non-critical with an asset class focus, it has more recently focussed on consequence as a determinant of criticality, consistent with the Enterprise Risk Management Framework.

Under this framework, assets are assigned a criticality class dependent upon potential consequence. For example, where the consequence impacts personal or community safety, a Critical B class is assigned; where the consequence is a moderate incident (lower), a Critical E class is assigned. Under this approach to assigning criticality, approximately 80% of Hunter Water's assets are considered non-critical.

During the audit period Hunter Water commissioned an 'internal audit' which was focussed on its processes for managing critical assets. The purpose of this internal audit was to:⁵¹³

- Assess the design and operating effectiveness of key controls in the management of the identification, oversight, and maintenance of critical assets; and
- Make recommendations for improvement where opportunities for improvement are identified.

The findings of this audit were generally consistent with those of the abovementioned external surveillance audit of the Asset Management System. Two findings which presented medium risk were identified:

- There are inefficient communication lines between key business units involved in critical asset management; and
- Critical asset management plans and processes have not yet been fully implemented.

Management actions to address these issues were agreed and documented, with responsibility and target dates set.

Asset Management System/Enterprise risk management:

Hunter Water provided a comprehensive overview of its Enterprise Risk Management Framework, which is ISO 31000 *Risk management- Guidelines* compliant, and its implementation. The presentation demonstrated that the systems are well developed and mature. Through internal training and awareness processes, the 'risk awareness' of staff has improved 'enormously'. Hunter Water has taken the approach of focussing on the 'most reasonable outcome' when assessing risks.

The Executive Management Team (EMT) meets four times a year to review Hunter Water's risk profile and the supporting processes. All processes have an identified risk element which gets 'rolled up' to consolidated line items of which there are twenty-one. Each of these line items is 'owned' by an Executive (including the Managing Director). On this basis, the Executive accountability is clearly identified.

A significant attribute of the risk management process is the development of a Risk Appetite Register which is endorsed by the Executive and the Board. It is reviewed and updated at least annually. The development of the Risk Appetite Register supports the staff in making critical

 ⁵¹² Hunter Water, Compliance and Performance Report; September 2019 (Version 1.0), 30 August 2019, section 4.
 ⁵¹³ Deloitte, Hunter Water Corporation; Internal Audit of Critical Assets, July 2019, section 1.1.



risk-based decisions with confidence in a timely manner as they can rely on Executive and Board support. The Risk Appetite Register is clearly linked to the risk management framework.

Hunter Water demonstrated the detailed application of the framework in respect of critical assets. This revealed the mechanism to be both robust and transparent, whilst demonstrating its strength as a decision-making support tool.

Asset-related risks are monitored relative to service and regulatory requirements on an annual basis. The *Risk Driver Analysis Summary* in respect of critical asset failure, which was updated in October 2019, was provided as an example.

A sample of system/support documentation was provided for review, including:

- Principles of Enterprise Risk Management (ERM) Approach;⁵¹⁴
- Enterprise Risk Management Standard;⁵¹⁵
- Risk Appetite Statement;⁵¹⁶ and
- Guideline; Enterprise Risk Management Considering future and emerging influences on our risk position.⁵¹⁷

These demonstrate that processes are well documented, and that their applicability is continually under review.

Asset Management System / Awareness and training; Competency based training:

Hunter Water has identified the need to improve management of the competency and training of its staff and contractors; this was also identified by the external surveillance audit conducted in May 2019. Improvements are being implemented across the portfolio of its activities, including (for example) its Asset Creation and Maintenance teams.

Hunter Water advised that:518

- It has revised and updated its asset management awareness and training, which is undertaken through the employee induction process, as well as through staff and contractor training.
- It has completed e-learning and tool-box training for staff.
- The Civil Maintenance and Intelligent Networks groups have both developed in-house competency-based training modules to ensure that staff possess the various essential skills and competencies in each workplace environment ensuring high levels of customer service and work health safety.

As an example of implementation, records indicate that as at 20 December 2018, 88% of invitees had completed the Asset Management System awareness training.⁵¹⁹

In response to the auditor's enquiry as to how Hunter Water ensures competency of Veolia's staff under the operation and maintenance services contract, it advised that performance is assessed on the basis of outcomes. For example, Hunter Water undertakes audits to assess the status of preventative maintenance completion and undertakes physical inspections to ensure that Veolia meets its maintenance obligations.

Records of audits undertaken at Paxton WWTW⁵²⁰ and Cessnock WWTW⁵²¹ in September 2019 were provided. These indicated a high level (96%) of completion of maintenance tasks across the

⁵¹⁴ Hunter Water, Principles of Enterprise Risk Management (ERM) Approach, undated.

⁵¹⁵ Hunter Water, Standard; Enterprise Risk Management (version 1), 31 October 2018.

⁵¹⁶ Hunter Water, Risk Appetite Statement (Version 3.0), 29 November 2018.

⁵¹⁷ Hunter Water, Guideline; Enterprise Risk Management – Considering future and emerging influences on our risk position, undated.

⁵¹⁸ Hunter Water, Compliance and Performance Report; September 2019 (Version 1.0), 30 August 2019, section 4.1.

⁵¹⁹ MS Excel workbook: *Asset Management System (eLearning) - Dec 18.*

⁵²⁰ Hunter Water, Treatment Plant Maintenance Audit Form; Paxton WWTW, 11 September 2019.

⁵²¹ Hunter Water, Treatment Plant Maintenance Audit Form; Cessnock WWTW, 11 September 2019.



two plants over the previous twelve months, and that general housekeeping and maintenance condition was generally in accordance with Hunter Water's expectations. Several opportunities for improvement were identified.

A practice note detailing operator competency requirements under the treatment plant service contract was also provided.⁵²² This detailed the requirements in respect of training and qualifications.

Hunter Water further advised, following enquiry to Veolia, that:523

"Broadly, the competence of Veolia operators is ensured by:

- A centralised training register that contains operator qualifications and all the training completed, due or not completed for each operator.
- All operators are trained in Cert III water or wastewater treatment operations. New staff who do not have this qualification are enrolled at the next opportunity.
- Certified training for operators requiring Fluoridation and Chlorination training details are stored in the training register.
- Ongoing training provided in the many aspects of process operations. Examples include Work Permits, EPL compliance awareness, Critical Control Point awareness, Automatic Control and Monitoring Manual training and Daily Task List Performance."

Training modules and records of completion in respect of 'ACMM Training', 'IEMM Training', 'P&ID Training', 'WTP Sampling Training' and other modules under development were provided as evidence of implementation.⁵²⁴

Asset Management System/Civil Maintenance System application upgrade:

Hunter Water is in the process of upgrading its civil maintenance management platform to ensure ongoing reliability and successful linkage to a wider hardware/software IT services initiative. The objective is to implement a consolidated field/workforce management (scheduling and mobility) and maintenance management platform for both mechanical and electrical and civil maintenance.⁵²⁵

Hunter Water has historically used the Ellipse maintenance management platform for its mechanical and electrical assets and AOMS (Asset Operations Maintenance System) for its civil assets. AOMS will reach end of life in January 2020; civil maintenance will then be migrated to the Ellipse platform.

The project, which also involves the integration/migration of asset data (form GSI to Ellipse), development of reporting functionality and a significant change management process, is currently in the development phase, with planned delivery during 2020. Ongoing development and improvement is expected once baseline functionality has been implemented.

The upgrade is expected to deliver benefits in respect of asset service and reliability. Risk associated with the current arrangements is assessed to be in excess of Hunter Water's risk appetite due to the inability to patch and secure the system; the current system presents increased risk in respect of critical information security. It is anticipated that the upgrade will also deliver business efficiency improvements.

Asset Planning/Sustainable wastewater:

Hunter Water advised that it is expanding its traditional approach to wastewater planning to consider medium and long-term opportunities for potential waste to energy solutions, improved

⁵²³ Email dated 3 December 2019 from Hunter Water to Cobbitty Consulting and IPART (re: *Veolia operator competency requirements*). ⁵²⁴ Zip file: *Training Course Examples* (Veolia).

⁵²² Hunter Water, CS0341 Treatment Operations Contract Practice Note; PN102 Operator Competency (Version 1.0), September 2013.

⁵²⁵ PowerPoint presentation: Clause 4.1.2 Asset Management System Presentation Tuesday.



biosolids management, recycled water systems and carbon neutrality. An overview of this approach was provided during the audit interviews; the following points were noted:⁵²⁶

- Longer term planning is the responsibility of the Strategic Group, which has a focus on longer term goals and objectives, responding to changes in the key drivers and identifying opportunities that changing circumstance may present. The Asset Planning Group is responsible for meeting current obligations.
- Key drivers for strategic planning include growth and changing conditions, environmental pressures, and market opportunities.
- Hunter Water has sought community input to determine service expectations. Consultation
 is undertaken as part of the master planning process. It is currently reviewing performance
 standards, and it has sought to determine community willingness to pay in respect of
 initiatives such as naturalising stormwater flow pathways.
- Hunter Water has identified focus areas in respect of initiatives including (for example):
 - Master Planning Hunter River Estuary Wastewater Master Plan; Carbon and Energy Strategy; Sewerage strategy; and Decentralised systems;
 - Circular economy and resource recovery Recycled water; Biosolids and energy recovery; and Renewable energy; and
 - New planning and evaluation approaches Systems approach; Adaptive pathways; Scenario planning; non-market values; and Effects based assessment.

A number of these initiatives were discussed, including (for example):

- Effects based assessment historically, Hunter Water has planned to limit wastewater overflows to a 1 in 6 month or more severe event. It is now considering the consequence of overflows to assess acceptability/the need to contain them.
- Hunter River Estuary Wastewater Master Plan Hunter Water has found that investment of more money will result in minimal improvement. By taking a whole of environment approach (e.g. engaging famers to take action), better value can be realised from the investment made. It is looking for 'value for money' investments.
- Scenario planning involves testing the resilience of options under various future scenarios.
- Recycled water Hunter Water is 'stepping back' from a purely technical assessment and assessing options from a systems perspective. Consideration is being given to risks on investment; will the water be used? It was noted that customers have expressed a willingness to pay, more so in respect of public open spaces than commercial users.
- Biosolids management the EPA is expected to tighten regulations in respect of biosolids management; investment will need to be made. Biosolids are currently aerated in 'big concrete boxes', resulting in carbon emissions; this presents a potential opportunity for energy capture. Under current arrangements, approximately 50% of biosolids is disposed of as soil conditioner with the remaining 50% used for mine rehabilitation.

Consideration has been given to various management options including thermal processes (which remove contaminants). Centralised biosolids management is also being considered.

 Carbon neutrality – Hunter Water is seeking to develop a pathway to carbon neutrality; some 70% of its carbon emissions are related to electricity consumption. Customer/stakeholder expectations support this initiative.

New opportunities are being investigated, with a view to identifying options that will reduce carbon emissions at reduced cost to customers. Some options under consideration include:

• Behind meter renewable energy generation;

⁵²⁶ PowerPoint Presentation: Clause 4.1.2 Sustainable Wastewater program Presentation Tuesday.



- Centralised biosolids management with energy recovery; and
- Long-term power procurement, for example buying into a wind farm.

In summary, Hunter Water is using risk-based assessment to identify long-term sustainable options for the operation and management of its wastewater system.

Asset Planning/Planning to support both five and ten year investment portfolio:

During the audit period, Hunter Water has initiated and undertaken significant planning work to develop and underpin its pricing submission to IPART.

As reported in respect of the 2018 Operational Audit,⁵²⁷ as part of its transition to an ISO 55001 consistent Asset Management System, it had reviewed the structure of its asset management documentation (and specifically its Asset Class Management Plans) to ensure that they were adding value to the business. The review led to the adoption of a series of asset management plans comprising:⁵²⁸

- Facility Plans for critical facilities including (for example) Chichester Dam; Borefields; Grahamstown WTP; the Chichester Truck Gravity Main (CTGM); Burwood, Edgeworth and Morpeth WWTWs; Stormwater Detention Basins; and the High Voltage System.
- Asset Strategies for assets including (for example) reticulation mains; critical mains; pumping stations; sewer overflow structures; stormwater carriers (pipe culverts, channels); and switchboards.
- Fatal Asset Strategies for asset classes including (for example) dams; electrical; lifting equipment; hazardous chemicals; and structural integrity.

Planning work undertaken during the audit period has been captured in the development of these asset management plans. Whilst not quantified, development of the Facility Plans and Fatal Asset Strategies, which has been prioritised on the basis of asset criticality, is well advanced. The Asset Strategies are also being developed with less detail than the previous Asset Class Management Plans; they now have a more strategic focus.

Summary:

Having achieved certification of its Asset Management System in June 2018, and maintained certification based on an external surveillance audit conducted in May 2019, Hunter Water has continued to implement an extensive range of improvement initiatives during the audit period. Based on the above review of a sample of these initiatives, Hunter Water has adopted and applied a robust risk-based approach, guided by documented 'risk appetites', in its overall approach to the management of its assets.

Field Implementation:

<u>General</u>:

As reported in Section 2, field verification visits were undertaken to a number of sites/facilities to verify how effectively Hunter Water is implementing the requirements of the *Operating Licence* in practice. The notes presented in Section 2 form part of the assessment of compliance with this obligation; however, specific issues or aspects of implementation are discussed in further detail in the following.

Morpeth Recycled Water Plant:

As reported in **Section 2.2.2**, the site inspection to the Morpeth RWP included a review of Veolia's VAMS asset management system. As an example activity, records associated with the safety shower and eyewash at the plant were reviewed. This revealed:

⁵²⁷ Cobbitty Consulting, 2018 Operational Audit of Hunter Water Corporation; Final Audit Report (Version 3.0), 1 February 2019, table 3.13.

⁵²⁸ PowerPoint presentation: Clause 4.1.2 Asset Management System Presentation Tuesday.



- This equipment is identified by Client Asset Code 46045, which provides linkage to Hunter Water's Ellipse platform.
- Programmed maintenance activity PM-HWC-MOR-R-0054, annual inspection and testing is applicable to this asset.
- Work order 1005288279 was completed on 18 September 2019. This is consistent with the date recorded on the test tag attached to the equipment.
- The work order includes a detailed task plan.
- The work order list all safety shower/eye washes at the overall Morpeth site, which are all included as a single maintenance route.
- The history of annual inspections indicated that they had previously been undertaken on 15 October 2018, 5 October 2017, and 15 October 2016, in accordance with requirement. The RWP installation will have only been recently added to the route.

On the basis of this example, it is apparent that maintenance schedules for the RWP have been integrated into VAMS and are beginning to be implemented.

Maintenance records for assets managed by Veolia are currently manually transferred from VAMS into Ellipse. There is a contractual requirement for 100% of records to be transferred by the end of each month; Veolia is currently achieving 100% entry by the end of each week.

Adamstown Heights Reservoirs:

As reported in **Section 2.4.3**, significant surface corrosion was observed on the welded steel roof of the No 1 Reservoir; there was also some surface corrosion on the No 2 Reservoir stairway, roof platform and handrails. Evidence was sought to demonstrate that these conditions had been captured and recorded within the asset management system records.

Hunter Water provided a *Reservoir Roof Structural Condition Survey and Assessment* report in respect of each reservoir. Inspections had been undertaken in October 2017, although the reports had only been finalised in July 2019.

The condition of the No 1 Reservoir roof was reported as follows:529

"Condition Assessment

- The roof plates and roof structure are in poor condition;
- There is severe corrosion of the roof walkway plates which, though not an immediate risk, is in sufficiently poor condition that replacement should be considered in next 2 years;
- The internal protective coating is in poor condition and requires replacement, patch repairs may be required during these works to damaged sections of the roof members/plates."

The condition of the No 2 Reservoir roof was reported as follows:530

"Condition Assessment

- The roof sheets appear to be in good overall condition;
- The external protective coating on the walkway platform is still in reasonable condition, minor repairs to existing coating should occur within 2 years following HWC guidelines. We note that this includes 2 sections on chequer plate installed at previous hatch locations;
- The internal protective coating is in good order and does not require repairs."

This confirmed that the observed conditions had been recorded. No further enquiry was made to identify whether remedial action has been planned or programmed.

⁵²⁹ HunterH₂O, Reservoir Roof Structural Condition Survey and Assessment: Adamstown Heights 1 (Version B), 26 July 2019.



Fern Bay Chemical Dosing Facility:

As reported in **Section 2.5.2**, a sample of maintenance records for chemical dosing facility was requested. Hunter Water provided records indicating the programmed maintenance regime (maintenance task and frequency) and a list of completed work orders, which appeared to be consistent with requirements.^{531,532,533}

Online review of the AOMS records confirmed that asset SS-FER-PS1-CDFC1 is the Fern Bay Chemical Dosing Ferrous Chloride facility. The maintenance regime comprises of six activities and that three crew types are involved.

Complaint Management:

As reported in Table 3.15, an enquiry/complaint in respect of ongoing sewer problems, believed to be the result of tree roots in a Hunter Water sewer, led to the creation of a civil maintenance work order (Job No: 585768). To assess implementation across systems, a copy of the work order record was requested.

Screenshots of AOMS records were provided, review of which confirmed that:

- the call address was consistent with the complaint record;
- the job was logged at 11:52am on 17 October 2019, work was undertaken on 21 October 2019 and the job called off on 25 October 2019;
- the callers comment as recorded in the AOMS record is consistent with the complaint record;
- the job comment indicates: "jetted shaft and branch nothing found, customer has sent photos of roots in branch";
- solution code was "Sewer Chokage Cleared".

The complaint record also referenced Job No: 520991, review of which confirmed previous activity at the same address.

This assessment demonstrates effective integration of the customer and maintenance management systems.

Summary:

On the basis of this summary analysis, it is apparent that systems are in place and that effective asset management practices are being implemented across the asset portfolio.

Other Evidence of System Implementation:

In its response to the Audit Questionnaire, Hunter Water provided an extensive portfolio of additional evidence of the effective implementation of its asset management practices. This include evidence in respect of Strategic Planning; Service and Asset Planning; Investment Decision Making; the development of Asset Standards; Asset Creation; Asset Operation; Asset Maintenance; and Asset Renewals.

Whilst not reported in detail, review of this evidence further demonstrated that Hunter Water has continued to fully implement, and undertake it activities in accordance with, the Asset Management System.

Evidence that system performance is monitored and reviewed is, however, an indicator of effective asset management practice. As evidence that this is undertaken, Hunter Water provided the following:

⁵³¹ Document: Clause 4.1.2 Asset Systems Management Thursday Screenshot of CDU preventative maintenance tasks.

⁵³² MS Excel workbook: Fern Bay 3 CDU MST.

⁵³³ MS Excel workbook: Fern Bay 3 CDU Work Orders.



- Minutes of the AMS Steering Committee meeting held on 4 July 2019 this meeting addressed issues including: Improvement actions; Audit issues; Competency and training; Critical assets; Documents; Internal audit; Asset management plans; and Audit non-conformities.⁵³⁴
- Minutes of the AMS Steering Committee meeting held on 19 September 2019 this meeting addressed issues including: New Audit and Assurance Manager; Recap from last meeting; Competency and training; AMS support; Principle; Wastewater overflows; Priorities; Leads; Organisational change management; Critical assets; and NCRs,⁵³⁵ including Product plans, Document control, Competency, Internal audit; Asset management plans, and Improvement.⁵³⁶
- the *Compliance and Performance Report*⁵³⁷ which details improvement initiatives that were implemented during the audit period (principally during the 2018/19 financial year), a sample of which have been discussed above.

Recommendations

There are no recommendations in respect of this obligation.

Opportunities for improvement

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

Supplemental information

No supplemental information is provided in respect of this obligation.

⁵³⁴ Minutes of AMS Steering Committee Meeting held on 4 July 2019 (HW2016-406/9/3.009).

⁵³⁵ 'NCRs refers to non-conformance reports.

⁵³⁶ Minutes of AMS Steering Committee Meeting held on 19 September 2019 (HW2016-406/9/3.010).

⁵³⁷ Hunter Water, Compliance and Performance Report; September 2019 (Version 1.0), 30 August 2019, section 4.



3.6 Customer and stakeholder relations

3.6.1 Internal Complaints Handling (clause 5.5)

Table 3.14 Internal Complaints Handling (sub-clause 5.5.1)

Sub-clause	Requirement	Compliance Grade
5.5.1	Hunter Water must maintain a procedure for receiving, responding to and resolving Complaints, which is consistent with the Australian/New Zealand Standard AS/NZS 10002:2014 – Guidelines for complaint management in organizations (the Internal Complaints Handling Procedure).	Compliant

Risk

Failure to comply with the requirements of this obligation poses a moderate operational risk in that Hunter 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 Hunter Water's customer and public relations.

Target for Full Compliance

Evidence that Hunter Water has maintained a Complaints Handling Procedure consistent with AS/NZS 10002:2014 Customer satisfaction – Guidelines for complaints handling in organisations.

Obligation

This obligation requires Hunter Water to maintain a procedure for receiving, responding to and resolving Complaints. Such procedure must be consistent with AS/NZS 10002:2014.

Evidence sighted

- Hunter Water response to 2019 Audit Questionnaire.
- Hunter Water, Standard; Customer Complaints Management (Version 3.0), 25 September 2019.
- Hunter Water, Complaint and Enquiry Policy (Version 3.0), 5 September 2017.
- Hunter Water, Guideline; Customer Complaints Management (Version 4.0), 20 July 2017.
- Document: ISO AS-NZS 10002-2014 Checklist Complaint Procedures.
- 'Compliments and Complaints' page on the Hunter Water website at: <u>https://www.hunterwater.com.au/About-Us/Contact-Us/Compliments-and-Complaints/Compliments-and-Complaints.aspx</u>.
- Hunter Water, Customer Contract 2017-2022, undated.
- Document: Annexure 14 Example 1 Communicating with the Complainant Response Letter.
- Document: Annexure 14 Example 2 Communicating with the Complainant Response Letter.
- Document: Annexure 14 Example 3 Communicating with the Complainant Response escalation.
- Document: Annexure 14 Example 4 Communicating with the Complainant Delayed Response Template.
- Hunter Water, Learner Resource; Customer Complaints and Enquires (Version 2.0), 16 January 2017.



- MS Excel workbook: Annexure 16 Complaints Portal Data Active Complaint and Claim List – 7 January 2019.
- Document: Annexure 20 Customer Care Weekly Report 20 Dec 2018.

Summary of reasons for grade

Hunter Water demonstrated by the provision of detailed documentation and supporting evidence, that its Internal Complaints Handling Procedure is consistent with the requirements of AS/NZS 10002:2014 *Guidelines for complaint management in organisations*. Review of the manner in which Hunter Water has addressed a sample of AS/NZS 10002:2014 requirements confirms that Hunter Water's approach to the management of complaints is consistent with those requirements.

Accordingly, Hunter Water is considered to have demonstrated compliance with this obligation.

Discussion and notes

Hunter Water confirmed that it continued to maintain an internal complaint handling procedure during the audit period. The Internal Complaints Handling Procedure is documented in the following principal documents:

- the *Standard; Customer Complaints Management*,⁵³⁸ which Hunter Water considers to be the 'procedure';
- a *Complaint and Enquiry Policy*,⁵³⁹ which documents Hunter Water's commitment to the efficient and fair resolution of complaints and enquiries from customers and members of the community; and
- a detailed internal Customer Complaints Management Guideline,⁵⁴⁰ the purpose of which is "... to outline and clarify the requirements for preventative complaint analysis and responding to customer complaints in an effective, customer focussed and proactive manner².

Hunter Water provided a comprehensive document (*AS/NZS 10002:2014 Checklist*)⁵⁴¹ that demonstrates consistency of its Internal Complaints Handling Procedure with the Australian/New Zealand Standard for complaint handling, AS/NZS 10002:2014 *Guidelines for complaint management in organisations*. The manner in which Hunter Water's complaint management system addresses the requirements of AS/NZS 10002:2014 is outlined, with references to supporting evidence (provided as annexures) that also demonstrates implementation (refer Table 3.15).

Review of the document confirms that each element of the AS/NZS 10002:2014 requirements for operation of the complaint management system has been addressed. For example:

- The requirement for information made publicly available to include (for example):
 - where, how and when a complaint can be made is outlined in the 'Compliments and Complaints' webpage;⁵⁴² and
 - when acknowledgement of complaints should be expected is documented in the *Customer Contract.*⁵⁴³
- The requirement to actively communicate progress in managing a complaint to the complainant is addressed and demonstrated by:

⁵³⁸ Hunter Water, *Standard; Customer Complaints Management* (Version 3.0), 25 September 2019.

⁵³⁹ Hunter Water, *Complaint and Enquiry Policy* (Version 3.0), 5 September 2017.

⁵⁴⁰ Hunter Water, *Guideline; Customer Complaints Management* (Version 4.0), 20 July 2017.

⁵⁴¹ Document: ISO AS-NZS 10002-2014 Checklist Complaint Procedures.

⁵⁴² 'Compliments and Complaints' page on the Hunter Water website at: <u>https://www.hunterwater.com.au/About-Us/Contact-Us/Compliments-and-Complaints.aspx</u>.

⁵⁴³ Hunter Water, *Customer Contract 2017-2022*, undated, section 17.



- monitoring progress via the Hunter Water online Case Management Portal;
- communicating with the complainant in respect of (for example) resolution,^{544,545} escalation⁵⁴⁶ or delay in resolution⁵⁴⁷ of a complaint; and
- ensuring that staff are appropriately trained in the complaint management process; the *Learner Resource; Customer Complaints and Enquires*⁵⁴⁸ provides a basis for this.
- The requirement to have systems/processes in place to ensure that the implementation of recommendations/remedies are properly monitored is addressed by:
 - an active complaints list on the Complaints (Case Management) Portal (sample data extract provided);⁵⁴⁹
 - weekly⁵⁵⁰ and monthly⁵⁵¹ Customer Care Reports, which report against complaint KPIs and other statistics; and
 - the annual *Compliance and Performance Report*,⁵⁵² which reports on actions taken to resolve root causes of complaints.

On this basis it is assessed that Hunter Water maintains an internal complaint handling procedure (process) that is consistent with AS/NZS 10002:2014.

Recommendations

There are no recommendations in respect of this obligation.

Opportunities for improvement

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

Supplemental information

No supplemental information is provided in respect of this obligation.

⁵⁴⁴ Document: Annexure 14 - Example 1 - Communicating with the Complainant Response Letter.

⁵⁴⁵ Document: Annexure 14 - Example 2 - Communicating with the Complainant Response Letter.

⁵⁴⁶ Document: Annexure 14 - Example 3 - Communicating with the Complainant Response - escalation.

⁵⁴⁷ Document: Annexure 14 - Example 4 - Communicating with the Complainant Delayed Response Template.

⁵⁴⁸ Hunter Water, Learner Resource; Customer Complaints and Enquires (Version 2.0), 16 January 2017.

⁵⁴⁹ MS Excel workbook: Annexure 16 - Complaints Portal Data - Active Complaint and Claim List - 7 January 2019.

 ⁵⁵⁰ Document: Annexure 20 - Customer Care Weekly Report - 20 Dec 2018.
 ⁵⁵¹ Hunter Water, Customer Care Monthly Report, December 2018.

