



# Catherine Hill Bay Water Utility

## **Operational Audit**

#20013-10-001 Version 2.1

Independent Pricing and Regulatory Tribunal

March 2021



## Document History

### Catherine Hill Bay Water Utility

Operational Audit

### Independent Pricing and Regulatory Tribunal

This document has been issued and amended as follows:

Version	Date	Description	Created by	Checked by	Approved by
1.0	4 March 2021	Draft	Jim Sly	-	Jim Sly
1.1	12 March 2021	Revised Draft	Jim Sly	-	Jim Sly
2.0	15 March 2021	Final	Jim Sly	Dan Deere	Jim Sly
2.1	22 March 2021	Updated Final	Jim Sly	-	Jim Sly

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## Contents

<b>1. Executive Summary</b>	<b>1</b>
1.1 Auditor Declaration	1
1.2 Major Findings	1
1.3 Recommendations	1
<b>2. Introduction</b>	<b>2</b>
2.1 Objectives	2
2.2 Licensee's Infrastructure, Systems and Procedures	2
2.3 Audit Method	3
2.4 Regulatory Regime	4
2.5 Quality Assurance Process	5
2.6 Audit Findings	5
<b>3. General Obligations of a Network Operator</b>	<b>6</b>
3.1 Summary of Findings	6
3.2 Review of Actions	6
3.3 Opportunities for Improvement	6
<b>4. Water Supply Infrastructure</b>	<b>7</b>
4.1 Summary of Findings	7
4.2 Review of Actions	7
4.3 Opportunities for Improvement	7
<b>5. Non-Potable Water Supply Infrastructure</b>	<b>8</b>
5.1 Summary of Findings	8
5.2 Review of Actions	8
5.3 Opportunities for Improvement	8
<b>6. Sewerage Infrastructure</b>	<b>9</b>
6.1 Summary of Findings	9
6.2 Review of Actions	9
6.3 Opportunities for Improvement	9
<b>7. Schedule A to the Network Operator's Licence</b>	<b>10</b>
7.1 Summary of Findings	10
7.2 Review of Actions	10
7.3 Opportunities for Improvement	10
<b>8. Schedule B to the Network Operator's Licence</b>	<b>11</b>
8.1 Summary of Findings	11
8.2 Review of Actions	11
8.3 Opportunities for Improvement	11

<b>Appendix A</b>	<b>Detailed Audit Findings – General Obligations of a Network Operator</b>	<b>13</b>
Table A.1	General Obligations – WIC Reg Sched 1 cl. 1(2)(a), (b), (c), (d) and (e)	15
Table A.2	General Obligations – WIC Reg Sched 1 cl.2(1)	23
<b>Appendix B</b>	<b>Detailed Audit Findings – Water Supply Infrastructure</b>	<b>25</b>
Table B.1	Water Supply Infrastructure – WIC Reg Sched 1 cl.6(3)(a)	27
Table B.2	Water Supply Infrastructure – WIC Reg Sched 1 cl.7(4)(a)	29
Table B.3	Water Supply Infrastructure – WIC Reg Sched 1 cl.7(5)(a)	35
<b>Appendix C</b>	<b>Detailed Audit Findings – Non-Potable Water Supply Infrastructure</b>	<b>37</b>
Table C.1	Non-Potable Water Supply Infrastructure – WIC Reg Sched 1 cl.10(a)	39
<b>Appendix D</b>	<b>Detailed Audit Findings – Sewerage Infrastructure</b>	<b>41</b>
Table D.1	Sewerage Infrastructure – WIC Reg Sched 1 cl.13(2)(a)	43
Table D.2	Sewerage Infrastructure – WIC Reg Sched 1 cl.14(4)(a)	51
<b>Appendix E</b>	<b>Detailed Audit Findings – Schedule A to the Network Operator’s Licence</b>	<b>53</b>
Table E.1	Schedule A to the Network Operator’s Licence – clause A2	55
Table E.2	Schedule A to the Network Operator’s Licence – clause A5	59
Table E.3	Schedule A to the Network Operator’s Licence – clause A6	63
<b>Appendix F</b>	<b>Detailed Audit Findings – Schedule B to the Network Operator’s Licence</b>	<b>65</b>
Table F.1	Schedule B to the Network Operator’s Licence – clause B9	67
Table F.2	Schedule B to the Network Operator’s Licence – clause B12	69

# 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*<sup>1</sup> 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 and constructed extensions to the existing reticulation networks and to have operated and maintained the 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.

Four (4) opportunities for improvement, which the Licensee may wish to consider, are identified in the body of the report.

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<sup>1</sup> IPART, *Audit Guideline; under the Water Industry Competition Act 2006*, July 2020.

## 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 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 comprises:

- a pumping station and transfer main that draws water from an existing bulk potable water supply and transfers it to the site for distribution;
- an on-site drinking water storage and chlorine dosing facility;
- a potable (drinking) water network;
- a pressure sewer collection network;
- a treatment plant for the production of recycled water from sewage;
- facilities for the onsite storage of recycled water prior to distribution; and
- a non-potable (recycled) water network.

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 that were in place during the audit period include:

- Solo Water, *Catherine Hill Bay Water Utility; Infrastructure Operating Plan; Stage 2* (reference: IMS-OPER-B-8297-SW), including:
  - Revision 2.2, 6 September 2019; and
  - Revision 2.3, 14 September 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), including:
  - Revision 1.2, 20 September 2019; and
  - Revision 1.3, 17 September 2020; 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*.<sup>2</sup> The specific scope of the audit was as defined in IPART's letter to Catherine Hill Bay Water (reference D20/27339) dated 3 November 2020; the nominated scope addresses selected requirements of:

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

The audit period (period during which compliance has been assessed) is 1 December 2019 to 31 October 2020.

### 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; under the Water Industry Competition Act 2006*, July 2020 (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 *Information Request* was sent to both the Licensee and IPART approximately three weeks prior to the audit fieldwork being undertaken. The Licensee provided an information pack in response to the request approximately one week prior to the audit fieldwork; the information provided was reviewed by the auditor prior to conducting the audit fieldwork.

Audit fieldwork comprising a site inspection of the existing infrastructure followed by review and discussion (audit) of relevant documentation/records was undertaken on 11 February 2021. 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 and IPART for review/comment, before being finalised and issued to both the Licensee and IPART.

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.

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<sup>2</sup> IPART, *Audit Guideline; under the Water Industry Competition Act 2006*, July 2020.

### 2.3.4 Audit Team





The audit was conducted by Jim Sly and a peer/quality assurance review was undertaken by Dr Dan Deere. 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 Heininger (Water Utility Engineer /Manager Operations), Ronnie Paine (Water and Wastewater Systems Operator) and Tim Sazdanoff (Water and Wastewater Systems Operator). IPART representative Nick Singer attended as an observer 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
 <b>Compliant</b>	Sufficient evidence is available to confirm that the requirements have been met.
 <b>Non-compliant (non-material)</b>	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.
 <b>Non-compliant (material)</b>	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.
 <b>No Requirement</b>	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; under the Water Industry Competition Act 2006*, July 2020;
- *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. General Obligations of a Network Operator

### 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* that address the *General Obligations of a Network Operator* (refer to **Appendix A** for detailed audit findings).

### 3.2 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.

### 3.3 Opportunities for Improvement

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

- **OFI-CHB-2020.01:** It is suggested that Catherine Hill Bay Water implements a practice of recording details of the specific hand-held instrument(s) used to conduct field tests on all *Field Water Quality Sampling Forms*.
- **OFI-CHB-2020.02:** It is suggested that Catherine Hill Bay Water considers reconfiguring its *Water Quality Monitoring Register* to simplify the ability to trace test results for a particular parameter/sample location.

## 4. 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 *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

The following opportunity for improvement has been identified in respect of the audited *WTC Regulation* clauses related to the *Water Supply Infrastructure*:

- **OFI-CHB-2020.03:** It is suggested that Catherine Hill Bay Water ensures that the correct *Risk Register* extract is included in the *Recycled Water Quality Management Plan*.

## 5. Non-Potable Water Supply Infrastructure

### 5.1 Summary of Findings

There were no identified non-compliances in respect of the audited clause of the *Water Industry Competition (General) Regulation 2008* related to *Non-Potable Water Supply 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 *Non-Potable Water Supply Infrastructure*.

## 6. Sewerage Infrastructure

### 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* related to *Sewerage Infrastructure* (refer to **Appendix D** for detailed audit findings).

### 6.2 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.

### 6.3 Opportunities for Improvement

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

## 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

It was found that there was no requirement for compliance with the audited clauses of *Schedule B to the Network Operator's Licence* during the audit period (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

The following opportunity for improvement has been identified in respect of the audited clauses of *Schedule B to the Network Operator's Licence*.

- **OFI-CHB-2020.04:** It is suggested that Catherine Hill Bay Water provides copies of management plans to IPART at the time any revisions are made, irrespective of the materiality of the change.




## **Appendix A   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 A.1 General Obligations – WIC Reg Sched 1 cl. 1(2)(a), (b), (c), (d) and (e)**

Clause	Requirement	Compliance Grade
WIC Reg Sched 1 cl.1(2)(a), (b), (c), (d) and (e)	[1(2)(a)] The licensee must immediately notify IPART of any incident in the conduct of its activities that threatens, or could threaten, water quality, public health or safety.	 <b>No Requirement</b>
	[1(2)(b)] The licensee 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.	
	[1(2)(c)] The licensee 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.	
	[1(2)(d)] The licensee must immediately notify any licensed retail supplier that supplies water or provides sewerage services by means of the licensee’s infrastructure of any incident in the conduct of its activities that threatens, or could threaten, water quality, public health or safety.	
	[1(2)(e)] The licensee 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.	
<b>Risk</b>	<b>Target for Full Compliance</b>	
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.	In the event that a notifiable incident has occurred, evidence that the Licensee provided the required notifications.	
<b>Evidence sighted</b>		
<ul style="list-style-type: none"><li>▪ Interviews with Catherine Hill Bay Water personnel on 11 February 2021.</li><li>▪ Site inspection of infrastructure at Catherine Hill Bay on 11 February 2021.</li><li>▪ 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.</li><li>▪ Solo Water, <i>Catherine Hill Bay Water Utility; Recycled Water Quality Management Plan; Stage 2</i> (reference: IMS-ENVM-B-3727-SW), including:<ul style="list-style-type: none"><li>○ Revision 1.2, 20 September 2019; and</li><li>○ Revision 1.3, 17 September 2020.</li></ul></li><li>▪ Email correspondence dated 22 May 2020 between Catherine Hill Bay Water and NSW Health (Hunter New England Public Health Unit) (re: <i>Catherine Hill Bay - Somatic Coliphage positive test result</i>).</li><li>▪ Internal NSW Health email dated 27 May 2020 (copied to Catherine Hill Bay Water) (re: <i>Recycled Water - Catherine Hill Bay</i>).</li></ul>		

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- Document: *020-20 Environmental Incident Report and Assessment 26022020.pdf*.
  - Solo Water, *Sewage Spill Procedure* (reference: IMS-AIIR-D-0037-SW) (Issue No: 1.0), June 2017.
  - Solo Water, *RWTP CCP1 – MBR UF Membranes Management* (reference: IMS-GNRL-D-4411-SW) (Issue No: 1.1), July 2020.
  - Solo Water, *RWTP CCP2 – UV Disinfection Management* (reference: IMS-GNRL-D-4412-SW) (Issue No: 1.1), July 2020.
  - Solo Water, *RWTP CCP3 – Chlorine Contact Tank Management* (reference: IMS-GNRL-D-4413-SW) (Issue No: 1.1), July 2020.
  - Solo Water, *CCP Residual Chlorination Management Procedure* (reference: IMS-GNRL-D-4414-SW) (Issue No: 1.2), July 2020.
  - MS Excel workbook: *IMS-CONT-G-1675-SW - CHB Free Chlorine Field Verification.xlsx*.
  - Solo Water, *Free Chlorine Field Verification Monitoring Procedure* (reference: IMS-OPER-D-8301-SW) (Issue No: 1.1), October 2018.
  - MS Excel workbook, *IMS-CONT-G-1680-SW - CHB Water Quality Monitoring.xlsx*.
  - <sup>1</sup> Solo Water, *Incident Response and Notification Management Plan* (reference: IMS-AIIR-B-0041-SW) (Issue No: 3.4), July 2020.
  - MS Excel workbook, *IMS-CONT-G-1679-SW - CHB Stakeholder Register.xlsx*.
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### 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 both the drinking water and recycled water networks revealed no evidence to the contrary.

Catherine Hill Bay Water also advised of a number of events that it considered not to be reportable as they had not threatened, or have the potential to threaten, water quality, public health or safety.

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

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### Discussion and notes

#### Overview:

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. A review of water quality data was undertaken to confirm this advice, as detailed below.

Catherine Hill Bay Water also provided details of several events that it had assessed were not reportable on the basis that they had not threatened, or have the potential to threaten, water quality, public health or safety. These included a false positive reading of the concentration of somatic coliphage; an overflow from a pressure sewer unit; and a waste activated sludge spill at the treatment plant. Details in respect of a potentially non-compliant chemical delivery were also provided, as further reported in Table E.2.

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### ***Not-reportable Events:***

The events identified by Catherine Hill Bay Water that were not considered notifiable included the following:

- *Somatic coliphage exceedance (false positive):*

Test results received on 22 May 2020 for a sample taken from the recycled water tank on 7 May 2020 showed a high level concentration (1,500 PFU/100 mL) of somatic coliphage. Upon reviewing results for other test parameters and treatment process performance monitoring records, Catherine Hill Bay Water considered this to an abnormality (false reading) which was followed up with the laboratory (ALS Environmental), operators (for onsite review/calibration checks) and NSW Health. A retest could not initially be undertaken due to insufficient remaining sample; however, a resample and analysis was undertaken on 22 May 2020.

Catherine Hill Bay Water demonstrated that it had communicated (via telephone and subsequent email) with NSW Health on the day that it received the test result. The email record indicates that NSW Health agreed that: *"I tend to agree that with everything being within specification and CCPs all within parameters, seems to indicate the result is an anomaly".*<sup>3</sup>

In subsequent internal email correspondence (copied to Catherine Hill Bay Water) following receipt of the retest result, NSW Health indicated that: *"Again confirmed no CCP breach. ... Given still investigating and not a breach, I don't believe this is reportable (as per WICA scheme/IPART requirements). Water Unit – are you able to comment on this point?"*<sup>4</sup> No record of an alternative view was sighted.

