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(Stage 2)

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(Stage 2)

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1. Executive Summary

1.1 Auditor Declaration

This report presents the findings of an Operational Audit of Catherine Hill Bay Water Utility Pty Ltd's compliance with the requirements of its Network Operator's Licence (Licence No: 16_035) and the relevant provisions of the *Water Industry Competition (General) Regulation 2008* as they relate to the drinking water, sewerage and recycled water schemes at Catherine Hill Bay.

The auditor confirms that:

- the auditor was provided with sufficient evidence on which to base the conclusions reached during the audit;
- the audit findings accurately reflect the professional opinion of the auditor;
- the auditor has conducted the audit, determined the audit findings and prepared this report in accordance with the requirements of the *WIC Act Audit Guidelines*¹ and the provisions of the Audit Deed; and
- the audit findings have not been unduly influenced by the Licensee and/or any of its associates and express the auditor's opinion as to whether the Licensee has met the Licence conditions and regulatory requirements as specified in the scope.

1.2 Major Findings

The Licensee, Catherine Hill Bay Water Utility Pty Ltd, was found to have designed, constructed operated and maintained the audited drinking water, sewerage and recycled water schemes at Catherine Hill Bay in compliance with the assessed audit criteria.

1.3 Recommendations

No recommendations have been made as a result of this audit.

One (1) opportunity for improvement, which the Licensee may wish to consider, is identified in the body of the report.

¹ IPART, *Audit Guideline; Water Industry Competition Act 2006*, September 2018.

2. Introduction

2.1 Objectives

This report presents the findings of an Operational Audit undertaken for the Independent Pricing and Regulatory Tribunal (IPART) under the provisions of the *Water Industry Competition Act 2006*.

The objective of the audit was to assess compliance of the Licensee, Catherine Hill Bay Water Utility Pty Ltd (Catherine Hill Bay Water or CHBWU), in meeting the requirements of the relevant legislation (the *Water Industry Competition Act 2006* and *Water Industry Competition (General) Regulation 2008*) and its Network Operator's Licence (Licence No: 16_035) as they relate to the Stage 2 drinking water, sewerage and recycled water schemes at Catherine Hill Bay.

2.2 Licensee's Infrastructure, Systems and Procedures

The infrastructure, systems and procedures subject to audit are those related to the drinking water, sewerage and recycled water schemes (the Schemes) that service "The Beaches" land and housing development at Catherine Hill Bay, approximately 20 kilometres south of Newcastle (refer <http://www.solowater.com.au/schemes/>). The Water Industry Infrastructure, which was developed and commissioned in two stages, comprises:

- a bulk potable (drinking) water supply pipeline via which potable water is supplied from another utility,²
- an onsite drinking water storage and chlorine dosing facility;
- a potable water distribution/reticulation network;
- a pressure sewer collection network
- a treatment plant for the production of recycled water from sewage;
- facilities for the on-site storage of recycled water prior to distribution; and
- a non-potable (recycled) water distribution/reticulation network.

Stage 1 of the scheme development, under which the recycled water network was charged with potable water, was approved for and commenced commercial operation in October 2017.³

Stage 2, which included the treatment plant and other facilities associated with the supply of recycled water, was approved for and commenced commercial operation in December 2018.⁴

Catherine Hill Bay Water Utility Pty Ltd (ACN 163 381 922) is the Licensee, holding Network Operator's Licence No: 16_035. As Licensee, Catherine Hill Bay Water owns and is responsible for the ongoing operation and maintenance of the drinking water network, sewerage network and the recycled water network in accordance with its management plans (Licence Plans).

Versions of the management plans in place during the audit period (i.e. in respect of the Stage 2 infrastructure) included:

² Bulk water supply is to be provided by Central Coast Council.

³ Minister for Energy and Utilities, *Notice of approval to bring new infrastructure into commercial operation*, 27 October 2017.

⁴ Minister for Energy and Utilities, *Notice of approval to bring new infrastructure into commercial operation*, 13 December 2018 and Minister for Energy and Utilities, *Notice of approval to bring new infrastructure into commercial operation*, 18 January 2019.

- Solo Water, *Catherine Hill Bay Water Utility; Infrastructure Operating Plan; Stage 2* (reference: IMS-OPER-B-8297-SW) (Revision 2.2), 6 September 2019;
- Solo Water, *Catherine Hill Bay Water Utility; Drinking Water Quality Management Plan; Stage 2* (reference: IMS-ENVM-B-3727-SW) (Revision 2.1, 20 September 2019);
- Solo Water, *Catherine Hill Bay Water Utility; Recycled Water Quality Management Plan; Stage 2* (reference: IMS-ENVM-B-3727-SW) (Revision 1.2), 20 September 2019; and
- Solo Water, *Catherine Hill Bay Water Utility; Sewage Management Plan; Stage 2* (reference: IMS-ENVM-B-3728-SW) (Revision 2.2), 20 September 2019.

2.3 Audit Method

2.3.1 Audit Scope

The audit comprised an Operational Audit conducted pursuant to the *WIC Act Audit Guidelines*.⁵ The specific scope of the audit was as defined in IPART's letter to Catherine Hill Bay Water (reference D19/28331) dated 20 November 2019; the nominated scope addresses selected requirements of:

- the *Water Industry Competition (General) Regulation 2008*; and
- Network Operator's Licence No: 16_035.

The subject of the audit was the full extent of the scheme infrastructure, as described in **Section 2.2**.

2.3.2 Audit Standard

The audit has been undertaken in accordance with the principles/guidance presented in:

- ISO 19011:2011 *Guidelines for auditing management systems*; and
- IPART, *Audit Guideline; Water Industry Competition Act 2006*, September 2018 (WIC Act Audit Guidelines).

2.3.3 Audit Steps

The audit has been undertaken generally in accordance with the procedure outlined in the *WIC Act Audit Guidelines*.

Following approval of an *Audit Proposal* by IPART, an *Audit Agenda* and *Information Request* were sent to both the Licensee and IPART prior to the audit fieldwork being undertaken. Audit fieldwork comprising a site inspection of existing infrastructure and a desktop audit of relevant documentation/records was undertaken on 11 February 2020. Some additional items of information and/or clarification were requested following the audit fieldwork and subsequently provided.

A draft audit report was prepared and submitted to both the Licensee for review/comment, before being finalised and issued to both the Licensee and IPART.

⁵ IPART, *Audit Guideline; Water Industry Competition Act 2006*, September 2018.

The audit process involved seeking objective evidence that the Licensee had complied with the obligations identified for audit by IPART. Evidence was obtained through interview, review of relevant documentation and records, and site inspection.

2.3.4 Audit Team





The audit was conducted by Dan Deere and a peer/quality assurance review was undertaken by Jim Sly. Both auditors hold relevant Lead Auditor accreditation on IPART’s Technical Services and Water Licensing Panel.

Catherine Hill Bay Water was represented by Brad Irwin (Environmental Engineer/New Schemes Manager), Craig Heiningger (Water Utility Engineer /Operations Manager) as well as Ronnie Paine and Tim Sazdanoff (local Water and Wastewater Systems Operators). IPART representatives Jamie Luke and Gudny Palsdottir attended as observers during the audit fieldwork.

2.3.5 Audit Grades

Audit grades have been awarded in accordance with guidance presented in the *WIC Act Audit Guidelines*. The compliance grades applicable for the purposes of this audit were as identified in Table 2.1.

Table 2.1 Audit Compliance Grades

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

2.4 Regulatory Regime

The Catherine Hill Bay Water schemes operate in accordance with the provisions of a Network Operator’s Licence (Licence No: 16_035) issued under the *Water Industry Competition Act 2006* (NSW). Other relevant regulatory instruments and standards/guidelines include:

- *Water Industry Competition (General) Regulation 2008 (NSW)*;
- IPART, *Audit Guideline*; *Water Industry Competition Act 2006*, September 2018;
- *Australian Drinking Water Guidelines 2011 (as amended August 2018)*;
- *Australian Guidelines for Water Recycling: Managing Health and Environmental Risks (Phase 1) 2006*;
- *Plumbing Code of Australia*;

- *Plumbing and Drainage Act 2011 (NSW)*; and
- NSW and national water industry and environmental regulations and codes of practice as applicable.

2.5 Quality Assurance Process

The quality of this audit report was assured through a professional review process. The report has been independently reviewed by a Lead Auditor who holds relevant accreditation on IPART's Technical Services and Water Licensing Panel.

2.6 Audit Findings

Audit findings are summarised in the following **Sections 3 to 8**, and are presented in full detail in **Appendices A to F**.

3. Water Supply Infrastructure

3.1 Summary of Findings

There were no identified non-compliances in respect of the audited clauses of the *Water Industry Competition (General) Regulation 2008* related to *Water Supply Infrastructure* (refer to **Appendix A** for detailed audit findings).

3.2 Review of Actions

The Licensee provided one correction and clarification following issue of the draft report and prior to the final report being issued. Evidence was provided that Catherine Hill Bay Water had received formal confirmation from the supplier that the chlorine dosed at the Catherine Hill Bay site is fit for purpose for addition to drinking water. That auditor had overlooked that evidence during the audit.

3.3 Opportunities for Improvement

No opportunities for improvement have been identified in respect of the audited clauses relating to *Water Supply Infrastructure*.

4. Non-Potable Water Supply Infrastructure

4.1 Summary of Findings

There were no identified non-compliances in respect of the audited clauses of the *Water Industry Competition (General) Regulation 2008* related to *Non-Potable Water Supply Infrastructure* (refer to **Appendix B** for detailed audit findings).

4.2 Review of Actions

The Licensee has not made any suggestions for corrections or clarifications following issue of the draft report and prior to the final report being issued.

4.3 Opportunities for Improvement

No opportunities for improvement have been identified in respect of the audited *WIC Regulation* clauses related to the *Non-Potable Water Supply Infrastructure*.

5. Sewerage Infrastructure

5.1 Summary of Findings

There were no identified non-compliances in respect of the audited clauses of the *Water Industry Competition (General) Regulation 2008* related to *Sewerage Infrastructure* (refer to **Appendix C** for detailed audit findings).

5.2 Review of Actions

The Licensee has not made any suggestions for corrections or clarifications following issue of the draft report and prior to the final report being issued.

5.3 Opportunities for Improvement

No opportunities for improvement have been identified in respect of the audited *WIC Regulation* clauses related to the *Sewerage Infrastructure*.

6. General Obligations of a Network Operator

6.1 Summary of Findings

There were no identified non-compliances in respect of the audited clauses of the *Water Industry Competition (General) Regulation 2008* that address the *General Obligations of a Network Operator* (refer to **Appendix D** for detailed audit findings).