⁵⁵² Hunter Water, *Compliance and Performance Report*, September 2019.



Sub-clause	Requirement	Compliance Grade
5.5.2	Hunter 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.	Compliant
Rick	Target for Full Compliance	

Table 3.15 Internal Complaints Handling (sub-clause 5.5.2)

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Target for Full Compliance

Failure to comply with the requirements of this obligation poses a moderate operational risk in that Hunter 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 Hunter Water's customer and public relations.

Evidence that the Internal Complaints Handling Procedure is fully implemented and that all relevant activities are carried out in accordance with the procedure.

Obligation

This obligation requires Hunter Water to fully implement its Internal Complaints Handling Procedure.

Evidence sighted

- Hunter Water response to 2019 Audit Questionnaire.
- Document: ISO AS-NZS 10002-2014 Checklist Complaint Procedures.
- Document: Screenshot of Customer Case Management Portal.
- Hunter Water, Customer Experience; Image Library, April 2019.
- Documents: Customer Case example 1 (comprising three screenshots: Customer Case example 1.1, 1.2 and 1.3).
- Documents: Customer Case example 2 (comprising two screenshots: Customer Case example 2.1 and 2.2).
- . MS Excel workbook: Annexure 16 - Complaints Portal Data - Active Complaint and Claim List - 7 January 2019.
- Document: Annexure 20 Customer Care Weekly Report 20 Dec 2018.
- Hunter Water, Customer Care Monthly Report, December 2018.
- Hunter Water, Compliance and Performance Report, September 2019.
- MS Excel workbook: Annexure 17 Copy of Case Customer Commitment Report 16 September 2019.
- Document: ISO AS-NZS 10002-2014 Checklist Complaint Procedures.
- Hunter Water, Learner Resource; Customer Complaints and Enquires (Version 2.0), 16 January 2017.
- MS Excel workbook: Annexure 19 Contact Centre Case Competency.



Summary of reasons for grade

Hunter Water demonstrated that it continued to implement its Internal Complaints Handling Procedure throughout the audit period. Review of a sample of complaint records revealed that they had been effectively managed, whilst performance statistics indicate that some 1,074 complaints were resolved during the six-month period to December 2018.

Hunter Water also demonstrated that relevant staff have, in most cases, undertaken training in respect of the complaint management process.

Based on the evidence provided, Hunter Water is considered to have demonstrated compliance with this obligation.

Discussion and notes

As reported in Table 3.14, Hunter Water provided a comprehensive document (*AS/NZS 10002:2014 Checklist*)⁵⁵³ that demonstrates consistency of its Internal Complaints Handling Procedure with the Australian/New Zealand Standard for complaint handling, AS/NZS 10002:2014 *Guidelines for complaint management in organisations*. That document also discusses, with references to supporting evidence (provided as annexures), how the Internal Complaints Handling Procedure is implemented.

Hunter Water manages customer complaints through an online Case Management Portal, which was viewed during the audit interviews; a screenshot of the 'Home' page was provided as evidence.⁵⁵⁴ The portal lists and provides access to a series of public and internal documents applicable to complaint management.

As an example, an *Image and Diagram Library*⁵⁵⁵ has been created to assist staff with a better understanding of Hunter Water's assets, thereby enabling them to effectively communicate with colleagues, contractors, the community and stakeholders. The *Image and Diagram Library* includes a large number of asset images (including images showing various asset conditions) with labelling and descriptive information that are used as a point of reference to inform communications.

During the audit interviews, two sample complaints records were sighted and a copy of the case management records provided. These were as follows:

 Case No: 0003596814⁵⁵⁶ – relates to ongoing sewer problems, believed to be the result of tree roots in a Hunter Water sewer. A telephone call was received on 17 October 2019 and acknowledged via email on 18 October 2019.

A work order (Job No: 585768) was raised in AOMS (Hunter Water's Asset Operations Maintenance System) to inspect and address the issue. Reference was made to previous work orders, Job Nos: 520991, 580583 and 486932, that also related to this property. For example, Job No: 486932, which also related to a sewer choke was addressed in April 2016.

The customer was contacted by telephone on 18 October 2019 to advise that a work order had been raised and that the waste water team would respond within 10 days. The customer expressed gratitude for the contact and responses received from Hunter Water.

To assess implementation across systems, Job No: 585768 has been reviewed from an asset management perspective (refer **Table 3.13**). Review confirmed that the job was logged at 11:52am on 17 October 2019, work was undertaken on 21 October 2019 and the job called off on 25 October 2019.

⁵⁵³ Document: ISO AS-NZS 10002-2014 Checklist Complaint Procedures.

⁵⁵⁴ Document: Screenshot of Customer Case Management Portal.

⁵⁵⁵ Hunter Water, Customer Experience; Image Library, April 2019.

⁵⁵⁶ Documents: Customer Case example 1 (comprising three screenshots: Customer Case example 1.1, 1.2 and 1.3).



The case management portal indicates that the customer was provided with a way forward on 31 October 2019 and that a resolution was agreed with the customer on 14 November 2019.

 Case No: 3495805734⁵⁵⁷ – relates to a disputed bill. A telephone call was received on 3 January 2019; an initial response was provided following which the complainant requested a formal explanation of the issue involved. The bill was put on hold and acknowledgment of the complaint sent via email on 4 January 2019 (which is within the 3-day requirement). The complaint was also referred to the billing team on 4 January 2019, with a request to explain the bill charges.

The billing team sought to contact the complainant on 8 January 2019 (noting that 5/6 January was a weekend), with further messages subsequently being left. The customer was provided with a way forward on 8 January 2019. A resolution was agreed with the customer on 31 January 2019⁵⁵⁸ and the complaint closed on 19 February 2019.

These examples demonstrate effective implementation of the internal complaint management process.

As reported in Table 3.14, implementation was also demonstrated by records of the monitoring undertaken in respect of complaint management. This includes (for example):

- an active complaints list on the Case Management Portal (a sample data extract provided);559
- weekly⁵⁶⁰ and monthly⁵⁶¹ Customer Care Reports, which report against complaint KPIs and other statistics. The monthly report for December 2018 indicated (for example) that 1,069 complaints had been logged and 1074 closed during the year to date, and that a way forward had been provided for 100% of complaints within 10 days during that month and for an average of 98% of complaints over the year to date (target is >90%); and
- the annual *Compliance and Performance Report*,⁵⁶² which provides an overview of complaint management during the reporting period and reports on actions taken to resolve root causes of complaints. Some items of interest in respect of process implementation include:
 - o on average, 97% of complaints were resolved within 10 working days in 2018/19;
 - there was a 38% reduction in the number of outstanding aged complaints from 24 in January 2019 to 15 in June 2019;
 - "In March 2019, the commitment tracker was also relaunched to ensure longer term commitments, to replace poor performing system assets, were being met by Hunter Water as another strategy to reduce the number of aged complaints. Since its launch, 62% of outstanding commitments have been resolved from 63 to 31 by the end of June 2019."⁵⁶³

A copy of the *Commitment Tracker* as at 16 September 2019⁵⁶⁴ was provided as evidence. This document is used to maintain a record of commitments made in response to complaints and tracks the action taken over time to implement the commitments, specifically where capital works are required.

⁵⁵⁷ Documents: Customer Case example 2 (comprising two screenshots: Customer Case example 2.1 and 2.2).

⁵⁵⁸ Date shown in the case portal (28 February 2019) is inconsistent with that shown in a data extract (MS Excel workbook: *Annexure 16 - Complaints Portal Data - Active Complaint and Claim List - 7 January 2019*), which indicates that a resolution was agreed with the customer on 31 January 2019; given the date that the complaint was closed out, 31 January 2019 is more likely to be correct.

⁵⁵⁹ MS Excel workbook: Annexure 16 - Complaints Portal Data - Active Complaint and Claim List - 7 January 2019.

⁵⁶⁰ Document: Annexure 20 - Customer Care Weekly Report - 20 Dec 2018.

⁵⁶¹ Hunter Water, *Customer Care Monthly Report*, December 2018.

⁵⁶² Hunter Water, Compliance and Performance Report, September 2019.

⁵⁶³ Hunter Water, Compliance and Performance Report, September 2019, section 5.2.

⁵⁶⁴ MS Excel workbook: Annexure 17 - Copy of Case Customer Commitment Report - 16 September 2019.



In response to the auditor's enquiry as to whether Hunter Water conducts any internal audits of implementation of the Internal Complaints Handling Procedure, Hunter Water advised (in its response to the Audit Questionnaire) that:

"Hunter Water does not undertake formal internal complaint management audits however controls are in place in the form of a complaint management system that tracks key milestones for the complaint management standard – date logged, customer contact dates, resolution date, status and complaint types. This system produces alerts to the Customer Care team to effectively oversee the process and ensure that performance metrics outlined in the standard are being met. These results are reviewed each day and reported weekly to the operational management team, and monthly to the Board. This system is a record of customer contact details, communications, advice and interactions as well as providing the completion dates for key complaint resolution milestones."

Observations made by the auditor indicate that controls implemented by Hunter Water are consistent with the approach outlined in Hunter Water's response. For example, in reviewing the records in respect of Case No: 0003596814, it was noted that system prompts were provided as the 10 working day target for providing a way forward in respect of the complaint approached. The monitoring undertaken in respect of complaint management, as described above, also demonstrates the implementation of effective controls.

Notwithstanding, as an opportunity for improvement (**OFI-HWC-2019-05**), it is suggested that Hunter Water considers implementing a program of regular internal audits of its complaints handling process to ensure that the Internal Complaints Handling Procedure is fully and effectively implemented.

Effective implementation of the Internal Complaints Handling Procedure is in part dependent on staff involved in the process, specifically customer service officers, being appropriately trained. In the *AS/NZS 10002:2014 Checklist*⁵⁶⁵ provided in response to the Audit Questionnaire, Hunter Water made reference to training available via its internet based Knowledge Centre (link provided but not sighted) and the *Learner Resource; Customer Complaints and Enquires*,⁵⁶⁶ which provides extensive guidance in respect of the complaint management system.

Hunter Water monitors the competency of its contact centre staff in a *Competency Matrix*.⁵⁶⁷ Review of the *Competency Matrix* indicates that as at 18 September 2019, Hunter Water maintained 88% competency coverage by its contact centre staff entitlement in respect of complaint management.

Recommendations

There are no recommendations in respect of this obligation.

Opportunities for improvement

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

• **OFI-HWC-2019-05:** it is suggested that Hunter Water considers implementing a program of regular internal audits of its complaints handling process to ensure that the Internal Complaints Handling Procedure is fully and effectively implemented.

Supplemental information

No supplemental information is provided in respect of this obligation.

⁵⁶⁵ Document: ISO AS-NZS 10002-2014 Checklist Complaint Procedures.

⁵⁶⁶ Hunter Water, Learner Resource; Customer Complaints and Enquires (Version 2.0), 16 January 2017.

⁵⁶⁷ MS Excel workbook: *Annexure 19 - Contact Centre Case Competency*.

Table 3.16



Sub-clause	Requirement	Compliance Grade
5.7.2	Hunter Water must make a copy of the following documents available to any person, free of charge on its website for downloading and upon request through the General Enquiry Process:	Compliant
	a) the Customer Contract;	(minor shortcomings)
	b) a pamphlet or pamphlets (as referred to in clause 5.7.1);	
	c) the Procedure for Payment Difficulties and Actions for Non-payment;	
	d) the Customer Advisory Group Charter;	
	e) customer advisory group minutes;	
	f) the Internal Complaints Handling Procedure;	
	g) information about the dispute resolution scheme provided by Energy and Water Ombudsman NSW; and	
	h) a map of the Area of Operations.	

Provision of information to Customers and the general public (sub-clause 5.7.2)

3.6.2 Provision of information to Customers and the general public (clause 5.7)

Risk

Target for Full Compliance

Failure to comply with this obligation presents a high risk in respect of Hunter Water's customer and stakeholder relations. It is important that relevant information is available to any person who has a general or specific interest in relation to Hunter Water's obligations and/or performance. Evidence that Hunter Water has made the listed documents available free of charge to any person, either on its website or upon request through the General Enquiry Process.

Obligation

This obligation requires Hunter Water to make the listed documents readily available, free of charge, to any person either on its website or upon request through the General Enquiry Process (i.e. by making general enquiries to Hunter Water vis its website, email, post, telephone or in person.

Evidence sighted

- Hunter Water response to 2019 Audit Questionnaire.
- Document: Publicly available documents.
- The Hunter Water website at: <u>https://www.hunterwater.com.au/</u>.
- Specific webpages and documents as referenced.
- Fact sheets (pamphlets) as referenced.



Summary of reasons for grade

Whilst all of the listed information is technically available on the Hunter Water website and can therefore be provided upon request through the General Enquiry Process, not all information can be readily identified or located by navigation or search from the 'Home' page. Accordingly, Hunter Water is not considered to have demonstrated full compliance with this obligation; however, as this shortcoming has not significantly compromised the ability of Hunter Water to meet its obligation to make information available to any person upon enquiry, it is considered to be minor.

Discussion and notes

Hunter Water provided a document which identifies the website location of each of the listed documents and a screenshot of the relevant webpage.⁵⁶⁸ Availability of each document is assessed as follows:

Customer Contract:

The *Customer Contract* is available via a link from the 'Customer Contract' webpage (https://www.hunterwater.com.au/About-Us/Our-Organisation/Governance/Customer-Contract.aspx). The link opens the *Customer Contract* as a pdf file, which can then be downloaded free of charge.

The *Customer Contract* can be found on the website by:

- o searching for "Customer Contract" from the site masthead; or
- navigating from the 'Home' page: 'About us' > 'Our Organisation' > 'Governance' > 'Customer Contract'; or
- navigating from the 'Home' page: 'About us' > 'Publications' > 'Legislation and Governance' > 'Customer Contract 2017-2022'.
- Pamphlet or pamphlets (as referred to in clause 5.7.1):

Clause 5.7.1 requires the preparation of a pamphlet or pamphlets with a brief explanation of or information about:

- the Customer Contract this is provided in the *Customer Contract Summary* fact sheet, which also provides information in respect of complaints handling, Customers' rights and obligations, Account Assistance and how to get in touch with Hunter Water;
- the Procedure for Payment Difficulties and Actions for Non-payment this is provided in the *Account Assistance* fact sheet;
- the rights of Customers to claim rebates this is provided in the *Our customer rebates* fact sheet;
- the General Enquiry Process this is provided in the General Enquiries fact sheet;
- how to make a complaint under the Internal Complaints Handling Procedure this is provided in the *Complaints Handling* fact sheet; and
- the external dispute resolution service provided by the Energy and Water Ombudsman NSW this is also provided in the *Complaints Handling* fact sheet.

All fact sheets are available in pdf form and are available for downloading on the 'Fact Sheets' webpage (<u>https://www.hunterwater.com.au/About-Us/Publications/Fact-Sheets.Aspx</u>). The 'Fact Sheets' webpage can be accessed by navigating from the 'Home' page: 'About us'' > 'Publications' > 'Fact Sheets'.

⁵⁶⁸ Document: Publicly available documents.


- Procedure for Payment Difficulties and Actions for Non-payment:
 - Information about the *Procedure for Payment Difficulties and Actions for Non-payment* is available on the 'Payment Assistance' webpage (<u>https://www.hunterwater.com.au/Your-Account/Managing-Your-Account/Payment-Assistance/Payment-Assistance.aspx</u>). Additional information can be obtained via links leading to the following pdf files:
 - the Debt Recovery and Hardship Policy; and
 - the Account Assistance brochure.

The 'Payment Assistance' page can be found on the website by:

- searching for "Payment difficulties" from the site masthead; or
- navigating from the 'Home' page: 'Your Account' > 'Payment Assistance'.
- Customer Advisory Group Charter:

The *Customer Advisory Group Charter* is available via a link on the 'Hunter Water's Customer and Community Advisory Group' webpage on Hunter Water's 'Your Voice' website (<u>https://yourvoice.hunterwater.com.au/ccag</u>). The link opens the *Charter* as a pdf file, which can then be downloaded free of charge.

The Customer Advisory Group Charter can be accessed via the Hunter Water website by:

- searching for "Customer Advisory Group" or "Advisory Group" (or similar) from the site masthead; or
- navigating from the 'Home' page: 'Community' > 'Customer and Community Advisory Group'.
- Customer Advisory Group Minutes:

Customer Advisory Group Minutes are available via links on the 'Hunter Water's Customer and Community Advisory Group' webpage on Hunter Water's 'Your Voice' website (<u>https://yourvoice.hunterwater.com.au/ccag</u>). The links open Meeting Minutes as pdf files; the filename identifies the meeting dates.

The 'Hunter Water's Customer and Community Advisory Group' webpage can be accessed from the Hunter Water website as outlined above for the *Customer Advisory Group Charter*.

Internal Complaints Handling Procedure:

The *Standard; Customer Complaints Management* is available on the website at: <u>https://www.hunterwater.com.au/Resources/Documents/Standards/Customer/Standard---</u> <u>Customer-Complaints-Management---September-2019.pdf</u>. This leads directly to the pdf file, which can be downloaded free of charge.

The 'Compliments and Complaints' page on the Hunter Water website can be accessed by:

- o searching for "Complaint" from the site masthead; or
- navigating from the 'Home' page: 'About us' > 'Contact Us' > 'Lodge a Complaint'.

Whilst the 'Compliments and Complaints' webpage provides a telephone number for contacting Hunter Water's customer service staff and a link to an online form for lodging a complaint, it does not provide a link or otherwise lead to the *Standard; Customer Complaints Management* document.

 Information about the dispute resolution scheme provided by Energy and Water Ombudsman NSW:

Information about the dispute resolution scheme provided by Energy and Water Ombudsman NSW (EWON) is provided on the 'Compliments and Complaints' webpage at:



https://www.hunterwater.com.au/About-Us/Contact-Us/Compliments-and-Complaints/Compliments-and-Complaints.aspx.

Information can also be obtained from the 'Dispute Resolution' webpage at: <u>https://www.hunterwater.com.au/Your-Account/Managing-Your-Account/Dispute-Resolution.aspx</u>. This webpage can be accessed by navigation from the 'Home' page: 'Your Account' > 'Your Account' (links to 'Managing Your Account' webpage) > 'Dispute Resolution.

Neither page includes a specific document that can be downloaded; however, the webpage can be printed. A contact telephone number and a link to EWON's website are provided.

Although a downloadable document that provides information about the external dispute resolution service provided by EWON is not available on either the 'Compliments and Complaints' or 'Dispute Resolution' webpages, such information is available in the abovementioned *Complaints Handling* fact sheet, which is available on the 'Fact Sheets' webpage.

Map of the Area of Operations:

A map of Hunter Water's Area of Operations is available on the website at: <u>https://www.hunterwater.com.au/Save-Water/Water-Restrictions/Lower-Hunter-Map----</u><u>Hunter-Waters-Area-of-Operations.aspx</u>.

Although this map is available on the website, the auditor was not able to identify or navigate to it from the website 'Home' page; nor was it identified by searching for 'Area of Operations' from the site masthead. The above link leads to a webpage related specifically to water restrictions that are currently being imposed for the first time.

Furthermore, the map is not available as a document that can be downloaded, although the webpage can be printed or saved in a webpage format.

On the basis of the above assessment, all the requisite information is technically available on the Hunter Water website (and can therefore be provided upon request through the General Enquiry Process); however:

- not all information, specifically:
 - the *Standard; Customer Complaints Management* that provides information about the Internal Complaints Handling Procedure; and
 - o a map of Hunter Water's Area of Operations,

is readily identified or located by navigation or search from the 'Home' page; and

 a map of Hunter Water's Area of Operations is not available as a standalone downloadable document (a standalone document would also be required for response to general enquiries via the contact centre).

In view of these minor shortcomings:

- it is recommended (**REC-HWC-2019-05**) that by 30 June 2020, Hunter Water should ensure that all information required to be available on its website for downloading, or upon request through the General Enquiry Process, can be readily identified and located from the website 'Home' page by either menu navigation or using the search function; and
- as an opportunity for improvement (OFI-HWC-2019-06), it is suggested that Hunter Water considers providing all information required to be available on its website for downloading, or upon request through the General Enquiry Process, in a standalone format (e.g. pdf file) for ease of downloading and subsequent use.



Recommendations

The following recommendations in made in respect of this obligation:

• **REC-HWC-2019-05:** It is recommended that by 30 June 2020, Hunter Water should ensure that all information required to be available on its website for downloading, or upon request through the General Enquiry Process, can be readily identified and located from the website 'Home' page by either menu navigation or using the search function.

Opportunities for improvement

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

• **OFI-HWC-2019-06:** It is suggested that Hunter Water considers providing all information required to be available on its website for downloading, or upon request through the General Enquiry Process, in a standalone format (e.g. pdf file) for ease of downloading and subsequent use.

Supplemental information



done so within 60 days of the commencement

Sub-clause	Requirement		Compliance Grade
5.7.3	Hunter Water must update the pamphlet or pamphlets prepared under clause 5.7.1 and documents on its website under clause 5.7.2 to reflect any variations made to the information within 60 days of the commencement of the variations.		Compliant
Risk		Target for Full Com	pliance
Failure to comply with this obligation presents a high risk in respect of Hunter Water's customer and stakeholder relations. It is important that information available and/or provided to any person upon request remains		Evidence that Hunter Water has updated the pamphlet or pamphlets prepared under clause 5.7.1 and documents provided on its website under clause 5.7.2 to reflect any variations to the information, and that it has	

Table 3.17 Provision of information to Customers and the general public (sub-clause 5.7.3)

Obligation

up-to-date.

This obligation requires Hunter Water to ensure that information available and/or provided to any person upon request remains up-to-date. Any changes to the information must be reflected in the publicly available pamphlets and documents within 60 days of such changes being implemented.

of such variations.

Evidence sighted

- Hunter Water response to 2019 Audit Questionnaire.
- Hunter Water, Standard; Customer Complaints Management (Version 3.0), 25 September 2019.
- Other evidence referenced in Table 3.16.

Summary of reasons for grade

Hunter Water demonstrated that an updated version of the *Standard; Customer Complaints Management* was available on its website after being revised on 25 September 2019. Whilst the auditor was not able to verify the updated documents was available on the website within 60 days of the change, its availability was confirmed 69 days after the change.

There is no evidence or other indication to suggest that any other pamphlet or pamphlets prepared under clause 5.7.1 or documents on Hunter Water's website under clause 5.7.2 required updating, or were updated during the audit period.

Accordingly, Hunter Water is considered to have demonstrated compliance with this obligation.

Discussion and notes

In its response to the Audit Questionnaire, Hunter Water advised that

"The internal complaints handling standard was updated in September 2019. Minor changes were made to the wording and language, including descriptions of internal processes that were not relevant for customers. The website was immediately updated with the latest version. The related pamphlet was reviewed for consistency and no changes were required. The pamphlet was last amended in October 2018.

There were no variations made to the other specified documents during the audit period."



Review of the *Standard; Customer Complaints Management*⁵⁶⁹ as available on the Hunter Water website confirmed that it had been updated on 25 September 2019. Details of the changes are recorded in the Document Control table.

Although the auditor did not confirm availability of the updated document on the website within 60 days of the change, there is no evidence to suggest otherwise. The auditor did confirm that it was available on the website when checked 69 days after the change.

The auditor is unable to confirm that there were no other variations that would require update of the pamphlet or pamphlets prepared under clause 5.7.1 or the documents on Hunter Water's website under clause 5.7.2. However, considering the nature of the information presented, which would not normally be subject to change, the need is considered unlikely.

In respect of the requirement to update these pamphlets and documents, Hunter Water advised (in its response to the Audit Questionnaire) that:

"Hunter Water does not have a specific procedure in place for ensuring these documents are updated on the website (and related pamphlets updated) when a change is made. The person responsible for each document is also responsible for ensuring that the latest version of the document and related pamphlets are always publicly available."

On this basis, it is not readily apparent how a new person taking responsibility for a document would become aware of the requirement to ensure that the latest version of the document or pamphlet is publicly available. Whilst this may present an opportunity for improvement, given that the auditor did not assess this issue in detail (for example, the requirement may be reflected in relevant position descriptions), such opportunity is not formally identified.

Recommendations

There are no recommendations in respect of this obligation.

Opportunities for improvement

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

• **OFI-HWC-2019-07:** It is suggested that Hunter Water considers dating all published pamphlets and other documents to enable effective version control.

Supplemental information

It is noted that none of the pamphlets (fact sheets) prepared pursuant to clause 5.7.1 is dated or otherwise version controlled. It is therefore not possible to confirm their currency other than by the fact that they are published on Hunter Water's website, or to readily check if a downloaded copy remains current.

It is therefore suggested, as an opportunity for improvement (**OFI-HWC-2019-07**), that Hunter Water considers dating all published pamphlets and other documents to enable effective version control.

⁵⁶⁹ Hunter Water, Standard; Customer Complaints Management (Version 3.0), 25 September 2019.



3.6.3 Memorandum of Understanding with Fire and Rescue NSW (clause 5.11)

Sub-clause	Requirement	Compliance Grade
5.11.1	Hunter Water must use its best endeavours to:	
	 a) develop and enter into a memorandum of understanding with FRNSW by 31 December 2017; and 	Compliant
	b) once the memorandum of understanding referred to in clause 5.11.1(a) is developed and entered into, comply with the memorandum of understanding.	
	[Note: Clause 5.11.1 does not limit the persons with whom Hunter Water may enter into a memorandum of understanding.]	

Table 3.18 Memorandum of Understanding with Fire and Rescue NSW (sub-clause 5.11.1)

Risk

Failure to comply with this obligation presents a moderate operational risk. FRNSW is a key stakeholder and consumer in respect of Hunter Water's services, with obligations in respect of community protection.

Target for Full Compliance

Evidence that Hunter Water has used it best endeavours to develop and enter into a Memorandum of Understanding with FRNSW by 31 December 2017, and has subsequently complied with the Memorandum of Understanding.

Obligation

This obligation requires Hunter Water to use it best endeavours to develop and enter into a Memorandum of Understanding with Fire and Rescue NSW, and once it has done so, to comply with the provisions of the Memorandum of Understanding.

Evidence sighted

- Hunter Water response to 2019 Audit Questionnaire.
- Cobbitty Consulting, 2018 Operational Audit of Hunter Water Corporation; Final Audit Report (Version 3.0), 1 February 2019.
- Memorandum of Understanding between Hunter Water Corporation and Fire and Rescue NSW, dated October 2018/signed 17 June 2019.
- Hunter Water, Meeting Minutes; NSW Fire and Rescue and Hunter Water Collaborative Working Group; Initial Meeting – Combined Leadership and Working Group, meeting held 27 August 2019.

Summary of reasons for grade

At the time of the 2018 Operational Audit, Hunter Water was assessed to be compliant (with minor shortcomings) in respect of this obligation on the basis that it had not entered into a memorandum of understanding with Fire and Rescue NSW, and although it had generally used its best endeavours to do so, there had been some lapses in activity. Hunter Water demonstrated that it has now entered into a *Memorandum of Understanding* with Fire and Rescue NSW; the signed agreement is dated 17 June 2019.