It is noted that Catherine Hill Bay Water pursued a root cause analysis to determine why the apparent 'false positive' reading had been returned; however, the outcome of that pursuit is not recorded for the purposes of this audit. It is also noted that Catherine Hill Bay Water engaged a second laboratory to undertake the retest as a means of verifying the subsequent result.

On the basis of the information provided, it appears that the test result did not constitute a notifiable incident. Notwithstanding, consultation with NSW Health is considered an appropriate action.

- *Sewage Overflow Event:*

A severe storm event and associated power failure in the early morning on 19 February 2020 resulted in a pressure sewer unit surcharging and discharging diluted sewage. The *Environmental Incident Report* and *Environmental Incident Assessment*<sup>5</sup> indicates that a small volume (estimated to be approximately 200 litres) of diluted sewage (approximately 5% concentration) was discharged with some material spilling over public property (nature strip) and possibly entering stormwater drains. It noted that no evidence of any sewage (paper or faeces) was detected; the means by which any overflow occurs from a pressure sewer unit effectively prevents the discharge of any material other than water.

Given the rainfall event, the spilt material was predominantly (if not entirely) stormwater. Investigation revealed that two properties serviced by the pressure sewer unit had non-compliant plumbing that resulted in stormwater being discharged into the respective property sewers. In one case, an outdoor shower had been connected to the sewer drain; in the second, the surface level around an overflow relief gully (ORG) had been raised such the stormwater could flow into the sewer. In both cases, rectification notices were subsequently issued.

The *Environmental Incident Report* indicated that external authorities had not been notified of the incident. This is consistent with guidance provided in the *Sewage Spill Procedure*,<sup>6</sup> which identifies the

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<sup>3</sup> Email correspondence dated 22 May 2020 between Catherine Hill Bay Water and NSW Health (Hunter New England Public Health Unit) (re: *Catherine Hill Bay - Somatic Coliphage positive test result*).

<sup>4</sup> Internal NSW Health email dated 27 May 2020 (copied to Catherine Hill Bay Water) (re: *Recycled Water - Catherine Hill Bay*).

<sup>5</sup> Document: *020-20 Environmental Incident Report and Assessment 26022020.pdf*.

<sup>6</sup> Solo Water, *Sewage Spill Procedure* (reference: IMS-AIIR-D-0037-SW) (Issue No: 1.0), June 2017.

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type of events for which notification is required. As this event was: “... *minor in nature and results in either no or limited environmental impact* ...”, notification was not required.<sup>7</sup> More specifically, for the purposes of assessing compliance with this obligation, the event did not threaten, or have the potential to have threatened, public health or safety.

▪ *Waste Activated Sludge Spill:*

On 2 March 2020, a vacuum pump mechanical failure resulted in a leak of waste activated sludge (WAS) that was being extracted from a storage tank at the treatment plant site into a tanker for off-site disposal. The failure was immediately identified and the pump stopped (emergency stop pressed).

Whilst this resulted in a small volume (approximately 50 litres) of WAS being discharged to ground, the extent of the spread was minimal and confined well within the treatment plant site which has perimeter bunding. Accordingly, there was no environmental impact and there was no requirement to report the event.

On the basis of the explanations and evidence provided by Catherine Hill Bay Water, the auditor is satisfied that none of these events constituted reportable incidents for the purposes of this obligation.

***Review of Water Quality Monitoring:***

*Monitoring Regime:*

Water quality monitoring undertaken in respect of the Catherine Hill Bay Water drinking and recycled water networks includes the following:

- Operational monitoring comprising online monitoring (via the SCADA system) of recycled water CCP parameters, and free chlorine in both recycled and drinking water at the booster pumping stations (point of discharge into supply); and
- Verification monitoring comprising:<sup>8</sup>
  - Weekly, monthly, six-monthly and annual laboratory testing of samples from both the recycled water and drinking water schemes for *E. coli* and total coliforms, and a range of other parameters depending on the sample interval; and
  - Weekly and monthly field monitoring (using calibrated hand-held equipment) of samples from both the recycled water and drinking water networks for pH, Turbidity, Electrical Conductivity, Water Temperature, Free Chlorine and Total Chlorine.

*Operational (SCADA) Monitoring of Critical Control Points – Recycled Water:*

To assess whether there had been any incidents that had threatened or could have threatened recycled water quality during the audit period, the auditor reviewed SCADA data trends for critical control point (CCP) parameters for selected periods during the audit period. Review of these trends revealed the following:

- CCP1: MBR Permeate Turbidity – the trend for August 2020 showed that turbidity remained less than the operational limit (>0.3 NTU for >5 minutes)<sup>9</sup> throughout the month. The trend showed (for example) a brief increase to approximately 0.75 NTU on 4 August 2020; however, this occurred during a short period (approximately 2 minutes) during which the discharge was being diverted. The operational limit reading was exceeded for approximately 1 minute; the critical limit (>0.5 NTU for >5 minutes) reading was exceeded for approximately 30 seconds.
  - CCP2: UV Transmissivity – the trend for February/March 2020 showed that UVT remained greater than the operational limit (<65% for >5 minutes)<sup>10</sup> at all times when operating throughout this
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<sup>7</sup> All stormwater drains within the Catherine Hill Bay “Beaches” estate discharge via a series of bio-basins, which provide additional environmental protection.

<sup>8</sup> The verification monitoring regime was revised, following an independent review, in April 2020.

<sup>9</sup> Solo Water, *RWTP CCP1 – MBR UF Membranes Management* (reference: IMS-GNRL-D-4411-SW) (Issue No: 1.1), July 2020.

<sup>10</sup> Solo Water, *RWTP CCP2 – UV Disinfection Management* (reference: IMS-GNRL-D-4412-SW) (Issue No: 1.1), July 2020.



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period; the reading varied between 70% and 75%. UVT readings dropped briefly to approximately 27% on 24 February and a minimum of approximately 17% on 7-9 March; however, corresponding flow records indicate that the UV unit was not operating at these times.<sup>11</sup>

- CCP3: Chlorine Contact (free chlorine and pH) – the trend for October 2020 showed that free chlorine residual remained less than the upper bound operational limit (>4 mg/L for >10 minutes)<sup>12</sup> throughout the month, although it did drop below the lower bound limit (<0.9 mg/L for >10 minutes) during periods that the plant was not operating. Valve status records show water being diverted to waste during plant restart (typically 1 hour 40 minutes) whilst free chlorine residual recovered.

The trend also showed that pH levels were maintained at between 7.1 and 7.4 throughout the period, which compares to operational limits of <6.5 or >8.5 for >10 minutes.

- Chlorination prior to reticulation – the trend for 1 March 2020 showed a free chlorine residual consistently within the range 2-3 mg/L, which is within the operational limits (<1 mg/L or >3 mg/L for >10 minutes).<sup>13</sup>

Review of the CCP SCADA data trends and associated information for recycled water did not reveal any water quality incidents that threatened or could have threatened the quality of water delivered into supply.

#### Operational (SCADA) Monitoring of Critical Control Point – Potable Water:

The SCADA trend for chlorine levels in the potable water prior to reticulation during June 2020 was reviewed. This showed free chlorine residuals to be consistently within operational limits (<1 mg/L or >3 mg/L for >10 minutes).<sup>14</sup> The trend for May 2020 showed some high chlorine residuals; however, these instances corresponded to periods of no flow.

#### Field Verification Monitoring – Recycled Water and Drinking Water:

All results of operational field monitoring (hand held instrument tests) are collated in the *CHB Water Quality Monitoring Register*<sup>15</sup> from *Field Water Quality Sampling Forms*, on which test results in respect of free chlorine, pH, turbidity, conductivity and water temperature are recorded. Test results are conducted on samples of both recycled water and drinking water. Free chlorine test results are also collated in the *CHB Free Chlorine Field Verification Register*.<sup>16</sup>

Cross checking of test results recorded in both the *CHB Water Quality Monitoring Register* and the *CHB Free Chlorine Field Verification Register* confirmed that they had been correctly transposed from the *Field Water Quality Sampling Forms* (e.g. *Field Water Quality Sampling Forms* for testing undertaken on 23 April 2020, 11 June 2020 and 13 August 2020).

It was noted that details of the hand-held instrument(s) used to undertake field tests was not identified on the *Field Water Quality Sampling Forms*. Catherine Hill Bay Water advised that it has only one instrument that is used for this purpose. Nonetheless, in the interests of ensuring traceability (particularly if additional instruments are used), as an opportunity for improvement (**OFI-CHB-2020.01**), it is suggested that Catherine Hill Bay Water implements a practice of recording details of the specific hand-held instrument(s) used to conduct field tests on all *Field Water Quality Sampling Forms*.

Review of results presented in the *CHB Free Chlorine Field Verification Register* revealed that:

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<sup>11</sup> The advanced water treatment plant (UV and Chlorine disinfection processes) do not operate continuously; this component of the plant is operated in response to demand.

<sup>12</sup> Solo Water, *RWTP CCP3 – Chlorine Contact Tank Management* (reference: IMS-GNRL-D-4413-SW) (Issue No: 1.1), July 2020.

<sup>13</sup> Solo Water, *CCP Residual Chlorination Management Procedure* (reference: IMS-GNRL-D-4414-SW) (Issue No: 1.2), July 2020.

<sup>14</sup> Solo Water, *CCP Residual Chlorination Management Procedure* (reference: IMS-GNRL-D-4414-SW) (Issue No: 1.2), July 2020.

<sup>15</sup> MS Excel workbook, *IMS-CONT-G-1680-SW - CHB Water Quality Monitoring.xlsx*.

<sup>16</sup> MS Excel workbook: *IMS-CONT-G-1675-SW - CHB Free Chlorine Field Verification.xlsx*.

- All test results conducted in both the recycled water and drinking water networks returned free chlorine residuals within the target limits (0.2 mg/L to 4.5 mg/l).<sup>17</sup> Concentrations varied from a minimum of 0.32 mg/L to a maximum of 2.66 mg/L in the recycled network and from a minimum of 0.63 mg/L to a maximum of 1.91 mg/L in the drinking water network during the audit period.
- All tests conducted at the recycled water storage returned free chlorine residuals within the target limits (1.0 mg/L to 4.5 mg/l).<sup>17</sup> Concentrations varied from a minimum of 1.27 mg/L to a maximum of 3.60 mg/L during the audit period.
- All tests conducted at the drinking water storage returned free chlorine residuals within the target limits (1.0 mg/L to 4.5 mg/l).<sup>17</sup> Concentrations varied from a minimum of 1.07 mg/L to a maximum of 2.18 mg/L during the audit period.

Review of the field verification monitoring test results for both recycled water and drinking water did not reveal any water quality incidents that threatened or could have threatened the quality of water delivered into supply.

#### Laboratory Verification Monitoring – Recycled Water:

A sample of laboratory test reports for verification monitoring of recycled water produced by the treatment plant, sampled at the recycled water tank (delivery side of the recycled water booster pumps), was reviewed to assess compliance with documented target limits.

As shown in the following table, this revealed that (for example) all test parameters for routine weekly monitoring (including field verification monitoring) were below the limits as documented in the *CHB Water Quality Monitoring Register*.<sup>18</sup>

Parameter	Max <sup>m</sup> Value	Sample Date/ Certificate of Analysis Work Order No			
		9-Jan-2020	27-Mar-2020	9-Jul-2020	15-Oct-2020
		WN1909937	WN2001358	n/a	n/a
TDS (mg/L)	1,000	454	563	-	-
Free chlorine (mg/L)	4.5	2.86	1.43	2.6	2.14
Total chlorine (mg/L)	5	3.7	1.57	3.42	2.76
pH	8.5	8.1	7.3	7.9	7.8
Turbidity (NTU)	2	0.3	0.4	0.1	0.15
Conductivity (µS/cm)	-	-	-	977	947
Temperature (°C)	-	24	22	16.1	21.1
<i>Clostridium perfringens</i> spores (CFU/100 mL)	<1	<1	<1	-	-
Somatic coliphage (PFU/100 mL)	<1	<1	<1	-	-
Total coliforms (MPN/100 mL)	<1	<1	<1	-	-
<i>E. coli</i> (MPN/100 mL)	<1	<1	<1	-	-

#### Note:

- 1 The verification regime was revised from April 2020 onwards.
- 2 Results include both laboratory and field based verification monitoring.

All verification monitoring test results (both recycled water and drinking water) are summarised in the *CHB Water Quality Monitoring Register*. A general review of the results presented in this register revealed recycled water test results to be within the documented limits, with the exception of the following:

<sup>17</sup> Solo Water, *Free Chlorine Field Verification Monitoring Procedure* (reference: IMS-OPER-D-8301-SW) (Issue No: 1.1), October 2018.

<sup>18</sup> MS Excel workbook, *IMS-CONT-G-1680-SW* - *CHB Water Quality Monitoring.xlsx*.

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- A sample taken from the recycled water tank on 7 May 2020 showed a high level concentration (1,500 PFU/100 mL) of somatic coliphage. As reported above, upon review and investigation, this was deemed to have been a ‘false positive’ test result; this assessment was supported by NSW Health.
  - A sample taken from the MBR permeate tank (i.e. prior to advanced water treatment) on 7 May 2020 identified 1 MPN/100 mL of *E. coli*, compared to the target of <1 MPN/100 mL. A sample taken from the recycled water tank (fully treated recycled water) on the same date returned a result of <1 MPN/100mL (i.e. none detected). Recycled water delivered into supply was therefore compliant with the target limits.

It is noted that the subsequent sample from the permeate tank returned a test result of <1 MPN/100 mL.

Cross checking of a sample of test results recorded in the *CHB Water Quality Monitoring Register* confirmed that they had been correctly transposed from the *Certificates of Analysis* (e.g. *Certificates of Analysis* for Work Orders: WN1909444 (samples taken 2 January 2020), WN2004472 (samples taken 28 May 2020) and WN2008097 (samples taken 10 September 2020)).

It is noted that the manner in which test results are recorded in the *CHB Water Quality Monitoring Register* make it difficult to trace results for a particular parameter/sample location. As an opportunity for improvement (**OFI-CHB-2020.02**), it is suggested that Catherine Hill Bay Water considers reconfiguring its *Water Quality Monitoring Register* to simplify the ability to trace test results for a particular parameter /sample location. This could be achieved by (for example) using a matrix approach whereby all sample sites and the associated parameters are listed vertically (down the worksheet) and the sample dates, work order number and results are listed horizontally (across the worksheet), similar to the *CHB Free Chlorine Field Verification Register*.