6.2 Review of Actions

The Licensee made suggestions for corrections or clarifications following issue of the draft report. The Licensee considered that these suggestions were not adequately considered in updating the draft to creating the final report. As a result, in addressing errors in the final report identified by IPART, feedback from the Licensee was further reviewed and ultimately accepted. Specifically, an OFI previously stated that a number of agency and document references were not updated in one of the documents reviewed and recommend that the Licensee proactively checks/confirms contact details for key stakeholders as part of the annual review of its Incident Response and Notification Management Plan. The Licensee was able to explain that it did have a suitable process in place to conduct such a review and that the reasons for the differences between agency titles reflected an alignment of the Licensee's documents with IPART's documents. As a result the OFI was changed from being one relating to document currency to being focused on putting in place a system to remain aware of changes to IPART documents.

6.3 Opportunities for Improvement

The following opportunity for improvement has been identified in respect of the audited *WIC Regulation* clauses that address the *General Obligations of a Network Operator*.

- **OFI-CHB-2020.01:** It is suggested that Catherine Hill Bay Water subscribes to the IPART system to be automatically notified of updates.

7. Schedule A to the Network Operator's Licence

7.1 Summary of Findings

There were no identified non-compliances in respect of the audited clauses of *Schedule A to the Network Operator's Licence* (refer to **Appendix E** for detailed audit findings).

7.2 Review of Actions

The Licensee has not made any suggestions for corrections or clarifications following issue of the draft report and prior to the final report being issued.

7.3 Opportunities for Improvement

No opportunities for improvement have been identified in respect of the audited clauses of *Schedule A to the Network Operator's Licence*.

8. Schedule B to the Network Operator's Licence

8.1 Summary of Findings

There were no identified non-compliances in respect of the audited clauses of *Schedule B to the Network Operator's Licence* (refer to **Appendix F** for detailed audit findings).

8.2 Review of Actions

The Licensee has not made any suggestions for corrections or clarifications following issue of the draft report and prior to the final report being issued.


8.3 Opportunities for Improvement

No opportunities for improvement have been identified in respect of the audited clauses of *Schedule B to the Network Operator's Licence*.

Appendix A Detailed Audit Findings – Water Supply Infrastructure

Detailed audit findings in respect of the obligations related to *Water Supply Infrastructure* are presented in this Appendix.

Table A.1 Water Supply Infrastructure – WIC Reg Sched 1 cl.6(2)(a)

Clause	Requirement	Compliance Grade
WIC Reg Sched 1 cl.6(2)(a)	The network operator must ensure that the infrastructure operating plan is fully implemented and kept under regular review and all of the network operator’s activities are carried out in accordance with that plan.	 Compliant
Risk This requirement reflects a high operational risk. Implementation of the <i>Infrastructure Operating Plan</i> ensures the effective (safe and reliable) delivery of agreed levels of service.		Target for Full Compliance Evidence that the <i>Infrastructure Operating Plan</i> is fully implemented and the Licensee’s activities are carried out in accordance with that <i>Plan</i> ; evidence that the <i>Plan</i> is kept under regular review.
Evidence sighted <ul style="list-style-type: none"> ▪ Interviews with Catherine Hill Bay Water personnel on 11 February 2020. ▪ Site inspection of infrastructure at Catherine Hill Bay on 11 February 2020. ▪ Solo Water, <i>Catherine Hill Bay Water Utility; Infrastructure Operating Plan; Stage 2</i> (reference: IMS-OPER-B-8297-SW) (Revision 2.2), 6 September 2019. ▪ Solo Water, <i>Catherine Hill Bay Water Utility Quarterly Report – Internal, April - June 2019</i>, August 2019. 		
Summary of reasons for grade Catherine Hill Bay Water demonstrated that, during the audit period, it had fully implemented and carried out its activities in accordance with the arrangements detailed in the <i>Infrastructure Operating Plan</i> . Catherine Hill Bay Water demonstrated that it has kept the <i>Infrastructure Operating Plan</i> under regular review, at this stage principally through its ongoing development, and that arrangements are in place to ensure that it continues to do so. Accordingly, Catherine Hill Bay Water is assessed to have demonstrated compliance with this obligation.		
Discussion and notes <u>Note:</u> For the purposes of this audit, the following discussion addresses the implementation of the <i>Infrastructure Operating Plan</i> as it relates to both water supply (WIC Reg Sched 1 cl.6(2)(a)) and sewerage (WIC Reg Sched 1 cl.13(2)(a)) infrastructure. The discussion is not repeated in Table C.1. Overview: The auditor checked for evidence that the <i>Infrastructure Operating Plan</i> was being fully implemented and kept under regular review and that all of the Network Operator’s activities are carried out in accordance with that <i>Plan</i> . Operation and Maintenance: Operation and maintenance of the infrastructure during the audit period was undertaken in accordance with the general principles/strategy outlined in the <i>Infrastructure Operating Plan</i> . The adopted operation and maintenance regime involves monitoring of system performance via the SCADA system; daily inspections and minor maintenance; and preventative, corrective, breakdown and major periodic maintenance as required.		

A Maximo asset management and maintenance system has been set up to help schedule and record activities, with mobile functionality provided via an “EZMaxMobile” app. This platform provides work for orders to be set up, scheduled and recorded. Examples of work orders were shown on screen during the audit and the system was evidently functional and effective.

The SCADA system was reviewed during the audit and, as detailed in Table D.1 and Table C.2, was evidently functional and effective, and the infrastructure had been operating during the audit period. It was noted that the site has its own private fibre network to provide for reliable SCADA signal in the relatively remote location. In addition, the site has a generator on site and this has been successfully used to provide power to the site in both planned (test) and unplanned outages within the audit period.

During the audit the standard of plant and equipment was checked on site. The recycled water treatment plant, drinking water chlorine dosing station and treated water storage tanks and reticulation systems visible for inspection were in new and good condition. The parts and fittings stored at the site were of good quality and stored appropriately. The consumable items, such as instrument calibration and verification solutions and reagents, were all in date and appropriately stored (chlorine, pH 4, pH 7, DPD and turbidity standards on site had expiry dates from the supplier of August 2021, October 2020, August 2020, December 2024 and July 2020, respectively).

System performance is summarised and reported in detail in quarterly reports. An example from August 2019,⁶ which covered the period April to June 2019, was examined in detail.

On the basis of the above assessment and observations made during the audit site inspection it was apparent that the infrastructure had been/was being operated in accordance with the arrangements documented in the *Infrastructure Operating Plan*.

Regular Review of Infrastructure Operating Plan:

Catherine Hill Bay Water demonstrated that the *Infrastructure Operating Plan* is kept under regular review. The “Document Status” table indicates that the document has undergone several revisions during its development phase (18 September 2018, 5 November 2018 and 6 September 2019), including updates to incorporate the recycled water plant and reflect the Stage 2 scheme arrangements. The review process is managed through the Solo Group Citrix Document Control Platform. Specifically, a change register is maintained for key documents. An ongoing register of improvement ideas and opportunities is maintained (the Continuous Improvement Request Register that is used to capture changes between revisions and ideas for change) as a worksheet that was sighted online during the audit. In addition, a Corrective Action Register (CAR) has been set up to identify and drive improvements if major issues are identified.

On this basis, it is apparent that Catherine Hill Bay Water has arrangements in place to ensure that the *Infrastructure Operating Plan* is kept under regular review. The *Plan* has been reviewed annually, as scheduled.

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.

⁶ Solo Water, *Catherine Hill Bay Water Utility Quarterly Report – Internal, April - June 2019*, August 2019.

Table A.2 Water Supply Infrastructure – WIC Reg Sched 1 cl.7(4)(a)

Clause	Requirement	Compliance Grade
WIC Reg Sched 1 cl.7(4)(a)	The network operator must ensure that its water quality plan is fully implemented and kept under regular review and the network operator’s activities are carried out in accordance with that plan.	 Compliant

Risk

This requirement reflects a high operational risk. Implementation of the *Water Quality Plan* ensures that the water supplied complies with the specified quality requirement. Regular review ensures that the *Plan* remains current and reflects the current circumstances of the scheme.

Target for Full Compliance

Evidence that the *Water Quality Plan* is fully implemented and the Licensee’s activities are carried out in accordance with that *Plan*; evidence that the *Plan* is kept under regular review.

Evidence sighted

- Interviews with Catherine Hill Bay Water personnel on 11 February 2020.
- Site inspection of infrastructure at Catherine Hill Bay on 11 February 2020.
- Solo Water, *Catherine Hill Bay Water Utility; Drinking Water Quality Management Plan; Stage 2* (reference: IMS-ENVM-B-3727-SW) (Revision 2.1), 20 September 2019.
- Solo Water, *Catherine Hill Bay Water Utility; Recycled Water Quality Management Plan; Stage 2* (reference: IMS-ENVM-B-3727-SW) (Revision 1.2), 20 September 2019.
- Information from Castle Chemicals, as cited.
- Solo Water, *Catherine Hill Bay Water Utility Quarterly Report – Internal, April - June 2019*, August 2019.

Summary of reasons for grade

Catherine Hill Bay Water demonstrated that it had fully implemented and carried out its activities in accordance with the arrangements detailed in the *Drinking Water Quality Management Plan* and *Recycled Water Quality Management Plan*. This was evident principally from the implementation of the documented water quality monitoring arrangements.

Catherine Hill Bay Water also demonstrated that it has kept the *Drinking Water Quality Management Plan* and *Recycled Water Quality Management Plan* under regular review, at this stage principally through its ongoing development, and that arrangements are in place to ensure that it continues to do so.

Accordingly, Catherine Hill Bay Water is assessed to have demonstrated compliance with this obligation.

Discussion and notes

Overview:

The auditor checked for evidence that the *Drinking Water Quality Management Plan* and *Recycled Water Quality Management Plan* were being fully implemented and kept under regular review and that all of the Network Operator’s activities are carried out in accordance with these *Plans*.

Operational Monitoring:

Operational monitoring (which was undertaken by Catherine Hill Bay Water personnel) comprised:

-
- online monitoring (via the SCADA system) of free chlorine residual at the chlorine dosing skid for drinking water;
 - online monitoring (via the SCADA system) of UV dose, flow rate, turbidity and free chlorine residual for the recycled water treatment plant; and
 - field monitoring of free chlorine residual at identified locations within the drinking water and recycled water networks.

An historical review of SCADA data and field monitoring test results is documented in Table D.1.

For the non-drinking water process train, on the day of the audit the UV flow rate setpoints were 4.8 and 5.0 L/s for the alert high and critical high, respectively; albeit noting that a Maric flow control valve was set to limit flows to 4 L/s. For instance, the flow rate through the UV system was below the critical limit of 5 L/s, UV transmissivity was above 60% and free chlorine was between 0.8 and 4.5 mg/L. A check was made on the final water being delivered on the day of the audit from the chlorine contact which was compliant and measured by the SCADA system to have a 1.05 mg/L chlorine concentration with a pH of 7.57 and temperature of 25.7°C. On the same day the filtered effluent turbidity readings shown on SCADA from the sensitive Hach TU5300 units for turbidity on process trains number 1 and 2 were 0.036 and 0.022 NTU, respectively. These results were compliant with the relevant *Plan*.