Hunter Water demonstrated that it has subsequently complied with the *Memorandum of Understanding*. It has held a combined meeting of both the Strategic Liaison Group and Fire Fighting Working Group, both of which were to be established pursuant to the *Memorandum of Understanding*, and matters discussed at the meeting were consistent with requirements under the *Memorandum of Understanding*.

On this basis, Hunter Water is considered to have demonstrated compliance with this obligation.

Discussion and notes

Hunter Water's compliance with this obligation was assessed as part of the 2018 Operational Audit, at which time the auditor assessed that:⁵⁷⁰

"Hunter Water demonstrated that it has been working with Fire and Rescue NSW to establish a Memorandum of Understanding between the parties; however, it had not entered into such Memorandum of Understanding by 31 December 2017. Whilst the evidence suggests that work has continued, there appear to have been some periods during which there has been a lapse in activity (for example, between February and May 2018).

On this basis, it is assessed that Hunter Water has demonstrated compliance with this obligation, i.e. that it had used its best endeavours to establish a Memorandum of Understanding albeit with some minor shortcomings."

In response to this assessment, IPART made a recommendation (2018-11) to the Minister that:

"By 30 June 2019, Hunter Water should use its best endeavours to develop and enter into a Memorandum of Understanding with Fire and Rescue NSW."

To demonstrate that this recommendation has now been addressed (refer Table 4.15), and that it has now fulfilled the obligation to enter into a memorandum of understanding with Fire and Rescue NSW, Hunter Water provided a copy of the fully executed *Memorandum of Understanding between Hunter Water Corporation and Fire and Rescue NSW*.⁵⁷¹ The signed agreement is dated 17 June 2019.

To demonstrate that it is now complying with the *Memorandum of Understanding*, Hunter Water provided the minutes of the first meeting between the parties and advised as follows:

"Hunter Water has established the Working Group and Strategic Liaison Group required under the MoU. The first meeting between the parties was held 27 August 2019 as a combined Strategic Liaison Group and Working Group meeting. Priority actions for the Working Group were tabled and prioritised as documented in the meeting minutes.

Review of the minutes of the meeting, which was held on 27 August 2019, revealed that:⁵⁷²

- Membership of the Strategic Liaison Group (Leadership Group) was identified;
- Membership of the Fire Fighting Working Group was identified;
- Key activities raised included:
 - Hydrant Data provide current hydrant capacity to Fire and Rescue;
 - Fire and Rescue Risk Maps provide risk maps developed by Fire and Rescue to Hunter Water;
 - Water Network Design Training provide details of design courses to Fire and Rescue;

⁵⁷⁰ Cobbitty Consulting, 2018 Operational Audit of Hunter Water Corporation; Final Audit Report (Version 3.0), 1 February 2019, table 3.20.

 ⁵⁷¹ Memorandum of Understanding between Hunter Water Corporation and Fire and Rescue NSW, dated October 2018/signed 17 June 2019.
 ⁵⁷² Hunter Water, Meeting Minutes; NSW Fire and Rescue and Hunter Water Collaborative Working Group; Initial Meeting – Combined Leadership and Working Group, meeting held 27 August 2019.



- Fire Hydrant App Sydney Water and Fire and Rescue finalising the development of hydrant app and information sharing. Hunter Water to be invited to next meeting; and
- Water Quality Risks from Fire-fighting Equipment refer risks to Hunter Water's Drinking Water Quality Committee for review.

In each case, responsibility for the required action, timeline and priority was assigned.

- An extensive list of items was identified for discussion, including:
 - Network capacity modelling/mapping;
 - Static capacity mapping;
 - Live data to aid FRNSW at incidents;
 - Data/information transfer method and frequency;
 - Network upgrade triggers;
 - Upgrade program for areas identified with low flow;
 - Funding for upgrade program;
 - Prioritisation policies for the use of this funding;
 - Water access;
 - Hydrant condition (functional, accessible etc.)
 - Special event hydrant accessibility restrictions procedures for information transfer;
 - Low head-loss backflow prevention;
 - FRNSW backflow prevention;
 - Testing and compliance of fire services;
 - Management of water quality during event, training, other;
 - Water usage during events;
 - Prioritisation of performance deficiencies;
 - New connections;
 - Pressure management; and
 - Changes in system performance and impacts of fire systems.

These key activities and matters identified for discussion are clearly consistent with the purpose of the memorandum of understanding and Hunter Water's obligations under the Licence, as well as both Hunter Water's and Fire and Rescue NSW's obligations under the *Memorandum of Understanding*.

Given that both the Strategic Liaison Group and Fire Fighting Working Group have met, and matters discussed are consistent with requirements under the *Memorandum of Understanding*, it is considered that Hunter Water (in collaboration with Fire and Rescue NSW) has complied with the *Memorandum of Understanding* subsequent to developing and entering into it.

It is noted that, under the terms of the *Memorandum of Understanding*, the Strategic Liaison Group is required to meet at least annually, and the Fire Fighting Working Group is required to meet quarterly. Accordingly, there were no further meetings of either group during the audit period. The next meeting (of the Fire Fighting Working Group) was scheduled to be held on 19 November 2019.

Recommendations

There are no recommendations in respect of this obligation.

Opportunities for improvement

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



Supplemental information



Sub-clause	Requirement		Compliance Grade
5.11.3	The memorandum of understanding referred to in clause 5.11.1 must require:		
	a) the of FR	e establishment of a working group, comprised representatives from Hunter Water and NSW; and	Compliant
	b) the ma	e working group to consider the following	
	i)	arrangements regarding information sharing between Hunter Water and FRNSW;	
	ii)	agreed timelines and a format for Hunter 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 Hunter Water to consult with FRNSW in the design of new assets and planning of system maintenance, where modelling indicates that minimum available flow and pressure may unduly affect firefighting in the network section under consideration; and	
	iv)	other matters as agreed by both parties to the memorandum of understanding.	

Table 3.19 Memorandum of Understanding with Fire and Rescue NSW (sub-clause 5.11.3)

Risk

Failure to comply with this obligation presents a moderate operational risk. FRNSW is a key consumer in respect of Hunter Water's services, with obligations in respect of community protection. It is important that water supply services are adequate to enable FRNSW to meet its obligations.

Target for Full Compliance

Evidence that the Memorandum of Understanding between Hunter Water and FRNSW includes the specified requirements.

Obligation

This obligation requires the Memorandum of Understanding between Hunter Water and Fire and Rescue NSW to address specified requirements.

Evidence sighted

- Hunter Water response to 2019 Audit Questionnaire.
- Memorandum of Understanding between Hunter Water Corporation and Fire and Rescue NSW, dated October 2018/signed 17 June 2019.
- Hunter Water, Meeting Minutes; NSW Fire and Rescue and Hunter Water Collaborative Working Group; Initial Meeting – Combined Leadership and Working Group, meeting held 27 August 2019.



Summary of reasons for grade

Review of the *Memorandum of Understanding between Hunter Water Corporation and Fire and Rescue NSW* reveals that requirements in respect of a Fire Fighting Working Group are clearly documented. It requires the establishment of a Fire Fighting Working Group, and identifies the matters that it must consider (at a minimum) consistent with the requirements of this Licence obligation.

Accordingly, Hunter Water is considered to have demonstrated compliance with this obligation.

Discussion and notes

Review of the *Memorandum of Understanding between Hunter Water Corporation and Fire and Rescue NSW* reveals that requirements in respect of a Fire Fighting Working Group (FFWG) are clearly documented, as follows: ⁵⁷³

"4.2 Fire Fighting Working Group

- 4.2.1 Hunter Water and FRNSW will establish and operate the Fire Fighting Working Group (FFWG).
- 4.2.2 Specific membership of the FFWG will be as agreed between the parties from time to time. The chairperson of the FFWG will alternate per meeting between representatives of each party. Other bodies can be invited to attend a meeting of the FFWG from time to time to assist in deliberations.
- 4.2.3 The intention is that the FFWG shall meet quarterly, unless agreed in writing by both parties. The FFWG shall specify the procedure for calling its meetings and the manner in which business is to be conducted at, and in relation to, those meetings.
- 4.2.4 It is intended that the role of the FFWG will be to:
 - *identify and consider issues relevant to achieving the objectives stated in Section 3 of this MoU;*
 - *consider any direction from the SLG* [Strategic Liaison Group];
 - make recommendations to the SLG where required by the SLG or a party's Chief Executive;
 - develop and lead the implementation of formal business; arrangements and strategies between the parties ; and
 - where appropriate, engage and consult with other stakeholders to better enable the FFWG to recommend wider strategies to the SLG.
- 4.2.5 The FFWG will consider the need for formal binding arrangements to be put in place between the parties regarding:
 - the sharing of information, for example, water network information or fire incidents;
 - design of new, replacement or upgraded water network assets, and the requirement for Hunter Water to consult with FRNSW where modelling indicates that minimum available flow and pressure may unduly affect firefighting in the network section under consideration;
 - efficient means of accessing water from the network;
 - managing water quality risks associated with accessing water from the network;
 - planning of water network maintenance; and
 - *if considered necessary, implement such formal arrangements.*
- 4.2.6 The FFWG is to agree to the format and timing for Hunter Water to provide a report detailing its water network performance regarding water availability for firefighting.

⁵⁷³ Memorandum of Understanding between Hunter Water Corporation and Fire and Rescue NSW, dated October 2018/signed 17 June 2019.



As can be seen, section 4 of the *Memorandum of Understanding* sets out in detail the operational arrangements and role of the FFWG and the matters it is required to address. Sections 4.2.5 and 4.2.6 address the specific requirements of this Licence obligation.

Recommendations

There are no recommendations in respect of this obligation.

Opportunities for improvement

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

Supplemental information

As reported in Table 3.18, membership of the FFWG was identified at a combined meeting of the Strategic Liaison Group and the FFWG held on 27 August 2019;⁵⁷⁴ this was the first meeting held pursuant to the *Memorandum of Understanding*. It is noted that membership of the FFWG comprises three representatives of Hunter Water and five representatives of Fire and Rescue NSW. Representatives of Hunter Water's Water Operations, Capability Engineering and Control Centre teams are identified as others who would contribute as required.

⁵⁷⁴ Hunter Water, Meeting Minutes; NSW Fire and Rescue and Hunter Water Collaborative Working Group; Initial Meeting – Combined Leadership and Working Group, meeting held 27 August 2019.



3.7 Performance monitoring and reporting

3.7.1 Reporting Manual (clause 6.2)

Table 3.20 Reporting Manual (sub-clause 6.2.1)

Sub-clause	Requirement	Compliance Grade
6.2.1	Hunter Water must comply with all of its reporting obligations set out in the Reporting Manual, includin in relation to:	g 📀
	a) water conservation;	Compliant
	b) supply services and performance standards;	
	c) organisational systems management;	
	d) customer and stakeholder relations; and	
	e) performance monitoring and reporting, including	ng:
	i) IPART performance indicators; and	
	ii) the National Water Initiative Performance Indicators.	

Risk

Target for Full Compliance

Failure to comply with this obligation presents a low operational risk. Failure to report has no direct impact on operational performance, although compliant reporting enables independent monitoring and promotes public confidence. Evidence that Hunter Water has prepared, submitted, and published all of the requisite reports in accordance with the requirements set out in the Reporting Manual.

Obligation

This obligation requires Hunter Water to prepare reports in respect of a range of matters, to submit specific reports to IPART, NSW Health and customers depending upon the nature of the report, and to make some reports available to the public on its website.

Evidence sighted

- Hunter Water response to 2019 Audit Questionnaire.
- IPART, Hunter Water Reporting Manual; Operating Licence 2017-2022 (Version 2.0), 29 June 2018.
- Evidence listed in Table 3.2, Table 3.4, Table 3.6, Table 3.7 and Table 3.8,
- Hunter Water, Compliance and Performance Report; September 2019 (Version 1.0), 30 August 2019.
- Email dated 30 August 2019 from Hunter Water to IPART (re: Hunter Water's 1 September reports for 2018-19).
- Email dated 30 August 2019 from IPART to Hunter Water (re: Hunter Water's 1 September reports for 2018-19).
- 'Regulatory Reporting' page on the Hunter Water website at: <u>https://www.hunterwater.com.au/About-Us/Our-Organisation/Governance/Regulatory-Reporting.aspx</u>.



- Document: *Screenshot C*+*P* report on website.
- Water Quality' page on the Hunter Water website at: <u>https://www.hunterwater.com.au/Water-and-Sewer/Water-Supply/Water-Quality/</u>.
- Document: Monthly water quality monitoring report screenshot 11 September 2019.
- Document: Monthly water quality monitoring report screenshot 18 September 2019.
- MS Excel workbook: Report Hunter Water Monthly Fluoride Report June 2019.
- Email dated 4 July 2019 from Hunter Water to NSW Health (re: *Hunter Water Monthly Fluoride Report June 2019*).
- Hunter Water, Hunter Water Exception Report to NSW Health; Drinking Water and Recycled Water; 1st April to 30th June 2019, undated.
- Email dated 13 August 2019 from Hunter Water to NSW Health and response of same date (re: Report - Quarterly to NSW Health - Drinking Water and Recycled Water Quality Exceptions April to June 2019).
- Email dated 29 March 2019 from Hunter Water to NSW Health (re: *Microcystis in Chichester Dam at Medium Alert Level*).
- Email dated 10 April 2019 from Hunter Water to NSW Health and acknowledgment of same date (re: UPDATE 1: Microcystis in Chichester Dam (no longer at Medium Alert Level, toxin non-detect)).
- Letter dated 5 March 2019 from Hunter Water to NSW Health (re: Notification of proposed significant changes to Hunter Water's Drinking Water Quality Management System).
- Email dated 7 March 2019 from HW to IPART (re: Proposed significant change to DWQMS – CCPs).
- Letter dated 29 March 2019 from Hunter Water to IPART (re: Report on Significant Changes to Management Systems).
- Email dated 29 March 2019 from Hunter Water to IPART (re: 2019 significant changes report).
- Email dated 1 July 2019 from Hunter Water to NSW Health (re: Recycled Water Quality Management Plans).
- Emails dated 24 July 2019 from Hunter Water to IPART (re: Proposed changes to RWQMPs (part 1 of 2) and (part 2 of 2)).
- MS Excel workbook: *Data 2018-19* NPR *data and indicators data for IPART*.
- Letter dated 1 March 2019 from IPART to Hunter Water (re: Hunter Water's operational audit for 2018).
- Letter dated 24 May 2019 from Hunter Water to IPART (re: *Status of Recommendations* – 2017-18 Operational Audit).
- Email dated 21 May 2019 from Hunter Water to IPART and acknowledgement of same date (re: Hunter Water - Status of recommendation - 2017-18 Operational Audit).
- Letter dated 29 March 2019 from Hunter Water to IPART (re: Report on Significant Changes to Management Systems).
- Letter dated 30 August 2019 from Hunter Water to IPART (re: *Statement of Compliance 2018-19*).



Summary of reasons for grade

Review of an extensive portfolio of reports together with evidence of submission (typically email correspondence) provided by Hunter Water and inspection of the Hunter Water website revealed that, based on the evidence provided, Hunter Water complied with its reporting obligations during the audit period.

Accordingly, Hunter Water is considered to have demonstrated compliance with this obligation.

Discussion and notes

The *Reporting Manual*⁵⁷⁵ requires reporting in respect of a range of matters, which collectively encompass the matters specifically identified under this obligation. Such reporting includes both periodic reporting and 'as required' reporting pursuant to specific Licence obligations.

Hunter Water provided an extensive portfolio of reports together with evidence of submission (typically email correspondence). Considering the *Reporting Manual* requirements in respect of each of the matters identified under this obligation:

Clause 2.1.1 – Water conservation work program:

As reported in Table 3.4 and Table 3.8, the Water Conservation Work Program was detailed in the *Water Conservation Report 2018-19*, which was submitted to IPART on 30 August 2019. The report also detailed progress in implementing the work program.⁵⁷⁶

- Clause 2.1.2 Annual compliance and performance reporting Water Conservation Target: Hunter Water reported performance against the Water Conservation Target, projects undertaken to achieve the Water Conservation Target, proposed water conservation projects and system yield in the *Compliance and Performance Report*,⁵⁷⁷ which was submitted to IPART on 30 August 2019.⁵⁷⁸ Submission was acknowledged by IPART ⁵⁷⁹
- Clause 2.2.1 Economic Level of Water Conservation Principles and Approach: As reported in Table 3.6, Hunter Water submitted a report outlining its proposed approach to, and principles for developing a methodology for determining its economic level of water conservation to IPART for approval prior to 1 November 2017.⁵⁸⁰
- Clause 2.2.2 Economic Level of Water Conservation Methodology: As reported in Table 3.7, Hunter Water submitted its proposed methodology for determining its economic level of water conservation (i.e. its *Economic Level of Water Conservation Methodology*) to IPART for approval prior to 1 February 2019, a later date approved by IPART.⁵⁸¹
- Clause 2.2.3 Water Conservation Strategy for Water Storage and Transmission: As reported in Table 3.2 Hunter Water demonstrated that it had submitted a report outlining its Water Conservation Strategy in relation to its system operating arrangements for Water Storage and Transmission to IPART on 31 October 2018.⁵⁸²
- Clause 2.2.4 Water conservation work program: As reported in Table 3.4 and Table 3.8, the Water Conservation Work Program was detailed in the *Water Conservation Report 2018-19*, which was submitted to IPART on 30 August 2019. The report also detailed progress in implementing the work program.⁵⁸³

⁵⁷⁵ IPART, Hunter Water Reporting Manual; Operating Licence 2017-2022 (Version 2.0), 29 June 2018.

⁵⁷⁶ Evidence listed in Table 3.4 and Table 3.8.

⁵⁷⁷ Hunter Water, Compliance and Performance Report; September 2019 (Version 1.0), 30 August 2019, section 3.

⁵⁷⁸ Email dated 30 August 2019 from Hunter Water to IPART (re: Hunter Water's 1 September reports for 2018-19).

⁵⁷⁹ Email dated 30 August 2019 from IPART to Hunter Water (re: Hunter Water's 1 September reports for 2018-19).

⁵⁸⁰ Evidence listed in Table 3.6.

⁵⁸¹ Evidence listed in Table 3.7.

⁵⁸² Evidence listed in Table 3.2.



 Clause 2.2.5 – Changes to the approved Economic Level of Water Conservation Methodology:

No changes were made to the approved Economic Level of Water Conservation Methodology during the audit period. Accordingly, no reporting was required.

- Clause 2.3 Publicly available documents: The *Water Conservation Report 2018-19* was uploaded to the Hunter Water website on 30 August 2019; it can be accessed at: <u>https://www.hunterwater.com.au/About-Us/Our-Organisation/Governance/Regulatory-Reporting.aspx</u>. Hunter Water provided a screenshot dated 3 September 2019 as evidence of availability on that date.⁵⁸⁴
- Clause 3.1.1 Monthly Water Quality Monitoring Report Drinking Water:

The current monthly drinking water quality monitoring report is available on the Hunter Water website at: <u>https://www.hunterwater.com.au/Water-and-Sewer/Water-Supply/Water-Quality/</u>.

Reports are required to be available on the website by the 14th day of the following month. Screenshots showing timing of report availability on website were provided; a screenshot dated 11 September 2019⁵⁸⁵ shows the report for July 2019, whilst a screenshot dated 18 September 2019⁵⁸⁶ shows the report for August. This demonstrates that the August report was uploaded to the website between 11 September and 18 September; however, a screenshot demonstrating that the report had been uploaded by 14 September is not available. For the purposes of this assessment, it is accepted that the report was uploaded within the required timeline.

Clause 3.1.2 – Monthly Fluoridation Report – Drinking Water:

Hunter Water is required to submit a monthly report on its fluoride monitoring to NSW Health by the 7th day of the following month. Hunter Water provided evidence that the monthly report for June 2019⁵⁸⁷ was submitted to NSW Health on 4 July 2019.⁵⁸⁸

Clause 3.1.3 – Quarterly Exception Report – Drinking Water and Recycled Water:

Hunter Water provided evidence that it had submitted the quarterly exception report for the period 1 April 2019 to 30 June 2019⁵⁸⁹ to NSW Health on 13 August 2019,⁵⁹⁰ with acknowledgment of receipt provided the same day. This meets the requirement of submission by the 14th day of the second month following the end of the quarter.

Review of the report confirmed that it includes the required information.

 Clause 3.1.4 – Annual compliance and performance reporting – Drinking water and Recycled water quality management:

This reporting obligation is addressed in the *Compliance and Performance Report*,⁵⁹¹ which as previously reported was submitted to IPART on 30 August 2019. Review of the report confirms that it addresses the requisite matters.

Clause 3.1.5 – Annual compliance and performance reporting – System performance standards:

Hunter Water reported on its performance against the Water Pressure Standard, Water

⁵⁸³ Evidence listed in Table 3.4 and Table 3.8.

⁵⁸⁴ Document: Screenshot - C+P report on website.

⁵⁸⁵ Document: Monthly water quality monitoring report screenshot - 11 September 2019.

⁵⁸⁶ Document: Monthly water quality monitoring report screenshot - 18 September 2019.

⁵⁸⁷ MS Excel workbook: Report - Hunter Water - Monthly Fluoride Report - June 2019.

⁵⁸⁸ Email dated 4 July 2019 from Hunter Water to NSW Health (re: *Hunter Water - Monthly Fluoride Report - June 2019*).

⁵⁸⁹ Hunter Water, Hunter Water Exception Report to NSW Health; Drinking Water and Recycled Water; 14 April to 30th June 2019, undated.

⁵⁹⁰ Email dated 13 August 2019 from Hunter Water to NSW Health and response of same date (re: Report - Quarterly to

NSW Health - Drinking Water and Recycled Water Quality Exceptions April to June 2019).

⁵⁹¹ Hunter Water, Compliance and Performance Report; September 2019 (Version 1.0), 30 August 2019, sections 2.1 and 2.2.



Continuity Standard and Wastewater Overflow Standard in the *Compliance and Performance Report.*⁵⁹² Review of the report confirms that it includes commentary in respect of Hunter Water's performance, thereby addressing the requisite matters.

- Clause 3.2.1 Incident and emergency reporting Drinking Water and Recycled Water: As an example of reporting against this obligation, Hunter Water provided correspondence in respect of Microcystis in Chichester Dam. An initial report was provided to NSW Health on 29 March 2019 following a telephone discussion (notification).⁵⁹³ An update report was provided on 10 April 2019 following discussion at the quarterly liaison meeting the previous week; receipt was acknowledged by NSW Health.⁵⁹⁴
- Clause 3.2.2 Notification of significant changes to Water Quality Management Systems: Hunter Water is required to notify IPART and NSW Health of any significant changes that it proposes to make to the Drinking Water or Recycled Water Quality Management Systems. Hunter Water provided the following notifications during the audit period:
 - Proposed change to disinfection critical control point at all WTPs Hunter Water notified NSW Health on 5 March 2019⁵⁹⁵ and IPART on 7 March 2019 (a copy of the notification to NSW Health was attached).⁵⁹⁶
 - Proposed changes to critical control points under both the Drinking Water and Recycled Water Quality Management Systems were reported in the annual *Significant Changes Report*,⁵⁹⁷ which was submitted to IPART on 29 March 2019.⁵⁹⁸ The proposed changes to the Drinking Water Quality Management System were as reported above; changes to the Recycled Water Quality Management System, which related specifically to the Chisholm and Gillieston Heights recycled water scheme, were the subject of separate ongoing liaison with NSW Health.
 - Proposed changes to the Recycled Water Quality Management System, specifically changes to critical control points and subsequent update of Recycled Water Quality Management Plans Hunter Water notified NSW Health on 1 July 2019⁵⁹⁹ and IPART on 24 July 2019.⁶⁰⁰ Details of the proposed changes were provided together with copies of the updated Recycled Water Quality Management Plans.
- Clause 3.2.3 Customer survey report: Report is not due until 30 June 2020.
- Clause 3.3 Publicly available documents:
 - As reported above, the current monthly drinking water quality monitoring report is available on the Hunter Water website at: <u>https://www.hunterwater.com.au/Water-and-Sewer/Water-Supply/Water-Quality/</u>.
 - The above referenced *Compliance and Performance Report*, which includes annual reporting in respect of drinking water and recycled water quality management, is available on the Hunter Water website at: <u>https://www.hunterwater.com.au/About-Us/Our-Organisation/Governance/Regulatory-Reporting.aspx</u>.
- Clause 4.1.1 Annual compliance and performance reporting: Annual compliance and performance reporting in respect of the Asset Management System,

⁵⁹² Hunter Water, Compliance and Performance Report; September 2019 (Version 1.0), 30 August 2019, sections 2.1 and 2.2.

 ⁵⁹³ Email dated 29 March 2019 from Hunter Water to NSW Health (re: *Microcystis in Chichester Dam at Medium Alert Level*).
 ⁵⁹⁴ Email dated 10 April 2019 from Hunter Water to NSW Health and acknowledgment of same date (re: UPDATE 1: Microcystis

in Chichester Dam (no longer at Medium Alert Level, toxin non-detect)). ⁵⁹⁵ Letter dated 5 March 2019 from Hunter Water to NSW Health (re: *Notification of proposed significant changes to Hunter Water's Drinking Water Quality Management System).*

⁵⁹⁶ Email dated 7 March 2019 from HW to IPART (re: Proposed significant change to DWQMS - CCPs).

⁵⁹⁷ Letter dated 29 March 2019 from Hunter Water to IPART (re: Report on Significant Changes to Management Systems).

⁵⁹⁸ Email dated 29 March 2019 from Hunter Water to IPART (re: 2019 significant changes report).

⁵⁹⁹ Email dated 1 July 2019 from Hunter Water to NSW Health (re: Recycled Water Quality Management Plans).

⁶⁰⁰ Emails dated 24 July 2019 from Hunter Water to IPART (re: Proposed changes to RWQMPs (part 1 of 2) and (part 2 of 2)).



Environmental Management System and Quality Management System is included in the *Compliance and Performance Report*,⁶⁰¹ which as previously reported was submitted to IPART on 30 August 2019. Review of the report confirms that it addresses the requisite matters.

Clause 4.2.1 – Strategic asset management plan:
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This reporting obligation was required to be met prior to the audit period, so assessment is not reported in detail. Nonetheless, as Hunter Water has provided evidence of submission, the auditor confirms that Hunter Water submitted a copy of its Strategic Asset Management Plan to IPART prior to 1 July 2018 as required.

Clause 4.3 – Publicly available documents:

As reported above, the *Compliance and Performance Report*, which includes annual reporting in respect of the Asset Management System, Environmental Management System and Quality Management System, is available on the Hunter Water website at: <u>https://www.hunterwater.com.au/About-Us/Our-Organisation/Governance/Regulatory-Reporting.aspx</u>.

Clause 5.1.1 – Annual compliance and performance reporting:

Annual compliance and performance reporting in respect of Hunter Water's customer and stakeholder relations is included in the *Compliance and Performance Report*,⁶⁰² which as previously reported was submitted to IPART on 30 August 2019. Review of the report confirms that it addresses the requisite matters.