#### Laboratory Verification Monitoring – Drinking Water:

As noted above, all verification monitoring test results (both recycled water and drinking water) are summarised in the *CHB Water Quality Monitoring Register*. A review of the results presented in this register, similar to that outlined above, revealed all drinking water test results to be within the documented limits.

#### Water Quality Review Summary:

The above review of water quality monitoring results for both recycled water and drinking water confirms Catherine Hill Bay Water’s advice that there were no water quality incidents that warranted notification pursuant to this obligation during the audit period.

#### ***Incident Notification Arrangements:***

Catherine Hill Bay Water’s incident management procedures are documented primarily in its *Incident Response and Notification Management Plan*,<sup>19</sup> which is referenced in both the *Recycled Water Quality Management Plan*<sup>20</sup> and *Drinking Water Quality Management Plan*.<sup>21</sup> The *Incident Response and Notification Management Plan*<sup>22</sup> identifies incidents that would be notifiable in respect of each of the recycled water, drinking water and sewerage schemes.

Contact details for relevant stakeholders are documented in the *Incident Response and Notification Management Plan*;<sup>23</sup> they are also maintained in the *CHB Stakeholder Register*.<sup>24</sup> Contact details shown in both documents appear to be up-to-date; for example, both identify IPART’s WILMA online portal for the submission incident reports.

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<sup>19</sup> Solo Water, *Incident Response and Notification Management Plan* (reference: IMS-AIIR-B-0041-SW) (Issue No: 3.4), July 2020.

<sup>20</sup> *Recycled Water Quality Management Plan*, section 2.6.

<sup>21</sup> *Drinking Water Quality Management Plan*, section 2.6.

<sup>22</sup> Solo Water, *Incident Response and Notification Management Plan* (reference: IMS-AIIR-B-0041-SW) (Issue No: 3.4), July 2020, section 2.0.

<sup>23</sup> Solo Water, *Incident Response and Notification Management Plan* (reference: IMS-AIIR-B-0041-SW) (Issue No: 3.4), July 2020, section 4.1.

<sup>24</sup> MS Excel workbook, *IMS-CONT-G-1679-SW - CHB Stakeholder Register.xlsx*.

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## Recommendations

There are no recommendations in respect of this obligation.



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## Opportunities for improvement

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

- **OFI-CHB-2020.01:** It is suggested that Catherine Hill Bay Water implements a practice of recording details of the specific hand-held instrument(s) used to conduct field tests on all *Field Water Quality Sampling Forms*.
  - **OFI-CHB-2020.02:** It is suggested that Catherine Hill Bay Water considers reconfiguring its *Water Quality Monitoring Register* to simplify the ability to trace test results for a particular parameter / sample location.
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**Table A.2 General Obligations – WIC Reg Sched 1 cl.2(1) and 2(2)**

Clause	Requirement	Compliance Grade
WIC Reg Sched 1 cl.2(1) and 2(2)	[2(1)] A network operator must not bring any new water or sewerage infrastructure into commercial operation without the written approval of the Minister.	Clause 2(1):  <b>Compliant</b>
	[2(2)] The network operator must provide to the Minister a report, prepared by an approved auditor in such manner and form as the Minister may direct, that indicates that the infrastructure:	
	(a) complies with the requirements of the Regulation and any licence conditions; and  (b) is capable of operating safely and in accordance with its infrastructure operating plan and its water quality or sewage management plan, as the case requires.	Clauses 2(2)(a) and 2(2)(b):  <b>No Requirement</b>
<hr/>		
<b>Risk</b>	<b>Target for Full Compliance</b>	
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.	Evidence that the written approval of the Minister was obtained prior to bringing new water or sewerage infrastructure into service.	
<hr/>		
<b>Evidence sighted</b>		
<ul style="list-style-type: none"><li>▪ Interviews with Catherine Hill Bay Water personnel on 11 February 2021.</li><li>▪ Site inspection of infrastructure at Catherine Hill Bay on 11 February 2021.</li><li>• Solo Water, <i>Catherine Hill Bay Water Utility; Infrastructure Operating Plan; Stage 2</i> (reference: IMS-OPER-B-8297-SW), including:<ul style="list-style-type: none"><li>◦ Revision 2.2, 6 September 2019; and</li><li>◦ Revision 2.3, 14 September 2020.</li></ul></li><li>▪ NSW Government, <i>Network Operator’s Licence No: 16_035</i> issued to Catherine Hill Bay Water Utility Pty Ltd on 22 March 2016.</li><li>▪ NSW Government, <i>Notice of approval to bring new infrastructure into commercial operation</i>, 27 October 2017 (for infrastructure operated by Catherine Hill Bay Water Utility under Licence No: 16_035).</li><li>▪ 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).</li><li>▪ NSW Government, <i>Notice of approval to bring new infrastructure into commercial operation</i>, 18 January 2019 (for infrastructure operated by Catherine Hill Bay Water Utility under Licence No: 16_035).</li></ul>		

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## Summary of reasons for grade

No new water or sewerage infrastructure was brought into commercial operation during the audit period; accordingly, Catherine Hill Bay Water was assessed as being compliant with the provisions of clause 2(1). Furthermore, as no new infrastructure had been brought into operation, there was “No Requirement” for compliance with the provisions of clauses 2(2)(a) or 2(2)(b) during the audit period.

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## Discussion and notes

Catherine Hill Bay Water advised that no new infrastructure had been brought into commercial operation during the audit period.

Observations made during a site inspection of the infrastructure at Catherine Hill Bay revealed no evidence to the contrary. Furthermore, the infrastructure in service at the time of the audit remained consistent with that identified in the *Network Operator's Licence*<sup>25</sup> and referenced in the *Notice of approval to bring new infrastructure into commercial operation* in relation to:

- Stage 1 non-potable water, drinking water and sewerage infrastructure that was in place as at 4 July 2017;<sup>26</sup>
- Stage 2 non-potable water and sewerage infrastructure that was in place as at 25 November 2018;<sup>27</sup> and
- Stage 2 drinking water infrastructure that was in place as at 25 November 2018.<sup>28</sup>

It is noted that construction of extensions to the reticulation networks (non-potable water, sewerage and drinking water) was undertaken during the audit period; however, construction was not completed or brought into commercial operation until after the audit period. In any case, extensions to the reticulation networks do not constitute new infrastructure for the purposes of the *WIC Regulation*.<sup>29</sup>

Accordingly, it was evident that Catherine Hill Bay Water had not brought any new infrastructure into commercial operation without the written approval of the Minister and was therefore compliant with clause 2(1). Furthermore, there was no requirement for any action under the provisions of clause 2(2).

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## Recommendations

There are no recommendations in respect of this obligation.

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## Opportunities for improvement

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

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<sup>25</sup> NSW Government, *Network Operator's Licence No: 16\_035* issued to Catherine Hill Bay Water Utility Pty Ltd on 22 March 2016.

<sup>26</sup> NSW Government, *Notice of approval to bring new infrastructure into commercial operation*, 27 October 2017 (for infrastructure operated by Catherine Hill Bay Water Utility under Licence No: 16\_035).

<sup>27</sup> NSW Government, *Notice of approval to bring new infrastructure into commercial operation*, 13 December 2018 (for infrastructure operated by Catherine Hill Bay Water Utility under Licence No: 16\_035).

<sup>28</sup> NSW Government, *Notice of approval to bring new infrastructure into commercial operation*, 18 January 2019 (for infrastructure operated by Catherine Hill Bay Water Utility under Licence No: 16\_035).

<sup>29</sup> Refer WIC Reg Sched 1 cl.2(3).


## **Appendix B   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 B.1 Water Supply Infrastructure – WIC Reg Sched 1 cl.6(3)(a)

Clause	Requirement	Compliance Grade
<b>WIC Reg Sched 1 cl.6(3)(a)</b>	<p>If the Minister or IPART so demands, or if any significant change is made to its infrastructure operating plan, the licensee must provide the Minister or IPART with a report, prepared by an approved auditor in such manner and form as the Minister or IPART may direct:</p> <p>(i) as to the adequacy of the plan, and</p> <p>(ii) as to the condition of its infrastructure, having regard to the purpose for which it is licensed.</p> <p>[<i>Note: this clause relates to water infrastructure</i>].</p>	 <b>No Requirement</b>
<b>Risk</b>	<b>Target for Full Compliance</b>	
<p>This requirement reflects a high operational risk. It is essential that the adequacy of significant changes to the <i>Infrastructure Operating Plan</i> is assessed, and that IPART (as the Regulator) is advised as to the adequacy of the amended Plan and the condition of the infrastructure.</p>		<p>Evidence that, in the event of a significant change to the <i>Infrastructure Operating Plan</i>, the Licensee has provided a copy of the amended Plan and a report as to the adequacy of the amended Plan and the condition of the infrastructure to IPART.</p>
<b>Evidence sighted</b>		
<ul style="list-style-type: none"> <li>▪ Interviews with Catherine Hill Bay Water personnel on 11 February 2021.</li> <li>• Solo Water, <i>Catherine Hill Bay Water Utility; Infrastructure Operating Plan; Stage 2</i> (reference: IMS-OPER-B-8297-SW), including: <ul style="list-style-type: none"> <li>◦ Revision 2.2, 6 September 2019; and</li> <li>◦ Revision 2.3, 14 September 2020.</li> </ul> </li> </ul>		
<b>Summary of reasons for grade</b>		
<p>The auditor is not aware of either the Minister or IPART having demanded that the Licensee provide them with a report in respect of the <i>Infrastructure Operating Plan</i> pursuant to this obligation during the audit period. Accordingly, there was “No requirement” for compliance on that basis.</p> <p>Furthermore, whilst the <i>Infrastructure Operating Plan</i> was updated during the audit period, the changes were not considered to be significant. Accordingly, there was again “No Requirement” for compliance with this obligation.</p>		
<b>Discussion and notes</b>		
<p>The auditor is not aware of either the Minister or IPART having demanded that the Licensee provide them with a report, prepared by an approved auditor, as to the adequacy of the <i>Infrastructure Operating Plan</i> and the condition of the Licensee’s infrastructure during the audit period.</p> <p>As reported in Section 2.2, Version 2.2 (dated 6 September 2019) and Version 2.3, (dated 14 September 2020) of the <i>Infrastructure Operating Plan</i> were in place during the audit period; i.e. the <i>Infrastructure Operating Plan</i> was updated on one occasion during that time. Comparative review of Versions 2.2 and 2.3 reveals that, apart from formatting, changes were limited to the following:</p> <ul style="list-style-type: none"> <li>▪ Clarification of requirement for microbiological compliance (additional table note added);</li> <li>▪ Update to reflect current arrangements for the disposal of excess recycled water, and proposed future arrangements for which approval of a licence variation was pending at the time the <i>Infrastructure</i></li> </ul>		

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*Operating Plan* was updated;

- Deletion of references to specific versions of referenced documentation, specifically functional specifications (generic references were maintained);
- Various updates to reflect the current status of the Maximo asset/maintenance management system implementation;
- Update of asset naming to “Recycled Water Reservoir” instead of “Class A+ RW Reservoir”;
- Minor corrections to the Summary Asset Register;
- “Water quality contamination of water storage reservoir” added as a main risk to continuity of supply; “contingency planning” added as a mitigation measure in respect of maintaining continuity of supply;
- Key asset listing updated to reflect current asset age and remaining life; and
- Update to reflect current IPART reporting requirements.

This assessment confirms Catherine Hill Bay Water’s advice that there were no significant changes to the *Infrastructure Operating Plan* and therefore no requirement for compliance with this obligation during the audit period.

*Note:*

*For the purposes of this audit, the preceding discussion addresses requirements in respect of the Infrastructure Operating Plan as it relates to water supply infrastructure (WIC Reg Sched 1 cl.6(3)(a)). Although not identified for audit, the discussion is also applicable in respect of the Infrastructure Operating Plan as it relates to sewerage infrastructure (WIC Reg Sched 1 cl.13(3)(a)).*

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## **Recommendations**

There are no recommendations in respect of this obligation.


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## **Opportunities for improvement**

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

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

Clause	Requirement	Compliance Grade
<b>WIC Reg Sched 1 cl.7(4)(a)</b>	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.	 <b>Compliant</b>
<b>Risk</b>	<b>Target for Full Compliance</b>	
This requirement reflects a high operational risk. Implementation of the <i>Water Quality Plan</i> ensures that the water supplied complies with the specified quality requirement. Regular review ensures that the <i>Plan</i> remains current and reflects the current circumstances of the scheme.		Evidence that the <i>Water Quality 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.
<b>Evidence sighted</b>		
<ul style="list-style-type: none"> <li>▪ Interviews with Catherine Hill Bay Water personnel on 11 February 2021.</li> <li>▪ Site inspection of infrastructure at Catherine Hill Bay on 11 February 2021.</li> <li>▪ 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.</li> <li>▪ Solo Water, <i>Catherine Hill Bay Water Utility; Recycled Water Quality Management Plan; Stage 2</i> (reference: IMS-ENVM-B-3727-SW), including: <ul style="list-style-type: none"> <li>○ Revision 1.2, 20 September 2019; and</li> <li>○ Revision 1.3, 17 September 2020.</li> </ul> </li> <li>▪ Solo Water, <i>RWTP CCP1 – MBR UF Membranes Management</i> (reference: IMS-GNRL-D-4411-SW) (Issue No: 1.1), July 2020.</li> <li>▪ Solo Water, <i>RWTP CCP2 – UV Disinfection Management</i> (reference: IMS-GNRL-D-4412-SW) (Issue No: 1.1), July 2020.</li> <li>▪ Solo Water, <i>RWTP CCP3 – Chlorine Contact Tank Management</i> (reference: IMS-GNRL-D-4413-SW) (Issue No: 1.1), July 2020.</li> <li>▪ Solo Water, <i>CCP Residual Chlorination Management Procedure</i> (reference: IMS-GNRL-D-4414-SW) (Issue No: 1.2), July 2020.</li> <li>▪ Solo Water, <i>Free Chlorine Field Verification Monitoring Procedure</i> (reference: IMS-OPER-D-8301-SW) (Issue No: 1.1), October 2018.</li> <li>▪ MS Excel workbook: <i>IMS-CONT-G-1675-SW - CHB Free Chlorine Field Verification.xlsx</i>.</li> <li>▪ MS Excel workbook, <i>IMS-CONT-G-1680-SW - CHB Water Quality Monitoring.xlsx</i>.</li> <li>▪ Water Futures, <i>Independent assessment of the Catherine Hill Bay drinking and recycled water monitoring program for Solo Water</i>, 11 November 2019.</li> <li>▪ MS Excel workbook: <i>IMS-CONT-G-1680-SW - CHB Water Quality Monitoring.xlsx</i> (last update 21 January 2019).</li> <li>▪ MS Excel workbook, <i>IMS-ENVM-G-3635-SW - Risk Register - Stage 2.xlsx</i>.</li> <li>▪ Solo Water, <i>Catherine Hill Bay Water Utility; Quarterly Report – Internal</i>, April - June 2020 (for example).</li> <li>▪ Solo Water, <i>Annual Compliance Report; Reporting Period 2019-2020</i>, 28 August 2020.</li> </ul>		

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- Catherine Hill Bay/Solo Water, *Scheduled Compliance Audit Report*, July 2020.
  - MS Excel workbook, *IMS-CONT-G-1677-SW - CHB Regulatory & Formal Requirements.xlsx*.
  - Document: *IMS-DOCC-G-2414 - Master Register – SW.pdf*.
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### 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 both the *Drinking Water Quality Management Plan* and *Recycled Water Quality Management Plan*, as appropriate. This was evident principally from the implementation of the documented arrangements and requirements in respect of water quality monitoring, but also requirements in respect of review of the system risk assessments, internal reporting/performance review and audit, and external reporting.

