



# Aquacell (1 Bligh Street) Non-Potable Water Scheme

## **Operational Audit**

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Independent Pricing and Regulatory Tribunal

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## Document History

### Aquacell (1 Bligh Street) Non-Potable Water Scheme

#### Operational Audit

#### Independent Pricing and Regulatory Tribunal

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# 1. Executive Summary

## 1.1 Auditor Declaration

This report presents the findings of an Operational Audit of Aquacell Pty Ltd's compliance with the requirements of its Network Operator's Licence (Licence No: 09\_003) and the relevant provisions of the *Water Industry Competition (General) Regulation 2008* as they relate to the non-potable (recycled) water scheme at 1 Bligh Street, Sydney.

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, Aquacell Pty Ltd, was found to be operating and maintaining the non-potable (recycled) water scheme at 1 Bligh Street, Sydney in full compliance with the assessed audit criteria (no design or construction activities were undertaken during the audit period). No non-compliances were identified and the infrastructure was found to be operating safely.

## 1.3 Recommendations

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

Seven (7) 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 for Greenfield Schemes; Water Industry Competition Act 2006 (NSW)*, July 2013.

## 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, Aquacell Pty Ltd (Aquacell), 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: 09\_003) for the non-potable (recycled) water scheme at 1 Bligh Street, Sydney.

### 2.2 Licensee's Infrastructure, Systems and Procedures

The infrastructure, systems and procedures subject to audit are those related to the non-potable (recycled) water scheme at 1 Bligh Street, Sydney, a high-rise office building located in the CBD (refer <http://aquacell.com.au/resources/community-information/1-bligh-street/>). The infrastructure comprises principally of a wastewater treatment plant, which is located in the building basement, together with connecting pipework.

Wastewater, which is collected from the office building and sewer mined from Sydney Water's Bondi Ocean Outfall Sewer (BOOS), is treated to a high standard using a multi-stage process that includes Membrane Bioreactor (MBR), Ultra Violet (UV), Reverse Osmosis (RO) and Chlorination technologies. After treatment, the recycled water is stored for distribution throughout the building where it is used for toilet flushing and cooling towers.

Aquacell Pty Ltd (ACN 072 487 015) is the Licensee, holding Network Operator's Licence No: 09\_003. As Licensee, Aquacell is responsible for the ongoing operation and maintenance of the treatment facility in accordance with its Licence Plans including:

- Infrastructure Operating Plan – Aquacell, *Infrastructure Operating Plan; Blackwater Recycling Scheme; 1 Bligh Street, Sydney NSW 2000 (Revision 4)*, 23 June 2015; and
- Water Quality Plan – Aquacell, *1 Bligh Street Recycled Water Scheme; Recycled Water Quality Management Plan (Revision 8)*, 24 June 2015.

### 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 Aquacell (reference D17/7443) dated 18 April 2017. The nominated scope addresses selected requirements of:

- the *Water Industry Competition (General) Regulation 2008*; and
- Network Operator's Licence No: 09\_003.

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<sup>2</sup> IPART, *Audit Guideline for Greenfield Schemes; Water Industry Competition Act 2006 (NSW)*, July 2013.



### 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 for Greenfield Schemes; Water Industry Competition Act 2006 (NSW)*, July 2013 (WIC Act Audit Guidelines).

### 2.3.3 Audit Steps

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

Following approval of an *Audit Proposal* by IPART, an *Audit Agenda* and *Information Request* were sent to both the Licensee and IPART approximately a week prior to the audit fieldwork being undertaken. Audit fieldwork comprising a site inspection of the infrastructure and a desktop audit of relevant documentation/records was undertaken on 6 July 2017. 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 the Licensee for review, 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.

### 2.3.4 Audit Team

The audit was conducted by Jim Sly and the 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.

Aquacell was represented by Justin Taylor, Belinda Layson and Sean Cole-Hunter.<sup>3</sup> IPART representative Serge Detoffi 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**.

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<sup>3</sup> Sean Cole-Hunter, the current plant operator, attended for the site inspection component of the audit only.

**Table 2.1 Audit Compliance Grades**

Compliance Grade	Description
Compliant	Sufficient evidence has been provided in the audit on which to make a judgment on all requirements, and all requirements have been met.
Non-compliant Insignificant	There is a deficiency in compliance, however, it does not adversely impact on the ability of the Licensee to achieve defined objectives or assure controlled processes, products or outcomes.
Non-compliant Significant	There is a deficiency in compliance which adversely impact on the ability of the Licensee to achieve defined objectives or assure controlled processes, products or outcomes.
No Requirement	There was no requirement to comply with the Licence condition during the audit period.

## 2.4 Regulatory Regime

The non-potable (recycled) water scheme at 1 Bligh Street operates in accordance with the provisions of a Network Operator's Licence (Licence No: 09\_003) 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 for Greenfield Schemes*; *Water Industry Competition Act 2006* (NSW), July 2013;
- *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 7**, and are presented in full detail in **Appendices A to E**.

## 3. Low Risk Obligations

### 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* identified as *Low Risk Obligations* (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

No opportunities for improvement have been identified in respect of the of the audited *WTC Regulation* clauses identified as *Low Risk Obligations*.