For the drinking water chlorinator, on the day of the audit the setpoints were set at 0.8, 0.9, 4.0 and 4.5 mg/L chlorine concentration for the critical low, alert low, alert high and critical high, respectively; with a 600 s delay. These results were compliant with the relevant *Plan*.

Verification Monitoring:

Verification monitoring (undertaken by service provider) comprised:⁷

- laboratory testing of samples for *E. coli* and total coliforms;
- field monitoring (using calibrated hand held equipment) of samples for pH, turbidity, total dissolved solids, free chlorine and total chlorine; and
- six-monthly detailed laboratory analysis of samples for a more extensive range of parameters.

A review of verification monitoring test result is documented in Table D.1.

Other practices assessed:

It was noted from the certificates displayed at the site that the Catherine Hill Bay facility was explicitly covered by Solo Water's ISO 14001:2015, 9001:2015 and 4801 certified management systems which are current to 20 November 2020 having been certified on 20 November 2018 – covering much of the audit period. A recent internal audit was said to have taken place, within the audit period, at the Catherine Hill Bay site. The Solo Water Drinking Water Policy, Sewage Management Policy, Quality Policy and Environment Policy were displayed at the Catherine Hill Bay facility. The presence of these management systems and policy commitments provided additional confidence in the oversight of the drinking water and recycled water quality management systems in place for Catherine Hill Bay Water.

The chlorine stored on site for dosing was Chlor 12⁸ which Catherine Hill Bay Water has previously (at the time of the Stage 1 New Infrastructure Audit) demonstrated to be suitable for potable water use.⁹ Evidence provided at the time included a Material Safety Data Sheet and other supporting information provided by the supplier (Castle Chemicals).

⁷ Solo, *Water Quality Monitoring Procedure* (IMS-OPER-D-8305-SW) (Issue No: 1.0), June 2017.

⁸ http://castlechem.com.au/wp-content/uploads/2017/05/Chlor-12_tb.pdf

⁹ Cobbitty Consulting/Water Futures, *Catherine Hill Bay Water Utility; New Infrastructure Audit (Stage 1 – Interim Scheme)* (Version 2.0), 17 August 2017, table A.5.

The treated water storage tanks on site for both drinking and non-drinking water were new and fully secured. The tanks, supplied by Tasman Tanks, are checked annually using a ROV in addition to being checked monthly by operations staff.

For both drinking and non-drinking water there was sufficient storage on site for approximately 24 hours supply during a peak day to help maintain supply if a high water demand arose and/or a supply or treatment interruption arose.¹⁰

The recycled water treatment plant can operate in potable top-up mode or with two process trains or three of four racks operating and doesn't need to operate at full capacity. Therefore, there is good backup capacity for the recycled water supply.

System performance related to water quality is summarised and reported in detail in quarterly reports. An example from August 2019,¹¹ that covered the period April to June 2019, was examined in detail.

Regular Review of Water Quality Management Plan:

Catherine Hill Bay Water demonstrated that both the *Drinking Water Quality Management Plan* and *Recycled Water Quality Management Plan* are kept under regular review. The "Document Status" tables indicate that the documents have undergone several revisions during the audit period (31 August 2018 (*Drinking Water Quality Management Plan*), 5 November 2018 (*Recycled Water Quality Management Plan*) and 20 September 2019 (both plans)), including updates to incorporate the recycled water plant and reflect the Stage 2 scheme arrangements. The review process is managed through the Solo Group Citrix Document Control Platform. Specifically, a change register is maintained for key documents. An ongoing register of improvement ideas and opportunities is maintained (the Continuous Improvement Request Register that is used to capture changes between revisions and ideas for change) as a worksheet that was sighted online during the audit. In addition a Corrective Action Register (CAR) has been set up to identify and drive improvements if major issues are identified.

On this basis, it is apparent that Catherine Hill Bay Water has arrangements in place to ensure that the *Drinking Water Quality Management Plan* and *Recycled Water Quality Management Plan* are kept under regular review. The *Plans* have been reviewed annually, as scheduled.

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.

¹⁰ The drinking water storage includes capacity for fire-fighting purposes in addition to the 24 hours supply at peak day demand.

¹¹ Solo Water, *Catherine Hill Bay Water Utility Quarterly Report – Internal, April - June 2019*, August 2019.

Table A.3 Water Supply Infrastructure – WIC Reg Sched 1 cl. 8(1), (2)(a), (b) and (c)

Clause	Requirement	Compliance Grade
WIC Reg Sched 1 cl.8(1), (2)(a), (b) and (c)	<p>[8(1)] Any water meter that is connected to a network operator's water main must comply with the requirements of the Plumbing Code of Australia</p> <p>[8(2)(a)] While water is being supplied to premises in respect of which a water meter has been installed, a network operator must ensure that the water meter is properly maintained and periodically tested.</p> <p>[8(2)(b)] While water is being supplied to premises in respect of which a water meter has been installed, a network operator must ensure that the water meter is read at intervals of no more than 4 months.</p> <p>[8(2)(c)] While water is being supplied to premises in respect of which a water meter has been installed, a network operator must ensure that written notice of each meter reading is sent to the relevant licensed retail supplier.</p>	 Compliant
Risk	Target for Full Compliance	
<p>This represents a medium business risk. Non-compliant and/or inaccurate water meters may result in incorrect water consumption readings that are then reflected in wholesale or retail customer billing.</p>	<p>Document procedures for the management of the meter fleet.</p>	
Evidence sighted		
<ul style="list-style-type: none"> ▪ Interviews with Catherine Hill Bay Water personnel on 11 February 2020. ▪ Site inspection of infrastructure at Catherine Hill Bay on 11 February 2020. ▪ Solo Water, <i>Operator's Manual; Catherine Hill Bay Water Utility</i>; (IMS-OPER-B-8298-SW) (live document, displayed on screen). ▪ Solo Water, Water Meter Readings worksheet (live document, displayed on screen). 		
Summary of reasons for grade		
<p>Catherine Hill Bay Water demonstrated that its meter fleet complied with the requirements of the <i>Plumbing Code of Australia</i>, were properly maintained and periodically tested, were read at intervals of no more than 4 months and that written notice of each meter reading was sent to the relevant licensed retail supplier.</p>		
Discussion and notes		
<p>WIC Reg Sched 1 cl.8(1): Water meters were inspected, both in the depot and in the field. All water meters seen on site were new compliant meters. Those used for drinking water were 'watermarked' and included check valves; and those used for recycled water meters were lilac.</p> <p>WIC Reg Sched 1 cl.8(2)(a): Whilst no meters were scheduled to be replaced during the audit period, the <i>Operator's Manual</i> at Section 4.5.9, covering the network, includes a requirement to check water meters every 8 years or after a flow volume of 1,920 kL. At that point it is intended to check a representative sample of the water meters and replace those that need replacing.</p>		

WIC Reg Sched 1 cl.8(2)(b): At present, water meters are being read quarterly and captured in a working spreadsheet. Records of the most recent round of meter readings, dated to 31 January 2020, were shown on screen during the audit. The record retained on line includes the name of the reader, the meter identification code, the property address and the meter reading. During these readings there is a note taken of any issues identified, such as plumbing non-compliances or leaks. The reading is used to inform billing. An example worksheet from 31 October 2019 (within the audit period) was scrutinised; this included an entry by meter reader Ronnie for a drinking water meter which included the reading and a record of the meter identification code and property address.

WIC Reg Sched 1 cl.8(2)(c): Customers are informed of their meter reading upon billing, which occurs within a few weeks of the meter reading taking place. The spreadsheet is used to inform the billing process.

In summary, Catherine Hill Bay Water demonstrated that its meter fleet complied with the requirements of the *Plumbing Code of Australia*, were properly maintained and periodically tested, were read at intervals of no more than 4 months and that written notice of each meter reading was sent to the relevant licensed retail supplier.


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.

Table A.4 Water Supply Infrastructure – WIC Reg Sched 1 cl. 11

Clause	Requirement	Compliance Grade
WIC Reg Sch 1 cl. 11	Customer's installations are not connected to the network operator's water main or sewer main unless the installation complies with the <i>Plumbing and Drainage Act 2011</i> (NSW).	 Compliant
Risk This represents high operational risk. Compliance of customer installation with appropriate standards is essential to ensuring safe and reliable service delivery.		Target for Full Compliance Evidence of customer installation compliance with the <i>Plumbing and Drainage Act 2011</i> (NSW).
Evidence sighted		
<ul style="list-style-type: none"> ▪ Interviews with Catherine Hill Bay Water personnel on 11 February 2020. ▪ Site inspection of infrastructure at Catherine Hill Bay on 11 February 2020. ▪ Plumbing Compliance and Final Checklist (IMS-OPER-F-8336-SW). ▪ Folder 5d – Operation Records Plumbing Compliance & Final Checklist. 		
Summary of reasons for grade		
There was no evidence at Catherine Hill Bay Water of customer's installations connected directly to the infrastructure that is the subject of this audit that were not compliant with the <i>Plumbing and Drainage Act 2011</i> (NSW). In addition, Catherine Hill Bay Water had suitable processes in place to ensure as far as reasonably practicable that customer's installations connected directly to the infrastructure that is the subject of this audit were compliant with the <i>Plumbing and Drainage Act 2011</i> (NSW).		
Discussion and notes		
To the extent practicable, plumbing fittings were inspected, both in the depot and in the field. All plumbing fittings seen on site were new and compliant. Those used for drinking water were 'watermarked' and suitably coloured in blue-stripe or plain. Those used for recycled water were lilac-coloured or lilac-striped. Therefore, to the extent that plumbing could be inspected during the audit, the plumbing was found to be compliant with the <i>Plumbing and Drainage Act 2011</i> (NSW).		
Given that only very limited inspection of plumbing could be undertaken during the audit, particularly on private properties, the audit focused on processes that Catherine Hill Bay Water had in place to ensure compliance with the <i>Plumbing and Drainage Act 2011</i> (NSW). This review found a number of processes and practices that had been implemented that included the following:		
<ul style="list-style-type: none"> ▪ Clear guidance has been provided for property owners, plumbers and builders¹² that explains the recycled water and pressure sewer systems, sets out plumbing obligations and connection requirements and that includes general information, standard drawings, application forms and checklists that can be readily downloaded online¹³ and then completed and returned. This guidance was found to be 'live' and current on the day of the audit and was checked again and remained live during the auditing reporting period (last checked 3 March 2020). ▪ Not connecting recycled water, and only permitting potable water to be supplied to each site via a backflow preventer, during construction. The recycled water meter is locked off during this 		

¹² <https://www.solowater.com.au/builders-plumbers/>

¹³ <http://www.solowater.com.au/downloads/>

construction period and (multiple examples of this arrangement were witnessed during the field audit).