Catherine Hill Bay Water also demonstrated that it has kept both the *Drinking Water Quality Management Plan* and *Recycled Water Quality Management Plan* under regular review.

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

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### Discussion and notes

#### **Overview:**

The auditor checked for evidence that both 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 were carried out in accordance with the *Plans*.

The auditor checked for implementation of relevant procedures (including monitoring and sampling procedures, the results of which are discussed in detail in Table A.1) and some other specific requirements of the *Plans*.

#### **Water Quality Monitoring:**

##### Monitoring Regime:

Water quality monitoring undertaken in respect of the Catherine Hill Bay Water drinking and recycled water networks, pursuant to the requirements of the *Drinking Water Quality Management Plan* and *Recycled Water Quality Management Plan*, includes the following:

- Operational monitoring comprising online monitoring (via the SCADA system) of recycled water critical control point (CCP) parameters, and free chlorine in both recycled and drinking water at the booster pumping stations (point of discharge into supply); and
  - Verification monitoring comprising:<sup>30</sup>
    - Weekly laboratory testing of samples from the source drinking water and both the recycled water and drinking water networks for *E. coli* and total coliforms;
    - Weekly field monitoring (using calibrated hand-held equipment) of samples from the source drinking water and both the recycled water and drinking water networks for pH, Turbidity, Electrical Conductivity, Water Temperature, Free Chlorine and Total Chlorine;
    - Monthly laboratory testing of samples from the drinking water source water, treated water storage and network for *E. coli* and total coliforms;
    - Monthly laboratory testing of samples from the recycled water source water (MBR permeate), treated water storage and network for parameters including *E. coli*, total coliforms, somatic coliphage, *Clostridium perfringens* spores, sulphite reducing *lostridia* spores, BOD, Suspended Solids, Total Dissolved Solids, Nitrogen (TN, TKN, NO<sub>x</sub> and NH) and Phosphorus (TP and PO<sub>4</sub>) (parameters vary by location);
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<sup>30</sup> The verification monitoring regime was revised, following an independent review, in April 2020.

- Monthly field monitoring (using calibrated hand-held equipment) of samples from both the recycled water and drinking water source water, treated water storages and networks for pH, Turbidity, Electrical Conductivity, Water Temperature, Free Chlorine and Total Chlorine;
- Six-monthly detailed laboratory analysis of samples from both the recycled water and drinking water networks for a more extensive range of parameters; and
- Annual detailed laboratory analysis of samples from the recycled water network for *Giardia* cysts, *Cryptosporidium* oocysts and adenovirus.

These monitoring requirements, further details of which are provided in the following documents (amongst others), were found to have been implemented during the audit period:

- *RWTP CCP1 – MBR UF Membranes Management*;<sup>31</sup>
- *RWTP CCP2 – UV Disinfection Management*;<sup>32</sup>
- *RWTP CCP3 – Chlorine Contact Tank Management*;<sup>33</sup>
- *CCP Residual Chlorination Management Procedure*;<sup>34</sup>
- *Free Chlorine Field Verification Monitoring Procedure*.<sup>35</sup>

Review of the CHB *Free Chlorine Field Verification Register*<sup>36</sup> and CHB *Water Quality Monitoring Register*,<sup>37</sup> as well as sample of *Field Water Quality Sampling Forms* and laboratory testing *Certificates of Analysis* confirms that the monitoring regime was implemented throughout the audit period. For example, in addition to weekly and monthly testing, six-monthly and annual testing was undertaken on samples collected on 5 December 2019 and 3 December 2020, with six-monthly testing also undertaken on samples collected on 28 May 2020.

It is noted that Catherine Hill Bay Water revised its monitoring regime in April 2020 following an independent review<sup>38</sup> of its proposed changes. The independent reviewer undertook: a review of historical water quality monitoring results, laboratory certificates and quarterly compliance reports to verify demonstrated compliance with water quality targets; a high-level review of the proposed water quality monitoring program, with reference to the relevant legislation and guidelines; and provided recommendations as to the adequacy of the proposed program based on the review.

#### Operational Monitoring:

As noted above, operational monitoring comprises online monitoring of key parameters, principally those associated with CCPs.

Review of CCP set points in the SCADA system confirmed that they were all consistent with the operational and critical limits documented in the relevant management procedure (identified above). This included both the parameter settings and the associated time delay.

To assess data consistency between the monitoring instrument and SCADA system, readings were taken at a sample of monitoring instruments and the corresponding SCADA readings checked. A summary of these checks is as follows (it is noted that advanced treatment processes (UV and chlorine disinfection) were not operating at the time of the audit; this component of the plant is operated in response to demand):

<sup>31</sup> Solo Water, *RWTP CCP1 – MBR UF Membranes Management* (reference: IMS-GNRL-D-4411-SW) (Issue No: 1.1), July 2020.

<sup>32</sup> Solo Water, *RWTP CCP2 – UV Disinfection Management* (reference: IMS-GNRL-D-4412-SW) (Issue No: 1.1), July 2020.

<sup>33</sup> Solo Water, *RWTP CCP3 – Chlorine Contact Tank Management* (reference: IMS-GNRL-D-4413-SW) (Issue No: 1.1), July 2020.

<sup>34</sup> Solo Water, *CCP Residual Chlorination Management Procedure* (reference: IMS-GNRL-D-4414-SW) (Issue No: 1.2), July 2020.

<sup>35</sup> Solo Water, *Free Chlorine Field Verification Monitoring Procedure* (reference: IMS-OPER-D-8301-SW) (Issue No: 1.1), October 2018.

<sup>36</sup> MS Excel workbook: *IMS-CONT-G-1675-SW - CHB Free Chlorine Field Verification.xlsx*.

<sup>37</sup> MS Excel workbook, *IMS-CONT-G-1680-SW - CHB Water Quality Monitoring.xlsx*.

<sup>38</sup> Water Futures, *Independent assessment of the Catherine Hill Bay drinking and recycled water monitoring program for Solo Water*, 11 November 2019.

Parameter	Time	Instrument Reading	SCADA Reading	SCADA Consistent?
CCP1: MBR Permeate Turbidity (Train 1)	~10:25am	0.015	~0.015	✓
CCP: Drinking water discharge to network:	~10:14am	1.47 mg/L 7.83	~1.47 mg/L ~7.83	✓
▪ Free chlorine ▪ pH				✓
CCP: Recycled water discharge to network:	~10:40am	2.34 mg/L 7.34	~2.34 mg/L ~7.36	✓
▪ Free chlorine ▪ pH				✓

A review of online monitoring (SCADA) data is documented in Table A.1.

As reported in Table D.1, SCADA readings are checked and recorded on a *Daily Log Sheet* each working day. This task ensures that plant performance is actively monitored by the operators as part of their daily activities.

#### Verification Monitoring:

As noted above verification monitoring comprises:

- Weekly laboratory testing of samples for *E. coli* and total coliforms and monthly testing for additional parameters;
- 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.
- Annual laboratory testing of samples from the recycled water network for *Giardia* cysts, *Cryptosporidium* oocysts and adenovirus.

Sampling details and laboratory test results are documented in the *CHB Water Quality Monitoring Register*.<sup>39</sup> Test results are compiled from laboratory test certificates (*Certificates of Analysis*) a sample of which was provided for review. As noted above, review of these records demonstrates that the requisite verification monitoring was undertaken during the audit period.

The results of field tests undertaken as part of the verification monitoring regime are recorded in *Field Water Quality Sampling Forms* and subsequently compiled into both the *CHB Water Quality Monitoring Register* and the *CHB Free Chlorine Field Verification Register*. As noted above, review of these records demonstrates that the requisite monitoring was undertaken during the audit period.

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

#### **Risk Assessment:**

Both the *Drinking Water Quality Management Plan*<sup>40</sup> and *Recycled Water Quality Management Plan*<sup>41</sup> indicate that the *Risk Register*<sup>42</sup> is to be updated annually. Review of the “Document History” worksheet indicates that a routine review of the *Risk Register* was undertaken in September 2020 (Revision 3.2, dated 10 September). It is noted that separate worksheets (risk registers) are maintained for the drinking water and recycled water schemes (and also the sewerage scheme).

<sup>39</sup> MS Excel workbook: *IMS-CONT-G-1680-SW* - *CHB Water Quality Monitoring.xlsx* (last update 21 January 2019).

<sup>40</sup> *Drinking Water Quality Management Plan*, section 2.2.3.

<sup>41</sup> *Recycled Water Quality Management Plan*, section 2.2.4.

<sup>42</sup> MS Excel workbook, *IMS-ENV/M-G-3635-SW* - *Risk Register - Stage 2.xlsx*.



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### **Reporting and Review:**

Both the *Drinking Water Quality Management Plan*<sup>43</sup> and *Recycled Water Quality Management Plan*<sup>44</sup> require the preparation of quarterly internal reports which provide the basis for short-term and long-term review of performance and analysis of results.

Catherine Hill Bay Water provided copies of reports prepared for the periods October to December 2019, January to March 2020, April to June 2020 and July to September 2020.<sup>45</sup> In each case the reports addressed Levels of Service; Network Operator's Licence (compliance and performance indicators); Water Quality (compliance, monitoring results and incidents), Operations (community contacts and customer complaints, general operations and sewage disposal); Quality, Safety and Environment; and Maintenance. The results are extensively detailed, thereby providing a robust basis for performance review and analysis.

Catherine Hill Bay Water also provided a copy of the *Annual Compliance Report* submitted to IPART in respect of the 2019-2020 reporting period.<sup>46</sup> The report included the requisite information, including: Schedule A – Non-compliances (none reported); Schedule B – Performance Indicators; Schedule C – Insurance Certificates of Currency; Schedule D – Description of Changes to Insurance Arrangements (none reported); Schedule E – Financial Capacity Statement; and Schedule F – Description of relevant exceptions to Financial Capacity Statement (none reported).

### **Internal and External Audit:**

Catherine Hill Bay Water provided the report on an internal audit conducted in July 2020.<sup>47</sup> The report recorded three observations, three discrepancies and nine noted improvements; no corrective action requests were raised. The discrepancies related to the latest versions of the IPART reporting manuals not being captured in the relevant Compliance Register; absence of a safety notice on pallet racking; and a laboratory storage cabinet containing hazardous material being left unlocked when not in use. It is noted (for example) that the *CHB Regulatory & Formal Requirements Register*<sup>48</sup> was updated in August 2020 to incorporate the requirements of the July 2020 update of the *Network Operator's Reporting Manual*.

Catherine Hill Bay Water also demonstrated that a recertification audit of its Quality and Environmental Management Systems (as applicable to the Catherine Hill Bay Water operations) had been conducted in October 2020. The report indicated that there are no outstanding non-conformances or discrepancies.

### **Regular Review of Water Quality Management Plans:**

Catherine Hill Bay Water demonstrated that both the *Drinking Water Quality Management Plan* and *Recycled Water Quality Management Plan* have been kept under regular review. The "Document Status" tables indicate that both the documents have undergone several revisions during their development phase and subsequently.

The *Drinking Water Quality Management Plan* was most recently updated to Version 2.1 in September 2019, i.e. just prior to the audit period. The *Recycled Water Quality Management Plan* was updated to Version 1.2 in September 2019 (just prior to the audit period) and again to Version 1.3 in September 2020 (towards the end of the audit period).

Review of the *Document Control Register*<sup>49,50</sup> indicates that:

- the current version of the *Drinking Water Quality Management Plan* is Version 2.1, which was issued following review in September 2019; and
  - the current version of the *Recycled Water Quality Management Plan* is Version 1.3, which was issued
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<sup>43</sup> *Drinking Water Quality Management Plan*, section 2.10.2.

<sup>44</sup> *Recycled Water Quality Management Plan*, section 2.10.2.

<sup>45</sup> Solo Water, *Catherine Hill Bay Water Utility; Quarterly Report – Internal*, April - June 2020 (for example).

<sup>46</sup> Solo Water, *Annual Compliance Report; Reporting Period 2019-2020*, 28 August 2020.

<sup>47</sup> Catherine Hill Bay/Solo Water, *Scheduled Compliance Audit Report*, July 2020.

<sup>48</sup> MS Excel workbook, *IMS-CONT-G-1677-SW - CHB Regulatory & Formal Requirements.xlsx*.

<sup>49</sup> Document: *IMS-DOCC-G-2414 - Master Register – SW.pdf*.

<sup>50</sup> Email dated 4 March 2021 from Catherine Hill Bay Water to Cobbitty Consulting (re: *Master Register*).

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following review in September 2020.

This is consistent with the “Document Status” record in the *Plans*.

It is therefore apparent that both the *Drinking Water Quality Management Plan* and *Recycled Water Quality Management Plan* have been kept under regular review.