## 4. General Obligations of a Network Operator

### 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* that address the *General Obligations of a Network Operator* (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 opportunities for improvement have been identified in respect of the audited *WTC Regulation* clauses that address the *General Obligations of a Network Operator*:

- **OFI-2017.01:** It is suggested that Aquacell updates its *Water Quality Plan* (in relation to the notification of incidents) to include contact details for IPART.
- **OFI-2017.02:** It is suggested that Aquacell considers preparing a readily accessible standalone Contact List that can be reviewed and updated at least annually.
- **OFI-2017.03:** It is suggested that Aquacell clearly labels the pipework that delivers treated (recycled) water from the chlorine contact tank to the three remotely located storage tanks.  
*[It is noted that an equivalent OFI was raised in the 2016 Operational Audit].*

## 5. Water Supply Infrastructure

### 5.1 Summary of Findings

There were no identified non-compliances in respect of the audited clauses of the *Water Industry Competition (General) Regulation 2008* related to *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

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

- **OFI-2017.04:** It is suggested that Aquacell identifies the review frequency of the *Infrastructure Operating Plan* within the *Plan*.
- **OFI-2017.05:** It is suggested that Aquacell takes action to align the critical limits for free chlorine between the SCADA system and the *Water Quality Plan* by either adjusting the setting in the SCADA system or updating the *Water Quality Plan*.
- **OFI-2017.06:** It is suggested that Aquacell encourages DEXUS building management to include advice in respect of the presence of recycled water and its permitted uses in the *1 Bligh House Rules* document.
- **OFI-2017.07:** It is suggested that Aquacell implements a mechanism (in conjunction with DEXUS) to ensure that certificates of compliance are obtained in relation to all plumbing works undertaken at 1 Bligh Street, and copies of all certificates of compliance are provided to Aquacell.

*[It is noted that an equivalent OFI was raised in the 2016 Operational Audit].*

## 6. Non-Potable Water Supply 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 *Non-Potable Water Supply 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 *Non-Potable Water Supply Infrastructure*.

## 7. Schedule B 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 B 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 B to the Network Operator's Licence*.





## **Appendix A   Detailed Audit Findings – Low Risk Obligations**

Detailed audit findings in respect of the audited *Low Risk Obligations* are presented in this Appendix.



**Table A.1 Low Risk Obligations – WIC Reg Sched 1 cl.5**

Clause	Requirement	Compliance Grade
WIC Reg Sched 1 cl.5	To the extent that it applies to a network operator, the licensee must comply with any water industry code of conduct, marketing code of conduct and transfer code of conduct.	No Requirement
<hr/>		
Risk	Target for Full Compliance	
This requirement reflects a low operational risk. It is nonetheless important that the Licensee complies with the provisions of relevant codes of conduct.	Evidence that the Licensee has complied with the applicable provisions of any codes of conduct established under the provision of the <i>Regulation</i> .	
<hr/>		
Evidence sighted		
<ul style="list-style-type: none"><li>Interviews with Justin Taylor and Belinda Layson on 6 July 2017.</li><li>Network Operator’s Licence 09_003 issued to Aquacell Pty Ltd (as varied 26 July 2015).</li><li>NSW Department of Finance and Services, <i>Marketing Code of Conduct; Water Industry Competition (General) Regulation 2008</i>, July 2012.</li><li>NSW Department of Finance and Services, <i>Transfer Code of Conduct; Water Industry Competition (General) Regulation 2008</i>, July 2012.</li><li><a href="https://www.metrowater.nsw.gov.au/water-industry-reform/codes-conduct">https://www.metrowater.nsw.gov.au/water-industry-reform/codes-conduct</a></li></ul>		
<hr/>		
Summary of reasons for grade		
Given that there was no <i>Water Industry Code of Conduct</i> in place during the audit period and the provisions of both the <i>Marketing Code of Conduct</i> and <i>Transfer Code of Conduct</i> relate to activities of a licensed retail supplier, it was assessed that there was “No Requirement” for Aquacell (in its role as a Licensed Network Operator) to comply with this obligation during the audit period.		
<hr/>		
Discussion and notes		
Under the provisions of Clauses 25, 26 and 27 of the <i>Water Industry Competition (General) Regulation 2008</i> , the Minister may establish:		
<ul style="list-style-type: none"><li>a <i>Water Industry Code of Conduct</i> – a code conduct in relation to the respective responsibilities of licensed network operators, licensed retail suppliers and public water utilities;</li><li>a <i>Marketing Code of Conduct</i> – a code of conduct for the marketing of water supplies and sewerage services; it sets the standards of conduct for marketers representing licensed retail suppliers and the minimum level of information to be provided to customers; and</li><li>a <i>Transfer Code of Conduct</i> – a code of conduct for the transfer of water supplies or sewerage services to, from or between licensed retail suppliers or public water utilities (or both).</li></ul>		
At the time of audit, a <i>Water Industry Code of Conduct</i> had not been established under the <i>Regulation</i> . In the absence of a <i>Water Industry Code of Conduct</i> , a Network Operator is required, under the provisions of its Network Operator’s Licence (where applicable) to enter into a <i>Licensee’s Code of Conduct</i> ; this requirement is addressed (in part) in Table E.5. As there was no <i>Water Industry Code of Conduct</i> in place during the audit		

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period, there was no requirement for compliance.

Review of the *Marketing Code of Conduct*<sup>4</sup> and *Transfer Code of Conduct*,<sup>5</sup> both of which were gazetted on 27 July 2012,<sup>6</sup> reveals that they both relate to activities of licensed retail suppliers and are not applicable to a licensed network operator. Accordingly, for the purposes of this audit there is no requirement for compliance arising from these instruments.

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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>4</sup> NSW Department of Finance and Services, *Marketing Code of Conduct; Water Industry Competition (General) Regulation 2008*, July 2012.

<sup>5</sup> NSW Department of Finance and Services, *Transfer Code of Conduct; Water Industry Competition (General) Regulation 2008*, July 2012.