- Completing cross-connection checks, both when new houses are newly constructed and before their recycled water meters are unlocked and connected, and again when houses transfer ownership once sold.
- Requiring a plumbing certificate for new properties before their recycled water meters are unlocked and connected and backflow preventers removed from the potable water supply.
- Completing scheduled checks on the pressure sewer unit twice per year.
- Call centre and local onsite staff routinely follow up taste and odour issues and tested conductivity to check for recycled water cross-connections.

Examples were sighted of a completed checklist Plumbing Compliance and Final Checklist (IMS-OPER-F-8336-SW; saved in Folder 5d – Operation Records Plumbing Compliance & Final Checklist) for a sample property selected at 1 Wardle St dated 2 May 2019. The checklist recorded evidence of checking of the plumbing certificate and inspecting the property plumbing internally and externally. It was noted the, as an additional due diligence measure, Catherine Hill Bay Water was undertaking its own inspections and checks prior to connecting water services. It was also noted that the Department of Fair Trading has delegated its responsibility for plumbing and drainage compliance within the Lake Macquarie local government area to the Lake Macquarie Council where services are provided by other than Hunter Water. Catherine Hill Bay Water is the first non-Hunter Water service provider within the Lake Macquarie local government area; accordingly, it has taken time for Council to develop and implement its arrangements for compliance oversight, including the conduct of checks and final inspections. This has been observed in other local government areas where these Department of Fair Trading responsibilities have been similarly delegated.

Catherine Hill Bay Water noted that, using its online pressure sewer monitoring system, it had detected that approximately 5% of properties damage their sewer pipes during construction e.g. star pickets are put through those lines when undertaking concreting formwork, potentially leading to ingress. In addition, some builders construct slabs with stormwater drains leading to the sewer and creating high levels of flow ingress. It appears that overflow relief gullies are commonly perceived to be stormwater pits by the public and landscapers who may think that they are drains. This suggested that inadequate pressure testing (or smoke testing or air testing) and plumbing inspections are being used when houses are constructed. Other concerns included recent storm events when a lot of people drained down their pools at the same time. However, it was noted that Catherine Hill Bay Water's pressure sewer monitoring system was very effective at picking up such sewer ingress so that rectification notices and educational information could be issued to builders and customers. Examples were shown of the sewer plan drawings stored electronically along with records of pump run hours and water level monitoring to show how these could help to pick up infiltration. Catherine Hill Bay Water noted that pools were required to use cartridge filters, not sand filters, although not all do that which can lead to some sand in the sewer pumps. This sort of concern can be detected during six-monthly inspections.

In summary, there was no evidence at Catherine Hill Bay Water of customer's installations connected directly to the infrastructure that is the subject of this audit that were not compliant with the *Plumbing and Drainage Act 2011* (NSW). In addition, Catherine Hill Bay Water had suitable processes in place to ensure as far as reasonably practicable that customer's installations connected directly to the infrastructure that is the subject of this audit were compliant with the *Plumbing and Drainage Act 2011* (NSW).

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.

Appendix B Detailed Audit Findings **– Non-Potable Water Supply Infrastructure**

Detailed audit findings in respect of the obligations related to *Non-Potable Water Supply Infrastructure* are presented in this Appendix.

Table B.1 Non-Potable Water Supply Infrastructure – WIC Reg Sched 1 cl.10(a)

Clause	Requirement	Compliance Grade
WIC Reg Sched 1 cl.10(a)	The network operator under a Licence for water infrastructure to supply non-potable water for a particular purpose must ensure that the water supplied is fit for that purpose.	 Compliant

Risk

This requirement reflects a high operational risk. It is essential from a safety viewpoint that water supplied for a particular purpose is fit for that purpose.

Target for Full Compliance

Evidence that the water supplied is fit for purpose.

Evidence sighted

- Interviews with Catherine Hill Bay Water personnel on 11 February 2020.
- Site inspection of infrastructure at Catherine Hill Bay on 11 February 2020.
- Solo Water, *Catherine Hill Bay Water Utility; Drinking Water Quality Management Plan; Stage 2* (reference: IMS-ENVM-B-3727-SW) (Revision 2.1), 20 September 2019.
- Solo Water, *Catherine Hill Bay Water Utility; Recycled Water Quality Management Plan; Stage 2* (reference: IMS-ENVM-B-3727-SW) (Revision 1.2), 20 September 2019.
- NSW Government, *Network Operator’s Licence No: 16_035* (as issued on 22 March 2016).
- Solo Water, *Catherine Hill Bay Water Utility Quarterly Report – Internal, April - June 2019*, August 2019.

Summary of reasons for grade

The non-potable (recycled) water network was supplied with a grade of water compliant with the stated purposes authorised in the Licence in accordance with the *Australian Guidelines for Water Recycling* (AGWR). Review of a sample of SCADA trend data and test results from ongoing operational and verification monitoring samples taken from the recycled water network confirmed that the water was compliant and therefore fit for the nominated purposes.

Accordingly, Catherine Hill Bay Water is assessed to have demonstrated compliance with this obligation.

Discussion and notes

The recycled water network is used for toilet flushing, laundry washing machine cold water, irrigation and outdoor cleaning and washdown as identified under the “Authorised purposes” nominated in the Licence.¹⁴

As reported in detail in Table D.1, review of a sample of SCADA trend data and water quality operational and verification monitoring test results did not find evidence of reportable incidents in which the specified water quality had been compromised during the audit period.

Accordingly, it is assessed that the recycled water supplied into the recycled water network was compliant with the AGWR with respect to being fit for its nominated purposes.

Recommendations

¹⁴ NSW Government, *Network Operator’s Licence No: 16_035* (as issued on 22 March 2016), table 1.3.

There are no recommendations in respect of this obligation.

Opportunities for improvement

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

Appendix C Detailed Audit Findings – Sewerage Infrastructure

Detailed audit findings in respect of the obligations related to *Sewerage Infrastructure* are presented in this Appendix.

Table C.1 Sewerage Infrastructure – WIC Reg Sched 1 cl.13(2)(a)



Clause	Requirement	Compliance Grade
WIC Reg Sched 1 cl.13(2)(a)	The network operator must ensure that the infrastructure operating plan is fully implemented and kept under regular review and all of the network operator’s activities are carried out in accordance with that plan.	 Compliant
Risk This requirement reflects a high operational risk. Implementation of the <i>Infrastructure Operating Plan</i> ensures the effective (safe and reliable) delivery of agreed levels of service. Regular review ensures that the <i>Plan</i> remains current and reflects the current circumstances of the scheme.		Target for Full Compliance Evidence that the <i>Infrastructure Operating Plan</i> is fully implemented and the Licensee’s activities are carried out in accordance with that <i>Plan</i> ; evidence that the <i>Plan</i> is kept under regular review.
Evidence sighted <ul style="list-style-type: none"> Refer to list of evidence in Table A.1. 		
Summary of reasons for grade [As reported in Table A.1] Catherine Hill Bay Water demonstrated that, during the audit period it had fully implemented and carried out its activities in accordance with the arrangements detailed in the <i>Infrastructure Operating Plan</i> . Catherine Hill Bay Water also demonstrated that it has kept the <i>Infrastructure Operating Plan</i> under regular review and that arrangements are in place to ensure that it continues to do so. Accordingly, Catherine Hill Bay Water is assessed to have demonstrated compliance with this obligation.		
Discussion and notes <p><i>Note:</i> For the purposes of this audit, discussion regarding implementation of the <i>Infrastructure Operating Plan</i> as it relates to both water supply (WIC Reg Sched 1 cl.6(2)(a)) and sewerage (WIC Reg Sched 1 cl.13(2)(a)) infrastructure is presented in Table A.1. The discussion is not repeated here.</p> For discussion in respect of this obligation, please refer to Table A.1.		
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.		

Table C.2 Sewerage Infrastructure – WIC Reg Sched 1 cl.14(3)(a)

Clause	Requirement	Compliance Grade
WIC Reg Sched 1 cl.14(3)(a)	The Licensee must ensure that its sewage management plan is fully implemented and kept under regular review and, in particular, that all of its activities are carried out in accordance with that plan.	 Compliant

Risk

This represents high operational risk. Implementation of the *Sewage Management Plan* ensures the effective (safe and reliable) operation of the sewerage infrastructure without detrimental effect to the environment.

Target for Full Compliance

Evidence that the *Sewage Management Plan* is fully implemented and the Licensee’s activities are carried out in accordance with that Plan; evidence that the Plan is kept under regular review.

Evidence sighted

- Interviews with Catherine Hill Bay Water personnel on 11 February 2020.
- Site inspection of infrastructure at Catherine Hill Bay on 11 February 2020.
- Solo Water, *Catherine Hill Bay Water Utility; Sewage Management Plan; Stage 2* (reference: IMS-ENVM-B-3728-SW) (Revision 2.2), 20 September 2019.

Summary of reasons for grade

Catherine Hill Bay Water demonstrated that, during the audit period it had fully implemented and carried out its activities in accordance with the arrangements detailed in the *Sewage Management Plan*. This was evident from the effective implementation of arrangements in relation to the monitoring and management of operation of the pressure sewer units, the management of sewage disposal and the containment of potential odour and noise emissions.

Catherine Hill Bay Water also demonstrated that it has kept the *Sewage Management Plan* under regular review, at this stage principally through its ongoing development, and that arrangements are in place to ensure that it continues to do so.

Accordingly, Catherine Hill Bay Water is assessed to have demonstrated compliance with this obligation.

Discussion and notes

Overview:

The auditor checked for evidence that the *Sewage Management Plan* was being fully implemented and kept under regular review and that all of the Network Operator’s activities are carried out in accordance with the *Plan*. Implementation of a sample of the arrangements detailed in the *Sewage Management Plan* was reviewed for the purposes of this assessment.

Operational monitoring:

Evidence was shown live during the audit of a fast and effective SCADA system that showed the functional status of the pressure sewerage units of which there was one per four properties. By the time of the audit some 105 such units were in operation. Inspections and response to outages during the audit period had found three units that had problems arising from macerators blocked by wet wipes. Response to elevated pumping rates during the audit period had found some units to be connected to stormwater due to mis-connections or infiltration via damaged sewer lines. These

problems were followed up and rectified during the audit period. SCADA histories were shown to illustrate functional monitoring during the audit period, as well as during the onsite field audit.

Regular Review of Sewage Management Plan:

Catherine Hill Bay Water demonstrated *Sewage Management Plan* is kept regular review. The “Document Status” table indicates that the document has undergone several revisions during the audit period (31 August 2018, 5 November 2018 and 20 September 2019) including updates to reflect the Stage 2 scheme arrangements. The review process is managed through the Solo Group Citrix Document Control Platform. Specifically, a change register is maintained for key documents. An ongoing register of improvement ideas and opportunities is maintained (the Continuous Improvement Request Register that is used to capture changes between revisions and ideas for change) as a worksheet that was sighted online during the audit

On this basis, it is apparent that Catherine Hill Bay Water has arrangements in place to ensure that the *Sewage Management Plan* is kept under regular review. The *Plan* has been reviewed annually, as scheduled.