In reviewing the *Plans* it was noted that the *Risk Register* drinking water worksheet has been included in the *Recycled Water Quality Management Plan* instead of the recycled water worksheet. Whilst the *Risk Register* is available as a standalone document (which as reported above was reviewed /updated during the audit period), it is important that correct information is included in the management plans. Accordingly, as a further opportunity for improvement (**OFI-CHB-2020.03**), it is suggested that Catherine Hill Bay Water ensures that the correct *Risk Register* extract is included in the *Recycled Water Quality Management Plan*.

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### Recommendations

There are no recommendations in respect of this obligation.

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### Opportunities for improvement

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

- **OFI-CHB-2020.03:** It is suggested that Catherine Hill Bay Water ensures that the correct *Risk Register* extract is included in the *Recycled Water Quality Management Plan*.



**Table B.3 Water Supply Infrastructure – WIC Reg Sched 1 cl.7(5)(a)**

Clause	Requirement	Compliance Grade
<b>WIC Reg Sched 1 cl.7(5)(a)</b>	If the Minister or IPART so demands, or if any significant change is made to its water quality plan, the licensee must provide the Minister or IPART with a report, prepared by an approved auditor in such manner and form as the Minister or IPART may direct, as to the adequacy of the plan.	<div> <b>No Requirement</b></div>
<b>Risk</b>	<b>Target for Full Compliance</b>	
This requirement reflects a high operational risk. It is essential that the adequacy of significant changes to the <i>Water Quality Plan</i> is assessed, and that IPART (as the Regulator) is advised as to the adequacy of the amended Plan	Evidence that, in the event of a significant change to the <i>Water Quality Plan</i> , the Licensee has provided a copy of the amended Plan and a report as to the adequacy of the amended Plan and the condition of the infrastructure to IPART.	
<b>Evidence sighted</b>		
<ul style="list-style-type: none"><li>Interviews with Catherine Hill Bay Water personnel on 11 February 2021.</li><li>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.</li><li>Solo Water, <i>Catherine Hill Bay Water Utility; Recycled Water Quality Management Plan; Stage 2</i> (reference: IMS-ENVM-B-3727-SW), including:<ul style="list-style-type: none"><li>Revision 1.2, 20 September 2019; and</li><li>Revision 1.3, 17 September 2020.</li></ul></li></ul>		
<b>Summary of reasons for grade</b>		
<p>The auditor is not aware of either the Minister or IPART having demanded that the Licensee provide them with a report in respect of either the <i>Drinking Water Quality Management Plan</i> or the <i>Recycled Water Quality Management Plan</i> pursuant to this obligation during the audit period. Accordingly, there was “No requirement” for compliance on that basis.</p> <p>Furthermore:</p> <ul style="list-style-type: none"><li>no changes were made to the <i>Drinking Water Quality Management Plan</i> during the audit period; and</li><li>whilst the <i>Recycled Water Quality Management Plan</i> was updated during the audit period, the changes were not considered to be significant.</li></ul> <p>Accordingly, there was again “No Requirement” for compliance with this obligation.</p>		
<b>Discussion and notes</b>		
<p>The auditor is not aware of either the Minister or IPART having demanded that the Licensee provide them with a report, prepared by an approved auditor, in respect of either the <i>Drinking Water Quality Management Plan</i> or the <i>Recycled Water Quality Management Plan</i> during the audit period.</p> <p>There were no changes made to the <i>Drinking Water Quality Management Plan</i> during the audit period; accordingly, there was no requirement for compliance with this obligation in response to any significant change.</p> <p>As reported in Section 2.2, Version 1.2 (dated 20 September 2019) and Version 1.3 (dated 17 September 2020) of the <i>Recycled Water Quality Management Plan</i> were in place during the audit period; i.e. the <i>Recycled Water Quality Management Plan</i> was updated once during that time. Comparative assessment of</p>		

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Versions 1.2 and 1.3 reveals that, apart from formatting, changes were limited to the following:

- The log reduction claimed for virus removal by the Wedeco LBX400 ultraviolet (UV) disinfection system has been revised to be reflective of the most recent supplier pre-validation report. Although there has been a reduction in the claimed log reduction value (LRV), the plant capacity is still well in excess of requirement;
- Update to reflect the current status of the Maximo asset/maintenance management system implementation; and
- Updated reference to IPART audit guidelines.

This assessment confirms Catherine Hill Bay Water's advice that there were no significant changes to the either the *Drinking Water Quality Management Plan* or the *Recycled Water Quality Management Plan* and therefore no requirement for compliance with this obligation during the audit period.

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### **Recommendations**

There are no recommendations in respect of this obligation.

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### **Opportunities for improvement**

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


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## **Appendix C   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 C.1 Non-Potable Water Supply Infrastructure – WIC Reg Sched 1 cl.10(a)**

Clause	Requirement	Compliance Grade
<b>WIC Reg Sched 1 cl.10(a)</b>	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.	 <b>Compliant</b>
<b>Risk</b>	<b>Target for Full Compliance</b>	
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.		Evidence that the water supplied is fit for purpose.
<b>Evidence sighted</b>		
<ul style="list-style-type: none"> <li>Interviews with Catherine Hill Bay Water personnel on 11 February 2021.</li> <li>Site inspection of infrastructure at Catherine Hill Bay on 11 February 2021.</li> <li>Solo Water, <i>Catherine Hill Bay Water Utility; Recycled Water Quality Management Plan; Stage 2</i> (reference: IMS-ENVM-B-3727-SW), including: <ul style="list-style-type: none"> <li>Revision 1.2, 20 September 2019; and</li> <li>Revision 1.3, 17 September 2020.</li> </ul> </li> <li>NSW Government, <i>Network Operator's Licence No: 16_035</i> issued to Catherine Hill Bay Water Utility Pty Ltd on 22 March 2016.</li> </ul>		
<b>Summary of reasons for grade</b>		
<p>Review of operational monitoring data and water quality verification test results indicated that recycled water supplied during the audit period was fit for the purposes identified in the <i>Recycled Water Quality Management Plan</i>, which are consistent with the “Authorised purposes” nominated in the Licence.</p> <p>Accordingly, Catherine Hill Bay Water is assessed to have demonstrated compliance with this obligation.</p>		
<b>Discussion and notes</b>		
<p>The purposes for which the recycled water is being supplied are identified in the <i>Recycled Water Quality Management Plan</i>,<sup>51</sup> which nominates the end uses of recycled water as toilet flushing; laundry washing machine cold water tap; irrigation of private lots and footpaths; and outdoor cleaning including bin and car washing and hosing down external paths and walls. These uses are consistent with the “Authorised purposes” nominated in the Licence.<sup>52</sup></p> <p>The <i>Recycled Water Quality Management Plan</i> also nominates critical limits for operational monitoring parameters at Critical Control Points (CCPs),<sup>53</sup> which are based on pathogen log reduction requirements for the identified end uses, as well as characteristics to be monitored for the purpose of recycled water quality verification (by reference to specific procedural documents).<sup>54</sup></p> <p>Performance against CCP targets and verification parameters is discussed in Table A.1 and Table B.2 and, as reported in Table A.1, there were no reportable incidents in which the quality of water supplied had</p>		

<sup>51</sup> *Recycled Water Quality Management Plan*, section 2.2.1.2.

<sup>52</sup> NSW Government, *Network Operator's Licence No: 16\_035* issued to Catherine Hill Bay Water Utility Pty Ltd on 22 March 2016, table 1.3.

<sup>53</sup> *Recycled Water Quality Management Plan*, section 2.3.2.2.

<sup>54</sup> *Recycled Water Quality Management Plan*, section 2.5.1.

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been compromised during the audit period.

Accordingly, it is assessed that the water supplied into the recycled water network was compliant with the requirements documented in the *Recycled Water Quality Management Plan* and therefore fit for the nominated purposes.

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### **Recommendations**

There are no recommendations in respect of this obligation.

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### **Opportunities for improvement**

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

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## **Appendix D   Detailed Audit Findings – Sewerage Infrastructure**

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





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

Clause	Requirement	Compliance Grade
<b>WIC Reg Sched 1 cl.13(2)(a)</b>	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.	 <b>Compliant</b>
<b>Risk</b>	<b>Target for Full Compliance</b>	
<p>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.</p>		<p>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.</p>
<b>Evidence sighted</b>		
<ul style="list-style-type: none"> <li>▪ Interviews with Catherine Hill Bay Water personnel on 11 February 2021.</li> <li>▪ Site inspection of infrastructure at Catherine Hill Bay on 11 February 2021.</li> <li>• Solo Water, <i>Catherine Hill Bay Water Utility; Infrastructure Operating Plan; Stage 2</i> (reference: IMS-OPER-B-8297-SW), including: <ul style="list-style-type: none"> <li>◦ Revision 2.2, 6 September 2019; and</li> <li>◦ Revision 2.3, 14 September 2020.</li> </ul> </li> <li>▪ Solo Water, <i>Catherine Hill Bay Water Utility; Operator's Manual; Recycled Water Treatment Plan (RWTP); Stage 2</i> (reference: IMS-OPER-C-1690-SW) (Revision 1.2), 17 December 2020.</li> <li>▪ Solo Water, <i>Catherine Hill Bay Water Utility; Operator's Manual; Distribution System Networks; Stage 2</i> (IMS-OPER-B-8298-SW) (Revision 2.1), 7 March 2019.</li> <li>▪ Document: <i>IMS-CONT-F-1693-SW - CHB Daily Log Sheet.pdf</i> (blank form).</li> <li>▪ Document: <i>OCT 2020 Workflow.pdf</i>.</li> <li>▪ Documents: <i>Quarterly Site Monitoring Checklist – 202003.pdf</i>, <i>Quarterly Site Monitoring Checklist – 202006.pdf</i> and <i>Quarterly Site Monitoring Checklist – 202009.pdf</i>.</li> <li>▪ Document: <i>PM Summary Report.pdf</i>.</li> <li>▪ Document: <i>WO Maintenance Records List 122019-102020.pdf</i>.</li> <li>▪ Document: <i>IMS-CONT-F-1695-SW - Process Equipment Calibration Register.pdf</i> (blank forms).</li> <li>▪ MS Excel workbook: <i>IMS-CONT-G-1671-SW - CHB Calibration Register.xlsx</i>.</li> <li>▪ Document: <i>Maximo Work Order List – Calibration.pdf</i>.</li> <li>▪ Document: <i>Calibration Forms_Example 202010.pdf</i>.</li> <li>▪ Document: <i>User_competencies_Tim Szadanoff.pdf</i>.</li> <li>▪ Document: <i>DITA Management System - Compliance Record.pdf</i>.</li> <li>▪ Documents: <i>Certificate - Environmental Incident Training_Tim S.pdf</i> and <i>Certificate - Environmental Incident Training_Ronnie.pdf</i>.</li> <li>▪ Document: <i>Emergency Evacuation drill 20200814.pdf</i>.</li> </ul>		

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- Documents: *Toolbox Meeting – 202001.pdf*, *Toolbox Meeting – 202002.pdf*, *Toolbox Meeting – 202007.pdf* and *Toolbox Meeting – 202008.pdf*.
  - Document: *Contractor Compliance\_Tasman Tanks.png*.
  - Documents: *Site Induction Checklist\_On Call Lifting.pdf* and *Site Induction Checklist\_Tasman Tanks.pdf*.
  - Documents: *Subcontractor Monitoring Checklist - Example 20200617.pdf* and *Subcontractor Monitoring Checklist - Example 20200918.pdf*.
  - MS Excel workbook, *IMS-CONT-G-1698-SW - Continuous Improvement Request Register.xlsx*.
  - MS Excel workbook, *IMS-CONT-G-1683-SW - Change Request Register – Maximo.xlsx*.
  - MS Excel workbook, *Solo Water Customer Feedback - Complaints Register.xlsx*.
  - Document: *IMS-DOCC-G-2414 - Master Register – SW.pdf*.
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### 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 *Infrastructure Operating Plan*. This was evident from the operational and maintenance activities that had been implemented, the actions taken to ensure that operators maintained and contractors had appropriate competencies, and the focus on continual improvement.

Catherine Hill Bay Water also demonstrated that it has kept the *Infrastructure Operating Plan* under regular review.

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

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### Discussion and notes

#### Note:

*Although the scope of the audit only requires an assessment of the implementation of the Infrastructure Operating Plan as it relates to sewerage infrastructure (WIC Reg Sched 1 cl.13(2)(a)), this assessment considers implementation of the Infrastructure Operating Plan as it related to both water supply (WIC Reg Sched 1 cl.6(2)(a)) and sewerage (WIC Reg Sched 1 cl.13(2)(a)) infrastructure.*

#### **Overview:**

The auditor checked for evidence that the *Infrastructure Operating 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 that *Plan*.

#### **Design and Construction:**

As reported in Table A.2, no new infrastructure had been brought into commercial operation during the audit period. Extensions to the reticulation networks (non-potable water, sewerage and drinking water) were, however, designed and constructed during that time.

Although not assessed in detail, observations made during the audit site inspection revealed (to the extent possible) that the extension works had been designed and constructed in accordance with the arrangements set out in the *Infrastructure Operating Plan*. Furthermore, visible components of the infrastructure appeared to be compliant with relevant standards and codes and industry practice, including (for example):

- Valve covers and hydrants are appropriately colour coded (refer Figures D.1.1 and D.1.2);
  - Property connection installations have lilac sleeved risers on recycled water connections; valves are sealed and tagged until connection is authorised by Catherine Hill Bay Water (refer Figure D.1.3); and
  - Pressure sewer units have been installed consistent with design (refer Figure D.1.4).
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Catherine Hill Bay Water advised that it has a Site Manager and/or Site Inspector on site at all times during works construction to ensure compliance with standards. This has been confirmed (observed) during previous audits.

***Operation and Maintenance:***

Operation and maintenance of the infrastructure is undertaken in accordance with the general principles/strategy outlined in the *Infrastructure Operating Plan*, as well as the *Drinking Water Quality Management Plan* and *Recycled Water Quality Management Plan*. More specific guidance is provided in the *Operator's Manuals* (*Recycled Water Treatment Plant*<sup>55</sup> and *Distribution Networks*)<sup>56</sup> and other documented procedures.

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. Evidence that this regime was implemented during the audit period included (for example):

- The SCADA system was reviewed during the audit site inspection. Observations made in respect of critical control point monitoring are detailed in Table A.1 and Table B.2.

It is further noted that Catherine Hill Bay Water maintains a *Daily Log Sheet*<sup>57</sup> on which all SCADA readings are recorded on a daily basis (Monday to Friday). A number of completed *Log Sheets*, each of which covers a calendar month, were sighted including (for example) the sheet for May 2020.