<sup>6</sup> <https://www.metrowater.nsw.gov.au/water-industry-reform/codes-conduct>

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

Clause	Requirement	Compliance Grade
<b>WIC Reg Sched 1 cl.1(2)(a), (b), (c), (d) and (e)</b>	[1(2)(a)] A network operator must immediately notify IPART of any incident in the conduct of its activities that threatens, or could threaten, water quality, public health or safety.	No Requirement
	[1(2)(b)] A network operator must immediately notify the Minister administering the <i>Public Health Act 2010 (NSW)</i> and the <i>Public Health Regulation 2012 (NSW)</i> of any incident in the conduct of its activities that threatens, or could threaten, water quality, public health or safety.	
	[1(2)(c)] A network operator must immediately notify the Minister administering Part 2 of the <i>Water Industry Competition Act 2006 (NSW)</i> of any incident in the conduct of its activities that threatens, or could threaten, water quality, public health or safety.	
	[1(2)(e)] A network operator must immediately notify any licensed network operator or public water utility whose infrastructure is connected to the licensed network operator's infrastructure of any incident in the conduct of its activities that threatens, or could threaten, water quality, public health or safety.	
<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 Justin Taylor and Belinda Layson on 6 July 2017.</li><li>Site inspection of the infrastructure at 1 Bligh Street on 6 July 2017.</li><li>Aquacell, <i>Infrastructure Operating Plan; Blackwater Recycling Scheme; 1 Bligh Street, Sydney NSW 2000 (Revision 4)</i>, 23 June 2015 [<i>Infrastructure Operating Plan</i>].</li><li>Aquacell, <i>1 Bligh Street Recycled Water Scheme; Recycled Water Quality Management Plan (Revision 8)</i>, 24 June 2015 [<i>Water Quality Plan</i>].</li><li>Aquacell, <i>1 Bligh Street; Operation and Maintenance Manual; Recycled Water Treatment (Revision D)</i>, 25 June 2015.</li><li>SCADA data trends for audit period (viewed using Tableau software).</li><li>Aquacell, <i>Annual Network Operator's Report for 1 Bligh Street</i> (letter format), dated (signed) 29 August 2016.</li><li>EnviroLab Certificates of Analysis No: 152112 and 158121.</li></ul>		

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## Summary of reasons for grade

No notifiable incidents occurred during the audit period; accordingly, there was “No Requirement” in respect of these obligations.

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## Discussion and notes

The auditor questioned whether there had been any incidents arising from the conduct of the network operator’s activities during the audit period that threatened, or could have threatened, water quality, public health or safety and, if so, whether IPART, the Minister administering the *Public Health Act 2010 (NSW)* and the *Public Health Regulation 2012 (NSW)*, the Minister administering Part 2 of the *Water Industry Competition Act 2006 (NSW)* and any connected network operator, retail supplier or public water utility had been notified as required.

Aquacell advised that there had been no such incidents during the audit period.

A review of a sample of SCADA data trends (viewed using Tableau software) for selected operational monitoring parameters associated with critical control points (CCPs) across the audit period did not reveal any contrary evidence; nor did a review of a sample of laboratory test results. Similarly, the *Annual Compliance Report* for 2015/16,<sup>7</sup> which covers part of the audit period, did not identify that there had been any incidents during 2015/16.

By way of example:

- the SCADA trend for MBR Turbidity over the period March to October 2016 showed ten (10) minor exceedances of the maximum value (2.0 NTU). Filtering of data to only show values for water delivered into supply revealed a maximum value of 1.8 NTU on (or about) 12 September 2016.
- the SCADA trend for free chlorine showed that the concentration dropped to 0.3 mg/L (i.e. less than the 0.5 mg/L minimum) on 15-19 September 2016; however, flow records indicated that there was no delivery into supply on those days.
- August 2016 and November 2016 monthly tests for *E. coli* (verification test parameter) revealed values of less than one (<1) per 100 ml (i.e. none detected) for these tests.<sup>8</sup>

The *Water Quality Plan*<sup>9</sup> outlines the notification requirements in the event of any incident that potentially places public health at risk. It is noted that although the need to notify IPART in such an event is identified, contact details are not provided (although they are clearly known to the Licensee). As an opportunity for improvement (**OFI-2017.01**), it is suggested that Aquacell updates its *Water Quality Plan* (in relation to the notification of incidents) to include contact details for IPART.

It is further noted that a more extensive contact list is included in the *Operation and Maintenance Manual*,<sup>10</sup> although the details appear to be out of date. As a further opportunity for improvement (**OFI-2017.02**), it is suggested that Aquacell considers preparing a readily accessible standalone Contact List that can be reviewed and updated at least annually.

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## Recommendations

There are no recommendations in respect of these obligations.

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<sup>7</sup> Aquacell, *Annual Network Operator’s Report for 1 Bligh Street* (letter format), dated (signed) 29 August 2016.

<sup>8</sup> Envirolab Certificates of Analysis No: 152112 and 158121.

<sup>9</sup> *Water Quality Plan*, section 12.3.

<sup>10</sup> Aquacell, *1 Bligh Street; Operation and Maintenance Manual; Recycled Water Treatment (Revision D)*, 25 June 2015.