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.

Appendix D Detailed Audit Findings **– General Obligations of a Network Operator**

Detailed audit findings in respect of the *General Obligations of a Network Operator* are presented in this Appendix.

Table D.1 General Obligations – WIC Reg Sched 1 cl. 1(2)(a), (b), (c) and (e)

Clause	Requirement	Compliance Grade
WIC Reg Sched 1 cl.1(2)(a), (b), (c) and (e)	<p>[1(2)(a)] A network operator must immediately notify IPART of any incident in the conduct of its activities that threatens, or could threaten, water quality, public health or safety.</p> <p>[1(2)(b)] A network operator must immediately notify the Minister administering the <i>Public Health Act 2010 (NSW)</i> and the <i>Public Health Regulation 2012 (NSW)</i> of any incident in the conduct of its activities that threatens, or could threaten, water quality, public health or safety.</p> <p>[1(2)(c)] A network operator must immediately notify the Minister administering Part 2 of the <i>Water Industry Competition Act 2006 (NSW)</i> of any incident in the conduct of its activities that threatens, or could threaten, water quality, public health or safety.</p> <p>[1(2)(e)] A network operator must immediately notify any licensed network operator or public water utility whose infrastructure is connected to the licensed network operator’s infrastructure of any incident in the conduct of its activities that threatens, or could threaten, water quality, public health or safety.</p>	 No Requirement

Risk

This requirement reflects a high operational risk. It is essential that relevant stakeholders are made aware of incidents that threaten, or could threaten, water quality, public health or safety.

Target for Full Compliance

In the event that a notifiable incident has occurred, evidence that the Licensee provided the required notifications.

Evidence sighted

- Interviews with Catherine Hill Bay Water personnel on 11 February 2020.
- Site inspection of infrastructure at Catherine Hill Bay on 11 February 2020.
- Solo Water, *Catherine Hill Bay Water Utility; Drinking Water Quality Management Plan; Stage 2* (reference: IMS-ENVM-B-3727-SW) (Revision 2.1), 20 September 2019.
- Solo Water, *Catherine Hill Bay Water Utility; Recycled Water Quality Management Plan; Stage 2* (reference: IMS-ENVM-B-3727-SW) (Revision 1.2), 20 September 2019.

Summary of reasons for grade

Catherine Hill Bay Water advised that no notifiable incidents had occurred during the audit period. Review of a sample of SCADA trend data and test results from ongoing operational and verification monitoring samples taken from the drinking water, recycled water and sewerage networks revealed no evidence to the contrary.

Accordingly, it is assessed that there was “No Requirement” in respect of these obligations during the audit period.

Discussion and notes

The auditor questioned whether there had been any incidents arising from the conduct of the network operator’s activities during the audit period that threatened, or could have threatened, water quality,

public health or safety and, if so, whether IPART, the Minister administering the *Public Health Act 2010 (NSW)* and the *Public Health Regulation 2012 (NSW)*, the Minister administering Part 2 of the *Water Industry Competition Act 2006 (NSW)* and any connected network operator, retail supplier or public water utility had been notified as required.

Catherine Hill Bay Water advised that there had been no such incidents during the audit period.

As reported in Table A.2 and Table C.2, both operational and verification monitoring took place during the audit period. A sample of these monitoring results were reviewed to audit the veracity of Catherine Hill Bay Water's advice.

SCADA records were audited and the SCADA system and its historian were found to be fast and functional on the day of the audit with records requested for defined sample periods being readily available. The audit of these SCADA records did not find evidence of non-compliances having occurred that might trigger incidents. Specifically:

- For the non-drinking water process train, online monitoring via the SCADA system was audited for a selected audit sample month of July 2019. SCADA records audited included recycled water UV dose, UV system flow rate, UV transmissivity and free chlorine residual at the defined monitoring points for the critical control points. Warm up periods were noted where the UV dose was below the critical limit. One of those periods was followed up (4 July 2019) and the SCADA showed that the water was diverted and not supplied during warm-up such that no exceedance was triggered. The "non-compliant" and "compliant" valve status was recorded on the SCADA system. SCADA monitoring records audited when water was supplied as being "compliant" were within compliant ranges. Similarly, the water was shown to be diverted as being "non-compliant" during filter backwash and ripening periods until it is within specification.
- For the drinking water supply system, online monitoring via the SCADA system was audited for a selected audit sample month of July 2019. At the chlorine dosing skid the chlorine level did not fall outside the critical limits of 0.5 to 4.5 mg/L.
- Two additional checks on free chlorine (both drinking and non-drinking water) are made independently of the SCADA systems, including the operator onsite grab samples and the ALS field samplers.

Verification records were audited and an audit took place of records requested for defined sample periods being. The audit of these verification records did not find evidence of non-compliances having occurred that might trigger incidents. The laboratory services contractor, ALS, is required to submit early indications of parameters of concern, such as *E. coli* detection in drinking water or recycled water, but to date Catherine Hill Bay Water noted that no such notifiable events has been reported.

Incident preparedness was assessed. The *Incident Response and Notification Management Plan; Version 3.2, November 2019*, is the current version of the overarching incident response procedure. The document identifies the Public Health Unit as the principal point of contact and includes the correct contact roles, names and persons (e.g. Philippe Porigneaux) as well as a notification flow chart that is consistent with NSW Health expectations. It was noted during the audit that the reference to 'DPE' might now need updating to 'DPIE'; and that the IPART phone number needs updating. Catherine Hill Bay Water noted that it maintained a separate Stakeholder Register as a worksheet that was run as a live worksheet to help keep track of stakeholder organisational and personnel changes. However, it is important to keep incident response documentation current. In this case, the changes in agency names was mitigated by the presence of the Stakeholder Register and the currency of the most critical information which covered notification to NSW Health. In addition, it was noted that IPART did not directly notify Catherine Hill Bay Water of the update to their Reporting Manual as has been the normal process previously, and that the IPART Reporting Manual still referred to DPE¹⁵, with Catherine Hill Bay having kept its documents aligned with IPART's. Nonetheless, to avoid potential non-compliances arising if documents become significantly different, as an opportunity for improvement (OFI-CHB-

¹⁵ [IPART, Network Operator's Reporting Manual under the Water Industry Competition Act 2006 \(NSW\) Reporting Manual Water November 2019.](#)

2020.01), it is suggested that Catherine Hill Bay Water subscribes to the IPART system to be automatically notified of updates.¹⁶

This assessment supports Catherine Hill Bay Water's advice that there were no reportable incidents during the audit period.

Recommendations

There are no recommendations in respect of this obligation.


Opportunities for improvement

The following opportunity for improvement has been identified in respect of these obligations:

- **OFI-CHB-2020.01:** It is suggested that Catherine Hill Bay Water subscribes to the IPART system to be automatically notified of updates.
-

¹⁶ <https://www.ipart.nsw.gov.au/Home/Contact-Us/Subscribe-for-updates>

Table D.2 General Obligations – WIC Reg Sched 1 cl.2(1)

Clause	Requirement	Compliance Grade
WIC Reg Sched 1 cl.2(1)	A network operator must not bring any new water or sewerage infrastructure into commercial operation without the written approval of the Minister.	 Compliant
<p>Risk</p> <p>This requirement reflects a high operational risk. The Minister’s written approval is only provided when the Licensee has demonstrated that the infrastructure complies and can be operated in accordance with the relevant requirements. Accordingly, the absence of the Minister’s written approval may mean that the infrastructure has not been so assessed.</p>		<p>Target for Full Compliance</p> <p>Evidence that the written approval of the Minister was obtained prior to bringing new water or sewerage infrastructure into service.</p>
<p>Evidence sighted</p> <ul style="list-style-type: none"> ▪ Interviews with Catherine Hill Bay Water personnel on 11 February 2020. ▪ Site inspection of infrastructure at Catherine Hill Bay on 11 February 2020. ▪ Solo Water, <i>Catherine Hill Bay Water Utility; Infrastructure Operating Plan; Stage 2</i> (reference: IMS-OPER-B-8297-SW) (Revision 2.2), 6 September 2019. ▪ Cobbitty Consulting/Water Futures, <i>Catherine Hill Bay Water; New Infrastructure Audit (Stage 2 Scheme)</i> (Version 2.0), 25 November 2018. ▪ NSW Government, <i>Notice of approval to bring new infrastructure into commercial operation</i>, 13 December 2018 (for infrastructure operated by Catherine Hill Bay Water Utility under Licence No: 16_035). 		
<p>Summary of reasons for grade</p> <p>Catherine Hill Bay Water advised that no new water or sewerage infrastructure at Catherine Hill Bay had been brought into commercial operation during the audit period other than that for which, and after, the Minister had granted written approval to do so. Accordingly, Catherine Hill Bay Water is assessed as being compliant with this obligation.</p>		
<p>Discussion and notes</p> <p>The Minister had granted approval for the Stage 2 infrastructure to be brought into commercial operation on 13 December 2018. The Minister’s approval was granted in respect of:</p> <p>“... all new infrastructure which:</p> <ol style="list-style-type: none"> a) is infrastructure to which CHBWU’s network operator’s licence (licence no. 16_035) (Licence) applies; b) existed as at 25 November 2018; and c) is of the kind described in each of Table 1.2, Table 2.2 and Table 3.2 of the Licence.” <p>Based on observations made by the auditor when undertaking the New Infrastructure Audit (site inspection conducted on 25 November 2018), the Stage 2 infrastructure that was brought into commercial operation was consistent with the approval.</p>		

Consequently, it was apparent that Catherine Hill Bay Water had not brought any new infrastructure into commercial operation without the written approval of the Minister.


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.

Table D.3 General Obligations – WIC Reg Sched 1 cl.3(c)

Clause	Requirement	Compliance Grade
WIC Reg Sched 1 cl.3(c)	The water or sewerage infrastructure is properly designed and constructed, operated in a safe and reliable manner and maintained in a proper condition, having regard to any publicly available standards or codes relating to its design, construction, operation and maintenance.	 Compliant

Risk

This requirement reflects a high operational risk. Proper design and construction, safe and reliable operation, and maintenance of infrastructure in proper condition is essential to the effective (safe and reliable) delivery of agreed levels of service.

Target for Full Compliance

Evidence that the Licensee has procedures in place for ensuring that practices are kept up to date with changes to such standards or codes.