- *Operations Workflow Checklists*, which record inspections undertaken each day during a working week. These checklists record inspections made on either a daily, weekly or monthly basis in respect of the:
  - Recycled Water Treatment Plant (RWTP), including RWTP General, Biological Feed System, Biological System, MBR, Aeration Blowers, Permeate tanks and Discharge Pumps, UV Disinfection, Chlorine Contact Tanks, Potable and Recycled Water Reservoirs, Potable and Recycled Water Pump Stations, Chemical Dosing System, and Common Process Storage Tanks; and
  - Network, including Potable Water/Recycled Water Network, Pressure Sewer Network, Bulk Water Pump Station Bulk Water Main and Interim Site/Chlorine Skid.

The completed checklist for the week 19-23 October 2020<sup>58</sup> was provided for review and the checklist for the week 14-18 September 2020 was sighted onsite. Review of these samples confirmed that they had been appropriately completed; it is noted that there are a total of approximately 80 tasks (checks) to be undertaken.

- *Quarterly Site Monitoring Checklists*, which record details of inspections undertaken with a primary focus on safety. Records for inspections undertaken in March, June and September 2020<sup>59</sup> were provided for review; each inspection item is rated to reflect status (very good, good, satisfactory, unsatisfactory, failure) and comments reflect issues such as timing for regulatory compliance activities (e.g. test and tagging) and the need for rectification such as areas requiring cleaning, hoses left uncoiled and the need for empty drums to be removed.

All maintenance activities are now managed through a Maximo CMMS (computerised maintenance management system), which is still being tailored for Catherine Hill Bay Water's use. The online system was viewed briefly; the following records were provided to demonstrate implementation:

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<sup>55</sup> Solo Water, *Catherine Hill Bay Water Utility; Operator's Manual; Recycled Water Treatment Plan (RWTP); Stage 2* (reference: IMS-OPER-C-1690-SW) (Revision 1.2), 17 December 2020.

<sup>56</sup> Solo Water, *Catherine Hill Bay Water Utility; Operator's Manual; Distribution System Networks; Stage 2* (IMS-OPER-B-8298-SW) (Revision 2.1), 7 March 2019.

<sup>57</sup> Document: *IMS-CONT-F-1693-SW - CHB Daily Log Sheet.pdf* (blank form).

<sup>58</sup> Document: *OCT 2020 Workflow.pdf*.

<sup>59</sup> Documents: *Quarterly Site Monitoring Checklist – 202003.pdf*, *Quarterly Site Monitoring Checklist – 202006.pdf* and *Quarterly Site Monitoring Checklist – 202009.pdf*.

- *Preventative Maintenance Register – Summary*<sup>60</sup> – this provides a listing of all preventative maintenance tasks. Details include task location, priority, frequency at which it is to be undertaken, the relevant Job Plan and the ‘estimated next due date’ and ‘last completion date’ at the time the report was generated.

Review of the register reveals the 410 listed tasks to be appropriate for the Catherine Hill Bay Water schemes.

- *Maintenance Records List*<sup>61</sup> – this record lists all work orders completed during the period December 2019 to October 2020, i.e. all but the first month of the audit period. The relative PM (preventative maintenance task number) and Job Plan number are recorded together with the date upon which the work order was completed.

Records are reflective of details observed whilst reviewing Maximo online. For example, PM100278 and PM200279 are ‘Monthly MBR Assembly Inspection’ (Job Plan JP100023) for Train 1 and Train 2 respectively. Job Plans JP100024 and JP100035 relate to 3-monthly and 6-monthly MBR Assembly Inspections; the *Maintenance Records List* indicates that all inspections were undertaken.

Both the *Maintenance Records List* and the online record indicate that remedial maintenance to ‘Replace leaking nipple on PW meter cock Lot 4088’ was undertaken under work order WO1009203 on 19 June 2020. A corrective maintenance activity ‘WAS Tank – Rectify fallen central tanks support’ was completed under work order WO1009664 on 3 July 2020.

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 and maintained in accordance with the arrangements documented in the *Infrastructure Operating Plan*.

### ***Instrument Calibrations:***

Catherine Hill Bay Water calibrates instruments in accordance with manufacturers’ recommendations and standards. Records of calibration are recorded in the *Process Equipment Calibration Register*,<sup>62</sup> this includes details of the instrument, the person who undertook the calibration, the readings of both the reference standard and instrument, the variation between the readings, whether calibration has passed (is within accuracy limits) and any comments. Records are also collated into the *CHB Calibration Register*,<sup>63</sup> which provides a summary record of all calibrations that have been undertaken.

Instrument calibrations are now managed via Maximo. A list of calibration works orders,<sup>64</sup> covering all Catherine Hill Bay Water instruments, was provided as evidence.

Review of *Process Equipment Calibration Register* as at October 2020<sup>65</sup> revealed that (for example) the inline MBR turbidity meters for both trains (Instruments AIT-1051 and AIT-2051) had been calibrated monthly during 2020. Records in the *CHB Calibration Register* also indicate that these instruments were calibrated throughout the audit period.

A check was also made to ensure that reference standards used for calibration purposes were within their ‘use-by’ dates. This check revealed that standards are due to expire as follows:

- Free chlorine – August 2022;
- CCP Turbidity – December 2021; and
- pH buffers – April 2022.

<sup>60</sup> Document: *PM Summary Report.pdf*.

<sup>61</sup> Document: *WO Maintenance Records List 122019-102020.pdf*.

<sup>62</sup> Document: *IMS-CONT-F-1695-SW - Process Equipment Calibration Register.pdf* (blank forms).

<sup>63</sup> MS Excel workbook: *IMS-CONT-G-1671-SW - CHB Calibration Register.xlsx*.

<sup>64</sup> Document: *Maximo Work Order List – Calibration.pdf*.

<sup>65</sup> Document: *Calibration Forms\_Example 202010.pdf*.

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### ***Capability and Training:***

Catherine Hill Bay Water demonstrated that appropriate training of personnel engaged in operation and maintenance of the schemes had been maintained during the audit period.

QSE training/competency is managed using a DITA compliance management system, which is also used in respect of QSE compliance obligations. All training/competency requirements are identified and records maintained for each staff member; compliance requirements are also identified and records maintained for the Catherine Hill Bay Water site. Automated monthly emails are used to issue “Training near due date” notices to relevant managers.

The record for Tim Sazdanoff was provided as an example.<sup>66</sup> This indicated that (for example) he completed Confined Space training in July 2019; renewal is due in July 2021. The site compliance record<sup>67</sup> includes records in respect of (for example) backflow prevention testing and various instrument calibrations.

Other training records provided included:

- Record of training in respect of the Water Quality Monitoring Procedure undertaken by the Water and Wastewater Operators (Ronnie Paine and Tim Sazdanoff) on 12 March 2020;
- Records indicating that Tim Sazdanoff and Ronnie Paine had undertaken in-house Environmental Incidents training on 10 January 2020 and 14 January 2020 respectively;<sup>68</sup>
- Record of an Emergency Evacuation Drill (Fire in Chemical Storage) undertaken on 14 August 2020;<sup>69</sup> and
- Records of Toolbox Meetings held on 20 January 2020, 28 February 2020, 1 July 2020 and 27 August 2020.<sup>70</sup>

Catherine Hill Bay Water also maintains a contractor compliance register, which is used to record that contractors hold required certification/accreditation, insurance cover, etc.; the record for Tasman Tanks was provided as an example.<sup>71</sup> All contractors are inducted before commencing work on site,<sup>72</sup> and Catherine Hill Bay Water checks to ensure that all compliance and safety requirements are in place.<sup>73</sup>

### ***Continual Improvement:***

To demonstrate its commitment to continuous improvement, Catherine Hill Bay Water provided copies of:

- *Continuous Improvement Request Register*<sup>74</sup> – this register is used to capture non-critical continuous improvement measures in relation to system documentation for future implementation at the next standard document review cycle. Some fifteen improvement actions were identified during the audit period, with six still to be closed at the time of the audit.
- *Change Request Register – Maximo*<sup>75</sup> – this register is to raise and capture non-critical continuous improvement measures and change requests for review and implementation in the Maximo Asset Management System. Nine change requests were recorded during the audit period, which is consistent with the relatively recent implementation of the Maximo CMMS. All change requests had been addressed at the time of the audit.

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<sup>66</sup> Document: *User\_competencies\_Tim Sazdanoff.pdf*.

<sup>67</sup> Document: *DITA Management System - Compliance Record.pdf*.

<sup>68</sup> Documents: *Certificate - Environmental Incident Training\_Tim S.pdf* and *Certificate - Environmental Incident Training\_Ronnie.pdf*.

<sup>69</sup> Document: *Emergency Evacuation drill 20200814.pdf*.

<sup>70</sup> Documents: *Toolbox Meeting – 202001.pdf*, *Toolbox Meeting – 202002.pdf*, *Toolbox Meeting – 202007.pdf* and *Toolbox Meeting – 202008.pdf*.

<sup>71</sup> Document: *Contractor Compliance\_Tasman Tanks.png*.

<sup>72</sup> Documents: *Site Induction Checklist\_On Call Lifting.pdf* and *Site Induction Checklist\_Tasman Tanks.pdf*.

<sup>73</sup> Documents: *Subcontractor Monitoring Checklist - Example 20200617.pdf* and *Subcontractor Monitoring Checklist - Example 20200918.pdf*.

<sup>74</sup> MS Excel workbook, *IMS-CONT-G-1698-SW - Continuous Improvement Request Register.xlsx*.

<sup>75</sup> MS Excel workbook, *IMS-CONT-G-1683-SW - Change Request Register – Maximo.xlsx*.

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Catherine Hill Bay Water also provided a copy of its *Complaints Register*,<sup>76</sup> in which details of all complaints and the action taken in response are recorded. A total of seven (7) complaints and enquiries were received during the audit period. These related predominantly to sewerage services, but in most cases did not have asset management implications.

***Regular Review of Infrastructure Operating Plan:***

Catherine Hill Bay Water demonstrated that the *Infrastructure Operating Plan* has been kept under regular review. The “Document Status” table indicates that the document has undergone several revisions during its development phase and subsequently. It was updated to Version 2.2 in September 2019 (just prior to the audit period) and again to Version 2.3 in September 2020 (towards the end of the audit period).

Review of the *Document Control Register*<sup>77</sup> indicates that the current version of the *Infrastructure Operating Plan* is Version 2.3, which was issued following review in September 2020; this is consistent with the “Document Status” record in the *Plan*.

On this basis, it is apparent that the *Infrastructure Operating Plan* has been kept under regular review.

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**Recommendations**

There are no recommendations in respect of this obligation.

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**Opportunities for improvement**

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

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<sup>76</sup> MS Excel workbook, *Solo Water Customer Feedback - Complaints Register.xlsx*.

<sup>77</sup> Document: *IMS-DOCC-G-2414 - Master Register – SW.pdf*.





**Figure D.1.1** Colour coded valve covers – surround coloured lilac for recycled water and green for pressure sewer.



**Figure D.1.2** Colour coded valve and hydrant covers –covers and surrounds coloured yellow for drinking water.






**Figure D.1.3** Property connection installations with lilac sleeved risers and meter on recycled water connections. Note that valves are sealed and tagged to prevent use until authorised by Catherine Hill Bay Water.



**Figure D.3.4** Pressure sewer unit including pump well (back), discharge valve box (boundary kit), electrical/control cubicle, inspection shaft cover and property connection riser.



**Table D.2 Sewerage Infrastructure – WIC Reg Sched 1 cl.14(4)(a)**

Clause	Requirement	Compliance Grade
<b>WIC Reg Sched 1 cl.14(4)(a)</b>	If the Minister or IPART so demands, or if any significant change is made to its sewage management plan, the licensee must provide the Minister or IPART with a report, prepared by an approved auditor in such manner and form as the Minister or IPART may direct, as to the adequacy of the plan.	 <b>No Requirement</b>
<b>Risk</b>	<b>Target for Full Compliance</b>	
This requirement reflects a high operational risk. It is essential that the adequacy of significant changes to the <i>Sewage Management Plan</i> is assessed, and that IPART (as the Regulator) is advised as to the adequacy of the amended Plan.	Evidence that, in the event of a significant change to the <i>Sewage Management Plan</i> , the Licensee has provided a copy of the amended Plan and a report as to the adequacy of the amended Plan and the condition of the infrastructure to IPART.	
<b>Evidence sighted</b>	<ul style="list-style-type: none"> <li>Interviews with Catherine Hill Bay Water personnel on 11 February 2021.</li> <li>Solo Water, <i>Catherine Hill Bay Water Utility; Sewage Management Plan; Stage 2</i> (reference: IMS-ENVM-B-3728-SW) (Revision 2.2), 20 September 2019.</li> </ul>	
<b>Summary of reasons for grade</b>	<p>The auditor is not aware of either the Minister or IPART having demanded that the Licensee provide them with a report in respect of the <i>Sewage Management Plan</i> pursuant to this obligation during the audit period. Accordingly, there was “No requirement” for compliance on that basis.</p> <p>Furthermore, no changes were made to the <i>Sewage Management Plan</i> during the audit period. Accordingly, there was again “No Requirement” for compliance with this obligation.</p>	
<b>Discussion and notes</b>	<p>The auditor is not aware of either the Minister or IPART having demanded that the Licensee provide them with a report, prepared by an approved auditor, in respect of the <i>Sewage Management Plan</i> during the audit period.</p> <p>There were no changes made to the <i>Sewage Management Plan</i> during the audit period; accordingly, there was no requirement for compliance with this obligation in response to any significant change.</p>	
<b>Recommendations</b>	There are no recommendations in respect of this obligation.	
<b>Opportunities for improvement</b>	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.	<div> Compliant</div>
Risk	Target for Full Compliance	
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.	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		
<ul style="list-style-type: none"><li>Interviews with Catherine Hill Bay Water personnel on 11 February 2021.</li><li>Site inspection of infrastructure at Catherine Hill Bay on 11 February 2021.</li><li>NSW Government, <i>Network Operator's Licence No: 16_035</i> issued to Catherine Hill Bay Water Utility on 22 March 2016.</li><li>Planit Consulting, <i>Review of Environmental Factors; Sewage Treatment Plant &amp; Sewage Reticulation Network; Catherine Hill Bay Scheme Stages 1 &amp; 2</i> (Revision E), 29 July 2015.</li><li>Planit Consulting, <i>Construction and Environment Management Plan; Wastewater Treatment Plant and Reticulation Network; Catherine Hill Bay Scheme Stages 1&amp;2; 85 &amp; 95 Flowers Drive, 6 Keene Street &amp; 12 Montefiore Street, Catherine Hill Bay</i> (Version 3), June 2016.</li><li>Solo Water, <i>Catherine Hill Bay Water Utility; Operation Environmental Management Plan; Stage 2</i> (reference: IMS-ENVM-B-3726-SSW) (Revision 2.1), 21 November 2020.</li><li>Photographs: 20200624_150200.jpg, 20200702_082510.jpg, 20200820_094807.jpg and 20201029_123335.jpg.</li><li>Document: 25022021160652-0001.pdf (scan of Daracon <i>Environmental Protection Reports</i> dated 20 February 2020, 28 April 2020, 19 May 2020 and 26 May 2020).</li></ul>		
Summary of reasons for grade		
<p>Catherine Hill Bay Water demonstrated that it continued to implement environmental mitigation measures substantially consistent with the environmental risk mitigation measures identified in the <i>Review of Environmental Factors</i> (REF) as they relate to both construction activities and the subsequent operation and maintenance of the sewerage and recycled water infrastructure, i.e. in carrying out any activities authorised under clause S1 and S3 of this Licence. The manner in which these mitigation measures are to be implemented is documented in the <i>Construction Environmental Management Plan</i> and the <i>Operational Environmental Management Plant</i> respectively.</p> <p>Accordingly, Catherine Hill Bay Water is assessed as being compliant with this obligation.</p>		

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## Discussion and notes

Authorised activities to which this obligation applies include:<sup>78</sup>

- Clause S1 – construction, operation and maintenance of Water Industry Infrastructure for the purposes of supplying non-potable water; such infrastructure may include a treatment plant for the production of non-potable water, a reticulation network for non-potable water and other associated infrastructure.
- Clause S3 – construction, operation and maintenance of Water Industry Infrastructure for the purposes of providing sewerage services; such infrastructure may include a treatment plant for the treatment of sewage, a reticulation network for the collection of sewage and other associated infrastructure.