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### Opportunities for improvement

The following opportunities for improvement have been identified in respect of these obligations:

- **OFI-2017.01:** It is suggested that Aquacell updates its *Water Quality Plan* (in relation to the notification of incidents) to include contact details for IPART.
  - **OFI-2017.02:** It is suggested that Aquacell considers preparing a readily accessible standalone Contact List that can be reviewed and updated at least annually.
-

**Table B.2 General Obligations – WIC Reg Sched 1 cl.2(1), 2(2)(a) and 2(2)(b)**

Clause	Requirement	Compliance Grade
WIC Reg Sched 1 cl.2(1), 2(2)(a) and 2(2)(b)	[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)(a)] The network operator must provide to the Minister a report, prepared by an approved auditor that indicates that the infrastructure complies with the requirements of the Regulation and any licence conditions.	Clauses 2(2)(a) and 2(2)(b) <b>No Requirement</b>
	[2(2)(b)] The network operator must provide to the Minister a report, prepared by an approved auditor that indicates that the infrastructure 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.	
<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 Justin Taylor and Belinda Layson on 6 July 2017.</li><li>Site inspection of the infrastructure at 1 Bligh Street on 6 July 2017.</li><li>Aquacell, <i>Infrastructure Operating Plan; Blackwater Recycling Scheme; 1 Bligh Street, Sydney NSW 2000 (Revision 4)</i>, 23 June 2015 [<i>Infrastructure Operating Plan</i>].</li><li>Aquacell, <i>1 Bligh Street Recycled Water Scheme; Recycled Water Quality Management Plan (Revision 8)</i>, 24 June 2015 [<i>Water Quality Plan</i>].</li><li>Network Operator’s Licence 09_003 issued to Aquacell Pty Ltd (as varied 26 July 2015).</li><li>Minister for Finance and Services, <i>Notice of approval to bring new infrastructure into commercial operation</i>, 23 August 2012.</li></ul>		
<hr/>		
<b>Summary of reasons for grade</b>		
No new water or sewerage infrastructure had been brought into commercial operation during the audit period; accordingly, Aquacell 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

Aquacell advised that no new water or sewerage infrastructure had been brought into commercial operation during the audit period.

Observations made during inspection of the infrastructure at 1 Bligh Street 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>11</sup> and referenced in the *Notice of approval to bring new infrastructure into commercial operation*.<sup>12</sup>

Accordingly, it was evident that Aquacell had not brought any new infrastructure into commercial operation without the 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 these obligations.

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## Opportunities for improvement

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

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<sup>11</sup> New South Wales Government, Network Operator's Licence No: 09\_003 (as varied on 26 July 2015), Table 2.

<sup>12</sup> Minister for Finance and Services, *Notice of approval to bring new infrastructure into commercial operation*, 23 August 2012.

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

Clause	Requirement	Compliance Grade
<b>WIC Reg Sched 1 cl.3(c)</b>	The water or sewerage infrastructure is properly designed and constructed, operated in a safe and reliable manner and maintained in a proper condition, having regard to any publicly available standards or codes relating to its design, construction, operation and maintenance.	<b>Compliant</b>
<b>Risk</b>	<b>Target for Full Compliance</b>	
This requirement reflects a high operational risk. Proper design and construction, safe and reliable operation, and maintenance of infrastructure in proper condition is essential to the effective (safe and reliable) delivery of agreed levels of service.		Evidence that the Licensee has procedures in place for ensuring that practices are kept up to date with changes to such standards or codes.
<b>Evidence sighted</b>		
<ul style="list-style-type: none"> <li>Interviews with Justin Taylor and Belinda Layson on 6 July 2017.</li> <li>Site inspection of the infrastructure at 1 Bligh Street on 6 July 2017.</li> <li>Aquacell, <i>Infrastructure Operating Plan; Blackwater Recycling Scheme; 1 Bligh Street, Sydney NSW 2000 (Revision 4)</i>, 23 June 2015 [<i>Infrastructure Operating Plan</i>].</li> <li>Aquacell, <i>1 Bligh Street Recycled Water Scheme; Recycled Water Quality Management Plan (Revision 8)</i>, 24 June 2015 [<i>Water Quality Plan</i>].</li> <li>Minister for Finance and Services, <i>Notice of approval to bring new infrastructure into commercial operation</i>, 23 August 2012.</li> <li>Aquacell, <i>1 Bligh Street; Operation and Maintenance Manual; Recycled Water Treatment (Revision D)</i>, 25 June 2015.</li> </ul>		
<b>Summary of reasons for grade</b>		
<p>Although no new infrastructure was designed or constructed during the audit period, Aquacell demonstrated that the infrastructure had continued to be operated in a safe and reliable manner and maintained in proper condition having regard for publicly available standards and codes during the audit period.</p> <p>Arrangements employed by Aquacell for ensuring that codes and standards it references are current appear to be consistent with other organisations of its size.</p> <p>Accordingly, Aquacell was assessed as having demonstrated full compliance with this obligation.</p>		
<b>Discussion and notes</b>		
<b><i>Design and Construction of Infrastructure:</i></b>		
<p>As noted in Table B.2, no new infrastructure was brought into commercial operation during the audit period; nor was any new infrastructure designed or constructed.</p> <p>The infrastructure that was in operation during the audit period would have been assessed as having been properly designed and constructed, having regard for publicly available standards and codes, prior to approval to commence commercial operation being given in August 2012.<sup>13</sup></p>		

<sup>13</sup> Minister for Finance and Services, *Notice of approval to bring new infrastructure into commercial operation*, 23 August 2012.