Evidence sighted

- Interviews with Catherine Hill Bay Water personnel on 11 February 2020.
- Site inspection of infrastructure at Catherine Hill Bay on 11 February 2020.
- Solo Water, *Catherine Hill Bay Water Utility; Drinking Water Quality Management Plan; Stage 2* (reference: IMS-ENVM-B-3727-SW) (Revision 2.1), 20 September 2019.
- Solo Water, *Catherine Hill Bay Water Utility; Recycled Water Quality Management Plan; Stage 2* (reference: IMS-ENVM-B-3727-SW) (Revision 1.2), 20 September 2019.
- Solo Water, *Catherine Hill Bay Water Utility; Sewage Management Plan; Stage 2* (reference: IMS-ENVM-B-3728-SW) (Revision 2.2), 20 September 2019.
- Solo Water, *Catherine Hill Bay Water Utility; Infrastructure Operating Plan; Stage 2* (reference: IMS-OPER-B-8297-SW) (Revision 2.2), 6 September 2019.
- Solo Water, *Operator's Manual; Catherine Hill Bay Water Utility*; (IMS-OPER-B-8298-SW) (live document, displayed on screen).
- Cobbitty Consulting/Water Futures, *Catherine Hill Bay Water; New Infrastructure Audit (Stage 2 Scheme)* (Version 2.0), 25 November 2018.
- Cobbitty Consulting/Water Futures, *Catherine Hill Bay Water Utility; New Infrastructure Audit (Stage 1 – Interim Scheme)* (Revision 2.0), 17 August 2017.
- Cobbitty Consulting/Water Futures, *Catherine Hill Bay Water; New Infrastructure Audit (Stage 2 Scheme)* (Version 2.0), 25 November 2018.
- Solo, *Water Quality Monitoring Procedure* (IMS-OPER-D-8305-SW) (Issue No: 1.0), June 2017.

Summary of reasons for grade

The infrastructure that was commercially operated during the audit period had been assessed to have been designed and constructed having regard for relevant publicly available standards and codes. On the basis of observations made during the audit site inspections it was apparent that, during the audit period, the infrastructure had continued to be operated in a safe and reliable condition and maintained in proper condition having regard for publicly available standards and codes, as well as standard industry practice.

Catherine Hill Bay Water has arrangements in place for ensuring that it uses up-to-date versions of codes and standards relevant to activities. This process is managed using a compliance register and the Solo Water/Catherine Hill Bay Water document management platform.

Accordingly, Catherine Hill Bay Water is assessed to have demonstrated compliance with this obligation.

Discussion and notes

Overview:

The auditor checked for evidence that the water (in this case drinking water and recycled water) and sewerage infrastructure was properly designed and constructed, operated in a safe and reliable manner and maintained in a proper condition, having regard to any publicly available standards or codes relating to its design, construction, operation and maintenance. These aspects were assessed in the following.

Design and Construction of Infrastructure:

As reported in Table D.2, the infrastructure was assessed by conduct of previous New Infrastructure Audits (summarised in the 'Evidence sighted' row of this table) to have been properly designed and constructed having regard to any publicly available standards or codes prior to being in commercial operation.

Operation and Maintenance of Infrastructure:

Operation and maintenance of the infrastructure during the audit period was undertaken in accordance with the arrangements documented in the *Infrastructure Operating Plan*, *Drinking Water Quality Management Plan* and *Sewage Management Plan*, the guidance and principles outlined in the *Operator's Manual*, and the more specific guidance provided in the relevant operation and maintenance procedures.

The abovementioned documentation reveals references to relevant codes and standards, where applicable, to design, construction, operation or maintenance of the infrastructure. For example:

- The *Infrastructure Operating Plan* references the following codes published by the Water Services Association of Australia (WSAA):
 - Water Supply Code of Australia, WSA 03-2002, Hunter Water Edition;
 - Sewerage Code of Australia, WSA 02-2002 Version 2.3; and
 - Pressure Sewer Code of Australia, WSA 07-2007.
- The *Operator's Manual* references:
 - the above listed WSAA codes; and
 - AS 3565.4 *Meters for cold and heated drinking and non-drinking water supplies; Part 4: In-service compliance testing*.
- The *Water Quality Monitoring Procedure* references:
 - the *Australian Drinking Water Guidelines (ADWG)*; and
 - the *NSW Health Drinking Water Monitoring Program*.

Compliance with standard industry practice, knowledge of which is gained through relevant training and experience, is also essential to the safe and reliable operation and maintenance of infrastructure. As reported in more detail in Table F.1, Catherine Hill Bay Water personnel responsible for operation and maintenance of the infrastructure have extensive relevant industry experience.

On the basis of observations made during the audit site inspection it was apparent that the infrastructure had been/was being operated in a safe and reliable manner and maintained in a proper condition. Furthermore, on the basis of the auditor's experience, it appeared that such operation and maintenance had been/was being undertaken having regard to relevant publicly available standards and/or codes, including those identified above.

Currency of Standards and Codes:

Catherine Hill Bay Water maintains a *Safety, Environment and Quality Regulatory Compliance Register* as a living document, which identifies all relevant codes and standards. Currency of standards and codes is managed through the Solo Group Citrix Document Control Platform.

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.

Appendix E Detailed Audit Findings **– Schedule A to the Network Operator’s Licence**

Detailed audit findings in respect of the obligations under *Schedule A to the Network Operator’s Licence* are presented in this Appendix.

Table E.1 Schedule A to the Network Operator's Licence – clause A2

Clause	Requirement	Compliance Grade
Network Operator's Licence cl.A2	The Licensee is to implement environmental mitigation measures substantially consistent with the environmental risk mitigation measures identified in the Review of Environmental Factors (REF) in carrying out any activities authorised under clause S1 and S3 of this Licence.	 No Requirement

Risk

Failure to implement appropriate mitigation measures represents high risk that the environment may not be appropriately protected during construction and the subsequent operation and maintenance of the infrastructure.

Target for Full Compliance

Evidence that the Licensee has implemented environmental mitigation measures substantially consistent with the environmental risk mitigation measures identified in the Review of Environmental Factors (REF).

Evidence sighted

- Interviews with Catherine Hill Bay Water personnel on 11 February 2020.
- Site inspection of infrastructure at Catherine Hill Bay on 11 February 2020.
- NSW Government, *Network Operator's Licence No: 16_035* (as issued on 22 March 2016).
- Cobbitty Consulting/Water Futures, *Catherine Hill Bay Water; New Infrastructure Audit (Stage 2 Scheme)* (Version 2.0), 25 November 2018.
- Cobbitty Consulting/Water Futures, *Catherine Hill Bay Water Utility; Operational Audit (Stage 1 – Interim Scheme)* (Version 2.1), 5 April 2019.
- Planit Consulting, *Review of Environmental Factors; Sewage Treatment Plant & Sewage Reticulation Network; Catherine Hill Bay Scheme Stages 1 & 2* (Revision E), 29 July 2015.

Summary of reasons for grade

Catherine Hill Bay Water demonstrated that (as noted in Table D.2) no new water or sewerage infrastructure that would have triggered the mitigation measures required in the Review of Environmental Factors (REF) has been constructed at Catherine Hill Bay during the audit period.

Accordingly, there was no requirement to comply with this obligation during the audit period.

Discussion and notes

Based on observations made by the auditor when undertaking the most recent New Infrastructure Audit (site inspection conducted on 25 November 2018), and Operational Audit (site inspection conducted 24 January 2019), the mitigation measures required in the Review of Environmental Factors (REF)¹⁷ had been implemented for the infrastructure as constructed. Since the time of the most recent New Infrastructure Audit, no new water or sewerage infrastructure (as noted in Table D.2) has been constructed at Catherine Hill Bay that would have triggered the special mitigation measures required in the REF during the audit period. Only routine minor works, such as water and sewer mains extensions and customer connections, have been constructed within this audit period.

Accordingly, there was no requirement to comply with this obligation during the audit period.

¹⁷ Planit Consulting, *Review of Environmental Factors; Sewage Treatment Plant & Sewage Reticulation Network; Catherine Hill Bay Scheme Stages 1 & 2* (Revision E), 29 July 2015.


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.

Table E.2 Schedule A to the Network Operator’s Licence – clause A6

Clause	Requirement	Compliance Grade
Network Operator’s Licence cl.A6	If the Licensee proposes to vary its environmental mitigation measures referred to in clause A2, it must first notify IPART in accordance with the Reporting Manual. The Licensee must not vary its environmental mitigation measures without the prior written approval of IPART.	 No Requirement
Risk This presents a high operational risk. It is essential the environmental measures remain appropriate to all activities authorised under clauses S1 and S3 of this Licence.		Target for Full Compliance Evidence that, if the Licensee has proposed to vary its environmental mitigation measures referred to in clause A2, it has first notified IPART and has not varied its environmental mitigation measures without the prior written approval of IPART.
Evidence sighted <ul style="list-style-type: none"> ▪ Interviews with Catherine Hill Bay Water personnel on 11 February 2020. ▪ Site inspection of infrastructure at Catherine Hill Bay on 11 February 2020. ▪ NSW Government, <i>Network Operator’s Licence No: 16_035</i> (as issued on 22 March 2016). ▪ Cobbitty Consulting/Water Futures, <i>Catherine Hill Bay Water; New Infrastructure Audit (Stage 2 Scheme)</i> (Version 2.0), 25 November 2018. ▪ Cobbitty Consulting/Water Futures, <i>Catherine Hill Bay Water Utility; Operational Audit (Stage 1 – Interim Scheme)</i> (Version 2.1), 5 April 2019. ▪ Planit Consulting, <i>Review of Environmental Factors; Sewage Treatment Plant & Sewage Reticulation Network; Catherine Hill Bay Scheme Stages 1 & 2</i> (Revision E), 29 July 2015. 		
Summary of reasons for grade Catherine Hill Bay Water advised that it had not varied, or proposed to vary, the environmental mitigation measures identified in the Review of Environmental Factors (REF) either during the audit period or subsequently. No evidence to the contrary was identified during the audit. Accordingly, there has been no requirement for Catherine Hill Bay Water to notify IPART or obtain IPART’s approval pursuant to this obligation.		
Discussion and notes Catherine Hill Bay Water advised that it had not varied, or proposed to vary, the environmental mitigation measures identified in the Review of Environmental Factors (REF) ¹⁸ either during the audit period or subsequently. Accordingly, there was no requirement to comply with this obligation during the audit period.		
Recommendations There are no recommendations in respect of this obligation.		

¹⁸ Planit Consulting, *Review of Environmental Factors; Sewage Treatment Plant & Sewage Reticulation Network; Catherine Hill Bay Scheme Stages 1 & 2* (Revision E), 29 July 2015.


Opportunities for improvement

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

Appendix F Detailed Audit Findings **– Schedule B to the Network Operator’s Licence**

Detailed audit findings in respect of the obligations under *Schedule B to the Network Operator’s Licence* are presented in this Appendix.