The REF<sup>79,80</sup> identifies mitigation and control measures in relation to soils, odour, traffic, noise, ground water, surface water, flora and fauna, Aboriginal heritage, visual amenity, bushfire, non-Aboriginal heritage and waste. It also identifies the management plans that were to be prepared in respect of environmental management and ensuring public health, which include:

- Environmental Management:
  - Construction Environmental Management Plan;
  - Operation Environmental Management Plan;
  - Emergency Response Plan; and
  - Recycled Water Management Plan.
- Public Health:
  - Recycled Water Management Plan; and
  - Drinking Water Quality Management Plan.

Of these management plans, the *Construction Environmental Management Plan* (CEMP)<sup>81</sup> and *Operation Environmental Management Plan* (OEMP)<sup>82</sup> are predominant in respect of the implementation of environmental mitigation measures. In each case they document the arrangements in respect of the implementation, monitoring and review of the relevant mitigation measures.

During the audit period, Catherine Hill Bay Water undertook construction work to extend the recycled water distribution/reticulation network and sewage collection network (as well as the drinking water network) to service Stages 6 and 7 of the Catherine Hill Bay “Beaches” estate development. Although construction had been completed at the time of the audit site inspection, evidence was sought to demonstrate that relevant mitigations consistent with the REF, and as documented in the CEMP, had been implemented during construction.

Catherine Hill Bay Water provided records including:

- Several photographs showing silt barriers installed on flow paths along roadways and at side entry pits;<sup>83</sup>
- A photograph of a sediment pond;<sup>84</sup> and
- A sample of *Environmental Inspection Reports* prepared by the construction contractor, Daracon.<sup>85</sup>

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<sup>78</sup> NSW Government, *Network Operator's Licence No: 16\_035* issued to Catherine Hill Bay Water Utility on 22 March 2016.

<sup>79</sup> Planit Consulting, *Review of Environmental Factors; Sewage Treatment Plant & Sewage Reticulation Network; Catherine Hill Bay Scheme Stages 1 & 2* (Revision E), 29 July 2015, section 9.1.

<sup>80</sup> Whilst the Licence references the REF “prepared for IPART by Planet Consulting Pty Ltd August 2016”, the latest version is Revision E dated 29 July 2016.

<sup>81</sup> Planit Consulting, *Construction and Environment Management Plan; Wastewater Treatment Plant and Reticulation Network; Catherine Hill Bay Scheme Stages 1 & 2; 85 & 95 Flowers Drive, 6 Keene Street & 12 Montefiore Street, Catherine Hill Bay* (Version 3), June 2016.

<sup>82</sup> Solo Water, *Catherine Hill Bay Water Utility; Operation Environmental Management Plan; Stage 2* (Revision 2.1), 21 November 2020.

<sup>83</sup> Photographs: 20200624\_150200.jpg, 20200820\_094807.jpg and 20201029\_123335.jpg.

<sup>84</sup> Photographs: 20200702\_082510.jpg.

Erosion and sediment control measures included (for example) sediment fencing, the use of V-drains with rock checks, silt traps comprising bags on road to direct flow and restrain sediment (refer Figures E.1.1 and E.1.2), maintaining clean roads and stockpile management. The *Inspection Reports* record (for example) the removal of silt from traps and that stockpiles were appropriately sealed-off. All stormwater runoff from the construction site passed through a sediment pond (refer Figure E.1.2); the *Inspection Reports* indicate that flocculent was periodically added to aid silt deposition.

As detailed in Table E.2, an assessment has been undertaken as part of this audit as to whether Catherine Hill Bay Water had operated and maintained the Relevant Recycling Infrastructure consistently with the OEMP during the audit period. This assessment found that mitigation measures in respect of odour management, noise minimisation, chemicals management, visual amenity, bushfire, waste management, public health and environmental (water quality) monitoring and reporting continue to be implemented.

On the basis of these observations, it is apparent that Catherine Hill Bay Water continued to implement environmental mitigation measures substantially consistent with the environmental risk mitigation measures identified in the REF during the audit period.

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### Recommendations

There are no recommendations in respect of this obligation.

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### Opportunities for improvement

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

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Figure E.1.1 Silt trap at side entry pit; note silt deposition behind barriers.

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<sup>85</sup> Document: 25022021160652-0001.pdf (scan of Daracon *Environmental Protection Reports* dated 20 February 2020, 28 April 2020, 19 May 2020 and 26 May 2020).






**Figure E.1.2** Sand bagging along roadway to ensure surface water is directed to gutter to prevent erosion of pavement formation.



**Figure E.1.3** All surface water discharge from the site passes through a sediment pond.



**Table E.2**      **Schedule A to the Network Operator's Licence – clause A5**

Clause	Requirement	Compliance Grade
Network Operator's Licence cl.A5	Licensee must operate and maintain the Relevant Recycling Infrastructure consistently with the OEMP.	<div> Compliant</div>
Risk	Target for Full Compliance	
Failure to implement appropriate mitigation measures represents high risk that the environment may not be appropriately protected during operation and maintenance of the infrastructure.	Evidence that the Licensee has operated and maintained the Relevant Recycling Infrastructure consistently with the OEMP.	
Evidence sighted		
<ul style="list-style-type: none"><li>Interviews with Catherine Hill Bay Water personnel on 11 February 2021.</li><li>Site inspection of infrastructure at Catherine Hill Bay on 11 February 2021.</li><li>Solo Water, <i>Catherine Hill Bay Water Utility; Operation Environmental Management Plan; Stage 2</i> (reference: IMS-ENVM-B-3726-SSW) (Revision 2.1), 21 November 2020.</li><li>Planit Consulting, <i>Review of Environmental Factors; Sewage Treatment Plant &amp; Sewage Reticulation Network; Catherine Hill Bay Scheme Stages 1 &amp; 2</i> (Revision E), 29 July 2015.</li><li>MS Excel workbook: <i>Solo Water Customer Feedback - Complaints Register.xlsx</i>.</li><li>Solo, <i>Field Asset Maintenance Procedure</i> (Reference: IMS-OPER-D-8326) (Issue No: 1.0), June 2019.</li><li>Solo, <i>Field Asset Maintenance Checklist</i> dated 12 August 2020 for Work Order No: W01010255.</li><li>Solo, <i>Field Asset Maintenance Checklist</i> dated 21 September 2020 for Work Order No: W01010896.</li><li>MS Excel workbook: <i>Solo Water Customer Feedback - Complaints Register.xlsx</i>.</li><li>Document: <i>IMS-COMP-G-0843 - Hazard Log Sheet Register.pdf</i> (extract from Register).</li><li>Solo Water/CHBW Utility, <i>Home Owner's Manual</i> (reference: IMS-OPER-8312-SW) (Issue No: 1.2), October 2020, available at: <a href="http://www.solowater.com.au/wp-content/uploads/2020/11/IMS-OPER-C-8312-SW-Solo-Water-Home-Owner-Manual.pdf">http://www.solowater.com.au/wp-content/uploads/2020/11/IMS-OPER-C-8312-SW-Solo-Water-Home-Owner-Manual.pdf</a>.</li><li>Solo Water, <i>Catherine Hill Bay Water Utility; Recycled Water Quality Management Plan; Stage 2</i> (reference: IMS-ENVM-B-3727-SW) (Revision 1.3), 17 September 2020.</li></ul>		
Summary of reasons for grade		
<p>Catherine Hill Bay Water demonstrated that it had operated the Relevant Recycling Infrastructure, i.e. the sewerage and recycled water infrastructure, consistently with the <i>Operational Environmental Management Plan</i> (OEMP) during the audit period. Review of a sample of potential environmental impacts/mitigation requirements revealed that they had continued to be implemented in accordance with the documented requirements.</p> <p>Accordingly, it is assessed that Catherine Hill Bay Water has demonstrated compliance with this obligation.</p>		

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## Discussion and notes

The *Operational Environmental Management Plan* (OEMP)<sup>86</sup> outlines Catherine Hill Bay Water's response to the mitigation measures (requirements) detailed in the *Review of Environmental Factors* (REF)<sup>87</sup> as they relate to operation and maintenance of the sewerage and recycled water infrastructure. More specifically, it outlines the manner in which each relevant mitigation requirement will be implemented.

Assessment as to whether the Relevant Recycling Infrastructure had been operated and maintained consistently with the OEMP is based on observations and records related to a sample of potential environmental impacts/mitigation requirements, as follows:

- **Odour management:**

The OEMP indicates that, amongst other odour mitigation measures, all Membrane Bioreactor (MBR) biological tanks are fully enclosed and passively ventilated through activated carbon filters. The audit site inspection revealed that the odour management system within the treatment plant remained in place and in good condition. Inspection of MBR process tanks (hatches opened) revealed no odour, an indication that both the treatment processes and odour management facilities were working effectively.

The OEMP also notes that Catherine Hill Bay Water has a 24 hour customer service call centre for fielding all odour and other complaints. Review of the *Complaints Register*<sup>88</sup> revealed no complaints related to odour either during the audit period or otherwise.

- **Noise minimisation:**

The OEMP indicates that, amongst other noise mitigation measures:

- All sewage pumps in the pressure sewer network are to be submersible pumps located below ground level in an enclosed chamber – the audit site inspections for this and other previous audits have revealed that sewage pumps are consistent with this requirement. No noise was detected during the site inspection for the current audit.
- The Membrane Bioreactor and Advanced Water Treatment Plant are fully enclosed within the Sewage Treatment Plant building – all process equipment is accommodated within the building. No noise was detected from outside the building at the time of the audit; there was minimal (if any) noise detected within the building. Where appropriate, equipment (e.g. blowers) was fitted with noise enclosures as is also required pursuant to the OEMP.
- All planned construction and routine maintenance works will be undertaken during standard permissible hours – working hours are identified as 6:30am to 5:00pm; see further discussion below regarding a related complaint.
- All emergency works to be undertaken to minimise noise impacts on residents – work is undertaken in accordance with the *Field Asset Maintenance Procedure*,<sup>89</sup> which requires an assessment of hazards/impacts prior to commencing work. Catherine Hill Bay Water provided sample completed *Field Asset Maintenance Checklists*,<sup>90,91</sup> which demonstrated that hazard/impact assessments had been undertaken; noise was not identified as a hazard/safety concern in either of these cases, which was appropriate given the type of work being undertaken.

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<sup>86</sup> Solo Water, *Catherine Hill Bay Water Utility; Operation Environmental Management Plan; Stage 2* (reference: IMS-ENVM-B-3726-SSW) (Revision 2.1), 21 November 2020.

<sup>87</sup> Planit Consulting, *Review of Environmental Factors; Sewage Treatment Plant & Sewage Reticulation Network; Catherine Hill Bay Scheme Stages 1 & 2* (Revision E), 29 July 2015, section 9.1.

<sup>88</sup> MS Excel workbook: *Solo Water Customer Feedback - Complaints Register.xlsx*.

<sup>89</sup> Solo, *Field Asset Maintenance Procedure* (Reference: IMS-OPER-D-8326) (Issue No: 1.0), June 2019.

<sup>90</sup> Solo, *Field Asset Maintenance Checklist* dated 12 August 2020 for Work Order No: W01010255.

<sup>91</sup> Solo, *Field Asset Maintenance Checklist* dated 21 September 2020 for Work Order No: W01010896.

The OEMP also notes that Catherine Hill Bay Water has a 24 hour customer service call centre for fielding all noise and other complaints. Review of the *Complaints Register*<sup>92</sup> revealed a noise complaint related to the timing of truck movements in and out of the treatment plant site had been lodged on 14 April 2020. Details of Catherine Hill Bay Water's action in response to the complaint are recorded; although tanker movements were within the prescribed operating timeframe, they have now been instructed not to commence operation prior to 7:00am.

- Chemicals management:

The OEMP sets out requirements in respect of chemicals management. During the audit site inspection, it was noted that the required arrangements are in place, including (for example):

- Chemicals are appropriately stored in bunded areas within the treatment plant building;
- The contents of all chemicals storage containers are clearly identified; and
- Spill kits are in place.

Chemical deliveries are appropriately monitored, as evidenced by the identification of a potential hazard following a delivery of Citric Acid and Sodium Hypochlorite on 23 August 2020.<sup>93</sup> As detailed in the completed *Hazard Log Sheet*,<sup>94</sup> Catherine Hill Bay Water was concerned that the chemicals had not been segregated for transport purposes, having been delivered on the same pallet. Follow-up with the chemical supply company revealed that the *Australian Dangerous Goods Code* had not been compromised; however, in view of Catherine Hill Bay Water's concerns, it has implemented a practice of placing completely separate orders for these chemicals so that they are not co-delivered.