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### ***Operation and Maintenance of Infrastructure:***

Operation and maintenance of the infrastructure is undertaken in accordance with the general principles (maintenance strategy) outlined in the *Infrastructure Operating Plan*, which further indicates that Aquacell is solely responsible for maintenance activities. More specific guidance is provided in the *Operation and Maintenance Manual*<sup>14</sup> and associated procedures (refer Table A.1 for examples). Roles and responsibilities are documented in more specific detail in the *Water Quality Plan*.<sup>15</sup>

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

The following specific observations, which demonstrate compliance with relevant standards and codes, were made:

- Eye wash stations were appropriately located adjacent to chemical storage areas.
- Bunding was in place around chemical storage areas (refer Figure B.3.1 for example).
- Pipework within the treatment plant room was generally clearly and appropriately labelled; however, the pipework that delivers treated (recycled) water from the chlorine contact tank to the three remotely located storage tanks (for toilet flushing and cooling tower supply) comprised of black HDPE pipe and was not labelled. This issue could potentially be raised as a non-compliance against water industry and plumbing code guidance in relation to colour differentiation or labelling; however, since these pipelines are predominantly in areas with limited accessibility, an opportunity for improvement (**OFI-2017.03**) has been identified rather than a non-compliance. Nonetheless, Aquacell is encouraged to address this issue, which is easy to rectify, as a matter of priority.<sup>16</sup>
- Recycled water pipework downstream of the storage tanks is appropriately coloured lilac (refer Figure B.3.2 for example). Potable water pipework in the tank storage areas is coloured green or otherwise identified.
- The potable water supply used for top-up of the recycled water storage tanks is protected by both RPZD backflow prevention devices and air gaps in all cases (refer Figures B.3.3 and B.3.4).

Aquacell's approach to operation and maintenance of the infrastructure is further discussed in Table C.1.

### ***Currency of Standards and Codes:***

Although not sighted, Aquacell advised that it maintains a directory on its server with relevant codes and standards. Aquacell also advised that it is on the email lists for organisations such as the Australian Water Association (AWA) and IPART, which typically advise of major changes to significant documentation that may affect its operations.

This approach is considered typical of organisations of Aquacell's size.

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### **Recommendations**

There are no recommendations in respect of this obligation.

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<sup>14</sup> Aquacell, *1 Bligh Street; Operation and Maintenance Manual; Recycled Water Treatment (Revision D)*, 25 June 2015.

<sup>15</sup> *Water Quality Plan*, section 2/table 1.

<sup>16</sup> It is noted that the same issue was identified as an opportunity for improvement in the 2016 Operational Audit (refer: Water Futures, *Report on the Operational Audit of the 1 Bligh Street Recycled Water Scheme (Final Report)*, 6 May 2016, page 15).

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### Opportunities for improvement

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

- **OFI-2017.03:** It is suggested that Aquacell clearly labels the pipework that delivers treated (recycled) water from the chlorine contact tank to the three remotely located storage tanks.  
*[It is noted that an equivalent OFI was raised in the 2016 Operational Audit].*
- 



Figure B.3.1 Bunding around chlorine solution storage container.





Figure B.3.2 Recycled water pipework downstream of storage tanks coloured lilac.



Figure B.3.3 Potable water supply used for top-up of the recycled water storage tanks is protected by RPZD backflow prevention devices (as well as air gaps).

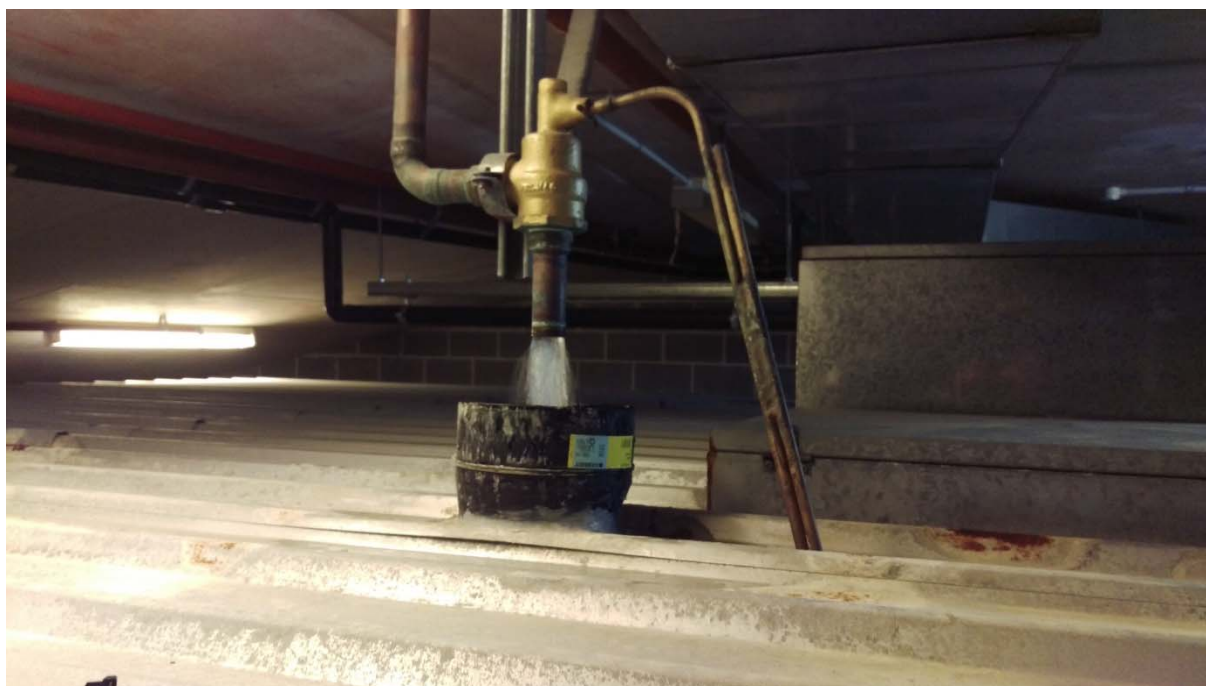


Figure B.3.4 Potable water supply used for top-up of the recycled water storage tanks is protected by air gaps (as well as RPZD backflow prevention devices). Note top-up in operation.