Clause 5.2 – As required reporting:

There was no change to the Customer Contract during the audit period; accordingly, no reporting was required pursuant to this obligation.

• Clause 5.3 – Publicly available documents:

As reported in Table 3.16, Hunter Water has complied with this reporting obligation.

Clause 6.1.1 – Annual compliance and performance reporting:

Reporting of Hunter Water's performance against its IPART and NWI Performance Indicators⁶⁰³ was submitted to IPART, together with the *Compliance and Performance Report*, *Water Conservation Report 2018-19* and *Statement of Compliance* on 30 August 2019.⁶⁰⁴ Hunter Water indicated (in its response to the Audit Questionnaire) that performance monitoring did not reveal any problems of a systemic nature, and that it had chosen not to provide a report containing explanation of performance influencers.

• Clause 6.1.2 – Annual audit recommendations status report:

Due to the timing of the 2018 Operational Audit, the timing for submission of the annual audit recommendations status report was changed from 31 March 2019 to 24 May 2019.⁶⁰⁵ Hunter Water provided a report on the status of audit recommendations⁶⁰⁶ to IPART on 24 May 2019.⁶⁰⁷ consistent with the revised timing.

Clause 6.1.3 – Significant changes:

The annual *Significant Changes Report*,⁶⁰⁸ which detailed significant changes to Hunter Water's Drinking Water and Recycled Water Quality Management Systems, Asset Management

⁶⁰¹ Hunter Water, Compliance and Performance Report; September 2019 (Version 1.0), 30 August 2019, section 4.

⁶⁰² Hunter Water, Compliance and Performance Report; September 2019 (Version 1.0), 30 August 2019, section 5.

⁶⁰³ MS Excel workbook: Data - 2018-19 NPR data and indicators data for IPART.

⁶⁰⁴ Email dated 30 August 2019 from Hunter Water to IPART (re: Hunter Water's 1 September reports for 2018-19).

⁶⁰⁵ Letter dated 1 March 2019 from IPART to Hunter Water (re: Hunter Water's operational audit for 2018).

⁶⁰⁶ Letter dated 24 May 2019 from Hunter Water to IPART (re: Status of Recommendations - 2017-18 Operational Audit).

⁶⁰⁷ Email dated 21 May 2019 from Hunter Water to IPART and acknowledgement of same date (re: *Hunter Water - Status of recommendation - 2017-18 Operational Audit)*.

⁶⁰⁸ Letter dated 29 March 2019 from Hunter Water to IPART (re: Report on Significant Changes to Management Systems).



System, Environmental Management System and Quality Management System, was submitted to IPART on 29 March 2019.⁶⁰⁹

Clause 6.1.4 – Statement of compliance:

Hunter Water submitted its annual *Statement of Compliance*⁶¹⁰ on 30 August 2019.⁶¹¹ The statement of compliance was submitted in the required format.

On the basis of the above analysis of the evidence provided, Hunter Water fulfilled its reporting requirements in respect of water conservation, supply services and performance standards, organisational systems management, customer and stakeholder relations, and performance monitoring and reporting pursuant to this obligation. A brief review of the reports reveals that the required matters have been addressed and reports have been submitted in accordance with the prescribed timelines.

Recommendations

There are no recommendations in respect of this obligation.

Opportunities for improvement

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

Supplemental information

⁶⁰⁹ Email dated 29 March 2019 from Hunter Water to IPART (re: 2019 significant changes report).

⁶¹⁰ Letter dated 30 August 2019 from Hunter Water to IPART (re: Statement of Compliance 2018-19).

⁶¹¹ Email dated 30 August 2019 from Hunter Water to IPART (re: Hunter Water's 1 September reports for 2018-19).



Sub-clause	Requirement	Compliance Grade
6.2.2	Hunter Water must maintain sufficient record systems to enable Hunter Water to report accurately in accordance with clause 6.2.1.	Compliant

Table 3.21 Reporting Manual (sub-clause 6.2.2)

Risk

Failure to comply with this obligation presents a moderate level of risk in respect of Hunter Water's operational performance. The ability to accurately measure performance against specified indicators, and to otherwise report on performance is a key tool in assessing the effectiveness of a utility's operations. Target for Full Compliance

Evidence that Hunter Water maintains sufficient records to enable it to report accurately in accordance with sub-clause 6.2.1.

Obligation

This obligation requires Hunter Water to maintain sufficient record systems to report accurately in respect of the matters identified in clause 6.2.1, and to do so in accordance with the Reporting Manual.

Evidence sighted

- Hunter Water response to 2019 Audit Questionnaire.
- Hunter Water, Standard; Compliance Calendar (Version 1.0), February 2015.
- Document: *Calendar Update Form*.
- Internal email dated 2 July 2019 (re: Compliance Calendar June 2019).
- Internal email dated 3 July 2019 (re: Please complete compliance and performance report chapters by 29 July 2019).
- Document: C+P report approval DWQMS and RWQMS.
- Internal email dated 29 July 2019 (re: Please complete compliance and performance report chapters by 29 July 2019).
- Document: *C*+*P* report approval *Exec approval of full report.*
- Email dated 3 September 2019 from Veolia to Hunter Water (re: *Fluoride Report Aug2019*).
- MS Excel workbook: Report Hunter Water Monthly Fluoride Report August 2019.
- MS Excel workbook: Report Hunter Water Monthly Fluoride Report June 2019.
- Email dated 4 July 2019 from Hunter Water to NSW Health (re: Hunter Water Monthly Fluoride Report - June 2019).
- Hunter Water, NSW DOH Fluoride Results Reporting (Version 1), undated.
- Hunter Water, Notification of Water Quality Events of Potential Public Health Significance to NSW Health (Version 1.3), 5 June 2018.
- Hunter Water, Procedure Recycled Water Incident Notification & Response (Version 6), June 2019.
- MS Excel workbook: *Guideline criteria for notification to NSW Health.*



- Email dated 29 March 2019 from Hunter Water to NSW Health (re: *Microcystis in Chichester Dam at Medium Alert Level*).
- Email dated 10 April 2019 from Hunter Water to NSW Health and acknowledgment of same date (re: UPDATE 1: Microcystis in Chichester Dam (no longer at Medium Alert Level, toxin non-detect)).

Summary of reasons for grade

Based on review of the processes used to prepare a sample of reports, it is apparent that Hunter Water has a robust record management system and processes are in place to enable it to report accurately in accordance with the requirements of clause 6.2.1 and the *Reporting Manual*. Envirosys, the Environmental and Water Quality Data Management Software used by Hunter Water, is the primary system for recording water quality data.

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

Discussion and notes

Overview:

The ISO standards against which Hunter Water's Quality, Environmental and Asset Management Systems are certified all require the accredited organisation to maintain an effective means of managing the information/records required for the organisation to operate. As Hunter Water's management systems are all certified as being compliant with the relevant standard, it can be assumed that it has such record systems in place.

Notwithstanding, to assess compliance with this obligation, the auditor reviewed the process used to derive reports/reported values in respect of the following:

- Annual compliance and performance reporting Drinking water and Recycled water quality management;
- Monthly Fluoridation Report Drinking Water;
- Incident and emergency reporting Drinking Water and Recycled Water; and
- Quarterly Exception Report Drinking Water and Recycled Water.

In its response to the Audit Questionnaire, Hunter Water advised that:

"Hunter Water uses HP Records Manager (TRIM) as a record management system. HP Records Manager is a scalable enterprise document and records management package that incorporates capture, management, security, and access to information. Generally, reports and correspondence are recorded, reviewed, endorsed and approved in TRIM.

Regulatory requirements including compliance with the requirements in the Operating Licence Reporting Manual are documented and tracked corporately using Hunter Water's Compliance Calendar. This reminds the responsible employees of their obligations, provides assurance to senior managers that activities are on track, and provides up to three months' notice to allow corrective actions to be taken for activities 'at risk' of completion, prior to the due date."

The calendar is managed in accordance with the *Compliance Calendar Standard*.⁶¹² A *Compliance Calendar Update Form*⁶¹³ is typically used to get new items added or existing items amended in the *Calendar*.

A monthly email is sent to staff prompting update of the status of each item on the *Calendar*. A sample for June 2019 was provided as evidence.⁶¹⁴ The email included instructions for update status in the *Calendar*.

⁶¹² Hunter Water, *Standard; Compliance Calendar* (Version 1.0), February 2015.

⁶¹³ Document: *Calendar Update Form*.



Annual compliance and performance reporting – Drinking water and Recycled water quality management:

Compilation of the annual compliance and performance report is coordinated by the Economics team. An email containing the report template, links to report requirements and the allocation of responsibility for preparation of the various sections is issued in early July (2019 sample provided).⁶¹⁵

The report is prepared and updated as required by contributors. Content/chapters are endorsed by relevant Group Managers. A screenshot showing online approval of the Drinking Water Quality Management System and Recycled Water Quality Management System chapters was provided.⁶¹⁶

The Economics team follows-up with contributors during this process to ask if help is required or to ensure completion is on track. These follow-ups are typically in person (Economics team member simply arrives at contributor's desk) or via phone as these methods are more effective than email. A sample email shows a response to a check-in with a contributor (manager) to ensure that the required due date was met.⁶¹⁷

Once all contributions have been received, the report is compiled and reviewed by the Economics team to:

- undertake a quality assurance review;
- ensure content is sufficient to meet requirements set out in the Operating Licence and Reporting Manual; and
- where necessary, make requests to contributors for further information, explanation or changes.

The report is then submitted to Executives for review and approval, including final approval by Managing Director (Acting Chief Executive Officer). A screenshot showing online approval by the Executive Management Team was provided.⁶¹⁸

Monthly Fluoridation Report – Drinking Water:

Fluoride is monitored within the water distribution system for each water treatment plant. This involves sampling from customer meters and the treatment plant's Clear Water Tank where water enters the distribution system. These monitoring points are used to assess both the quality of water leaving the water treatment plant and the quality of water received by customers.

Veolia undertakes sampling at the Clear Water Tank and provides the data to Hunter Water via the Envirosys system,⁶¹⁹ typically on the 1st or 2nd day of the month. A sample email for the August 2019 shows that the attached data files were sent to Hunter Water (Envirosys and relevant staff).⁶²⁰

Hunter Water's laboratory contractor, ALS, undertakes sampling at six sample points (at customer meters) in the distribution system. ALS analyses the samples and submits results in Envirosys on an ongoing basis as they are produced.

Hunter Water runs a report from Envirosys to extract the data/report (that covers both the Veolia and ALS monitoring results). A sample report for August 2019 was provided.⁶²¹

⁶¹⁸ Document: C+P report approval - Exec approval of full report.

⁶¹⁴ Internal email dated 2 July 2019 (re: Compliance Calendar - June 2019).

⁶¹⁵ Internal email dated 3 July 2019 (re: Please complete compliance and performance report chapters by 29 July 2019).

⁶¹⁶ Document: C+P report approval - DWQMS and RWQMS.

⁶¹⁷ Internal email dated 29 July 2019 (re: Please complete compliance and performance report chapters by 29 July 2019).

⁶¹⁹ 'Envirosys' is Environmental and Water Quality Data Management Software used by Hunter Water.

⁶²⁰ Email dated 3 September 2019 from Veolia to Hunter Water (re: Fluoride Report - Aug2019).

⁶²¹ MS Excel workbook: Report - Hunter Water - Monthly Fluoride Report - August 2019.



Hunter Water's Treatment Engineer undertakes a quality review of the results/report and includes detail of any interruptions to fluoridation during the month. The Manager Treatment Operations then reviews and approves report, following which it is sent to NSW Health. As reported in Table 3.20, Hunter Water provided evidence that the monthly report for June 2019⁶²² was submitted to NSW Health on 4 July 2019.⁶²³

This reporting process is undertaken in accordance with the Fluoride Reporting Procedure.624

Incident and emergency reporting – Drinking Water and Recycled Water:

Hunter Water applies a procedure to ensure that appropriate Hunter Water staff are aware of, and undertake, the appropriate actions to notify NSW Health of water quality events of public health significance. Procedures are in place in respect of both Drinking Water⁶²⁵ and Recycled Water.⁶²⁶

A guideline containing the criteria for notification to NSW Health is also kept in Hunter Water's records management system.⁶²⁷ Hunter Water also has a Memorandum of Understanding, which specifies the requirement to report events of potential public health significance, in place with NSW Health.

As reported in Table 3.20, an example of incident reporting was provided in respect of Microcystis in Chichester Dam. An initial report was provided to NSW Health on 29 March 2019 following a telephone discussion (notification).⁶²⁸ An update report was provided on 10 April 2019 following discussion at the quarterly liaison meeting the previous week; receipt was acknowledged by NSW Health.⁶²⁹

Quarterly Exception Report – Drinking Water and Recycled Water.

Exceptions are tracked individually as they occur.

An exceedance of the critical limit at a Critical Control Point (CCP) is identified by a SCADA alarm, which triggers appropriate action. Other exceptions include exceedance of ADWG guideline health or aesthetic limits at routine water quality verification monitoring points.

Hunter Water is notified immediately by the laboratory contractor, ALS, as specified in the laboratory service contract. There is a specific procedure for the notification of any *E.coli* detection. For physical/chemical exceedances, notification is by email to Hunter Water. Any exceedances at the routine water quality monitoring points are also noted in ALS's monthly water quality report and tabled at the water quality committee.

To prepare the quarterly report, data is combined from a number of sources, including the following, by the Water Quality Engineer:

- Water quality exceptions reported by Veolia (monthly report);
- Monthly reports from ALS;
- Review of emails; and
- Monthly water quality committee meeting where critical limit exceedances and other exceptions and matters are tabled.

A report is then prepared by the Water Quality Engineer using a template that contains all required information, as outlined in the *Reporting Manual*. The report is reviewed by the Manager

⁶²² MS Excel workbook: Report - Hunter Water - Monthly Fluoride Report - June 2019.

⁶²³ Email dated 4 July 2019 from Hunter Water to NSW Health (re: Hunter Water - Monthly Fluoride Report - June 2019).

⁶²⁴ Hunter Water, NSW DOH Fluoride Results Reporting (Version 1), undated.

⁶²⁵ Hunter Water, Notification of Water Quality Events of Potential Public Health Significance to NSW Health (Version 1.3), 5 June 2018.

⁶²⁶ Hunter Water, Procedure – Recycled Water Incident Notification & Response (Version 6), June 2019.

⁶²⁷ MS Excel workbook: Guideline - criteria for notification to NSW Health.

⁶²⁸ Email dated 29 March 2019 from Hunter Water to NSW Health (re: Microcystis in Chichester Dam at Medium Alert Level).

⁶²⁹ Email dated 10 April 2019 from Hunter Water to NSW Health and acknowledgment of same date (re: UPDATE 1: Microcystis in Chichester Dam (no longer at Medium Alert Level, toxin non-detect)).



Water Treatment Operations and Manager Water Network Operations prior to submission to NSW Health.

Recommendations

There are no recommendations in respect of this obligation.

Opportunities for improvement

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

Supplemental information



4. **Previous Recommendations**

4.1 Overview

This section sets out the detailed findings in respect of the status of previous recommendations. In each case the following is provided:

- the reference number for the previous recommendation;
- the previous recommendation;
- the assessed status (Complete, Ongoing or No action taken);
- a summary of the reason for the assessed status;
- a list of the evidence reviewed in assessing the status;
- discussion of the evidence reviewed and how it demonstrates the assessed status;
- any further recommendations; and
- any identified opportunities for improvement.

It is noted that some previous recommendations relate to requirements of the *Hunter Water Corporation Operating Licence 2012-2017*, which was in place at the time the recommendation was made. This is acknowledged by footnote where appropriate.



4.2 Detailed Assessment of Status

4.2.1 Pricing (clause 1.8)

Table 4.1 Previous Recommendation 2018-01

Reference	Requirement		Status
2018-01	Pricing (clause 1.8.1):		Completed
	Hunter Water should take action to ensure that tankering charges are correctly applied, including by:		
	a)	31 March 2019, the use of paper tanker delivery dockets is replaced by a digital capture (mobility) arrangement	
	b)	30 June 2019, draft bill validation processes are implemented for tankered waste bills	
	c)	31 December 2019, automated billing for the receipt of tankered waste is implemented as part of Hunter Water's proposed billing system upgrade.	

Anticipated completion date

Not applicable - recommendation has been addressed.

Evidence sighted

- Hunter Water response to 2019 Audit Questionnaire.
- Document: *Screenshot of the e-docket system Docket entry.*
- Document: W18.2 Sample of Docket Completed by Staples Bros (Docket No: HW 159430, dated 1 July 2018).
- Document: *Screenshot of the e-docket system Dashboard.*
- Hunter Water, IPART Annual Pricing Update 2019/2020; Test Summary (Version 1.0), 6 June 2019.
- Document: W18.2 Audit Evidence Staples Bros (Nowra) Pty Ltd September 2018 Invoice (Huntlee Discharge).
- Gentrack, Functional Requirements; Tanker Receivals (Version 3.1), 4 July 2019.
- Document: *Historical Company Fee Summary Report*.
- Document: Tankering App-Delivery Fee DataTable.
- Document: Tankering App-Waste Fee Data Table.
- Document: Tankering App-Expiring Agreement Evidence.

Summary of reasons for assessed status

Hunter Water demonstrated that, in most respects, this recommendation has been addressed. Specifically, a digital tanker docket entry system has been implemented; a process for validation of draft tankered waste bills has been introduced with further improvements yet to be implemented; and some automation of the billing process has been introduced.



Full automation of the billing process, and further improvements to the draft bill validation process will not, however, be implemented until after Hunter Water's new billing system has been implemented and performance proven (i.e. after the first billing cycle). Functional requirements for tankered waste billing have been developed ready for incorporation into the billing system.

On the basis of the actions completed to date, the auditor considers it appropriate to close-out this previous recommendation, but make a new recommendation to ensure that full automation of tankered waste billing is implemented.

Discussion and notes

In its response to the Audit Questionnaire, Hunter Water detailed its progress in addressing this recommendation, as follows:

- "a) Hunter Water launched a digital tanker docket entry system February 2019 with full use by 1 July 2019. From July, all tanker dockets are entered electronically into a web based platform.
- b) The process to validate tankered trade waste bills was implemented prior to 30 June 2019. The process involves two stages of testing. The first stage is a series of tests completed by our ICT test team which ensures the tankered waste charges (to be applied to accounts after 1 July 2019) have been input into the billing system correctly. The tests and process used in Stage one to validate these changes being made correctly are evidenced in the ICT Billing System Changes document provided. The second stage is completed just before a bill is printed and sent to the customer. This stage checks that the prices implemented and tested at Stage One, are reproduced accurately on the customer's bill. A sample bill file (generated from the billing system) is produced by our bill print vendor, and sent to the Billing and Metering team for each charge to be checked. Once the accuracy of the charges is confirmed, the team leader confirms for the bill print vendor that the bills can be printed and released to customers. This process is evidenced by e-mails from our bill print vendor and response e-mails confirming release of bills.
- c) The Hunter Water billing system replacement/upgrade has been delayed until March 2020. Tanker billing will occur in the billing system from this date. However, a fully automated process for tankering is not due to be completed on this date as the link between the digital docket entry system and the billing system was not part of the initial scope of the billing project (developed 3 years ago). A separate project to build the integration between the two solutions to deliver the full end-to-end billing solution will be completed following the billing system going live. In the interim a number of additional controls have been implemented to assist in the billing process, these include:
 - Functionality in the web based platform which calculates tankering charges using an electronic master file of approved charges.
 - Invoice tracking functionality in the platform to ensure each customer is invoiced on a regular basis.
 - Agreement tracking functionality which flags when agreements are close to expiring.
 - A manual validation process of bills via random sample before distribution."

Hunter Water provided evidence of action taken in respect of each part of the recommendation, as follows:

Part a) – Digital tanker docket entry system:

A screenshot⁶³⁰ of the e-docket entry system 'Create a Docket' form was provided. This provides for the entry, by the tanker operator, of load details including: Truck (selected from drop-down menu); Plant (at which the waste is discharged; selected from menu); Waste (type of waste discharged; selected from menu); Discharge Date, Discharge Time; Discharge Volume; Discharge Duration; Waste Origin; and Inspected? (whether or not an inspection

⁶³⁰ Document: *Screenshot of the e-docket system – Docket entry.*



had been undertaken at the time of discharge). The data fields are consistent with those on the previously used paper dockets.⁶³¹

A screenshot⁶³² of the 'Tankering' online application 'Dashboard' was also provided. This shows live data as tanker discharges are entered into the system. The default setting is monthly; however, it can be set to show detail on a weekly or daily basis.

The data in the screenshot compares the data collected for the month to date against the total data for the previous month. The variance between previous month's data and current month's data is also shown. Data presented includes:

- Total volume (ML) last month versus month to date;
- Revenue (\$) last month versus month to date (using volume x \$rate);
- Inspection last month versus month to date (completed by Veolia);
- Active Companies companies active in lodging dockets;
- Discharge time recorded to discharge a load;
- Total Dockets last month versus month to date (discharge entries by companies);
- Out of hours discharge prior to 7am and after 3pm; and
- Unique trucks different trucks identified as having discharged.

On the basis of the evidence provided, it is apparent that a digital document entry system has been implemented.

Part b) – Draft tankered waste bill validation process:

Consistent with the approach outlined above (Hunter Water's response to the Audit Questionnaire), as part of the annual update of prices within the billing system, Hunter Water undertakes testing to validate all possible bill combinations (first stage of validation). The outcomes of this testing process for the 2019/2020 pricing update are summarised in the *IPART Annual Pricing Update 2019/2020; Test Summary*⁶³³ report.

Review of the Test Summary reveals that:

- Tradewaste charges 56 tests passed;
- Tankering Charges Enviroking Treaty 5 tests passed; and
- Tankering charges Web App 3 tests passed, and one test not run. It was noted that: "Delivery Processing Fee is not yet applied due to a known issue that will update all previous dockets. This will be resolved and updated before any 2019/20fy fees are generated in August".

As reported in Table 3.1, for bills generated through the billing system, the second stage of the validation process involves generation of a sample bill file by Hunter Water's bill printing service provider, in which each charge is checked by Hunter Water prior to printing and issue. For tankered waste bills, however, the second stage validation is undertaken by checking a random sample of the printed bills prior to issue. Although Hunter Water is not able to provide specific evidence to demonstrate this validation process, review (by the auditor) of a sample bill confirms that prices have been correctly applied.⁶³⁴

On the basis of the evidence and explanations provided, it is apparent that the bill validation processes implemented by Hunter Water includes validation of tankered waste bills.

Part c) – Automated billing for the receipt of tankered waste:

As indicated above (Hunter Water's response to the Audit Questionnaire), automated billing for the receipt of tankered waste has not yet been implemented as replacement/upgrade of

⁶³¹ Document: W18.2 Sample of Docket Completed by Staples Bros (Docket No: HW 159430, dated 1 July 2018).

⁶³² Document: Screenshot of the e-docket system – Dashboard.

⁶³³ Hunter Water, IPART Annual Priving Update 2019/2020; Test Summary (Version 1.0), 6 June 2019.

⁶³⁴ Document: W18.2 Audit Evidence - Staples Bros (Nonra) Pty Ltd - September 2018 Invoice (Huntlee Discharge).



the Hunter Water billing system has been delayed until March 2020. Furthermore, functionality for tankered waste billing is not included in the initial phase of the new billing system.

Due to contract warranty conditions, tankered waste billing will not be incorporated into the new billing system until after the first billing cycle. Nonetheless, functional requirements have been identified and documented ready for implementation.⁶³⁵

As also noted above, in the interim Hunter Water has implemented additional controls to assist in the billing process. Hunter Water provided evidence of these controls, as follows:

- A screenshot of the 'Tankering' online application 'Dashboard'⁶³⁶ which shows total revenue to allow tracking of billed totals; the number of dockets entered to allow comparison with number of bills issued; and total volume of waste received to allow comparison with volumes billed (see above discussion for further detail).
- Screenshot of the 'Tankering' online application 'Historical Company Fee Summary Report'⁶³⁷ which shows the system's ability to calculate tankering charges using the prices loaded into its rates table (master file).
- Screenshots of the 'Tankering' online application 'Delivery Fee Data Table'⁶³⁸ and 'Waste Fee Data Table'⁶³⁹ – which show the rates tables (master files) used to generate charges.
- Screenshot of the 'Tankering' online application 'Active Company Fee Summary Report' – which demonstrates the system's ability to track charges that should be billed to customers.
- Screenshot of the 'Tankering' online application 'Expiring Agreements' page⁶⁴⁰ which demonstrates the system's ability to track and identify agreements which are due to expire/have expired.

On the basis of this evidence and the explanations provided, it is apparent that some automation of the billing system has been implemented in the interim period prior to Hunter Water's new billing system being implemented. Importantly, fee information is now embedded in, and applied within, the online 'Tankering' application.

On the basis of the actions completed to date, the auditor considers that the intent of the recommendation has been substantially met. A digital document entry system has been implemented; bill validation processes are being implemented, with further improvements yet to be realised; and some degree of automated billing has been implemented, specifically in respect of the application of the relevant fees within the online 'Tankering' application.

It is therefore considered appropriate to close-out this previous recommendation; however, it remains appropriate to ensure that the proposed functionality for fully automated tankered waste billing is incorporated into the new corporate billing system once it is implemented and performance proven. Accordingly, it is recommended (**REC-HWC-2019-06**) that by 31 March 2021, Hunter Water should ensure that the proposed functionality for fully automated tankered waste billing is incorporated into the new corporate billing system. This proposed timing allows for implementation and performance proving of the new billing system; incorporation of tankered waste billing into the new system after the first billing cycle (consistent with contractual constraints); and proof of performance of the tankered waste billing functionality in the following billing cycle.

⁶³⁵ Gentrack, Functional Requirements; Tanker Receivals (Version 3.1), 4 July 2019.

⁶³⁶ Document: Screenshot of the e-docket system – Dashboard.

⁶³⁷ Document: Historical Company Fee Summary Report.

⁶³⁸ Document: Tankering App-Delivery Fee DataTable.

⁶³⁹ Document: Tankering App-Waste Fee Data Table.

⁶⁴⁰ Document: Tankering App-Expiring Agreement Evidence.



Further recommendations

The following new recommendation is made in respect of the remaining issue identified in this previous recommendation:

• **REC-HWC-2019-06:** It is recommended that by 31 March 2021, Hunter Water should ensure that the proposed functionality for fully automated tankered waste billing is incorporated into the new corporate billing system.

Opportunities for improvement

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

Supplemental information



Reference	Requirement	Status
2018-02	Pricing (clause 1.8.1):	Completed
	By 1 September 2019, Hunter Water must report to IPART on the further progress made in contacting owners affected by the incorrect charging of the Environment Improvement Charge and notify the total of the refunds made, and any further actions to rectify this non-compliance.	

Table 4.2 Previous Recommendation 2018-02

Anticipated completion date

Not applicable - recommendation has been addressed.