Table F.1 Schedule B to the Network Operator's Licence – clause B1

Clause	Requirement	Compliance Grade
Network Operator's Licence cl.B1.1	The Licensee must have the organisational capacity to carry out the activities authorised by this Licence. If the Licensee ceases to have this capacity, it must report this to IPART immediately in accordance with the Reporting Manual.	 Compliant
Risk	This presents a high operational risk. Without the organisational capacity to carry out the activities authorised by the Licence, the Licensee may be unable to meet its obligations under the Licence, specifically the safe and effective delivery of agreed levels of service.	Target for Full Compliance
		Evidence that the Licensee has the organisational capacity to carry out the activities authorised by the Licence. Documentation of procedures for identifying, and reporting to IPART, if the Licensee ceases to have the organisational capacity to carry out the activities authorised by the Licence.
Evidence sighted		
<ul style="list-style-type: none"> ▪ Interviews with Catherine Hill Bay Water personnel on 11 February 2020. ▪ Cobbitty Consulting/Water Futures, <i>Catherine Hill Bay Water Utility; New Infrastructure Audit (Stage 1 – Interim Scheme)</i> (Revision 2.0), 17 August 2017. ▪ Cobbitty Consulting/Water Futures, <i>Catherine Hill Bay Water; New Infrastructure Audit (Stage 2 Scheme)</i> (Version 2.0), 25 November 2018. ▪ Solo Water, <i>Catherine Hill Bay Water Utility; Infrastructure Operating Plan; Stage 2</i> (reference: IMS-OPER-B-8297-SW) (Revision 2.2), 6 September 2019. ▪ Solo, <i>Organisational Chart</i> (MS-OPER-G-8321-SW) (Issue No: 1.3), January 2020. ▪ <i>Service Agreement; For the Provision of Construction Services, Retail Services and O&M Services at the Catherine Hill Bay Development</i> between Catherine Hill Bay Water Utility Pty Ltd and Solo Water Pty Ltd, dated 5 February 2016. ▪ Solo Resource Recovery, <i>Terms of Service Agreement</i>, 15 February 2016 (in relation to liquid waste removal). ▪ Tankering Agreement between Hunter Water Corporation and Solo Resource Recovery, dated 30 October 2018 ▪ Solo Water, <i>Catherine Hill Bay Water Utility; Operator's Manual; Distribution System Networks; Stage 2</i> (Revision 2.0), 21 September 2018. ▪ Solo Water, <i>Catherine Hill Bay Water Utility; Operator's Manual; Recycled Water Treatment Plant (RWTP); Stage 2</i> (Revision 1.0), 19 September 2018. ▪ Solo Water/Witthoft Engineering, <i>Catherine Hill Bay RWTP; Electrical Operations and Maintenance Manual</i> (Revision 1.00), 10 October 2018. ▪ Solo Water/Witthoft Engineering, <i>Catherine Hill Bay RWTP; SCADA Operations Manual</i> (Revision 1.00), 12 October 2018. ▪ Aquatis, <i>Best Practices for CHB Membrane Bioreactor</i>, undated. ▪ Aquatis, <i>Catherine Hill Bay Best Practices Training Guidelines</i>, undated (in relation to the Recycled Water Plant). 		

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- Solo, *CHB Regulatory & Formal Requirements (IMS-CONT-G-1677-SW)* (Issue No: 1.0), April 2017.
 - Solo, *IPART Reporting Procedure (IMS-OPER-D-8324-SW)* (Issue No: 1.1), March 2018.
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Summary of reasons for grade

Catherine Hill Bay Water demonstrated that, principally through its parent company Solo Water (an Authorised Person under the Licence), it holds the organisational capacity to carry out the activities authorised by the Licence (financial and technical capacity were not assessed as part of this audit). Catherine Hill Bay Water also demonstrated that it has in place procedures for identifying, and reporting to IPART, if it ceases to have the technical, financial or organisational capacity required to carry out the activities authorised by the Licence.

Accordingly, Catherine Hill Bay Water was assessed as being compliant with this obligation.

Discussion and notes

It is noted that the audit scope, as defined by IPART, required an assessment of organisational capacity only.

Compliance with this obligation has previously been assessed as part of the New Infrastructure Audits conducted in respect of the Stage 1 (Interim Scheme)¹⁹ and Stage 2 Scheme²⁰ infrastructure. The following discussion is reflective of the findings of those audits.

Organisational Capacity:

The organisational structure in respect of the Catherine Hill Bay Water schemes is shown in the Solo Water (Catherine Hill Bay Water's parent company) *Organisational Chart*.²¹ Review of the chart reveals that Catherine Hill Bay Water has, principally through Solo Water (parent company and an Authorised Person under the Licence), capacity in relation to planning and development of new schemes, construction, operation, information management, finance and retail supply which are all required to effectively carry out the authorised activities. A *Service Agreement*²² between Catherine Hill Bay Water and Solo Water, which sets out details of the support arrangements, shows that services to be provided include Construction Services, Retail Services and O&M Services over an initial 25-year period. Catherine Hill Bay Water also has a *Service Agreement*²³ with Solo Resource Recovery (parent company of Solo Water) in relation to the transport and disposal of sewage. Solo Resource Recovery, in turn, has a *Tankering Agreement*²⁴ with Hunter Water for the disposal of sewage into its system.

Capacity can also be assessed from the perspective of organisational preparedness to undertake the authorised activities. In addition to its Management Plans, Catherine Hill Bay Water has a number of Operator's Manuals and an extensive range of procedures and other supporting documentation in place to guide the operation and maintenance of the infrastructure. These include (for example):

- *Operator's Manual; Distribution System Networks; Stage 2;*²⁵
 - *Operator's Manual; Recycled Water Treatment Plant (RWTP); Stage 2;*²⁶
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¹⁹ Cobbitty Consulting/Water Futures, *Catherine Hill Bay Water Utility; New Infrastructure Audit (Stage 1 – Interim Scheme)* (Revision 2.0), 17 August 2017, table A.1.

²⁰ Cobbitty Consulting/Water Futures, *Catherine Hill Bay Water; New Infrastructure Audit (Stage 2 Scheme)* (Version 2.0), 25 November 2018, table A.1.

²¹ Solo, *Organisational Chart* (MS-OPER-G-8321-SW) (Issue No: 1.3), January 2020.

²² *Service Agreement; For the Provision of Construction Services, Retail Services and O&M Services at the Catherine Hill Bay Development* between Catherine Hill Bay Water Utility Pty Ltd and Solo Water Pty Ltd, dated 5 February 2016.

²³ Solo Resource Recovery, *Terms of Service Agreement*, 15 February 2016 (in relation to liquid waste removal).

²⁴ *Tankering Agreement* between Hunter Water Corporation and Solo Resource Recovery, dated 30 October 2018.

²⁵ Solo Water, *Catherine Hill Bay Water Utility; Operator's Manual; Distribution System Networks; Stage 2* (Revision 2.0), 21 September 2018.

²⁶ Solo Water, *Catherine Hill Bay Water Utility; Operator's Manual; Recycled Water Treatment Plant (RWTP); Stage 2* (Revision 1.0), 19 September 2018.

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- *Catherine Hill Bay RWTP; Electrical Operations and Maintenance Manual*;²⁷
 - *Catherine Hill Bay RWTP; SCADA Operations Manual*;²⁸
 - *Best Practices for CHB Membrane Bioreactor*;²⁹ and
 - *Catherine Hill Bay Best Practices Training Guidelines*.³⁰

Loss of Capacity:

Catherine Hill Bay Water outlines its arrangements for regularly monitoring and reviewing organisational capacity in the *Infrastructure Operating Plan*.³¹ Such reviews, which are to be undertaken in conjunction with any staffing or operational changes, are the responsibility of the Operations Manager (in consultation with the Solo Water Board).

In the event that Catherine Hill Bay Water identifies that it has ceased to have capacity to carry out the activities authorised by the Licence, it will notify IPART in accordance with the *Reporting Manual*. The reporting requirement is identified in the *CHB Regulatory & Formal Requirements Register*;^{32,33} the reporting process is outlined in the *IPART Reporting Procedure*.³⁴

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.

²⁷ Solo Water/Witthoft Engineering, *Catherine Hill Bay RWTP; Electrical Operations and Maintenance Manual* (Revision 1.00), 10 October 2018.

²⁸ Solo Water/Witthoft Engineering, *Catherine Hill Bay RWTP; SCADA Operations Manual* (Revision 1.00), 12 October 2018.

²⁹ Aquatis, *Best Practices for CHB Membrane Bioreactor*, undated.

³⁰ Aquatis, *Catherine Hill Bay Best Practices Training Guidelines*, undated (in relation to the Recycled Water Plant).


³¹ *Infrastructure Operating Plan*, section 4.3.

³² Solo, *CHB Regulatory & Formal Requirements* (IMS-CONT-G-1677-SW) (Issue No: 1.0), April 2017, *Network Operator* worksheet, item 96.

³³ Solo, *CHB Regulatory & Formal Requirements* (IMS-CONT-G-1677-SW) (Issue No: 1.0), April 2017 [updated 16 October 2018], *Network Operator Reporting* worksheet, item 53.

³⁴ Solo, *IPART Reporting Procedure* (IMS-OPER-D-8324-SW) (Issue No: 1.1), March 2018.

Table F.2 Schedule B to the Network Operator's Licence – clauses B2.1 and B3

Clause	Requirement	Compliance Grade
<p>Network Operator's Licence cl. B2.1 and B3 (other than B3.4)</p>	<p>[B2.1] Before commencing to commercially operate the Specified Water Industry Infrastructure under this Licence, the Licensee must:</p> <ul style="list-style-type: none"> (a) obtain insurance that is appropriate for the size and nature of the activities authorised under this Licence; (b) provide a certificate of currency of the insurance obtained to IPART; and (c) demonstrate that the insurance obtained is appropriate for the size and nature of the activities authorised under the Licence by providing a report to IPART from an Insurance Expert that: <ul style="list-style-type: none"> (i) certifies that in an Insurance Expert's opinion, the type and level of insurance obtained by the Licensee is appropriate for the size and nature of the activities authorised by the Licence; (ii) is in the form prescribed in the Reporting Manual. <p>[B3.1] The Licensee must maintain insurance that is appropriate for the size and nature of the activities authorised under the Licence.</p> <p>[B3.2] The Licensee must provide a copy of each certificate of currency of the insurance maintained by the Licensee to IPART in accordance with the Reporting Manual.</p> <p>[B3.3] If there is, or is to be, a change in:</p> <ul style="list-style-type: none"> (a) the insurer, or underwriting panel in respect of an insurance policy held by the Licensee; or (b) the type, scope or limit on the amount of insurance policy held by the Licensee, <p>in relation to the activities authorised under the Licence, the Licensee must provide a report to IPART in accordance with the Reporting Manual.</p> <p>[B3.5] The Licensee must maintain professional indemnity insurance during the Design Phase and for a minimum period of 6 years from the date of the completion of the Design Phase.</p>	<div style="text-align: center;">  <p>Compliant</p> </div>

Risk	Target for Full Compliance
This presents no significant risk to the operational safety of the scheme, however, may present commercial risk to the Licensee.	Evidence that the Licensee has: <ul style="list-style-type: none"> ▪ maintained insurance appropriate for the size and nature of the Licensed activities; ▪ provided copies of certificates of currency to IPART as required; and ▪ notified IPART of any changes to the insurance cover.