## **Appendix C**   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 C.1 Water Supply Infrastructure – WIC Reg Sched 1 cl.6(2)(a)**

Clause	Requirement	Compliance Grade
WIC Reg Sched 1 cl.6(2)(a)	The network operator must ensure that the infrastructure operating plan is fully implemented and kept under regular review and all of the network operator’s activities are carried out in accordance with that plan.	Compliant
Risk	Target for Full Compliance	
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.		Evidence that the <i>Infrastructure Operating Plan</i> is fully implemented and the Licensee’s activities are carried out in accordance with that <i>Plan</i> ; evidence that the <i>Plan</i> is kept under regular review.
Evidence sighted		
<ul style="list-style-type: none"><li>Interviews with Justin Taylor and Belinda Layson on 6 July 2017.</li><li>Site inspection of the infrastructure at 1 Bligh Street on 6 July 2017.</li><li>Aquacell, <i>Infrastructure Operating Plan; Blackwater Recycling Scheme; 1 Bligh Street, Sydney NSW 2000 (Revision 4)</i>, 23 June 2015 [<i>Infrastructure Operating Plan</i>].</li><li>Aquacell, <i>1 Bligh Street Recycled Water Scheme; Recycled Water Quality Management Plan (Revision 8)</i>, 24 June 2015 [<i>Water Quality Plan</i>].</li><li>Minister for Finance and Services, <i>Notice of approval to bring new infrastructure into commercial operation</i>, 23 August 2012.</li><li>Aquacell, <i>1 Bligh Street; Operation and Maintenance Manual; Recycled Water Treatment (Revision D)</i>, 25 June 2015.</li><li>Aquacell, <i>Monthly Report (for August 2016)</i>, 20 September 2016.</li><li>Aquacell, <i>Monthly Report (for November 2016)</i>, 1 December 2016.</li><li>IPAC Calibration Services, Certificate No: 3FPO-7-4, dated 5 December 2016.</li><li>Sydney Water, <i>Consent to discharge industrial trade wastewater</i>, dated 5 June 2014.</li><li>Aquacell, <i>Periodic Review of Regulatory Documentation</i> register, record of review dated July 2016.</li></ul>		
Summary of reasons for grade		
<p>Aquacell demonstrated that it is fully implementing, and is carrying out its infrastructure management activities in accordance with principles documented in, the <i>Infrastructure Operating Plan</i>. This was evident from the effective operation of the infrastructure and the implementation of maintenance practices.</p> <p>Aquacell also demonstrated that the <i>Infrastructure Operating Plan</i> is kept under regular review; this process is being managed through an annually recurring calendar reminder.</p> <p>Accordingly, Aquacell was assessed to have demonstrated compliance with this obligation.</p>		
Discussion and notes		
<p>The auditor checked for evidence that the <i>Infrastructure Operating Plan</i> was being fully implemented and kept under regular review and that all of the Network Operator’s activities are carried out in accordance with that <i>Plan</i>.</p>		

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

The infrastructure at 1 Bligh Street has been operational since August 2012, following issue of a *Notice of approval to bring new infrastructure into commercial operation*.<sup>17</sup> As reported in Table B.3, no design or construction activity was undertaken during the audit period.

### ***Operation and Maintenance:***

As noted in Table B.3, operation and maintenance of the infrastructure is undertaken in accordance with the general principles (maintenance strategy) outlined in the *Infrastructure Operating Plan*. More specific guidance provided in the *Operation and Maintenance Manual*<sup>18</sup> and associated procedures; for example, the calibration procedures for the Endress+Hauser pH probe and controller were sighted (online where all supporting procedures are filed and available for reference).

Review of the *Operation and Maintenance Manual* reveals that it includes detailed guidance in respect of:

- Plant operation – including (for example) plant control; online monitoring of plant status and instrument data; set point control; changing process variables; membrane management; and effluent sampling.
- Maintenance procedures – including (for example) membrane cleaning; instrument calibration; and troubleshooting.

The adopted operation and maintenance strategy comprises daily remote monitoring of plant operation via SCADA, weekly inspections and minor maintenance, periodic maintenance (generally in accordance with equipment manufacturer recommendations), and reactive maintenance in response to alarm conditions. The majority of equipment is operated on a ‘run to fail’ basis; duty/standby configuration enables (in most cases) ongoing plant operation in the event of equipment failure.

Pursuant to the requirements of the *Infrastructure Operating Plan*,<sup>19</sup> Aquacell provides monthly reports to its client, DEXUS. These reports include details of the water supplied (quantity and quality), trade waste sampling results, details of activities undertaken at the plant and identification of significant upcoming work that needs to be undertaken.

Operation and maintenance activity is documented in these monthly reports, which become the formal record of such activity in a standardised format. Review of monthly reports for August 2016<sup>20</sup> and November 2016<sup>21</sup> revealed that (for example):

- Weekly inspections/services had been completed during the two sample months, with technical servicing activities recorded and comments provided.
- Filtrate and effluent pH probes were regularly site calibrated on at least a monthly basis (which is consistent with the requirement documented in the *Water Quality Plan*).<sup>22</sup>
- A fault with Reverse Osmosis (RO) Unit 1 required attendance of a SAS Water Solutions technician during November 2016.
- Loss of the plant internet (and SCADA) connection was investigated on 14 November 2016.

A calibration certificate<sup>23</sup> indicated that flowmeter TWF-001, located on the trade waste discharge to sewer, had been calibrated on 5 December 2016. Flow records from this meter are used in determining trade waste fees payable to Sydney Water under the *Trade Waste Agreement*.<sup>24</sup>

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<sup>17</sup> Minister for Finance and Services, *Notice of approval to bring new infrastructure into commercial operation*, 23 August 2012.