Evidence sighted

- Hunter Water response to 2019 Audit Questionnaire.
- Hunter Water, File Note; Environmental Improvement Charge (EIC) Refund Update to IPART September 2019, 3 September 2019.
- Email dated 3 September 2019 from Hunter Water to IPART (re: *Progress update on refunds for EIC charge applied to vacant land*).
- Email dated 3 September 2019 from IPART to Hunter Water (re: *Progress update on refunds for EIC charge applied to vacant land*).

Summary of reasons for assessed status

Hunter Water demonstrated that it had prepared and submitted a report to IPART on the further progress made in contacting owners affected by the incorrect charging of the Environment Improvement Charge, including details of the total of the refunds made, and further actions proposed to rectify the non-compliance.

On this basis, this previous recommendation is considered to have been addressed.

Discussion and notes

In its response to the Audit Questionnaire, Hunter Water advised that:

Hunter Water provided this progress update late due to an administrative oversight. The report was provided on 3 September 2019 (see emails to and from IPART). The report is attached and describes:

- Progress in contacting affected owners.
- Total \$value of refunds made.
- Further actions planned to rectify the non-compliance.

Hunter Water provided a copy of a file note⁶⁴¹ that reported on progress made in contacting owners affected by the incorrect charging of the Environment Improvement Charge (which had occurred during the period 1 July 2013 to 30 April 2018). The report documented the background to the issue and progress in addressing it as at September 2019. Consistent with the requirement of the recommendation, the report also reported the total of the refunds made, and the further actions proposed to rectify the non-compliance.

⁶⁴¹ Hunter Water, File Note; Environmental Improvement Charge (EIC) Refund – Update to IPART September 2019, 3 September 2019.



Hunter Water also provided evidence that it had submitted the report (file note) to IPART,⁶⁴² albeit two days late,⁶⁴³ and that IPART had acknowledged receipt.⁶⁴⁴

Further recommendations

There are no further recommendations arising in respect of this previous recommendation.

Opportunities for improvement

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

Supplemental information

⁶⁴² Email dated 3 September 2019 from Hunter Water to IPART (re: *Progress update on refunds for EIC charge applied to vacant land*). ⁶⁴³ It is noted that 1 September 2019 was a Sunday.

⁶⁴⁴ Email dated 3 September 2019 from IPART to Hunter Water (re: Progress update on refunds for EIC charge applied to vacant land).



4.2.2 Drinking Water (clause 3.1)

Reference	Requirement	Status
2013/14-03, 2013/14-04, 2013/14-06 and 2013/14-13	 Water Quality; Drinking Water (clauses 2.1.1 & 2.1.2).⁶⁴⁵ Within 6 months, Hunter Water should review Critical Control Points (CCPs) for each treatment plant, including: a) review all CCP critical limits (including alarm delays), and monitoring points to ensure they reflect current practice, as agreed with NSW Health; 	Completed
	[Note: other elements of these recommendations, as they apply to Drinking Water, had been fully addressed at the time of the 2018 Operational Audit.]	

Table 4.3 Previous Recommendations 2013/14-03, 2013/14-04, 2013/14-06 and 2013/14-13

Anticipated completion date

It is anticipated that this recommendation will be fully addressed by 31 March 2020.

Evidence sighted

- Hunter Water response to 2019 Audit Questionnaire.
- HW2017-836 2 4.004 Letter Significant Changes to Hunter Waters DWQMS – signed.PDF.
- HW2009-1194 15 2.007 Letter Operational Audit 2017-18 Recommendation Status – 24 May 2019.PDF.
- HW2017-1005 5 7.002 Minutes Disinfection CCP Meeting NSW Health Nov 2018.DOC.
- HW2017-1005 5 7.005 Minutes Disinfection CCP Meeting NSW Health Jan 2019.DOC.
- HW2017-836 1.001 Presentation Disinfection CCP Presentation to NSW Health Jan 2019.PPT.
- HW2017-836 1.005 Minutes 13-05-209 Meeting NSW Health and Hunter Water on CCP Disinfection Changes.DOC.
- HW2017-836 1.011 Email Hunter Water primary disinfection CCPs Sent to NSW Health 21062019.MSG.
- Email dated 16 December 2019 from NSW Health to Viridis Consultants (re: *Hunter Water PWU Audit*).

Summary of reasons for assessed status

NSW health has now agreed to the final CCP critical limits. Accordingly, this recommendation is considered to have been fully addressed.

14093.001 - 2019 Operational Audit Report Hunter Water (Version 3.0) 28 February 2020

⁶⁴⁵ Clause reference relates to the Hunter Water Corporation Operating Licence 2012-2017.



Discussion and notes

A workshop was conducted with NSW Health in January 2019⁶⁴⁶ to agree on the approach to the revised disinfection CCP concept. Draft CCP Limits were then sent to NSW Health in March 2019 and discussed at a May 2019 meeting.⁶⁴⁷

Final CCP critical limits were developed following on from this meeting and were sent to NSW Health on 21 June 2019.

In response to the audit NSW Health has provided an email,⁶⁴⁸ which states that "*CCPs around disinfection (Ct.) have been completed*" and that "*NSW* [Health] *is happy for the disinfection CCP item to be closed out in the audit*". This demonstrates that these have been agreed with NSW Health and therefore this recommendation can be closed.

Further recommendations

There are no further recommendations arising in respect of this previous recommendation.

Opportunities for improvement

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

Supplemental information

⁶⁴⁶ HW2017-836 1.001 Presentation - Disinfection CCP Presentation to NSW Health Jan 2019.

⁶⁴⁷ HW2017-836 1.005 Minutes - 13-05-209 Meeting - NSW Health and Hunter Water on CCP Disinfection Changes. ⁶⁴⁸ Email dated 16 December 2019 from NSW Health to Viridis Consultants (re: *Hunter Water PWU Audit*).



Reference	Requirement	Status
2018-03	Drinking Water (clause 3.1.1):	Completed
	By 30 June 2019, Hunter Water should have a clear and transparent risk assessment process. Hunter Water should review the current risk process to ensure that the risk process is clearly mapped out and documented so that all stakeholders are able to follow the process easily. Documentation of the risk process should include all relevant data that is used to inform the risk assessment.	

Table 4.4 Previous Recommendation 2018-03

Anticipated completion date

Not applicable - recommendation has been addressed.

Evidence sighted

- Hunter Water response to 2019 Audit Questionnaire.
- HW2015-1303/6.002 Report Catchment to Tap Water Quality Risk Assessment Guideline.

Summary of reasons for assessed status

Hunter Water has fully met the requirements of the recommendation.

Discussion and notes

Hunter Water advised that to address this recommendation it has:

"... developed a new quality assurance guideline⁶⁴⁹ which explains the catchment to tap risk assessment process. The guideline includes key information covering risk assessment preparation (i.e. water quality analysis, briefing paper etc.), and risk outcomes reporting including corporate risk updates."

The guideline requires:

"... risk assessments to consider handover risks to the distribution network (for example manganese, THMs etc.)."

The guidelines for preparation include:

".. requirements for preparation and reporting of water quality data (for example reporting of e-coli data). Requirements have been stipulated for each specific water supply system within the guideline document."

It is considered that the new Guideline fully addresses the recommendation and provides an overarching framework allowing for greater certainty that all risks are considered.

Further recommendations

There are no further recommendations arising in respect of this previous recommendation.

Opportunities for improvement

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

14093.001 - 2019 Operational Audit Report Hunter Water (Version 3.0) 28 February 2020

⁶⁴⁹ HW2015-1303/6.002 Report - Catchment to Tap Water Quality Risk Assessment Guideline.



Supplemental information


Reference	Requirement	Status
2018-04	Drinking Water (clause 3.1.1):	Completed
	By 30 June 2019, Hunter Water should clearly identify as a hazard event 'receiving water from Central Coast Council' in the risk assessment and preventive/control measures must be documented and implemented.	

Table 4.5 Previous Recommendation 2018-04

Anticipated completion date

Not applicable – recommendation has been addressed.

Evidence sighted

- Hunter Water response to 2019 Audit Questionnaire.
- HW2015-1365 1.014 Register Hunter Water and Central Coast Council Drinking Water Transfer Scheme.XLS.
- HW2015-1365 17.013 Report Hunter Water and Central Coast Council Drinking Water Transfer Scheme Risk Assessment Briefing Paper.PDF.
- HW2015-1365 18.013 Report Hunter Water and Central Coast Council Drinking Water Transfer Scheme Risk Assessment Summary Report.PDF.
- HW2015-1449/7.003 Email Follow-up to HWC-CCC transfer scheme risk review.MSG.
- DWQIP. See actions #253-256.
- HW2006-2906 10 2.005 Register Drinking Water Quality Improvement Plan.XPS.

Summary of reasons for assessed status

Hunter Water has fully met the requirements of the recommendation.

Discussion and notes

To address this recommendation, Hunter Water has undertaken a risk assessment⁶⁵⁰ process with the involvement of Hunter Water, NSW Health and Central Coast Council. A risk mitigation plan has been prepared for those risks that were considered to exceed Hunter Water's risk appetite.

The risk assessment workshop was held on 30 May 2019 and was facilitated by a water quality expert, who also prepared a briefing paper⁶⁵¹ and risk assessment report.⁶⁵² The workshop identified eight hazardous events, one of which was exceeded risk appetite for both Hunter Water and Central Coast Council; there were "*minor deficiencies in the existing preventative measures associated with consistency of hygienic water main repair practices and formalised protocols for coordinating maintenance works between Hunter Water and Central Coast Council.*" Hunter Water has stated that "*a risk mitigation plan has been approved by the Chief Investment Officer to address risks identified as being off appetite*".

It is considered that Hunter Water has undertaken a thorough process to assess the risk of water transfer between itself and Central Coast Council. The process appears to have been valuable in the establishment of formal communications for the operation and maintenance of shared

⁶⁵⁰ HW2015-1365 1.014 Register - Hunter Water and Central Coast Council Drinking Water Transfer Scheme.

⁶⁵¹ HW2015-1365 17.013 Report - Hunter Water and Central Coast Council Drinking Water Transfer Scheme Risk Assessment Briefing Paper.

⁶⁵² HW2015-1365 18.013 Report - Hunter Water and Central Coast Council Drinking Water Transfer Scheme Risk Assessment Summary Report.



infrastructure.

Further recommendations

There are no further recommendations arising in respect of this previous recommendation.

Opportunities for improvement

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

Supplemental information



Reference	Requirement	Status
2018-05	Drinking Water (clause 3.1.1):	Completed
	By 30 June 2019, Hunter Water should prioritise the improvement actions identified in the 2018 risk assessment to ensure maintenance hygiene procedures are reviewed so that consistent hygiene practices are implemented and are auditable. These hygiene practices should include the disinfection of tools, personal hygiene (in relation to workwear), disinfection and storage of parts/pipes, working clearances to prevent contamination, flushing,	
	reinstating a service and acceptance criteria.	

Table 4.6 Previous Recommendation 2018-05

Anticipated completion date

Not applicable - recommendation has been addressed.

Evidence sighted

- Hunter Water response to 2019 Audit Questionnaire.
- Standard STS 408 Water Quality Acceptance Testing.PDF.
- HW2012-1337 23 3.001 Presentation STS 408 Training Water main repair.PPT.
- HW2015-1449 7.022 Email STS-408 water quality acceptance for water mains from Group Manager Water Operations.MSG.
- HW2015-1449 7.004 Email FW: Development eNews July 2019.MSG.
- HW2015-1443 1 5.012 Report Drinking Water Quality Improvement Plan – August 2019.PDF.

Summary of reasons for assessed status

Hunter Water has fully met the requirements of the recommendation.

Discussion and notes

To address this recommendation, Hunter Water has developed a new *Standard Technical Specification* for *Water Quality Acceptance Testing (STS 408)*. The new specification includes:

- Personal, tools and equipment hygiene;
- Storage in vehicles of tools and equipment;
- Hygienic work practices;
- Water quality acceptance criteria, based on risk; and
- Template checklist for a Water Quality Acceptance Report.

On review, the new specification is detailed and covers the scope of the recommendation. The specification was provided to developers for feedback through the Development eNews – July 2019.⁶⁵³ A presentation⁶⁵⁴ has been prepared to roll out training in November and December2019.

⁶⁵³ HW2015-1449 7.004 Email - FW: Development eNews - July 2019.



This recommendation has been addressed and it is considered to be a major improvement in managing potential ingress of foreign material into the drinking water network and ensuring developers adhere to the same standards as Hunter Water.

Further recommendations

There are no further recommendations arising in respect of this previous recommendation.

Opportunities for improvement

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

Supplemental information

No supplemental information is provided in respect of this obligation.

654 HW2012-1337 23 3.001 Presentation - STS 408 Training - Water main repair.



Reference	Requirement	Status
2018-06	Drinking Water (clause 3.1.1):	Completed
	By 30 June 2019, Hunter Water should:	
	a) Add reservoir inspection training to the training needs matrix for all positions undertaking reservoir inspections, to ensure training is current.	
	 Revise the Reservoir Inspection form to provide more specific guidance and refer to specific and measurable assessment criteria, where possible. For example, under Roof Hatches and Roof Sheeting, the inspection item: 	
	"P1 – evidence of bird/vermin in reservoir or vent/opening not bird/vermin proof"	
	could be revised to include a specific measurable assessment criterion:	
	"P1 — evidence of bird/vermin in reservoir or vent/opening greater than "X"mm."	

Table 4.7 Previous Recommendation 2018-06

Anticipated completion date

Not applicable - recommendation has been addressed.

Evidence sighted

- Hunter Water response to 2019 Audit Questionnaire.
- Register IMS Training and Competency Needs Register 2019.PDF.
- Reservoir Inspection Form 24-6-19.PDF.
- Register IMS Training and Competency Needs Register 2019.PDF.

Summary of reasons for assessed status

Hunter Water has fully met the requirements of the recommendation.

Discussion and notes

The IMS Training and Competency Needs Register⁶⁵⁵ has been updated to include a column with reservoir inspection training with 'mandatory' and 'as required' training requirements. Relevant staff have been assigned 'mandatory' training.

Training has been developed and will be rolled out. One trial session has been undertaken.

The Reservoir Inspection Form⁶⁵⁶ has been revised to include new measurable criteria for assessment, as required by part b) the recommendation. The new measurable criterion for vermin proofing reservoirs includes "*any holes in the roof or vermin wire (>2cm) large enough for bird/animal entry*". The new form follows the assessment process more sequentially making it easier to undertake. Anecdotally, the new process has led to more issues being identified and work orders

⁶⁵⁵ Register - IMS Training and Competency Needs Register 2019.PDF.

⁶⁵⁶ Reservoir Inspection Form 24-6-19.



created, which is a positive sign that issues are being identified and rectified.

This recommendation has been fully addressed.

Further recommendations

There are no further recommendations arising in respect of this previous recommendation.

Opportunities for improvement

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

Supplemental information



4.2.3 Recycled Water (clause 3.2)

Reference	Requirement	Status
2013/14-03,	Water Quality; Recycled Water (clauses 2.2.1 & 2.2.2):657	a) Ongoing
2013/14-04, 2013/14-06 and 2013/14-13	Within 6 months, Hunter Water should review Critical Control Points (CCPs) for each treatment plant, including:	c) and e) Completed
	a) review all CCP critical limits (including alarm delays), and monitoring points to ensure they reflect current practice, as agreed with NSW Health;	
	c) revise and review CCP documentation to clearly state location, parameters, target criteria, monitoring frequency, critical limits, corrective actions and responsibilities for each CCP; and	
	e) operational and critical limits must be set in SCADA as alarms, including delay times where appropriate.	
	[Note: other elements of these recommendations, as they apply to Recycled Water, had been fully addressed at the time of the 2018 Operational Audit.]	

Table 4.8 Previous Recommendations 2013/14-03, 2013/14-04, 2013/14-06 and 2013/14-13

Anticipated completion date

It is anticipated that this recommendation will be fully addressed by 31 March 2020.

Evidence sighted

- Hunter Water response to 2019 Audit Questionnaire.
- Hunter Water, Validation Testing Program for Water Recycling Schemes (Rev 1.3), September 2019.
- Hunter Water, Morpeth WWTW Recycled Water Quality Management Plan (Rev 11), June 2019.
- Hunter Water, Kurri Kurri WWTW Recycled Water Quality Management Plan (Rev 4), June 2019.
- Hunter Water, Karuah WWTW Recycled Water Quality Management Plan (Rev 4), June 2019.
- Hunter Water, Dungog WWTW Recycled Water Quality Management Plan (Rev 6), June 2019.
- Hunter Water, Dora Creek WWTW Recycled Water Quality Management Plan (Rev 6), June 2019.
- Hunter Water, Clarence Town Recycled Water Quality Management Plan (Rev 4), June 2019.
- Hunter Water, Cessnock WWTW Recycled Water Quality Management Plan (Rev 13), June 2019.
- Hunter Water, Edgeworth WWTW Recycled Water Quality Management Plan (Rev 6), June 2019.
- Hunter Water, Branxton WWTW Recycled Water Quality Management Plan (Rev 9), June 2019.

⁶⁵⁷ Clause reference relates to the Hunter Water Corporation Operating Licence 2012-2017.



Summary of reasons for assessed status

CCP critical limits including alarm delays have been reviewed and are consistent with the Hunter Water Validation Report. Hunter Water wrote to NSW Health in June 2019 to request its agreement with the revised critical limits and monitoring locations and is waiting on the response.

Part a) of the recommendation is incomplete.

Hunter Water has reviewed the RWQMP for all schemes to ensure that CCPs are comprehensively and consistently documented.

Part c) of the recommendation is completed.

Veolia triggers corrective action after a critical limit has been exceeded either immediately upon the next polling interval (often 1 minute or less), or up to 15 minutes later (depending on the nature of the analyser and the way that the system responds). Time delays were observed to be set in SCADA at the Morpeth RWTP during the audit.

Part e) of the recommendation is completed.

Discussion and notes

Hunter Water provided the reviewed and updated RWQMPs and the *Validation testing program for water recycling schemes*.⁶⁵⁸ The *Validation testing program* details the CCP review process that was undertaken and the rationale for determining the parameters and the critical limits. The critical limits, alarm delays, monitoring locations are considered to reflect current practice.

The scheme specific RWQMPs were updated and include tables that detail the CCPs, target limit (as appropriate), critical limits, operational monitoring (parameters, time delays as appropriate, monitoring locations and frequencies), and corrective actions. Responsibilities are identified in the text.

Review of the following confirmed that the required information was consistently identified in Section 4 and Table 4.1 of each RWQMP:

- Morpeth RWQMP;⁶⁵⁹
- Kurri Kurri RWQMP;660
- Karuah RWQMP;661
- Dungog RWQMP;662
- Dora Creek RWQMP;663
- Clarence Town RWQMP;664
- Cessnock RWQMP;665
- Edgeworth RWQMP;666 and
- Branxton RWQMP.⁶⁶⁷

⁶⁵⁸ Hunter Water, Validation Testing Program for Water Recycling Schemes (Rev 1.3), September 2019.

⁶⁵⁹ Hunter Water, Morpeth WWTW Recycled Water Quality Management Plan (Rev 11), June 2019.

⁶⁶⁰ Hunter Water, Kurri Kurri WWTW Recycled Water Quality Management Plan (Rev 4), June 2019.

⁶⁶¹ Hunter Water, Karuah WWTW Recycled Water Quality Management Plan (Rev 4), June 2019.

⁶⁶² Hunter Water, Dungog WWTW Recycled Water Quality Management Plan (Rev 6), June 2019.

⁶⁶³ Hunter Water, Dora Creek WWTW Recycled Water Quality Management Plan (Rev 6), June 2019.

⁶⁶⁴ Hunter Water, Clarence Town Recycled Water Quality Management Plan (Rev 4), June 2019.

⁶⁶⁵ Hunter Water, Cessnock WWTW Recycled Water Quality Management Plan (Rev 13), June 2019.

 ⁶⁶⁶ Hunter Water, Edgeworth WWTW Recycled Water Quality Management Plan (Rev 6), June 2019.
 ⁶⁶⁷ Hunter Water, Branxton WWTW Recycled Water Quality Management Plan (Rev 9), June 2019.



Hunter Water stated in the audit questionnaire that it has reviewed and confirmed the SCADA setpoints. To verify this statement, during the site inspection of the Morpeth RWTP, the set points were confirmed as being set in SCADA in accordance with the scheme specific RWQMP.

Further recommendations

There are no further recommendations arising in respect of this previous recommendation.

Opportunities for improvement

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

Supplemental information



Reference	Requirement	Status
2016/17-06	Water Quality; Recycled Water (clause 2.2.1):668	Completed
	By 30 September 2018, Hunter Water should:	
	• Develop a table in each scheme Recycled Water Quality Management Plan that documents the evidence for the selection of the Critical Control Point, its associated monitoring parameter(s) and limits. This should include sufficient document control to capture when changes are made and the basis of those changes.	
	 Consult with NSW Health on the validation testing program for the water recycling schemes. 	
	• Specify the performance required of the ultraviolet (UV) units in their operating context and determine whether they are achieving this performance. Any failure in the performance of pre-validated UV units should be further investigated.	

Table 4.9 Previous Recommendation 2016/17-06

Anticipated completion date

Not applicable - recommendation has been addressed.

Evidence sighted

- Hunter Water response to 2019 Audit Questionnaire.
- Hunter Water, Validation Testing Program for Water Recycling Schemes (Rev 1.3), September 2019.
- Hunter Water, Morpeth WWTW Recycled Water Quality Management Plan (Rev 11), June 2019.
- Hunter Water, Kurri Kurri WWTW Recycled Water Quality Management Plan (Rev 4), June 2019.
- Hunter Water, Karuah WWTW Recycled Water Quality Management Plan (Rev 4), June 2019.
- Hunter Water, Dungog WWTW Recycled Water Quality Management Plan (Rev 6), June 2019.
- Hunter Water, Dora Creek WWTW Recycled Water Quality Management Plan (Rev 6), June 2019.
- Hunter Water, Clarence Town Recycled Water Quality Management Plan (Rev 4), June 2019.
- Hunter Water, Cessnock WWTW Recycled Water Quality Management Plan (Rev 13), June 2019.
- Hunter Water, Edgeworth WWTW Recycled Water Quality Management Plan (Rev 6), June 2019.
- Hunter Water, Branxton WWTW Recycled Water Quality Management Plan (Rev 9), June 2019.
- NSW Health, Letter Dual Reticulation Satisfaction, 2 November 2019.

14093.001 - 2019 Operational Audit Report Hunter Water (Version 3.0) 28 February 2020

⁶⁶⁸ Clause reference relates to the Hunter Water Corporation Operating Licence 2012-2017.



Summary of reasons for assessed status

Hunter Water updated the *Validation testing program for water recycling schemes* and the scheme specific RWQMPs to reflect the requirements for Ultra-violet Transmittance (UVT) testing. Hunter Water consulted with NSW Health and received a letter from NSW Health indicating its satisfaction with the status of the validation of the Chisholm/Gillieston Heights RWQMP, albeit that the letter was provided outside the audit period.

On this basis, this previous recommendation is considered to have been addressed.

Discussion and notes

The Hunter Water *Validation testing program for water recycling schemes*⁶⁶⁹ has been updated to better reflect UV performance requirements and basis for CCP selection. Hunter Water has also updated the scheme specific RWQMPs.

The scheme specific RWQMPs were updated and include tables that detail the CCPs, target limit (as appropriate), critical limits, operational monitoring (parameters, time delays as appropriate, monitoring locations and frequencies), and corrective actions. Responsibilities are identified in the text.

Review of the following confirmed that the required information was consistently identified in Section 4 and Table 4.1 of each RWQMP:

- Morpeth RWQMP;670
- Kurri Kurri RWQMP;⁶⁷¹
- Karuah RWQMP;⁶⁷²
- Dungog RWQMP;673
- Dora Creek RWQMP;674
- Clarence Town RWQMP;675
- Cessnock RWQMP;676
- Edgeworth RWQMP;677 and
- Branxton RWQMP.678

Hunter Water stated in the audit questionnaire that it has reviewed and confirmed the SCADA setpoints. To verify that statement, during the site inspection of Morpeth RWTP, the set points for UVT were confirmed as being set in the SCADA system.

UVT monitoring has been added to the weekly laboratory sampling (see Table 4.1 and Table 5.1 of the RWQMPs). The updated validation report and RWQMPs have been provided to NSW Health for comment. NSW Health has (for example) provided a letter⁶⁷⁹ indicating its satisfaction with the status of the validation of the Chisholm/Gillieston Heights RWQMP, albeit that the letter was received outside the audit period.

The Veolia RWQMP for Karuah has been updated to include the Log Reduction Value (LRV) table for the scheme, which is detailed in the Hunter Water Validation Program and was provided as evidence. These are used as the basis for the selection of Critical Control Points and the RWQMP include the monitoring parameters and limits.

⁶⁶⁹ Hunter Water, Validation Testing Program for Water Recycling Schemes (Rev 1.3), September 2019.

⁶⁷⁰ Hunter Water, Morpeth WWTW Recycled Water Quality Management Plan (Rev 11), June 2019.

⁶⁷¹ Hunter Water, Kurri Kurri WWTW Recycled Water Quality Management Plan (Rev 4), June 2019.

⁶⁷² Hunter Water, Karuah WWTW Recycled Water Quality Management Plan (Rev 4), June 2019.

⁶⁷³ Hunter Water, Dungog WWTW Recycled Water Quality Management Plan (Rev 6), June 2019.

⁶⁷⁴ Hunter Water, Dora Creek WWTW Recycled Water Quality Management Plan (Rev 6), June 2019.



Further recommendations

There are no further recommendations arising in respect of this previous recommendation.

Opportunities for improvement

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

Supplemental information

⁶⁷⁵ Hunter Water, Clarence Town Recycled Water Quality Management Plan (Rev 4), June 2019.

⁶⁷⁶ Hunter Water, Cessnock WWTW Recycled Water Quality Management Plan (Rev 13), June 2019.

⁶⁷⁷ Hunter Water, Edgeworth WWTW Recycled Water Quality Management Plan (Rev 6), June 2019.

⁶⁷⁸ Hunter Water, Branxton WWTW Recycled Water Quality Management Plan (Rev 9), June 2019.

⁶⁷⁹ NSW Health, Letter – Dual Reticulation Satisfaction, 2 November 2019.



Reference	Requirement	Status
2018-07	Recycled Water (clause 3.2.1):	Completed
	By 30 June 2019, Hunter Water should ensure that critical limits are documented accurately in the RWQMP, including any time delays; ensure that the location of where the critical limit applies is accurately documented; and ensure that the critical limits are consistently documented across Hunter Water and Veolia documentation.	

Table 4.10 Previous Recommendation 2018-07

Anticipated completion date

Not applicable - recommendation has been addressed.