Evidence sighted

- Interviews with Catherine Hill Bay Water personnel on 11 February 2020.
- Australian Insurance Solutions, *Certificates of Insurance*, dated 20 November 2019.
- Australian Insurance Solutions, *Catherine Hill Bay – Insurance Expert’s Report – Operational Use*, 16 October 2018 (report in letter format).
- Cobbitty Consulting/Water Futures, *Catherine Hill Bay Water; New Infrastructure Audit (Stage 2 Scheme)* (Version 2.0), 25 November 2018.

Summary of reasons for grade

Catherine Hill Bay Water demonstrated by the provision of insurance certificates of currency that it was maintaining, and had continued to maintain, insurance that had previously been found to be appropriate for the size and nature of the activities authorised under the Licence during the audit period and had submitted an Insurance Expert’s Report (including copies of insurance certificates of currency) that certified the appropriateness of that insurance to IPART for review. Such insurance included General Liability and Professional Indemnity insurance, as deemed appropriate by an Insurance Expert.

Accordingly, it is assessed that Catherine Hill Bay Water has demonstrated compliance with its obligations under clauses B2.1, B3.1, B3.2, B3.3 and B3.5 of the Licence.

Discussion and notes

It is noted that the audit scope, as defined by IPART, did not require assessment of compliance with Licence clause B3.4.

Catherine Hill Bay Water demonstrated that Certificates of Insurance were provided including insurance Certificates of Currency in respect of: Contract Works Material Damage; Industrial Special Risks; General Liability; Professional Indemnity; and Commercial Motor Vehicle Insurance.³⁵ Other than the dates on those certificates of currency, the insurer and the level of insurance for the relevant insurance policies hasn’t changed during the audit period. This insurance had previously been found to be appropriate for the size and nature of the activities authorised under the Licence based on an Insurance Expert’s Report³⁶ (prepared and submitted to IPART pursuant to clause B2 of the Licence), consistent with the requirements of the Reporting Manual. Such insurance included General Liability and Professional Indemnity insurance, as deemed appropriate by the Insurance Expert. This level of insurance has previously been assessed as being compliant under the most recent New Infrastructure audit.³⁷ Therefore, the insurance cover remains current, consistent with that deemed by the Insurance Expert to be appropriate, maintained throughout the audit period, and IPART has been supplied with copies of the relevant certificates of insurance.

³⁵ Australian Insurance Solutions, *Certificates of Insurance*, dated 20 November 2019.

³⁶ Australian Insurance Solutions, *Catherine Hill Bay – Insurance Expert’s Report – Operational Use*, 16 October 2018 (report in letter format).

³⁷ Cobbitty Consulting/Water Futures, *Catherine Hill Bay Water; New Infrastructure Audit (Stage 2 Scheme)* (Version 2.0), 25 November 2018

Accordingly, it is assessed that Catherine Hill Bay Water has demonstrated compliance with its obligations under clauses B2.1, B3.1, B3.2, B3.3 and B3.5 of the Licence


Recommendations

There are no recommendations in respect of these obligations.

Opportunities for improvement

No opportunities for improvement have been identified in respect of these obligations.

Table F.3 Schedule B to the Network Operator's Licence – clause B8

Clause	Requirement	Compliance Grade
Network Operator's Licence cl.B8	<p>[B8.1] The Licensee must undertake any monitoring that is required for the purposes of this Licence, any Plan, the Act or the Regulation in accordance to the requirements of this clause B8.</p> <p>[B8.2] The Licensee must keep the following records of any samples taken for monitoring purposes specified in the Water Quality Plan:</p> <ul style="list-style-type: none"> a) the date on which the sample was taken; b) the time at which the sample was collected; c) the point or location at which the sample was taken; and d) the chain of custody of the sample (if applicable). <p>[B8.3] The Licensee must ensure that analyses of all samples taken for the purposes of Verification Monitoring are carried out by a laboratory accredited for the specified tests by an independent body acceptable to NSW Health, such as the National Association of Testing Authorities or equivalent body.</p>	 Compliant
Risk	<p>This requirement reflects a high operational risk. It is essential that:</p> <ul style="list-style-type: none"> ▪ detailed sample records are maintained to ensure traceability in the event of a non-compliance; and ▪ testing is undertaken by an accredited laboratory to ensure credibility of results. 	<p>Target for Full Compliance</p> <p>Evidence that:</p> <ul style="list-style-type: none"> ▪ the required records have been kept in respect of collected samples; and ▪ sample analysis has been undertaken by NATA accredited laboratory (or equivalent).
Evidence sighted		
<ul style="list-style-type: none"> ▪ Interviews with Catherine Hill Bay Water personnel on 11 February 2020. ▪ Site inspection of infrastructure at Catherine Hill Bay on 11 February 2020. ▪ Solo Water, <i>Catherine Hill Bay Water Utility; Drinking Water Quality Management Plan; Stage 2</i> (reference: IMS-ENVM-B-3727-SW) (Revision 2.1), 20 September 2019. ▪ Solo Water, <i>Catherine Hill Bay Water Utility; Recycled Water Quality Management Plan; Stage 2</i> (reference: IMS-ENVM-B-3727-SW) (Revision 1.2), 20 September 2019. ▪ ALS Environmental, <i>Certificates of Analysis</i> (as referenced). ▪ NATA website accredited facility search at: https://www.nata.com.au/accredited-facility. ▪ Solo Water, <i>Catherine Hill Bay Water Utility Quarterly Report – Internal, April - June 2019</i>, August 2019. 		
Summary of reasons for grade		
<p>Catherine Hill Bay Water demonstrated that monitoring is undertaken in accordance with requirements set out in the Licence, the <i>Drinking Water Quality Management Plan</i> and the <i>Recycled Water Quality Management Plan</i>, and that samples taken for the purposes of Verification Monitoring are analysed in a</p>		

NATA (National Association of Testing Authorities) accredited laboratory that covers those tests within its scope of accreditation. Reports of analyses undertaken for the purposes of Verification Monitoring demonstrated that they were undertaken in compliance with that NATA accreditation. Accordingly, it was assessed that Catherine Hill Bay Water was fully compliant with this obligation.

Discussion and notes

Catherine Hill Bay Water engages ALS Environmental to undertake analyses of samples taken for the purposes of Verification Monitoring. In order to confirm the currency of ALS Environmental's accreditation, the NATA website³⁸ was consulted and ALS has maintained its accreditation (in this case for the Newcastle laboratory, Accreditation Number 825). As indicated on its test certificates ALS Environmental holds NATA Accreditation for compliance with ISO/IEC 17025 – Testing. The scope of the NATA accreditation covers the parameters of relevance to this audit.

The Chain of Custody (CoC) forms from the period 8 November 2018 to 12 September 2019 were provided as evidence. Those for July 2019 were viewed and inspected in detail as a sample of typical results for the purpose of the audit.

The CoC records retained by the licensee for samples taken for monitoring purposes included sampling dates, times and locations. During the audit period a number of sample points and sample fittings were improved in response to total coliform detection events. Therefore, the precise locations of some of the sample points had changed slightly during the audit period.

The CoC records inspected confirmed that analyses undertaken for the purposes of verification monitoring by ALS used NATA accredited assays.

The data from the monitoring program was supplied via a customer portal from ALS as a .csv file which was then transferred to a spreadsheet by Catherine Hill Bay Water. Monitoring records captured within that spreadsheet demonstrated that the water quality monitoring undertaken was consistent with the intended monitoring program set out in the Licence, the *Drinking Water Quality Management Plan* and the *Recycled Water Quality Management Plan*. The data are summarised and presented in quarterly reports which set out what has been tested and summarise results. An example from August 2019 that covered the period April to June 2019 was examined in detail.³⁹

Given the findings of the assessment of the verification monitoring program it was assessed that Catherine Hill Bay Water was fully compliant with this obligation.

Recommendations

There are no recommendations in respect of this obligation.


Opportunities for improvement

No opportunities for improvement are identified in respect of this obligation.

³⁸ NATA website accredited facility search at: <https://www.nata.com.au/accredited-facility>

³⁹ Solo Water, *Catherine Hill Bay Water Utility Quarterly Report – Internal, April - June 2019*, August 2019.

Table F.4 Schedule B to the Network Operator's Licence – clause B12.1

Clause	Requirement	Compliance Grade
Network Operator's Licence cl.B12.1	If an Authorised Person ceases, proposes to cease, or receives notification to cease providing any of the services relating to the activities authorised by this Licence, the Licensee must provide IPART with written notice as soon as practicable but no later than 28 days before the date of cessation of the services. The written notice must include details of how the services previously undertaken by the Authorised Person will continue to be undertaken.	 No Requirement
Risk This requirement reflects a high operational risk. It is essential that, in the event that an Authorised Person ceases to provide services, alternative arrangements are in place for the provision of such services. Notification to IPART forms part of a mechanism of ensuring that service provision continues and that the licensed activities are fully and effectively implemented.		Target for Full Compliance Evidence that, in the event of an Authorised Person ceasing, proposing to cease or receiving notice to cease providing services related to activities authorised by the Licence, the Licensee has provided written notice to IPART within 28 days of the change occurring).
Evidence sighted		
<ul style="list-style-type: none"> ▪ Interviews with Catherine Hill Bay Water personnel on 11 February 2020. ▪ Site inspection of infrastructure at Catherine Hill Bay on 11 February 2020. 		
Summary of reasons for grade		
The sole “Authorised Person” (Solo Water Pty Ltd) did not cease, propose to cease, or receive notification to cease providing services related to the activities authorised by the Licence during the audit period. Accordingly, there was “No Requirement” for compliance with this obligation.		
Discussion and notes		
Under clauses S1 (Table 1.1), S2 (Table 2.1) and S3 (Table 3.1) of the Licence, Solo Water Pty Ltd (ACN 160 013 614) is nominated as an “Authorised Persons” in respect of the supply of non-potable water, the supply of drinking water and the provision of sewerage services respectively.		
Based on the evidence from the interviews with staff, the site inspection and the records of monitoring and maintenance presented, it is evidence that Solo Water did not cease, propose to cease, or receive notification to cease providing services related to the activities authorised by the Licence during the audit period. Accordingly, there was “No Requirement” for compliance with this obligation.		
Recommendations		
There are no recommendations in respect of this obligation.		
Opportunities for improvement		
No opportunities for improvement have been identified in respect of this obligation.		