<sup>18</sup> Aquacell, *1 Bligh Street; Operation and Maintenance Manual; Recycled Water Treatment (Revision D)*, 25 June 2015.

<sup>19</sup> *Infrastructure Operating Plan*, section 4.

<sup>20</sup> Aquacell, *Monthly Report (for August 2016)*, 20 September 2016.

<sup>21</sup> Aquacell, *Monthly Report (for November 2016)*, 1 December 2016.

<sup>22</sup> *Water Quality Plan*, section 8/table 8b.

<sup>23</sup> IPAC Calibration Services, Certificate No: 3FPO-7-4, dated 5 December 2016.

<sup>24</sup> Sydney Water, *Consent to discharge industrial trade wastewater*, dated 5 June 2014 (for discharge of Reuse - Biomass to Sewer (ZM02) at 1 Bligh Street).

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Aquacell advised that online communication (the SCADA connection) to the plant was lost for an extended period (from November 2016 to April 2017), and was again offline on the day of the audit fieldwork. This was a result of DEXUS building management (1 Bligh Street)<sup>25</sup> changing its communications service provider from Telstra to TPG; a dedicated line for use by Aquacell was not reconnected. Furthermore, although outside of Aquacell's responsibilities, Aquacell IT personnel ultimately reconfigured the router to reinstate communications; reconfiguration is again required following further changes.

During the period that Aquacell was unable to remotely monitor the treatment plant, ongoing operation was reliant on the weekly inspections. In the event of fault, the plant would shut down until the next scheduled visit; any out-of-specification water was automatically diverted (and not delivered into supply). Plant response to the set-points was demonstrated during the audit fieldwork (refer Table C.2 for further discussion).

As noted in Table B.3, on the basis of observations made during the audit site inspection it was apparent that the infrastructure had been/was being operated in a safe and reliable manner and maintained in a proper condition.

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

The *Infrastructure Operating Plan*<sup>26</sup> indicates that Aquacell is solely responsible for operation and maintenance of the infrastructure. Roles and responsibilities are documented in more specific detail in the *Water Quality Plan*.<sup>27</sup>

Evidence of the skills and capability of the personnel engaged in operation and maintenance of the infrastructure, together with a sample of the training implemented by Aquacell during the audit period, is discussed in detail in Table E.1.

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

The *Infrastructure Operating Plan* remained unchanged throughout the audit period. It is noted within the *Infrastructure Operating Plan*<sup>28</sup> that it "... is kept under regular review ...", although the frequency at which it is to be reviewed is not stated.

Aquacell advised that the *Infrastructure Operating Plan* is reviewed annually. A Google calendar reminder to review both the *Infrastructure Operating Plan* and *Water Quality Plan* on 4<sup>th</sup> July (recurring) was sighted.

Aquacell provided a *Periodic Review of Regulatory Documentation* register,<sup>29</sup> which indicated that Revision 4, dated 23 June 2015, of the *Infrastructure Operating Plan* had been reviewed in July 2016. The review comment indicated: "No changes to operation. All information current. No update to document required." The review was undertaken by Justin Taylor.

Aquacell advised that it is planning a minor update to both its *Infrastructure Operating Plan* and *Water Quality Plan* to reflect the change in address of its principal office.

As an opportunity for improvement (**OFI-2017.04**), it is suggested that Aquacell identifies the review frequency for the *Infrastructure Operating Plan* within the *Plan*.

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## **Recommendations**

There are no recommendations in respect of this obligation.

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<sup>25</sup> Under the terms of the *Building Services Contract* between Aquacell and its client (DEXUS), DEXUS is the owner of the treatment plant and associated infrastructure; Aquacell is responsible only for operation of the plant and associated activities. DEXUS is responsible for providing the communications arrangements within the building including connections to the treatment plant.

<sup>26</sup> *Infrastructure Operating Plan*, section 5.2.

<sup>27</sup> *Water Quality Plan*, section 2/table 1.

<sup>28</sup> *Infrastructure Operating Plan*, section 2.

<sup>29</sup> Aquacell, *Periodic Review of Regulatory Documentation* register, record of review dated July 2016.

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### Opportunities for improvement

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

- **OFI-2017.04:** It is suggested that Aquacell identifies the review frequency of the *Infrastructure Operating Plan* within the *Plan*.
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**Table C.2 Water Supply Infrastructure – WIC Reg Sched 1 cl.7(4)(a)**