Evidence sighted

- Hunter Water response to 2019 Audit Questionnaire.
- Hunter Water, Validation Testing Program for Water Recycling Schemes (Rev 1.3), September 2019.
- Hunter Water, Morpeth WWTW Recycled Water Quality Management Plan (Rev 11), June 2019.
- Hunter Water, Kurri Kurri WWTW Recycled Water Quality Management Plan (Rev 4), June 2019.
- Hunter Water, Karuah WWTW Recycled Water Quality Management Plan (Rev 4), June 2019.
- Hunter Water, Dungog WWTW Recycled Water Quality Management Plan (Rev 6), June 2019.
- Hunter Water, Dora Creek WWTW Recycled Water Quality Management Plan (Rev 6), June 2019.
- Hunter Water, Clarence Town Recycled Water Quality Management Plan (Rev 4), June 2019.
- Hunter Water, Cessnock WWTW Recycled Water Quality Management Plan (Rev 13), June 2019.
- Hunter Water, Edgeworth WWTW Recycled Water Quality Management Plan (Rev 6), June 2019.
- Hunter Water, Branxton WWTW Recycled Water Quality Management Plan (Rev 9), June 2019.

Summary of reasons for assessed status

Hunter Water and Veolia have reviewed the RWQMPs for all schemes to ensure that CCPs are comprehensively and consistently documented. Accordingly, this previous recommendation is considered to have been addressed.

Discussion and notes

The scheme specific RWQMPs were updated and include tables that detail the CCPs, parameters, target limits, critical limits, operational monitoring (location, frequency and any time delays, as appropriate)and corrective actions. RWQMPs provided included:

- Morpeth RWQMP;680
- Kurri Kurri RWQMP;681
- Karuah RWQMP;682

681 Hunter Water, Kurri Kurri WWTW Recycled Water Quality Management Plan (Rev 4), June 2019.

⁶⁸⁰ Hunter Water, Morpeth WWTW Recycled Water Quality Management Plan (Rev 11), June 2019.

⁶⁸² Hunter Water, Karuah WWTW Recycled Water Quality Management Plan (Rev 4), June 2019.



- Dungog RWQMP;683
- Dora Creek RWQMP;684
- Clarence Town RWQMP;685
- Cessnock RWQMP;686
- Edgeworth RWQMP;687 and
- Branxton RWQMP.688

As an example, the Veolia RWQMP for Karuah has been updated to include the LRV table for the scheme, which is detailed in the Hunter Water Validation Program⁶⁸⁹ and was provided as evidence.

Further recommendations

There are no further recommendations arising in respect of this previous recommendation.

Opportunities for improvement

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

Supplemental information

⁶⁸³ Hunter Water, Dungog WWTW Recycled Water Quality Management Plan (Rev 6), June 2019.

⁶⁸⁴ Hunter Water, Dora Creek WWTW Recycled Water Quality Management Plan (Rev 6), June 2019.

⁶⁸⁵ Hunter Water, Clarence Town Recycled Water Quality Management Plan (Rev 4), June 2019.

⁶⁸⁶ Hunter Water, Cessnock WWTW Recycled Water Quality Management Plan (Rev 13), June 2019.

⁶⁸⁷ Hunter Water, Edgeworth WWTW Recycled Water Quality Management Plan (Rev 6), June 2019.

⁶⁸⁸ Hunter Water, Branxton WWTW Recycled Water Quality Management Plan (Rev 9), June 2019.



Reference	Requirement	Status
2018-08	Recycled Water (clause 3.2.1):	Completed
	By 30 June 2019, Hunter Water should:	
	a) Include the monitoring of UVT in the operational monitoring detailed in the site specific RWQMPs for recycled water schemes that rely on UV disinfection for primary disinfection;	
	b) Confirm that critical limits (for example UVT) are set in accordance with the available validation information;	
	c) For schemes that have online monitoring of UVT, implement an alarm and or shut down for when UVT falls outside the validated operational range for the UV system (e.g. 45% at Morpeth WWTW); and	
	d) For schemes that do not have online monitoring of UVT, establish appropriate monitoring processes, such as regular grab samples with identified corrective actions for when UVT falls outside the validated operational range specified by the manufacturer.	

Table 4.11 Previous Recommendation 2018-08

Anticipated completion date

Not applicable – recommendation has been addressed.

Evidence sighted

- Hunter Water response to 2019 Audit Questionnaire.
- Hunter Water, Validation Testing Program for Water Recycling Schemes (Rev 1.3), September 2019.
- Veolia, Recycled Water Quality Management Plan for the Hunter Water Karuah WWTW Recycled Water Scheme (MAN-3075-2), 27 September 2019.
- Veolia, SCADA Change Request (HW2014-778/27/2), 17 January 2019 (for UVT changes at multiple WWTWs).
- MS Excel workbook: *Karuah and Edgeworth UVT Testing*, September 2019.
- Hunter Water, Recycled Water Quality Monitoring Plan (Version 4.0) (HW2008-1592/30/4.004), 30 September 2019.
- Document: SCADA Screen shot KAR.

Summary of reasons for assessed status

Hunter Water has reviewed the UVT monitoring at the recycled water schemes and updated the scheme specific RWQMPs for relevant schemes. Records were provided to demonstrate implementation of the review and subsequent changes.

Accordingly, this previous recommendation is considered to have been addressed.



Discussion and notes

The Hunter Water *Validation Program*⁶⁹⁰ details the validation information for the UV Disinfection process steps that was used to determine the CCP (parameters, limits etc.).

The Veolia Karuah WWTW RWQMP⁶⁹¹ was provided as evidence of review of the UVT requirements and update of the scheme specific RWQMP. A record of the SCADA Change Request for UVT at multiple WWTWs,⁶⁹² a SCADA screenshot from the Karuah plant,⁶⁹³ and records of Karuah and Edgeworth UVT Testing⁶⁹⁴ were provided as evidence that the processes have been reviewed and implemented and that UVT CCP alarms are in place.

UVT monitoring has been included in the operational monitoring detailed in each of the site specific RWQMPs for those Recycled Water Schemes that rely on UV Disinfection for primary disinfection. A SCADA change has been implemented since the update and UVT CCP alarms are in place. Weekly laboratory monitoring is implemented at Recycled Water Schemes that rely on UV Disinfection for primary disinfection as detailed in the *Recycled Water Quality Monitoring Plan.*⁶⁹⁵

Further recommendations

There are no further recommendations arising in respect of this previous recommendation.

Opportunities for improvement

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

Supplemental information

⁶⁹⁰ Hunter Water, Validation Testing Program for Water Recycling Schemes (Rev 1.3), September 2019.

⁶⁹¹ Vcolia, Recycled Water Quality Management Plan for the Hunter Water Karuah WWTW Recycled Water Scheme (MAN-3075-2), 27 September 2019.

⁶⁹² Veolia, SCADA Change Request (HW2014-778/27/2), 17 January 2019 (for UVT changes at multiple WWTWs).

⁶⁹³ Document: SCADA Screen shot KAR.

⁶⁹⁴ MS Excel workbook: Karuah and Edgeworth UVT Testing, September 2019.

⁶⁹⁵ Hunter Water, Recycled Water Quality Monitoring Plan (Version 4.0) (HW2008-1592/30/4.004), 30 September 2019.



Reference	Requirement	Status
2018-09	Recycled Water (clause 3.2.1):	Completed
	By 30 June 2020, Hunter Water should investigate the establishment of online monitoring of UVT with alarms and or shutdowns at all sites that rely on UV disinfection for primary disinfection of recycled water.	

Table 4.12 Previous Recommendation 2018-09

Anticipated completion date

Not applicable – recommendation has been addressed.

Evidence sighted

- Hunter Water response to 2019 Audit Questionnaire.
- Email dated 3 October 2019 from Xylem to Veolia (re: *Xylem Water Solutions Quotation* (for Cessnock UVT)).

Summary of reasons for assessed status

Hunter Water and Veolia investigated the potential for establishing online UVT testing at relevant treatment plants and identified Cessnock as a potential site for the application of online UVT Testing.

Discussion and notes

Hunter Water and Veolia have identified that there is currently one UV Disinfection System, Cessnock WWTW UV Disinfection System, which is relied on for primary disinfection of the recycled water and does not have online monitoring of UVT.

All recycled water schemes have weekly grab samples collected to confirm that each UV Disinfection System is continuing to operate within the validated UVT range where online instrumentation is not available or operational. All systems have UV dose monitoring and shutdown recycled water supply when this is compromised.

Pricing⁶⁹⁶ has been obtained from the UV supplier to install a UVT instrument to the Cessnock WWTW UV Disinfection System. Hunter Water is currently completing a capacity review of Cessnock WWTW and a plant upgrade is proposed for completion by mid-2022. The scope of the upgrade has not yet been finalised and the upgrade may include modification to the Cessnock WWTW Recycled Water Scheme, including the UV Disinfection System.

Recycled Water Supply from Cessnock WWTW has been suspended to the current recycled water customer, Stonebridge Golf Course, due to its financial position.

Further recommendations

There are no further recommendations arising in respect of this previous recommendation.

Opportunities for improvement

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

⁶⁹⁶ Email dated 3 October 2019 from Xylem to Veolia (re: Xylem Water Solutions Quotation (for Cessnock UVT)).



Supplemental information

Table 4 42



4.2.4 Asset management system (clause 4.1)

Table 4.15	Previous Recommendation 2010/17-06		
Reference	Requirement	Status	
2016/17-08	Assets; Asset Management System (clause 4.1.2). ⁶⁹⁷	Completed	
	By 30 June 2019, Hunter Water should fully implement an asset criticality and risk assessment approach that is consistent across all asset classes and consistent with the enterprise risk management framework.		

Anticipated completion date

Not applicable - recommendation has been addressed.

Evidence sighted

Hunter Water response to 2019 Audit Questionnaire.

Draviaua Decommondation 2016/17 00

- Hunter Water, Standard; Critical Assets (Version 1), 5 November 2019.
- Hunter Water, Tomago, Lemon Tree Passage and Tomaree Borefields Asset Management Plan (Revision 2), 12 May 2019.
- AECOM, Hunter Water; Borefields Asset Condition Assessment and Management Plan; Condition and Performance Assessment Report, 20 June 2019.
- AECOM, Hunter Water; Borefields Asset Condition Assessment and Management Plan; Preventative Maintenance Plan, 20 June 2019.

Summary of reasons for assessed status

Hunter Water demonstrated that it has finalised development of its *Critical Asset Standard*, which details an asset criticality and risk assessment approach that is consistent with the enterprise risk management framework. It also indicates that the approach is applicable across the asset portfolio, and that the ranking process can be applied to all levels of the asset hierarchy. Review of a sample of Asset Management Plans/Asset Plans reveals that the approach has been applied to various asset types and classes.

On this basis, this previous recommendation is considered to have been fully addressed.

Discussion and notes

At the time of the 2018 Operational Audit (November 2018), progress in addressing this recommendation was assessed to be as follows:⁶⁹⁸

"Hunter Water demonstrated that it has progressed implementation of an asset criticality and risk assessment approach that addresses all asset classes and is consistent with the enterprise risk management framework, as required under this recommendation. The basis and methodology appears to have been developed and it now remains for the process to be implemented across the asset portfolio."

In its response to the Audit Questionnaire, Hunter Water advised that:

⁶⁹⁷ Clause reference relates to the Hunter Water Corporation Operating Licence 2012-2017.

⁶⁹⁸ Cobbitty Consulting, 2018 Operational Audit of Hunter Water Corporation; Final Audit Report (Version 3.0), 1 February 2019, table 4.12.



"Hunter Water has updated the assessment of Asset Criticality, which has been consolidated in the Critical Asset Standard. This standard applies consistently across all assets, and is consistent and complements Hunter Water Enterprise Risk Management Framework (ERM).

The alignment is both through the ERM Framework consequences and Risk Appetite Statements.

The application of the Critical Asset Standard is both at a facility level being Dams, High Voltage Transmission Lines and Water Treatment Plants identified as Critical A, while also at an equipment level demonstrated through the redevelopment of the Borefield Asset Management Plan.

The Critical Asset program is continuing to be implemented through the identification of critical assets and the associated risk control activities, and the capture of the criticality in the asset information systems."

As evidence, Hunter Water provided its *Critical Asset Standard*,⁶⁹⁹ which has now been finalised. The aim of the standard is to:⁷⁰⁰

"... define asset criticality at Hunter Water, how it shall be assessed and implemented across the organisation, and how it shall govern the decision-making process. The outcome of a criticality assessment is a list of critical assets."

The principles underlying Hunter Water approach to the management of its assets involves the use of a:⁷⁰¹

"... risk-based decision framework, where asset interventions or treatment controls are implemented in alignment with the potential risk to the stakeholders including community, customers, environment and the business.

A significant management consideration is that asset criticality is associated with consequence of asset failure or asset maintainability (unsafe equipment) and is aligned but separate from risk. The criticality program differentiates from risk, with the prime principle being to maintain a treatment control focus and priority on assets which rarely fail and therefore do not have a regular and ongoing impact to the business, but could be catastrophic."

Using this process, asset class management programs are categorised in alignment with the business risk profiles. Adopted program categories include:

- Operational Critical Assets assets which could fail and incur an operational major or extreme consequence associated with service performance, water quality, environmental or safety;
- Statutory Critical Assets assets which have specific statutory legislation or regulation to their management (also Bounded assets), and are predominantly aligned safety and environmental risks;
- Maintenance Lifecycle assets which can be repeatedly repaired and maintained to provide the required service requirements; and
- *Non-critical Assets* all other assets.

Hunter Water's criticality process is applied across the asset portfolio, and the ranking process can be applied to all levels of the asset hierarchy. The application process is detailed in the *Critical Asset Standard*; key elements of the process are documented as:

- Criticality versus risk;
- Stages of the criticality assessment process;
- Criticality applied to the asset hierarchy operational criticality and statutory criticality;

⁶⁹⁹ Hunter Water, Standard; Critical Assets (Version 1), 5 November 2019.

⁷⁰⁰ Hunter Water, Standard; Critical Assets (Version 1), 5 November 2019, section 1.

⁷⁰¹ Hunter Water, Standard; Critical Assets (Version 1), 5 November 2019, section 3.



- Asset criticality outcomes strategic planning direction, asset creation consideration, operational outcomes, maintenance outcomes, and asset renewal and disposal;
- Undertaking criticality assessments; and
- Reviewing criticality.

Linkages to and alignment with the Enterprise Risk Management Framework are clearly defined.

As an example of the application of the criticality assessment process, Hunter Water provided the *Borefield Asset Management Plan*⁷⁰² and supporting documentation. The *Borefield Asset Management Plan*⁷⁰³ provides an assessment of criticality at three levels, including:

- the borefield system as a whole;
- pump/vacuum station, which describes an individual bore pump station or single vacuum pump station; and
- price of equipment, which describes the individual assets or pieces of equipment that make up the borefields.

The *Borefield Asset Management Plan*⁷⁰⁴ presents an assessment of the state of the assets that comprise the borefield system. This addresses Asset types and populations; Asset age profiles; Asset failure modes; Overall asset condition; Current state of the assets; Condition issues; Desired state of the assets. The assessed state of the assets was informed by an assessment undertaken in July and August 2018, which was reported in the *Borefields Asset Condition Assessment and Management Plan – Condition and Performance Assessment.*⁷⁰⁵

A lifecycle management plan comprising a maintenance strategy (preventative and corrective), capital strategy, renewal strategy and disposal strategy has been developed, taking into account asset criticality and the assessed state of the assets. The adopted maintenance strategy is based (in part) on a *Borefields Asset Condition Assessment and Management Plan – Preventative Maintenance Plan*,⁷⁰⁶ which was developed for Hunter Water by an external consultant.

Review of other Asset Management Plans provided as evidence for the audit confirm that asset criticality has been assessed as part of the asset management planning process. These include (for example) the *Grahamstown Dam Asset Plan*⁷⁰⁷ and the *Stormmater Asset Class Management Plan*.⁷⁰⁸

In summary, the *Critical Asset Standard* details an asset criticality and risk assessment approach that is consistent with the enterprise risk management framework. It also indicates that the approach is applicable across the asset portfolio, and the ranking process can be applied to all levels of the asset hierarchy. Review of a sample of Asset Management Plans/Asset Plans reveals that the approach has been applied to various asset types and classes.

Further recommendations

There are no further recommendations arising in respect of this previous recommendation.

Opportunities for improvement

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

⁷⁰³ Hunter Water, Tomago, Lemon Tree Passage and Tomaree Borefields Asset Management Plan (Revision 2), 12 May 2019, section 5.2.

⁷⁰² Hunter Water, Tomago, Lemon Tree Passage and Tomaree Borefields Asset Management Plan (Revision 2), 12 May 2019.

⁷⁰⁴ Hunter Water, Tomago, Lemon Tree Passage and Tomaree Borefields Asset Management Plan (Revision 2), 12 May 2019, section 6.

⁷⁰⁵ AECOM, Hunter Water; Borefields Asset Condition Assessment and Management Plan; Condition and Performance Assessment Report, 20 June 2019.

⁷⁰⁶ AECOM, Hunter Water; Borefields Asset Condition Assessment and Management Plan; Preventative Maintenance Plan, 20 June 2019. ⁷⁰⁷ Hunter Water, Asset Plan; Grahamstown Dam (Version 1), 1 October 2019.

⁷⁰⁸ Hunter Water, Stormwater Asset Class Management Plan (Issue 2), 17 November 2015.



Supplemental information



4.2.5 Environmental management system (clause 4.2)

Table 4.14	Previous Recommendation 2018-10	
Reference	Requirement	Status
2018-10	Environmental Management System (clause 4.2.2):	Completed
	By 30 June 2019, Hunter Water should ensure high risk issues in the Environmental Compliance Tracking Register are addressed within the allocated timeframe.	

Anticipated completion date

Not applicable – recommendation has been addressed.

Evidence sighted

- Hunter Water response to 2019 Audit Questionnaire.
- MS Excel workbook, Register Environmental Commitments Tracking (ER0106) undated.
- Hunter Water, Project Business Case; Treatment Plants Chemical Systems Containment & Safety Upgrades, (HW2017-1063/1/11.011) 12 March 2019.
- Hunter Water, Investment Committee Business Case Summary; Network Chemical Dosing Unit Upgrades (HW2017-1062/3/11.019) 13 March 2018.
- Hunter Water, Preliminary Programme; Wastewater Network Asset Program 2020-25 (HW2018-1193/1/1.001) 17 October 2018.

Summary of reasons for assessed status

Hunter Water provided the *Environmental Commitments Tracker* that demonstrated that open matters have been reduced from 133 in 2018 to 63 at the time of the 2019 operational audit. All high priority items have been closed out. A site inspection to Fern Bay chemical dosing unit confirmed the installation of a new bund for a chemical dosing unit that was completed as part of a high priority action on the register.

Accordingly, this previous recommendation is considered to have been addressed.

Discussion and notes

Hunter Water provided the *Environmental Commitments Tracker*⁷⁰⁹ that demonstrated that open matters have been reduced from 133 in 2018 to 63 at the time of the 2019 operational audit. All high priority items have been closed out. It was discussed that the risk register is reviewed annually and there is a plan to transition the system to Integrum, which was shown during the audit interviews. The progress in implementing environmental improvement actions is reported to the EMT by exception.

Business cases for the high priority actions were provided as evidence of progress in implementation, including:

- Treatment Plants Chemical Systems Containment & Safety Upgrades,⁷¹⁰
- Network Chemical Dosing Unit Upgrades;⁷¹¹ and

⁷⁰⁹ MS Excel workbook, Register – Environmental Commitments Tracking (ER0106) undated.

⁷¹⁰ Hunter Water, Project Business Case; Treatment Plants Chemical Systems – Containment & Safety Upgrades, (HW2017-1063/1/11.011) 12 March 2019.



Wastewater Network Asset Program 2020-25.712

Chemical dosing unit upgrades are underway, with units still being designed and delivered. There were ten sites where bund upgrades were assessed as high priority and the program to replace them is complete. Entire chemical dosing unit upgrades, including upgrade of other bunds, are underway at more than twenty sites.

A site inspection to Fern Bay chemical dosing unit confirmed the installation of a new bund for a chemical dosing unit that was completed as part of a high priority action on the register.

Further recommendations

There are no further recommendations arising in respect of this previous recommendation.

Opportunities for improvement

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

Supplemental information

⁷¹¹ Hunter Water, Investment Committee – Business Case Summary; Network Chemical Dosing Unit Upgrades (HW2017-1062/3/11.019) 13 March 2018.

⁷¹² Hunter Water, Preliminary Programme; Wastewater Network Asset Program 2020-25 (HW2018-1193/1/1.001) 17 October 2018.



4.2.6 Memorandum of Understanding with Fire and Rescue NSW (clause 5.11)

Reference	Requirement	Status
2018-11	Memorandum of Understanding with Fire and Rescue NSW (clause 5.11.1):	Completed
	By 30 June 2019, Hunter Water should use its best endeavours to develop and enter into a Memorandum of Understanding with Fire and Rescue NSW.	

Anticipated completion date

Not applicable – recommendation has been addressed.

Evidence sighted

- Hunter Water response to 2019 Audit Questionnaire.
- Memorandum of Understanding between Hunter Water Corporation and Fire and Rescue NSW, dated October 2018/signed 17 June 2019.

Summary of reasons for assessed status

Hunter Water demonstrated that it had entered into a Memorandum of Understanding with Fire and Rescue NSW by 30 June 2019. Accordingly, this previous recommendation is considered to have been addressed.

Discussion and notes

As reported in Table 3.18, Hunter Water provided a copy of the fully executed *Memorandum of* Understanding between Hunter Water Corporation and Fire and Rescue NSW.⁷¹³ The agreement indicated that it had been signed by both parties on 17 June 2019, i.e. prior to the date required by the recommendation.

Further recommendations

There are no further recommendations arising in respect of this previous recommendation.

Opportunities for improvement

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

Supplemental information

⁷¹³ Memorandum of Understanding between Hunter Water Corporation and Fire and Rescue NSW, dated October 2018/signed 17 June 2019.



Appendix A Audit Scope

The audit scope, as defined by IPART, is included in this Appendix.

2019 operational audit scope Hunter Water Corporation

2019 audit scope

This document sets out the 2019 operational audit scope for Hunter Water Corporation (Hunter Water).

This scope is based on IPART's 5-year audit program for Hunter Water's 2017-2022 Operating Licence. Auditors should note any directions in the comments column of Table 2.

Audit period

The audit period is 1 November 2018 to 31 October 2019. Interviews for the audit will be held in November 2019.

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 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 Hunter Water Operating Licence 2017-2022 (licence) and the audit scope, the licence will prevail.

Table 1 Key

Requirement	Meaning
Audit/Review	Audit/review clause in 2019 audit.
SC	Audit of this clause not required in the 2019 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 2019 Audit scope for Hunter Water Corporation

Licence clause	Operating Licence obligation	2019 audit requirement	Comments for the auditor
1	Licence Context and authorisation		
1.1	Objectives of this Licence		
1.1.1	 This licence aims to: (a) provide transparent and auditable terms and conditions for Hunter Water to lawfully undertake its activities at industry good-practice; (b) recognise the interests of stakeholders within its Area of Operations; and (c) impose the minimum regulatory burden on Hunter Water by avoiding duplication or conflict with other regulatory instruments. 	NR	
1.2	Licence authorisation		
1.2.1	This Licence authorises and requires Hunter Water to provide, construct, operate, manage and maintain efficient, co-ordinated and commercially viable systems and services for supplying water, providing sewerage services, and disposing of Wastewater within its Area of Operations.	NR	
1.2.2	This Licence authorises Hunter Water to do all things necessary or convenient to achieve, and to promote the capability to achieve, the transfer of water between its Area of Operations and the local government area of the Central Coast Council in accordance with the Hunter/Central Coast Pipeline Agreement.	NR	
1.2.3	This Licence authorises and requires Hunter Water to provide, operate, manage and maintain a drainage service as described in section 13(1)(b) of the Act.	SC	
1.2.4	This Licence authorises (but does not require) Hunter Water to provide, construct, operate, manage and maintain a drainage service within the Area of Operations in excess of the drainage service it is required to provide, operate, manage and maintain under clause 1.2.3. For the avoidance of any doubt, this clause authorises (but does not require) Hunter Water to enhance, expand and add capacity to the drainage service described in section 13(1)(b) of the Act.	NR	

Licence	Operating Licence obligation	2019 audit	Comments for the
clause		requirement	auditor
1.3	Term of this Licence		
1.3.1	The term of this Licence is 5 years from the Commencement Date	NR	
	[Note: This Licence starts on 1 July 2017, which means		
	that it will end on 30 June 2022.]		
1.4	Licence amendment		
1.4.1	Subject to the Act and clause 1.4.2, this Licence may be	NR	
	amended by the Governor by notice in the New South		
	Wales Government Gazette. The amendment takes		
	South Wales Government Gazette, or on such other date		
	specified in the notice.		
1.4.2	Before any notice of an amendment to this Licence is	NR	
	published in the New South Wales Government Gazette,		
	the Minister must give Hunter Water reasonable notice of the proposed amendment to enable it to comply with the		
	amended Licence (if relevant) upon its commencement.		
1.5	Obligation to make Services available		
1.5.1	Subject to Hunter Water continuing to comply with any	NR	
	applicable law, Hunter Water must provide the Services		
	Operations which is connected to, or for which a		
	connection is available to:		
	(a) in the case of supplying water, the Water Supply		
	System; and		
	disposing of Wastewater, the Sewerage System.		
1.5.2	Subject to Hunter Water continuing to comply with any	NR	
	applicable law, Hunter Water must provide the Services		
	on request to any WIC Act Licensee for ultimate end-use within the Area of Operations, where that WIC Act		
	Licensee is connected to, or where a connection is		
	available in respect of that WIC Act Licensee to:		
	(a) in the case of supplying water, the Water Supply		
	System; and		
	(b) in the case of providing sewerage services and/or		
	disposing of Wastewater, the Sewerage System.		
1.5.3	Hunter Water may impose any lawful conditions it sees fit	NR	
	on the making available of Services under clause 1.5.1 or		
	clause 1.5.2, to ensure the safe, reliable and financially viable supply of the Services in accordance with this		
	Licence.		