- Visual amenity:

The OEMP identifies that buffer planting is to be provided around the treatment plant site to enhance visual amenity. Such planting is in place and growth has now been such that visual screening of the treatment plant facility is well advanced.

- Bushfire:

The OEMP requires a sprinkler system to be installed between the built structures and bushfire threat as part of the bushfire mitigation measures. It was noted that a sprinkler system remains in place along the west boundary of the treatment plant site where there is adjacent bushland.

- Public health:

The OEMP requires Catherine Hill Bay Water to develop an information package that identifies (amongst other matters) home owner obligations relating to pressure sewer, water use, waste disposal, incident reporting and appropriate recycled water usage protocols. The *Home Owner Manual*, which is available on the Solo Water website,<sup>95</sup> provides the requisite information.

- Environmental (water quality) monitoring and reporting:

The OEMP requires that Catherine Hill Bay Water undertakes operational water quality monitoring (including verification monitoring). As reported in Table A.1 and Table B.2, water quality monitoring has been undertaken throughout the audit period in accordance with the requirements set out in the *Recycled Water Quality Management Plan*<sup>96</sup> and other supporting documentation.

On the basis of these sample observations, it is apparent that Catherine Hill Bay Water continued to operate and maintain the Relevant Recycling Infrastructure consistently with the OEMP during the audit period.

<sup>92</sup> MS Excel workbook: *Solo Water Customer Feedback - Complaints Register.xlsx*.

<sup>93</sup> Document: *IMS-COMP-G-0843 - Hazard Log Sheet Register.pdf* (extract from Register).

<sup>94</sup> Document: *Hazard log Sheet - 11214\_Completed.pdf*.

<sup>95</sup> Solo Water/CHBW Utility, *Home Owner's Manual* (reference: IMS-OPER-8312-SW) (Issue No: 1.2), October 2020, available at: <http://www.solowater.com.au/wp-content/uploads/2020/11/IMS-OPER-C-8312-SW-Solo-Water-Home-Owner-Manual.pdf>.

<sup>96</sup> *Recycled Water Quality Management Plan*, sections 2.4 and 2.5.

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### **Recommendations**

There are no recommendations in respect of this obligation.


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### **Opportunities for improvement**

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

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**Table E.3 Schedule A to the Network Operator's Licence – clause A6**

Clause	Requirement	Compliance Grade
<b>Network Operator's Licence cl.A6</b>	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.	<div> <b>No Requirement</b></div>
<b>Risk</b>	<b>Target for Full Compliance</b>	
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.	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.	
<b>Evidence sighted</b>		
<ul style="list-style-type: none"><li>Interviews with Catherine Hill Bay Water personnel on 11 February 2021.</li><li>Site inspection of infrastructure at Catherine Hill Bay on 11 February 2021.</li><li>Planit Consulting, <i>Review of Environmental Factors; Sewage Treatment Plant &amp; Sewage Reticulation Network; Catherine Hill Bay Scheme Stages 1 &amp; 2</i> (Revision E), 29 July 2015.</li><li>Planit Consulting, <i>Construction and Environment Management Plan; Wastewater Treatment Plant and Reticulation Network; Catherine Hill Bay Scheme Stages 1&amp;2; 85 &amp; 95 Flowers Drive, 6 Keene Street &amp; 12 Montefiore Street, Catherine Hill Bay</i> (Version 3), June 2016.</li><li>Solo Water, <i>Catherine Hill Bay Water Utility; Operation Environmental Management Plan; Stage 2</i> (reference: IMS-ENVM-B-3726-SSW) (Revision 2.1), 21 November 2020.</li><li>NSW Government, <i>Network Operator's Licence No: 16_035</i> (as varied on 1 November 2020).</li></ul>		
<b>Summary of reasons for grade</b>		
<p>Catherine Hill Bay Water advised that it had not varied, or proposed to vary, the environmental mitigation measures identified in the <i>Review of Environmental Factors</i> (REF) during the audit period. No evidence to the contrary was identified during the audit.</p> <p>It is noted that Catherine Hill Bay Water did prepare and submit additional REFs to IPART in support of an application to vary its Licence; however, this did not result in any variation to the mitigation measures currently being implemented.</p> <p>Accordingly, there has been “No Requirement” for Catherine Hill Bay Water to notify IPART or obtain IPART’s approval pursuant to this obligation.</p>		
<b>Discussion and notes</b>		
<p>Catherine Hill Bay Water advised that it had not varied, or proposed to vary, the environmental mitigation measures identified in the <i>Review of Environmental Factors</i> (REF)<sup>97</sup> during the audit period.</p> <p>Catherine Hill Bay Water did, however, note that it had prepared:</p> <ul style="list-style-type: none"><li>an addendum to the REF,<sup>98</sup> which reflects changes to the treatment plant. specifically removal of the reverse osmosis reject evaporation ponds, which are now redundant to design;<sup>99</sup> and</li></ul>		

<sup>97</sup> Planit Consulting, *Review of Environmental Factors; Sewage Treatment Plant & Sewage Reticulation Network; Catherine Hill Bay Scheme Stages 1 & 2* (Revision E), 29 July 2015.

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- a new REF<sup>100</sup> in relation to a proposed Surplus Recycled Water Main.

Both the addendum REF and the new REF were submitted to IPART in support of an application to vary the Licence. These REFs, together with the original REF, are all referenced in the varied Licence,<sup>101</sup> which was granted subsequent to the audit period.

The environmental mitigation measures identified in the original REF and the arrangements for their implementation are documented in the relevant *Construction Environmental Management Plan* (CEMP)<sup>102</sup> and *Operation Environmental Management Plan* (OEMP).<sup>103</sup> Neither of these management plans was revised during the audit period; accordingly, there is no indication that there have been any proposed or actual variances to the documented environmental mitigation measures. The addendum/new REFs did not result in any variation to the mitigation measures currently being implemented.

As reported in Table E.1 and Table E.2, there was evidence that the mitigation measures, have been and (where applicable) continue to be implemented. There was no evidence to indicate that the mitigation measures being implemented during the audit had been varied, which is consistent with the advice from Catherine Hill Bay Water.

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

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## Recommendations

There are no recommendations in respect of this obligation.

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## Opportunities for improvement

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

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<sup>98</sup> ADW Johnson, *Addendum to Review of Environmental Factors, Amendments to Existing Recycled Water Treatment Plant; Catherine Hill Bay* (Version F), 9 March 2020 (not sighted).

<sup>99</sup> Reverse Osmosis was originally planned as part of the advanced water treatment process; the original REF was prepared on that basis.

<sup>100</sup> ADW Johnson, *Review of Environmental Factors, Surplus Recycled Water Transfer Main related to Existing Recycled Water Treatment Plant; Catherine Hill Bay* (Version A), 11 March 2020 (not sighted).

<sup>101</sup> NSW Government, *Network Operator's Licence No: 16\_035* (as varied on 1 November 2020).

<sup>102</sup> Planit Consulting, *Construction and Environment Management Plan; Wastewater Treatment Plant and Reticulation Network; Catherine Hill Bay Scheme Stages 1 & 2; 85 & 95 Flowers Drive, 6 Keene Street & 12 Montefiore Street, Catherine Hill Bay* (Version 3), June 2016.

<sup>103</sup> Solo Water, *Catherine Hill Bay Water Utility; Operation Environmental Management Plan; Stage 2* (Revision 2.0), 10 October 2018.


## **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 B9**

Clause	Requirement	Compliance Grade
<b>Network Operator's Licence cl.B9</b>	Whenever the Licensee makes a significant amendment to a Plan, the Licensee must provide a copy of the amended Plan to IPART at the same time that it provides a copy to the approved auditor engaged to prepare a report as to the adequacy of the amended Plan, as required under the Regulation.	 <b>No Requirement</b>
<b>Risk</b>	<b>Target for Full Compliance</b>	
This requirement reflects a minimal operational risk. Whilst it is essential that the adequacy of significant changes to a Plan is assessed, failure to provide a copy of the amended Plan to IPART presents a lesser risk.		Evidence that, in the event of a significant change to a Plan(s), the Licensee has provided a copy of the amended Plan(s) to IPART at the same time as it provides a copy to an approved auditor engaged to provide a report as to the adequacy of the amended Plan.
<b>Evidence sighted</b>		
<ul style="list-style-type: none"> <li>▪ Interviews with Catherine Hill Bay Water personnel on 11 February 2021.</li> <li>• Solo Water, <i>Catherine Hill Bay Water Utility; Infrastructure Operating Plan; Stage 2</i> (reference: IMS-OPER-B-8297-SW), including: <ul style="list-style-type: none"> <li>◦ Revision 2.2, 6 September 2019; and</li> <li>◦ Revision 2.3, 14 September 2020.</li> </ul> </li> <li>▪ 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.</li> <li>▪ Solo Water, <i>Catherine Hill Bay Water Utility; Recycled Water Quality Management Plan; Stage 2</i> (reference: IMS-ENVM-B-3727-SW), including: <ul style="list-style-type: none"> <li>◦ Revision 1.2, 20 September 2019; and</li> <li>◦ Revision 1.3, 17 September 2020.</li> </ul> </li> <li>▪ Solo Water, <i>Catherine Hill Bay Water Utility; Sewage Management Plan; Stage 2</i> (reference: IMS-ENVM-B-3728-SW) (Revision 2.2), 20 September 2019.</li> </ul>		
<b>Summary of reasons for grade</b>		
Catherine Hill Bay Water advised (and demonstrated) that there were no significant changes to the management plans during the audit period. Accordingly, there was “No Requirement” to provide copies of any amended plans to IPART or to engage an auditor to prepare a report as to the adequacy of the amended plans pursuant to this obligation during the audit period.		
<b>Discussion and notes</b>		
As reported in Section 2.2 and Table B.1, Table B.3 and Table D.2 (as applicable), management plans in place during the audit period were as follows:		
<ul style="list-style-type: none"> <li>▪ <i>Infrastructure Operating Plan</i> – Revision 2.2 (dated 6 September 2019) and Revision 2.3 (dated 14 September 2020);</li> <li>▪ <i>Drinking Water Quality Management Plan</i> – Revision 2.1 (dated 20 September 2019);</li> <li>▪ <i>Recycled Water Quality Management Plan</i> – Revision 1.2 (dated 20 September 2019) and Revision 1.3 (dated 17 September 2020); and</li> </ul>		

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- *Sewage Management Plan* – Revision 2.2 (dated 20 September 2019).

Both the *Infrastructure Operating Plan* and the *Recycled Water Quality Management Plan* were updated during the audit period; however, as reported in detail in Table B.1 and Table B.3 respectively, the changes were not considered to be significant. Accordingly, there was no need to engage an auditor to prepare a report as to the adequacy of the amended plans.

It is noted that copies of the most recent management plans were provided to IPART at the time of submitting the *Audit Proposal* for this audit; copies of updated plans had not previously been provided to IPART on the basis that the changes were not significant. As the requirement of this obligation is to provide a copy of any amended plan to IPART if it makes a significant amendment to a management plan, there was no requirement to do so during the audit period.

Notwithstanding, as an opportunity for improvement (**OFI-CHB-2020.04**), it is suggested that Catherine Hill Bay Water provides copies of management plans to IPART at the time any revisions are made, irrespective of the materiality of the change.

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## Recommendations

There are no recommendations in respect of this obligation.


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## Opportunities for improvement

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

- **OFI-CHB-2020.04:** It is suggested that Catherine Hill Bay Water provides copies of management plans to IPART at the time any revisions are made, irrespective of the materiality of the change.
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**Table F.2**      **Schedule B to the Network Operator's Licence – clause B12**

Clause	Requirement	Compliance Grade
<b>Network Operator's Licence cl.B12</b>	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.	<div> <b>No Requirement</b></div>
<b>Risk</b>	<b>Target for Full Compliance</b>	
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.		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.
<b>Evidence sighted</b>		
<ul style="list-style-type: none"><li>Interviews with Catherine Hill Bay Water personnel on 11 February 2021.</li><li>Site inspection of infrastructure at Catherine Hill Bay on 11 February 2021.</li><li>NSW Government, <i>Network Operator's Licence No: 16_035</i> issued to Catherine Hill Bay Water Utility Pty Ltd on 22 March 2016.</li><li><i>Service Agreement; For the Provision of Construction Services, Retail Services and O&amp;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.</li><li>Email dated 23 February 2021 from Catherine Hill Bay Water to Cobbitty Consulting (re: <i>2020 Operational Audit of Catherine Hill Bay Water Schemes</i>).</li></ul>		
<b>Summary of reasons for grade</b>		
The sole “Authorised Person” (Solo Water Pty Ltd) identified in the Licence did not cease, propose to cease or receive notice to cease providing services relating to the activities authorised by this Licence during the audit period. Accordingly, there was “No Requirement” for compliance with this obligation.		
<b>Discussion and notes</b>		
Under clauses S1 (Table 1.1), S2 (Table 2.1) and S3 (Table 3.1) of the Licence, <sup>104</sup> Solo Water Pty Ltd (ACN 160 013 614) is nominated as an “Authorised Person” in respect of all authorised activities, i.e. the supply of non-potable water, the supply of drinking water and the provision of sewerage services respectively. Catherine Hill Bay Water confirmed that there had been no change and that Solo Water (its parent company) had continued in the role of an Authorised person throughout the audit period.		

<sup>104</sup> NSW Government, *Network Operator's Licence No: 16\_035* issued to Catherine Hill Bay Water Utility Pty Ltd on 22 March 2016.

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It is noted that a *Service Agreement*<sup>105</sup> between Catherine Hill Bay Water and Solo Water sets out details of the support arrangements. This shows that services to be provided include Construction Services, Retail Services and O&M Services over an initial 25-year period commencing 5 February 2016. Catherine Hill Bay Water confirmed that the *Service Agreement* remains in place and unchanged.<sup>106</sup>

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### **Recommendations**

There are no recommendations in respect of this obligation.

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### **Opportunities for improvement**

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

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<sup>105</sup> *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.

<sup>106</sup> Email dated 23 February 2021 from Catherine Hill Bay Water to Cobbitty Consulting (re: *2020 Operational Audit of Catherine Hill Bay Water Schemes*).