Licence clause	Operating Licence obligation	2019 audit requirement	Comments for the auditor
1.6	Non-exclusive Licence		
1.6.1	This Licence does not prohibit another person from providing Services in the Area of Operations that are the same as, or similar to, the Services, if the person is lawfully entitled to do so.	NR	
1.7	Making copies of this Licence available		
1.7.1	 Hunter Water must make this Licence available to any person, free of charge: (a) on its website for downloading; and (b) upon request made through the General Enquiry Process. 	SC	
1.8	Pricing		
1.8.1	Subject to the terms of this Licence, the Act and the IPART Act, Hunter Water must set the level of fees, charges and other amounts payable for its Services in accordance with any applicable determination or determinations under the IPART Act.	Audit	We last audited this clause in 2018. We assigned a Non-Compliant Non- Material grade in that audit. Auditor should note that Hunter Water self-reported non-compliance with this clause in 2019 (email from Hunter Water to IPART, 17 April 2019) about errors in levying stormwater charges between 1 July 2006 and 30 June 2019. Auditor should refer to the following recommendations relevant to this clause (see Table 3): 2018-1 2018-2.
1.9	End of term review		
1.9.1	 It is anticipated that a review of this Licence will commence in the first quarter of 2021 to investigate: (a) whether this Licence is fulfilling its objectives; and (b) any issues which have arisen during the term of this Licence, which may affect the effectiveness of this Licence, (End of Term Review) 	NR	
	(Ena of Term Review)		

Licence clause	Operating Lice	nce obligation	2019 audit requirement	Comments for the auditor
1.9.2	Hunter Water must provide to End of Term Review such info required to enable the person Term Review.	the person undertaking the ormation as is reasonably to undertake the End of	NR	
1.10	Notices			
1.10.1	Any notice or other communication given under this Licence must be made in writing addressed to the intended recipient at the address shown below or the last address notified by the recipient.		SC	
	Hunter Water	IPART		
	The Managing Director Hunter Water Corporation 36 Honeysuckle Drive Newcastle West NSW 2302	The Chief Executive Officer Independent Pricing and Regulatory Tribunal Level 15, 2-24 Rawson Place Sydney NSW 2000		

Licence	Operating Licence obligation	2019 audit	Comments for the
clause		requirement	auditor
2	Water Conservation		
2.1	Catchment to water treatment plants		
2.1.1	 Hunter Water must calculate the System Yield either: (a) in accordance with the memorandum of understanding with the Department of Primary Industries Water referred to in clause 5.10.1(a); or (b) if no such memorandum of understanding is in effect, in accordance with a reasonable methodology that Hunter Water considers suitable. 	SC	
2.1.2	By 1 November 2018, or by a later date as approved by IPART, Hunter Water must submit to IPART a report outlining Hunter Water's water conservation strategy in relation to its system operating arrangements for Water Storage and Transmission (Water Conservation Strategy).	Audit	This is the first audit of this clause in this licence period.
2.1.3	 The Water Conservation Strategy must include: (a) identification and documentation of the existing water conservation activities; (b) a process for identifying additional options for conserving water; (c) a process for comparing these options; and 	Audit	This is the first audit of this clause in this licence period.
	(d) a process for selecting options for implementation		
2.1.4	By 1 September 2019, or by a later date as approved by IPART, Hunter Water must develop and submit to IPART a water conservation work program using the process set out in the Water Conservation Strategy.	Audit	This is the first audit of this clause in this licence period.
2.2	Water treatment plants to tap		
2.2.1	Hunter Water must ensure that the 5 year rolling average for annual residential water consumption calculated for each financial year is equal to or less than 215 kilolitres for each Property used for residential purposes which is connected to the Water Supply System (Water Conservation Target), until Hunter Water has obtained IPART's approval for the Economic Level of Water Conservation Methodology (in accordance with clauses 2.2.2 and 2.2.3), and developed a program of water conservation activities using the approved Economic Level of Water Conservation Methodology (in accordance with 2.2.4).	Audit	We last audited this clause in 2018. We assigned a Compliant grade in that audit.
	[Note: Clause 2.2.1 requires Hunter Water to maintain the Water Conservation Target that was in the immediate predecessor to this Licence while the Economic Level of Water Conservation Methodology is being approved and applied.]		

Licence clause	Operating Licence obligation	2019 audit requirement	Comments for the auditor
2.2.2	 By 1 November 2017, Hunter Water must submit to IPART for IPART's approval a report outlining Hunter Water's proposed approach to, and principles for, developing a methodology for determining its economic level of water conservation in relation to (at a minimum) the following elements: (a) water leakage (within and downstream of its water treatment plants); (b) water recycling; and (c) water efficiency (including demand management) 	Audit	Auditor should note that this requirement is outside of the audit period, however, we have included this clause in the 2019 audit because we did not audit this in 2018.
2.2.3	By 1 November 2018, or by a later date as approved by IPART, Hunter Water must submit to IPART for IPART's approval the proposed methodology for determining its economic level of water conservation in accordance with the approach and principles approved by IPART (Economic Level of Water Conservation Methodology). IPART may refuse approval of the methodology and require Hunter Water to resubmit it by a specified date after making changes requested by IPART, or approve the methodology subject to conditions. Hunter Water must comply with any such conditions.	Audit	Hunter Water provided IPART its proposed ELWC method on 24 January 2019. Hunter Water sought an extension of time on this requirement to 1 February 2019 and IPART approved the request.
2.2.4	By 1 September 2019, or by a later date as approved by IPART, Hunter Water must develop and submit a water conservation work program using the Economic Level of Water Conservation Methodology.	Audit	This is the first audit of this clause in this licence period.
2.2.5	Hunter Water must obtain IPART's written consent to make any changes to the Economic Level of Water Conservation Methodology (other than changes to correct minor grammatical or typographical errors).	SC	

Licence clause	Operating Licence obligation	2019 audit requirement	Comments for the auditor
3	Supply services and performance standards		
3.1	Drinking Water		
3.1.1	Hunter Water must maintain a Management System for Drinking Water that is consistent with the Australian Drinking Water Guidelines, except to the extent that NSW Health specifies otherwise in writing (the Drinking Water Quality Management System).	Audit	We last audited this clause in 2018. We assigned a Compliant Minor Shortcomings grade in that audit.
	[Note: It is expected that the Drinking Water Quality Management System will be consistent with the Framework for Management of Drinking Water Quality. However, where NSW Health considers it appropriate, the application of Australian Drinking Water Guidelines may be amended or added to to take account of Hunter		We will contact NSW Health to comment on Hunter Water's performance against this clause.
	Water's circumstances and/ or Drinking Water quality policy and practices within New South Wales.		Hunter Water has proposed to change the disinfection CCP and
	The Australian Drinking Water Guidelines has provisions relating to the prevention of use of non-potable water for potable purposes.]		revise the pH CCP critical limit at all water treatment plants. Hunter Water has informed IPART that this was agreed to with NSW Health (Report on Significant Changes, 29 March 2019).
			Auditor should refer to the following recommendations relevant to this clause (see Table 3): 2018-03 2018-04 2018-05 2018-06 2013-14-03 2013-14-04 2013-14-06 2013-14-13.
3.1.2	Hunter 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.	Audit	We last audited this clause in 2018. We assigned a Compliant grade in that audit. We will contact NSW Health to comment on Hunter Water's performance against this clause.

Licence clause	Operating Licence obligation	2019 audit requirement	Comments for the auditor	
3.2	Recycled Water			
Clause 3.2 3.2.1	Recycled Water Hunter Water must maintain a Management System for Recycled Water that is consistent with the Australian Guidelines for Water Recycling, except to the extent that NSW Health specifies otherwise in writing (the Recycled Water Quality Management System). [Note: It is expected that the Recycled Water Quality Management System will be consistent with the Australian Guidelines for Water Recycling, including the Framework for Management of Recycled Water Quality and Use. However, where NSW Health considers it appropriate, the application of the Australian Guidelines for Water Recycling may be amended or added to, to take account of Hunter Water's circumstances and/ or Recycled Water quality policy and practices within New South Wales.].	Audit	We last audited this clause in 2018. We assigned a Compliant Minor Shortcomings grade in that audit. We will contact NSW Health to comment on Hunter Water's performance against this clause. Hunter Water has proposed new CCPs for the supply of dual reticulation water to Chisholm and Gillieston Heights. Hunter Water is liaising with NSW Health in relation to these CCPs (Report on Significant Changes, 29 March 2019).	
			Auditor should refer to the following recommendations relevant to this clause (see Table 3): 2018-07 2018-08 2018-09 2013-14-03 2013-14-04 2013-14-06 2013-14-13 2016-17-06.	
3.2.2	Hunter 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	We last audited this clause in 2018. We assigned a Compliant grade in that audit. We will contact NSW Health to comment on Hunter Water's performance against this clause.	
Licence clause		Operating Licence obligation	2019 audit requirement	Comments for the auditor
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3.3	Sys	tem Performance Standards		
3.3.1	Wa	ter Pressure Standard	SC	
	(a)	Hunter Water must ensure that no more than 4,800 Properties experience a Water Pressure Failure in a financial year (Water Pressure Standard).		
	(b)	 A Property is taken to have experienced a Water Pressure Failure at each of the following times: i. when a person notifies Hunter Water that the Property has experienced a Water Pressure Failure and that Water Pressure Failure is confirmed by Hunter Water; or 		
		 when Hunter Water's systems identify that the Property has experienced a Water Pressure Failure. 		
	(c)	Despite clause 3.3.1(b), a Property will not be taken to have experienced a Water Pressure Failure if that Water Pressure Failure occurred only because of:		
		 a Planned Water Interruption or Unplanned Water Interruption; 		
		ii. water usage by authorised fire authorities in the case of a fire; or		
		iii) a short term or temporary operational problem (such as a main break) which is remedied within four days of its occurrence.		
3.3.2	Wa	ter Continuity Standard	SC	
	(a)	 Hunter Water must ensure that in a financial year: i. no more than 10,000 Properties experience an Unplanned Water Interruption that lasts more than five continuous hours; and 		
		ii. no more than 5,000 Properties experience three or more Unplanned Water Interruptions that each last more than one hour,		
	(Wa	ater Continuity Standard).		
	(b)	For the purposes of clause 3.3.2(a), Hunter Water must use the best available data (taking account of water pressure data where that data is available) to determine of:		
		i. whether a Property has experienced an Unplanned Water Interruption; and		
		ii. the duration of the Unplanned Water		
	(c)	If a Property experiences an Unplanned Water Interruption that was caused by a third party, that Property is taken not to have experienced an Unplanned Water Interruption for the purposes of clause 3.3.2(a).		

Licence clause	Operating Licence obligation	2019 audit requirement	Comments for the auditor
3.3.3	Wastewater Overflow Standard	SC	
	 a) Hunter Water must ensure that in a financial year: i) no more than 5,000 Properties experience an Uncontrolled Wastewater Overflow in dry weather; and ii) no more than 45 Properties experience three or more Uncontrolled Wastewater Overflow in dry weather, (Wastewater overflow Standard). 		
3.3.4	Hunter Water must survey its Customers by 30 June 2020 for the purpose of informing a review of System Performance Standards and rebates. [Note: Clause 3.3.4 is not intended to prevent Hunter	NR	
	 (a) surveying its Customers and Consumers for any lawful purpose at such times as it sees fit; or (b) b)using the survey required by that clause to survey its Customers and Consumers on topics additional to a survey its Customers and Consumers on topics additional to a survey its Customers and Consumers on topics additional to a survey its Customers and Consumers on topics additional to a survey its Customers and Consumers on topics additional to a survey its Customers and Consumers on topics additional to a survey its Customers and Consumers on topics additional to a survey its Customers and Consumers on topics additional to a survey its Customers and Consumers on topics additional to a survey its Customers and Consumers on topics additional to a survey its Customers and Consumers on topics additional to a survey its Customers and Consumers on topics additional to a survey its Customers and Consumers on topics additional to a survey its Customers and Consumers on topics additional to a survey its Customers and Consumers on topics additional topics additionadditionadditional		
	the topic referred to in that clause.]		
3.3.5	Interpretation of standards	NR	
	 (a) For the purposes of the Water Pressure Standard and Water Continuity Standard, 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 Hunter 		
	Water is to be counted as five separate Properties. However, a block of flats that only receives one bill from Hunter Water is to be counted as one Property.]		
	(b) For the purposes of the Wastewater Overflow Standard, a Multiple Occupancy Property is considered to be one Property.		
	[Note: For example, a complex of five townhouses where each townhouse receives a separate bill from Hunter Water is to be counted as one Property.]		
	(c) the case of any ambiguity in the interpretation or application of any of the standards set out in this clause 3.3, IPART's interpretation of the relevant standard or assessment of its application will prevail.		

Licence clause	Operating Licence obligation	2019 audit	Comments for the auditor
4	Organisational Systems Management	roquirointent	
4.1	Asset Management System		
4.1.1	By 31 December 2017, Hunter Water must develop a Management System for carrying out the functions authorised under this Licence that is consistent with the Australian Standard AS ISO 55001:2014 Asset management - Management systems - Requirements, or other standard approved by IPART on request by Hunter Water (the Asset Management System).	NR	
4.1.2	By 1 July 2018, Hunter Water must ensure that the Asset Management System is fully implemented and must, from that date, ensure that all relevant activities are carried out in accordance with the Asset Management System.	Audit	We last audited this clause in 2018. We assigned a Compliant grade in that audit. Auditor to check that the Asset Management System (AMS) is fully implemented, noting that Hunter Water achieved certification of its AMS on 11 July 2018 (certification audit conducted in June 2018) (Report on Significant Changes, 29 March 2019). Auditor should refer to the following recommendation relevant to this clause (see Table 3): 2016-17-08.
4.1.3	Until the Asset Management System has been implemented in accordance with clause 4.1.2, Hunter Water must ensure that all relevant activities are carried out in accordance with the previous asset management system that was required under the operating licence held by Hunter Water which commenced in 2012. [Note: This clause permits Hunter Water to transition its previous asset management system based on the Water Services Association of Australia's Aquamark benchmarking tool to the Australian Standard AS ISO 55001:2014 Asset management - Management systems – Requirements.].	NR	
4.2	Environmental management system		
4.2.1	Hunter Water must at all times maintain a Management System for carrying out the functions authorised under this Licence that is consistent with the Australian/New Zealand Standard AS/NZS ISO 14001:2016 Environmental management systems – Requirements with guidance for use, or other standard approved by IPART on request by Hunter Water (the Environmental Management System).	SC	

Licence clause	Operating Licence obligation	2019 audit requirement	Comments for the auditor
4.2.2	Hunter Water must fully implement, and carry out all relevant activities in accordance with, the Environmental Management System.	SC	
4.3	Quality Management System		
4.3.1	Hunter Water must at all times maintain a Management System for carrying out the functions authorised under this Licence that is consistent with the Australian/New Zealand Standard AS/NZS ISO 9001:2016 Quality management systems – Requirements, or other standard as approved by IPART on request by Hunter Water (the Quality Management System).	SC	
4.3.2	Hunter Water must fully implement, and carry out all relevant activities in accordance with, the Quality Management System.	SC	
5 5.1	Customers and stakeholder relations Customer Contract		
5.1.1	The terms and conditions of the Customer Contract are as set out in Schedule B of this Licence. [Note: Section 38 of the Act makes provision for the amondment of the Customer Contract 1	NR	
5.1.2	Before publishing a notice under section 38 of the Act for the purpose of varying the terms and conditions of the Customer Contract, Hunter Water must provide IPART with a copy of the notice.	SC	

Licence clause	Operating Licence obligation	2019 audit requirement	Comments for the auditor
5.2	Consumers		
5.2.1	Hunter Water's obligations under the Customer Contract relating to:	SC	
	(a) Complaint handling and Complaint resolution procedures; and		
	(b) redress (clause 16.3 of the Customer Contract) and claims for damages (clause 16.4 of the Customer Contract),		
	are extended to those Consumers who are not parties to the Customer Contract.		
5.3	Payment difficulties and actions for non-payment		
5.3.1	Hunter Water must maintain and fully implement the following:	SC	
	 a financial hardship policy that assists residential Customers and Consumers experiencing financial hardship to better manage their current and future bills; 		
	 (b) procedures relating to a payment plan for residential Customers and Consumers who are responsible for paying their bills and who are, in Hunter Water's opinion, experiencing financial hardship; 		
	(c) procedures for identifying the circumstances under which Hunter Water may disconnect or restrict a supply of water in a manner that will affect a Customer or Consumer; and		
	 (d) provisions for self-identification, identification by community welfare organisations and identification by Hunter Water of residential Customers and Consumers experiencing financial hardship, 		
	(the Procedure for Payment Difficulties and Actions for Non-payment).		
5.4	Customer advisory group		
5.4.1	Hunter Water must maintain and regularly consult with its Customers through a customer advisory group.	SC	
5.4.2	Hunter Water must utilise the customer advisory group to, among other things, obtain advice on the interests of Hunter Water's Customers, the Customer Contract and such other key issues related to Hunter Water's planning and operations as Hunter Water may determine, including the matters set out in section 12(1) of the Act, consistent with the Customer Advisory Group Charter.	SC	

Licence clause	Operating Licence obligation	2019 audit requirement	Comments for the auditor
5.4.3	Hunter Water:	SC	
	(a) must ensure that, at all times, the membership of the customer advisory group is appointed and determined by Hunter Water in accordance with the Customer Advisory Group Charter:		
	(b) must use its best endeavours to include, as members of the customer advisory group, at least one Customer representing each of the following categories:		
	i) business;		
	ii) organisations representing low income;		
	iii) Customers living in rural and urban fringe areas;		
	iv) residential;		
	v)local government;		
	vi) pensioners;		
	vii) Customers with disabilities;		
	vili) Indigenous Australians; and		
	diverse backgrounds; and		
	 (c) may include, as members of the customer advisory group, at least one person representing each of the following categories: 		
	i) business Consumers;		
	ii) residential Consumers; and		
	iii) environmental groups		
5.4.4	Hunter Water and members of the customer advisory group must, for the term of this Licence, maintain a charter that addresses all of the following issues.	SC	
	(a) the role of the customer advisory group:		
	 (b) how members and the Chair of the customer advisory group will be appointed 		
	(c) the term for which members are appointed		
	 (d) information on how the customer advisory group will operate; 		
	 (e) a description of the type of matters that will be referred to the customer advisory group and how those matters may be referred; 		
	(f) procedures for communicating the outcomes of the customer advisory group's work to the public;		
	 (g) procedures for monitoring issues raised at meetings of the customer advisory group and ensuring appropriate follow-up of those issues; 		
	(h) procedures for amending the charter; and		
	 funding and resourcing of the customer advisory group by Hunter Water, 		
	(Customer Advisory Group Charter).		

Licence clause	Operating Licence obligation	2019 audit requirement	Comments for the auditor
5.4.5	Hunter Water must provide the customer advisory group with information in Hunter Water's possession or under its control necessary to enable the customer advisory group to discharge the tasks assigned to it, other than information or documents that are confidential.	SC	
5.5	Internal complaints handling		
5.5.1	Hunter Water must maintain a procedure for receiving, responding to and resolving Complaints, which is consistent with the Australian/New Zealand Standard AS/NZS 10002:2014 – Guidelines for complaint management in organizations (the Internal Complaints Handling Procedure).	Audit	This is the first audit of this clause in this licence period.
5.5.2	Hunter 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 audit of this clause in this licence period.
5.6	External Dispute Resolution scheme		
5.6.1	Hunter Water must be a member of the Energy and Water Ombudsman NSW to facilitate the resolution, by a dispute resolution body, of disputes between Hunter Water and its Customers or Consumers.	SC	
5.7	Provision of information to Customers and the general public		
5.7.1	Hunter Water must prepare a pamphlet or pamphlets with the following information to Customers at least annually with their bills:	SC	
	 (a) a brief explanation of the Customer Contract and a summary of the key rights and obligations of Customers under the Customer Contract; (b) a brief explanation of the Presedure for Devent 		
	Difficulties and Actions for Non-payment;		
	(c) a brief explanation of rights of Customers to claim a rebate and the conditions that apply to those rights;		
	(d) information about the General Enquiry Process;(e) information about how to make a Complaint under		
	 the Internal Complaints Handling Procedure; and a brief explanation of the external dispute resolution service, how to access that service, and Customers rights to have a Complaint or dispute referred to Energy and Water Ombudsman NSW. 		

Licence clause	Operating Licence obligation	2019 audit requirement	Comments for the auditor
5.7.2	 Hunter Water must make a copy of the following documents available to any person, free of charge on its website for downloading and upon request through the General Enquiry Process: (a) the Customer Contract; (b) a pamphlet or pamphlets (as referred to in clause 5.7.1); (c) the Procedure for Payment Difficulties and Actions for Non-payment; (d) the Customer Advisory Group Charter; (e) customer advisory group minutes; (f) the Internal Complaints Handling Procedure; (g) information about the dispute resolution scheme provided by Energy and Water Ombudsman NSW; and (h) a map of the Area of Operations. 	Audit	This is the first audit of this clause in this licence period.
5.7.3	Hunter Water must update the pamphlet or pamphlets prepared under clause 5.7.1 and documents on its website under clause 5.7.2 to reflect any variations made to the information within 60 days of the commencement of the variations.	Audit	This is the first audit of this clause in this licence period.
5.8	Code of Conduct with WIC Act Licensee		
5.8.1	Hunter Water must use reasonable endeavours to cooperate with any WIC Act Licensee that seeks to establish with Hunter Water a code of conduct required under a licence under the WIC Act.	SC	
5.8.2	Where the Minister administering the WIC Act has established a code of conduct under clause 25 of the WIC Regulation, Hunter Water will be taken to have satisfied its obligation under clause 5.8.1 by applying the water industry code of conduct established by the Minister to the relevant WIC Act Licensee.	NR	
5.9	Memorandum of Understanding with NSW Health		
5.9.1	 Hunter Water must use its best endeavours to: (a) maintain a memorandum of understanding with NSW Health; and (b) comply with the memorandum of understanding maintained under clause 5.9.1(a). [Note: Clause 5.9.1 does not limit the persons with whom Hunter Water may enter into a memorandum of understanding.] 	SC	We will contact NSW Health to comment on Hunter Water's performance against this clause.
5.9.2	The purpose of the memorandum of understanding referred to in clause 5.9.1(a) is to form the basis for co- operative relationships between the parties to the memorandum of understanding. In particular, the purpose of the memorandum of understanding referred to in clause 5.9.1(a) 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 that is safe to drink.	NR	

Licence clause	Operating Licence obligation	2019 audit requirement	Comments for the auditor
5.9.3	The memorandum of understanding referred to in clause 5.9.1(a) must include arrangements for Hunter Water to report to NSW Health information on any events in relation to Hunter Water's systems or Services that might pose a risk to public health.	SC	We will contact NSW Health to comment on Hunter Water's performance against this clause.
5.9.4	Hunter Water must provide NSW Health with information relating to water quality in the manner and form specified by NSW Health within a reasonable period of time of receiving NSW Health's request.	SC	We will contact NSW Health to comment on Hunter Water's performance against this clause.
	[Note: The obligation in clause 5.9.4 is in addition to Hunter Water's obligation to comply with any information requests made under section 19 of the Public Health Act 2010 (NSW) by the Secretary of the NSW Ministry of Health.]		
5.10	Memorandum of Understanding with Department of Primary Industries - Water		
5.10.1	 Hunter Water must use its best endeavours to: a) maintain a memorandum of understanding (which may be referred to as a roles and responsibilities protocol) with the Department of Primary Industries Water in relation to: the roles and responsibilities for the Department of Primary Industries Water and Hunter Water in respect of the review and implementation of the Lower Hunter Water Plan; and calculation and reporting of System Yield; and (b) comply with the memorandum of understanding maintained under clause 5.10.1(a). 	SC	We will contact Department of Industry - Water to comment on Hunter Water's performance against this clause. We note the Department of Industry (the former Department of Primary Industries) is the relevant department for this clause, and will be replaced by the Department of Planning, Industry and Environment from 1 July 2019.
	understanding or a roles and responsibilities protocol.]		
5.10.2	The purpose of the memorandum of understanding referred to in clause 5.10.1(a) is to form the basis for a co-operative relationship between the parties to the memorandum of understanding. In particular, the purpose of the memorandum of understanding referred to in clause 5.10.1(a) is to recognise the role of Department of Primary Industries Water in assessing options to address water supply security in the lower Hunter region.	NR	

Licence clause	Operating Licence obligation	2019 audit requirement	Comments for the auditor
5.11	Memorandum of understanding with Fire and Rescue NSW		
5.11.1	Hunter Water must use its best endeavours to: (a) develop and enter into a memorandum of	Audit	We will contact Fire and Rescue NSW to comment on Hunter Water's
	understanding with FRNSW by 31 December 2017; and		clause.
	 (b) once the memorandum of understanding referred to in clause 5.11.1(a) is developed and entered into, comply with the memorandum of understanding. 		Auditor should refer to the following recommendation relevant to this clause (see Table 3):
	[Note: Clause 5.11.1 does not limit the persons with whom Hunter Water may enter into a memorandum of understanding.]		2018-11.
5.11.2	The purpose of the memorandum of understanding referred to in clause 5.11.1 is to form the basis for co- operative relationships between the parties to the memorandum of understanding. In particular, the purpose of clause 5.11.1 is to:	NR	
	 (a) develop the roles and responsibilities of the parties to the memorandum of understanding as they relate to each other; 		
	(b) identify the needs and constraints of the parties to the memorandum of understanding 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 to the memorandum of understanding.		
5.11.3	The memorandum of understanding referred to in clause 5.11.1 must require:	Audit	We will contact Fire and Rescue NSW to comment on whether the MoU
	 (a) the establishment of a working group, comprised of representatives from Hunter Water and FRNSW; and 		these conditions.
	(b) the working group to consider the following matters (at a minimum):		
	between Hunter Water and FRNSW;		
	 agreed timelines and a format for Hunter 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 Hunter Water to consult with FRNSW in the design of new assets and planning of system maintenance, where modelling indicates that minimum available flow and pressure may unduly affect firefighting in the network section under consideration; and 		
	 iv) other matters as agreed by both parties to the memorandum of understanding. 		

Licence clause	Operating Licence obligation	2019 audit requirement	Comments for the auditor
6	Performance monitoring and reporting		
6.1	Operational audits		
6.1.1	 IPART may annually, or from time to time as occasion requires, undertake, or may appoint an Auditor to undertake, an audit on Hunter Water's compliance with: (a) this Licence; (b) the Reporting Manual; and (c) any matters required by the Minister. 	NR	
	(Operational Audit).		
6.1.2	Hunter Water must provide to IPART or the Auditor all information in Hunter Water's possession, or under Hunter Water's custody or control, which is necessary or convenient for the conduct of the Operational Audit.	SC	
6.1.3	Without limiting clause 6.1.2, Hunter Water must provide to IPART or the Auditor any information necessary or convenient for the conduct of the Operational Audit which IPART or the Auditor requests in writing, within any reasonable period of time specified by IPART or the Auditor in writing.	SC	
6.1.4	For the purposes of any Operational Audit or verifying a report on an Operational Audit, Hunter Water must, within a reasonable period of time from receiving a request from IPART or an Auditor, permit IPART or the Auditor to:	SC	
	(a) access any works, premises or offices occupied by Hunter 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 purposes 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 Hunter Water that are maintained in relation to the performance of Hunter Water's obligations under this Licence (including obligations under the Reporting Manual); and 		
	 (e) e) discuss matters relevant to the Operational Audit or any report on the Operational Audit with Hunter Water, including Hunter Water's officers and employees. 		

Licence clause	Operating Licence obligation	2019 audit requirement	Comments for the auditor
6.2	Reporting Manual		
6.2.1	 Hunter Water must comply with all of its reporting obligations set out in the Reporting Manual, including in relation to: (a) water conservation; (b) supply services and performance standards; 	Audit	This is the first audit of this clause in this licence period. Auditor to note that Hunter
	 (c) organisational systems management; (d) customer and stakeholder relations; and (e) performance monitoring and reporting, including: i) IPART performance indicators; and ii) ii) the National Water Initiative Performance Indicators 		significant change report to IPART as required under this clause (Report on Significant Changes, 29 March 2019).
6.2.2	Hunter Water must maintain sufficient record systems to enable Hunter Water to report accurately in accordance with clause 6.2.1.	Audit	This is the first audit of this clause in this licence period.
6.2.3	In the case of any ambiguity in the interpretation or application of any requirements in the Reporting Manual, IPART's interpretation or assessment will prevail.	NR	
	[Note: The Reporting Manual identifies the details of when, what, to whom and how Hunter Water must report to IPART and NSW Health. The Reporting Manual also specifies what and how reports and other information must be made publicly available.]		
6.3	Provision of Information to IPART and Auditor		
6.3.1	Hunter Water must provide IPART or an Auditor with information relating to the performance of any of Hunter Water's obligations under clause 6.2 (including providing IPART with physical and electronic access to the records required to be kept under clause 6.2) within a reasonable period of time from Hunter Water receiving a request from IPART or an Auditor for that information	SC	
6.3.2	Hunter Water must provide IPART or an Auditor with such information as is reasonably required to enable IPART or an Auditor to conduct any review or investigation of Hunter Water's obligations under this Licence within a reasonable period of time from Hunter Water receiving a request from IPART or an Auditor for that information.	SC	
6.3.3	If Hunter Water contracts out any of its activities to any person (including a subsidiary) it must take all reasonable steps to ensure that, if required by IPART or an Auditor, any such persons provide information and do the things specified in this clause 6 as if that person were Hunter Water.	SC	

Licence clause	Operating Licence obligation	2019 audit requirement	Comments for the auditor
6.3.4	Where this Licence requires Hunter Water to provide information to IPART or an Auditor that is information to which:	SC	
	 (a) Section 24FF of the IPART Act applies; or (b) Section 24FF of the IPART Act does not apply but IPART or the Auditor has agreed to treat the information as though section 24FF of the IPART Act applies to that information, 		
	Hunter Water must, to the maximum extent permitted by the law, provide that information even if it is confidential.		

Recommendation number	Licence part	IPART's recommendation to the Minister	2018 audit findings, and status as reported by utility on 24 May 2019	Guidance for 2019 audit
2013-14-03 2013-14-04	Water quality (drinking water)	Within 6 months, Hunter Water should review Critical Control Points (CCPs) for each treatment plant, including:	Hunter Water has closed out parts (b) to (f).	Auditor to check completeness
2013-14-06 2013-14-13	 Clause 2.1.1 in 2012-2017 licence (equivalent clause 3.1.1 in current licence) Clause 2.1.2 (equivalent clause 3.1.2 in current licence) 	a) Review all CCP critical limits (including alarm delays), and monitoring points to ensure they reflect current practice, as agreed with NSW Health.	On track for part (a). All non-disinfection CCP critical limits have been previously agreed to with NSW Health. A workshop was conducted with NSW Health to agree on the approach to the revised disinfection CCP concept. Draft CCP Limits have since been prepared and submitted to NSW Health for feedback. A workshop with NSW Health is scheduled for May 2019 to discuss the proposed limits.	

Table 3 Recommendations / outstanding items from previous audits

Recommendation number	Licence part	IPART's recommendation to the Minister	2018 audit findings, and status as reported by utility on 24 May 2019	Guidance for 2019 audit
	 Water quality (recycled water) Clause 2.2.1 in 2012-2017 licence (equivalent clause 3.2.1 in current licence) Clause 2.2.2 in 2012-2017 licence (equivalent clause 3.2.2 in current licence) 	 Within 6 months, Hunter Water should review Critical Control Points (CCPs) for each treatment plant, including: a) Review all CCP critical limits (including alarm delays), and monitoring points to ensure they reflect current practice, as agreed with NSW Health c) Revise and review CCP documentation to clearly state location, parameters, target criteria, monitoring frequency, critical limits, corrective actions and responsibilities for each CCP e) Operational and critical limits must be set in SCADA as alarms, including delay times where appropriate. 	 utility on 24 May 2019 Hunter Water has closed out parts (b), (d) and (f). On track for parts (a), (c) and (e). a) Hunter Water has received comments from NSW Health on the validation report. The validation report. The validation report. The validation report will be updated to address the comments raised. c) RWQMP's will be updated to reflect any changes from the review of the validation report. e) SCADA update requests will be completed once all above for the form. 	Auditor to check completeness
			the RWQMP revision.	

Recommendation number	Licence part	IPART's recommendation to the Minister	2018 audit findings, and status as reported by utility on 24 May 2019	Guidance for 2019 audit
2016-17-06	Water quality (recycled water) Clause 2.2.1 in 2012- 2017 licence (equivalent clause 3.2.1 in current licence)	 By 30 September 2018, Hunter Water should: Develop a table in each scheme Recycled Water Quality Management Plan that documents the evidence for the selection of the Critical Control Point, its associated monitoring parameter(s) and limits. This should include sufficient document control to capture when changes are made and the basis of those changes. Consult with NSW Health on the validation testing program for the water recycling schemes. Specify the performance required of the ultraviolet (UV) units in their operating context and determine whether they are achieving this performance. Any failure in the performance of pre-validated UV units should be further investigated. 	On track. Hunter Water will address NSW Health's comments and update the report along with the RWQMP's by the 2019 operational audit.	Auditor to check completeness.
2016-17-08	Assets Clause 4.1.2 in 2012- 2017 licence (equivalent clause 4.1.2 in current licence)	By 30 June 2019, Hunter Water should fully implement an asset criticality and risk assessment approach that is consistent across all asset classes and consistent with the enterprise management framework.	On track. By 30 June 2019, Hunter Water expects to update and finalise its approach to asset criticality and risk assessment across all asset classes.	Auditor to check completeness.
2018-01	Licence context and authorisation Clause 1.8.1	 Hunter Water should take action to ensure that tankering charges are correctly applied, including by: a) 31 March 2019, the use of paper tanker delivery dockets is replaced by a digital capture (mobility) arrangement b) 30 June 2019, draft bill validation processes are implemented for tankered waste bills c) 31 December 2019, automated billing for the receipt of tankered waste is implemented as part of Hunter Water's proposed billing system upgrade. 	On track. Hunter Water completed the digital capture arrangement under part (a). Hunter Water is on track to complete the bill validation process under part (b). The project to implement a new billing system is on track under part (c).	Auditor to check completeness of (a) and (b). Auditor to check progress of (c) noting that the deadline is outside of this audit period.

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Recommendation number	Licence part	IPART's recommendation to the Minister	2018 audit findings, and status as reported by utility on 24 May 2019	Guidance for 2019 audit
2018-02	Licence context and authorisation Clause 1.8.1	By 1 September 2019, Hunter Water must report to IPART on the further progress made in contacting owners affected by the incorrect charging of the Environment Improvement Charge and notify the total of the refunds made, and any further actions to rectify this non-compliance.	On track. Hunter Water is preparing to update IPART in July 2019.	Auditor to check completeness.
2018-03	Supply services and performance standards Clause 3.1.1	By 30 June 2019, Hunter Water should have a clear and transparent risk assessment process. Hunter Water should review the current risk process to ensure that the risk process is clearly mapped out and documented so that all stakeholders are able to follow the process easily. Documentation of the risk process should include all relevant data that is used to inform the risk assessment.	On track. A catchment to tap risk assessment guideline document has been drafted and is expected to be finalised in June 2019.	Auditor to check completeness.
2018-04	Supply services and performance standards Clause 3.1.1	By 30 June 2019, Hunter Water should clearly identify as a hazard event 'receiving water from Central Coast Council' in the risk assessment and preventive/control measures must be documented and implemented.	On track. The risk workshop outcomes report is expected to be prepared in June 2019.	Auditor to check completeness.
2018-05	Supply services and performance standards Clause 3.1.1	By 30 June 2019, Hunter Water should prioritise the improvement actions identified in the 2018 risk assessment to ensure maintenance hygiene procedures are reviewed so that consistent hygiene practices are implemented and are auditable. These hygiene practices should include the disinfection of tools, personal hygiene (in relation to workwear), disinfection and storage of parts/pipes, working clearances to prevent contamination, flushing, reinstating a service and acceptance criteria.	On track. A detailed assessment of drinking water risks associated with water main repair and renewal works was completed in early 2019 and an action plan from this is being implemented.	Auditor to check completeness.

Recommendation number	Licence part	IPART's recommendation to the Minister	2018 audit findings, and status as reported by utility on 24 May 2019	Guidance for 2019 audit
2018-06	Supply services and performance standards Clause 3.1.1	 By 30 June 2019, Hunter Water should: a) Add reservoir inspection training to the training needs matrix for all positions undertaking reservoir inspections, to ensure training is current. b) Revise the Reservoir Inspection form to provide more specific guidance and refer to specific and measureable assessment criteria, where possible. For example, under Roof Hatches and Roof Sheeting, the inspection item: <i>"P1 – evidence of bird/vermin in reservoir or vent/opening not bird/vermin proof" could be revised to include a specific measurable assessment criterion:</i> <i>"P1 – evidence of bird/vermin in reservoir or vent/opening greater than "X"mm."</i> 	On track. A Training needs matrix is to be updated with reservoir inspection training and a revised form is expected to be in place by June 2019.	Auditor to check completeness.
2018-07	Supply services and performance standards Clause 3.2.1	By 30 June 2019, Hunter Water should ensure that critical limits are documented accurately in the RWQMP, including any time delays; ensure that the location of where the critical limit applies is accurately documented; and ensure that the critical limits are consistently documented across Hunter Water and Veolia documentation.	On track. Hunter Water's RWQMP are being reviewed.	Auditor to check completeness.

Recommendation number	Licence part	IPART's recommendation to the Minister	2018 audit findings, and status as reported by utility on 24 May 2019	Guidance for 2019 audit
2018-08	Supply services and performance standards Clause 3.2.1	 By 30 June 2019, Hunter Water should: a) Include the monitoring of UVT in the operational monitoring detailed in the site specific RWQMPs for recycled water schemes that rely on UV disinfection for primary disinfection b) Confirm that critical limits (for example UVT) are set in accordance with the available validation information c) For schemes that have online monitoring of UVT, implement an alarm and or shut down for when UVT falls outside the validated operational range for the UV system (e.g. 45% at Morpeth WWTW) d) For schemes that do not have online monitoring of UVT, establish appropriate monitoring processes, such as regular grab samples with identified corrective actions for when UVT falls outside the validated operational range specified by the manufacturer 	On track. The monitoring plans are being updated under part (a) Hunter Water is confirming the critical limits under part (b) SCADA requests forms are being finalised to reflect the required changes under (c) Monitoring has been included in weekly sampling under (d).	Auditor to check completeness.
2018-09	Supply services and performance standards Clause 3.2.1	By 30 June 2020, Hunter Water should investigate the establishment of online monitoring of UVT with alarms and or shutdowns at all sites that rely on UV disinfection for primary disinfection of recycled water	On track. Hunter Water to undertake this work will occur in conjunction with 2018-08.	Auditor to check progress noting that the due date is outside of this audit period.
2018-10	Organisational systems management Clause 4.2.2	By 30 June 2019, Hunter Water should ensure high risk issues in the Environmental Compliance Tracking Register are addressed within the allocated timeframe.	On track. Hunter Water is reviewing all outstanding items within the Environmental Compliance Tracking Register along with risk allocation.	Auditor to check completeness.

Recommendation number	Licence part	IPART's recommendation to the Minister	2018 audit findings, and status as reported by utility on 24 May 2019	Guidance for 2019 audit
2018-11	Customer and stakeholder relations Clause 5.11.1	By 30 June 2019, Hunter Water should use its best endeavours to develop and enter into a Memorandum of Understanding with Fire and Rescue NSW.	On track. Hunter Water expects to sign the MoU by 30 June 2019.	Auditor to check completeness.

Source: IPART, Hunter Water Corporation Operational Audit 2018, Report to the Minister, March 2019 and Hunter Water Corporation, Status Report on 2018 audit recommendations, 24 May 2019.

Audit vear	Location	Facility
2018	North Lambton	Maintenance denot
2018	North Lambion	Reservoir
	Lambton	Observed planned maintenance activity (faulty valve replacement works)
	Morpeth	Wastewater treatment works (including recycled water)
	Dungog	Water treatment plant
2017	Kurri Kurri	Wastewater Treatment Plant
	Gresford	Water Treatment Plant and Water Pump Station
	North Lambton	Maintenance Depot and Planned Maintenance repair
	Wallsend	Water Pump Station
	Elermore Vale	Reservoir
2016	Tomago Sandbeds	Borefields
	Lemon Tree Passage	Water Treatment Plant
	Karuah	Wastewater Treatment Plant and the reuse enterprise
	Boulder Bay	Wastewater Treatment Plant
2015	Edgeworth	Wastewater Treatment works
	KIWS (Kooragang Industrial Water Scheme), incl. Mayfield West plant	Advanced Water Treatment Plant (recycled water)
	Grahamstown	Spillway
		Water Treatment Plant
	Campvale	Pumping station
2014	Chichester	Dam
	Dungog	Water Treatment Plant
	Clarence	Sewage Treatment Plant
	Boags Hill	Inlet
	Seaham	Weir
2013	Branxton	Recycled Water Treatment Plant
	Grahamstown	Water treatment plant
		· · · ·
2012	Port Stephens	Lemon Tree Passage Water Treatment Plant
	Grahamstown	Dam
	Campvale	Pumping station
	Between Newcastle and Port Stephens	Tomago Sandbeds

Table 4 Previous field verification locations for Hunter Water Corporation

Audit year	Location	Facility
	Karuah	Sewage Treatment Plant
2011	Dungog	Water Treatment Plant
	Grahamstown	Water Treatment Plant
	n/a	Service reservoirs and storages
	n/a	Work sites – mains replacement and burst mains repair



Appendix B Hunter Water Representatives

A list of Hunter Water representatives that attended audit interviews and/or field verification visits is presented in this Appendix.



Day 1 – Interview sessions part 1

Inception Meeting

*Laura Hails (General Counsel & Company Secretary) *Darren Cleary (Chief Investment Officer) *Clint Thomson (Executive Manager Service Delivery for Customers) *Victor Prasad (Executive Manager Customer Strategy and Retail) Ben Silberberg (Senior Economist) Matthew Wickens (Manager Audit and Assurance) Carly Reid Small (Legal and Assurance Coordinator) (*Members of the Executive Management Team)

Supply Services and Performance Standards

- Drinking water

Colin Hancock (Group Manager Water Operations) Wade Delforce (Water Resources Engineer) Dave Turner (Acting Manager Water Network Operations) Pam O'Donoghue (Acting Manager Water Treatment Operations) Karen Arkinstall (Veolia - Manager Systems Reporting Risk & Compliance) Dan Slocombe (Veolia - Water Treatment Manager) Harry Gibson (Veolia - Water Process Engineer) Carly Reid Small (Legal and Assurance Coordinator)

Organisational systems management

- Environmental management system

Roland Bow (Senior Environmental Scientist) Angus Seberry (Manager Environment and Sustainability) Rowan Lonergan (Mechanical Engineer) Carly Reid Small (Legal and Assurance Coordinator)



Organisational systems management - Asset management system

Stuart Horvath (Manager Investment and Asset Planning) Simon Groves (Manager Planning Systems) Lutz Backhausen (Group Manager Capability Engineering) Rowan Lonergan (Mechanical Engineer) Jo Preston (Sustainability and Risk) David Derkenne (Manager Sustainability and Risk) Ben Silberberg (Senior Economist) Matthew Wickens (Manager Audit and Assurance)

Water Conservation

- Catchment to water treatment plants (Water Conservation Strategy)

John Stanmore (Technical Lead - Water Supply Systems) Kirsty Jones (Drought Relief Coordinator) Ben Silberberg (Senior Economist) Matthew Wickens (Manager Audit and Assurance)

Water Conservation

- Water treatment plants to taps (Water Conservation Target)

John Stanmore (Technical Lead - Water Supply Systems) Kirsty Jones (Drought Relief Coordinator) Ben Silberberg (Senior Economist) Matthew Wickens (Manager Audit and Assurance)

Customer and stakeholder relations

- Memorandum of Understanding with Fire and Rescue NSW

John Stanmore (Technical Lead - Water Supply Systems) Ben Silberberg (Senior Economist) Matthew Wickens (Manager Audit and Assurance)



Day 2 – Site Visits

Morpeth Recycled Water Plant

Anna Mollergren (Treatment Engineer) Martin Robards (Team Leader Alternative Water) Colin Hancock (Group Manager Water Operations) Renny Chivunga (Water Network Engineer) Dave Turner (Acting Manager Water Network Operations) Karen Arkinstall (Veolia - Manager Systems Reporting Risk & Compliance) Deanne Pope (Veolia – Biosolids & Reuse Officer) Erin Wilson (Veolia – Environmental Support Engineer) Adam Mason (Veolia – Wastewater/Reuse Operator) Scott Agnew (Veolia - Assets & Maintenance Manager) Ben Silberberg (Senior Economist) Matthew Wickens (Manager Audit and Assurance)

Chisholm Development (including re-chlorination plant)

Anna Mollergren (Treatment Engineer) Martin Robards (Team Leader Alternative Water) Colin Hancock (Group Manager Water Operations) Renny Chivunga (Water Network Engineer) Dave Turner (Acting Manager Water Network Operations) Ben Silberberg (Senior Economist) Matthew Wickens (Manager Audit and Assurance)

Adamstown Heights No 2 Reservoir

Dave Turner (Acting Manager Water Network Operations) Colin Hancock (Group Manager Water Operations) Wade Delforce (Water Resources Engineer) Matthew Butler (Network Engineer) Ben Silberberg (Senior Economist) Matthew Wickens (Manager Audit and Assurance)

Fern Bay Wastewater Pumping Station and Chemical Dosing Facility

Richard Matthews (Field Supervisor – Mechanical) David Appleby (Manager Electrical & Mechanical Maintenance) Roland Bow (Senior Environmental Scientist) Rowan Lonergan (Mechanical Engineer) Ben Silberberg (Senior Economist) Matthew Wickens (Manager Audit and Assurance)



Day 3 – Interview sessions part 2

Supply Services and Performance Standards

- Recycled water

Martin Robards (Team Leader Alternative Water) Ardie Morris (Manager Revenue) Renny Chivunga (Water Network Engineer) Anna Mollergren (Treatment Engineer) Dave Turner (Acting Manager Water Network Operations) Karen Arkinstall (Veolia – Manager Systems Reporting Risk & Compliance) Deanne Pope (Veolia – Biosolids & Reuse Officer) Erin Wilson (Veolia – Environmental Support Engineer) Carly Reid Small (Legal and Assurance Coordinator) Matthew Wickens (Manager Audit and Assurance)

Performance monitoring and reporting

- Reporting Manual

Pam O'Donoghue (Acting Manager Water Treatment Operations) Vikas Shah (Treatment Engineer) Ben Silberberg (Senior Economist) Matthew Wickens (Manager Audit and Assurance)

Licence context and authorisation

- Pricing

Dane Linde (Team Leader Meters and Billing) Martin Robards (Team Leader Alternative Water) Greg Heaney (Team Leader Plumbing & Tradewaste) Alison Heap (Team Leader Property and Accounts) Ardie Morris (Manager Revenue) Ben Silberberg (Senior Economist) Matthew Wickens (Manager Audit and Assurance)

Customer and stakeholder relations – Internal Complaints Handling

Doug Lucas (Acting Manager Customer Experience) Rod Cade (Manager Customer Care) Sam Sneddon (Senior Communications Officer) Carly Reid Small (Legal and Assurance Coordinator)



Customer and stakeholder relations

- Provision of information to Customers and the general public

Doug Lucas (Acting Manager Customer Experience) Sam Sneddon (Senior Communications Officer) Ben Silberberg (Senior Economist) Matthew Wickens (Manager Audit and Assurance)

Organisational systems management

- Asset management system (Field verification follow-up session)

Stuart Horvath (Manager Investment and Asset Planning)
Simon Groves (Manager Planning Systems)
Lutz Backhausen (Group Manager Capability Engineering)
Shayne Humphries (Manager Operational Information)
Rowan Lonergan (Mechanical Engineer)
Matthew Wickens (Manager Audit and Assurance)

Close-out Meeting

*Graham Wood (Acting Chief Executive Officer)
*Laura Hails (General Counsel & Company Secretary)
*Darren Cleary (Chief Investment Officer)
*Clint Thomson (Executive Manager Service Delivery for Customers)
Glen Robinson (Group Manager Environmental Operations)
Stuart Horvath (Manager Investment and Asset Planning)
Colin Hancock (Group Manager Water Operations)
Dave Turner (Acting Manager Water Network Operations)
Wade Delforce (Water Resources Engineer)
Pam O'Donoghue (Acting Manager Water Treatment Operations)
Karen Arkinstall (Veolia – Manager Systems Reporting Risk & Compliance)
Ben Silberberg (Senior Economist)
Matthew Wickens (Manager Audit and Assurance)
Carly Reid Small (Legal and Assurance Coordinator)
(*Members of the Executive Management Team)



E Hunter Water's statement of compliance



Hunter Water Corporation ABN 46 228 513 446

PO Box 5171 HRMC NSW 2310 36 Honeysuckle Drive NEWCASTLE NSW 2300 hunterwater.com.au 1300 657 657 (T) enquiries@hunterwater.com.au

Our Ref: HW2009-1194/15/1.002

30 August 2019

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

Dear Dr Paterson,

Statement of Compliance 2018-19

For 2018-19

Submitted by Hunter Water

To:

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

Hunter Water reports as follows:

- This statement documents compliance during 2018-19 with all obligations to 1. which Hunter Water is subject by virtue of its operating licence.
- This report has been prepared by Hunter Water with all due care and skill, 2. including to ensure that all information provided is true and correct, in full knowledge of conditions to which Hunter Water is subject under the Hunter Water Act 1991.
- Schedule A provides information on all obligations with which Hunter Water did 3. not comply during 2018-19.
- Other than the information provided in Schedule A, Hunter Water has complied 4. with all conditions to which it is subject.
- 5. This compliance report has been approved by the Acting Chief Executive Officer and the Chairman of the Board of Directors of Hunter Water.

Signed:

Signed:

Name: **TERRY LAWLER** Designation: Chairman

Name:

Date:

GRAHAM WOOD Designation: Acting Chief Executive Officer

30 August 2019

Date:

30 August 2019

Schedule A - Non-compliances identified during the reporting period

		Desc	cribe:
Table #	List of clauses breached, including	l. II.	Date or period of non-compliance Nature and extent of non-compliance (including whether and how many customers have been affected)
Table # a brief description each licence clau		III. IV. V. VI.	Results of any monitoring (where applicable) Reasons for non-compliance Remedial actions taken Actual/anticipated date of full compliance
1	Operating	l. –	1 July 2006 to 31 October 2019.
	Licence clause 1.8 Subject to the terms of this Licence, the Act and the IPART Act, Hunter Water must set	II.	Hunter Water estimates that it incorrectly billed 2,758 properties for stormwater drainage charges in the period from 1 July 2006 to 30 June 2019. The total number of customers is higher than the number of properties given the transfer of ownership of some land parcels during this time.
	charges and other amounts payable for		There were three types of billing errors that occurred:
	its Services in accordance with any applicable		Category 1 - Overcharging properties by applying a stormwater drainage charge when the property was not eligible (i.e. the property was not inside a gazetted stormwater catchment).
	determination or determinations under		 486 properties, totalling \$561,281
	the IPART Act.		Category 2 - Overcharging properties by applying an incorrect stormwater charging category (i.e. properties receiving a non- residential land-size based charge that was inconsistent with the size of the property).
			 31 properties, totalling \$46,096
			Category 3 - Undercharging properties by:
	n an		 a) Not levying charges to customers that were in fact, eligible (i.e. within a gazetted stormwater drainage catchment). b) Applying an incorrect stormwater charging category (i.e. properties receiving a non-residential land-size based
	n der Lang Balan Ders Von sond erstend för bel endette for ender Lager Volks		 charge that was inconsistent with the size of the property). 2,241 properties across both (a) and (b), totalling \$2,092,968
		III.	Not applicable.
	an been der en angeneenen Bennig Wenzen vermineen Benig die Spinne der Benan Spigdneten	IV.	The billing errors were caused by mismatches between property information and billing practice. Many of these issues stemmed from the transfer of property and billing data from Hunter Water's previous billing system into the current billing system when it was first implemented in 2006. The errors were broadly one of two types: • The underlying property details from Geographic Information System that was migrated to the billing system.

were incorrect.

 Manual entry and creation of new customers lead to billing practice being inconsistent with correct underlying property details – due to human error.

The internal controls in place to identify these errors were inadequate.

Hunter Water has taken steps to rectify the issue and also prevent reoccurrence in the future, as described below:

Rectification

V.

For the 486 properties in Category 1:

- We have since credited the accounts of the 261 properties that still have the same owner today as when the overcharge occurred. The credits provided to these customers total \$403,940
- A letter was sent to these owners notifying them of the error and the amount of the overcharge. The letter provided customers the option to request a refund, or allow the credit to remain on the property to offset charges applied in the next billing cycle.
- Hunter Water has implemented changes to billing practices to ensure these customers correctly billed in the future.

Of these 486 properties in Category 1, there are also 225 previous owners of the properties that are owed \$157,341. As these customers no longer own the property, it is difficult to locate them to rectify the error. To rectify the error, we have:

- Established a page on Hunter Water's website providing information on the error made and the properties that were overcharged.
- This page includes a form allowing customers to register their contact details if they believe they may be eligible for a refund.
- So far, we have made refunds to 3 previous owners, totally refunds of \$2,566.
- The success of this method will be reviewed in 6 months and further actions to locate these customer considered at that time.

For the 31 properties in Category 2, we need to manually review and correct these charges (this process cannot be automated). Once corrected, current owners of the properties will receive a credit. We are currently investigating if previous owners of these properties were impacted by this issue. If so, we intend to locate and contact them directly, where possible.

For the 2,241 properties undercharged:

- Correcting charges for these properties requires us to work through the details of each property manually. In doing so, we have corrected the charges for 858 properties thus far. For these 858 properties, we have contacted the current owner to inform them of the error and the stormwater drainage charges that they are eligible for in the future. Charges for these 858 properties have been rectified from 1 July 2019.
- Rectification of the remaining properties will be completed by 31 October 2019.
- Hunter Water does not intend to bill these customers for the undercharged amounts.

Preventing reoccurrence

Hunter Water is implementing the following controls to prevent reoccurrence of this error:

- Introduction of a new billing system (targeted for November 2019) that uses property data from our Geographic Information System as a 'source of truth' for billing. This removes human influence from this part of the billing process and prevents mismatches between property characteristics and billing practice. The new billing system will contain a number of quality assurance reports focused on identifying and rectifying any mismatches that may occur.
- Prior to implementation of the new billing system, Hunter . Water has developed interim controls:
 - o Development of four new quality assurance reports that validate underlying customer information against billing practice to identify any inconsistencies and where necessary, rectify any errors prior to billing customers.
 - Implementing an additional guality assurance 0 process of source property data that underlies establishment of new customers. This process will ensure that information in our Geographic Information System is accurate and subsequently reflected in billing practice.
- By 31 October 2019, all customers will be billed correctly for future stormwater drainage charges.

By 30 June 2020, Hunter Water anticipates locating and providing credits or refunds for as many previous owners that were overcharged, as possible. This reflects the difficult nature of locating these customers. We expect that we will be unable to locate some customers and others will be non-responsive to our contact and attempts to rectify the issue.

VI.

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