Clause	Requirement	Compliance Grade
WIC Reg Sched 1 cl.7(4)(a)	The network operator must ensure that its water quality plan is fully implemented and kept under regular review and the network operator’s activities are carried out in accordance with that plan.	Compliant
<hr/>		
Risk	Target for Full Compliance	
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.	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.	
<hr/>		
Evidence sighted		
<ul style="list-style-type: none"><li>Interviews with Justin Taylor and Belinda Layson on 6 July 2017.</li><li>Site inspection of the infrastructure at 1 Bligh Street on 6 July 2017.</li><li>Aquacell, <i>1 Bligh Street Recycled Water Scheme; Recycled Water Quality Management Plan (Revision 8)</i>, 24 June 2015 [<i>Water Quality Plan</i>].</li><li>Various instrument displays as noted.</li><li>SCADA data trends for audit period (viewed using Tableau software).</li><li>Envirolab Certificates of Analysis No: 152112 and 158121.</li><li>DEXUS, <i>1 Bligh House Rules</i>, revised 14 December 2012.</li><li>Aquacell, <i>Periodic Review of Regulatory Documentation</i> register, record of review dated July 2016.</li></ul>		
<hr/>		
Summary of reasons for grade		
<p>Aquacell demonstrated that it is fully implementing, and is carrying out its water quality management activities in accordance with principles documented in, the <i>Water Quality Plan</i>. This was evident from the effective monitoring and testing processes that are being implemented.</p> <p>Aquacell also demonstrated that the <i>Water Quality Plan</i> is kept under regular review; this process is being managed through an annually recurring calendar reminder.</p> <p>Accordingly, Aquacell was assessed to have demonstrated compliance with this obligation.</p>		
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Discussion and notes		
<p>The auditor checked for evidence that the <i>Water Quality Plan</i> was being fully implemented and kept under regular review and that all of the Network Operator’s activities are carried out in accordance with that <i>Plan</i>.</p> <p><b>Operational Monitoring:</b></p> <p>As identified in the <i>Water Quality Plan</i>,<sup>30</sup> operational monitoring of five Critical Control Points (CCPs) is used to monitor and control operation of the plant, as follows:</p> <ul style="list-style-type: none"><li>CCP1 – MBR Turbidity;</li><li>CCP2 – Reverse osmosis (RO) Permeate Electrical Conductivity (EC);</li></ul>		

<sup>30</sup> *Water Quality Plan*, section 3.

- CCP3 – Ultra Violet Intensity (UVI);
- CCP4 – Final water free chlorine; and
- CCP5 – Final water pH.

These parameters are continually monitored via the SCADA system. Any breaches of the critical limits are alarmed and water is diverted from supply.

To confirm consistency with the requirements of the *Water Quality Plan*,<sup>31</sup> a number of checks were made, as follows:

- Observed instrument readings were recorded and checked for consistency with those reported in the SCADA system.
- Current parameter settings for CCPs were checked for consistency with the critical limits documented in the *Water Quality Plan*.
- Observed readings were checked for compliance with the critical limits.

A summary of these checks is as follows:

CCP	Parameter (Units)	Observed Instrument Reading	SCADA Consistent with Instrument	SCADA Critical Limit	Within Critical Limit	Critical Limit Compliance with <i>Water Quality Plan</i>
CCP1	MBR Turbidity (NTU)	0.59	✓	>2	✓	Settings consistent with requirement
CCP2	Electrical Conductivity (µS/cm)	RO2 37.9	✓	>100	✓	Settings consistent with requirement
CCP3	Ultra Violet Intensity (mA)	UV1 16.5 UV2 16.1	✓	<12.2	✓	Settings consistent with requirement
CCP4	Final water free chlorine (mg/L)	0.15	✓	<0.70 and >5.00	✗	Settings consistent with requirement of 0.65 mg/L to 5 mg/L
CCP5	Final water pH (pH units)	7.1	✓	<6.8 and >8.5	✓	Settings consistent with requirement

It was noted that the free chlorine concentration in the final water was less than the critical limit (0.15 mg/L compared to a minimum of 0.7 mg/L); water was considered out-of-specification and was not being delivered into supply. The chlorine concentration was observed to be increasing (following operator intervention) during the site inspection.

It is also noted that the lower critical limit for chlorine was set to 0.7 mg/L in the SCADA system and not to 0.65 mg/L as indicated in the *Water Quality Plan*. This is not a material difference, with the SCADA setting being more conservative; however, ideally the critical limits should be consistent between the SCADA system and the *Water Quality Plan* and it is suggested that Aquacell aligns the two by either adjusting the setting in the SCADA system or updating the *Water Quality Plan* when undertaking the next review. An opportunity for improvement (**OFI-2017.05**) has been identified in respect of this issue.

In order to demonstrate plant response to breaches of the critical limits, the following action was taken by the operator:

- The MBR Turbidity limit set point was reduced to 0.1 NTU; this resulted in the water being diverted to waste and the RO unit being stopped after a 1 minute delay. The control system needed to be reset, i.e. operator intervention was required to resume plant operation following the breach.

<sup>31</sup> *Water Quality Plan*, table 4-2 (section 3.1.1).



- 
- The final water pH upper limit set point was reduced to 7.0 pH units; this again resulted in water being diverted to waste.

These checks confirmed ability of the treatment plant to operate effectively in accordance with the critical control point limits documented in the *Water Quality Plan*. Furthermore, they provided confidence that the plant will continue to operate within those limits during any periods that remote monitoring is not available. All alarm conditions are emailed to operational staff; operators use email sorting capabilities based on alarm code to filter key alarms (i.e. those that require immediate attention).

As reported in Table C.1, online communication (the SCADA connection) to the plant was lost for an extended period (from November 2016 to April 2017) during the audit period, and was again offline on the day of the audit fieldwork. SCADA data trends (viewed using Tableau software) revealed that a total of only 2,000 kilolitres (approximately 330 kilolitres per month) of water was delivered into supply during this period, compared to a normal average in the order of 700 kilolitres per month. This suggests that the control system was effective in preventing the delivery of out-of-specification water during this period when only weekly on-site monitoring (rather than daily remote monitoring) was being undertaken.

As Aquacell was clearly aware of and appears to have actively sought resolution of these communication issues, an opportunity for improvement (or non-compliance) has not been identified in respect of this issue.

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

Water quality verification monitoring is being undertaken in accordance with the *Water Quality Plan*.<sup>32</sup> The monitoring and sampling process is discussed in detail in Table E.3. Review of the results of August 2016 and November 2016 monthly tests for *E. coli* (the nominated verification test parameter) revealed values of less than one (<1) per 100 ml (i.e. none detected),<sup>33</sup> which indicates that the water remained within safe quality limits.

#### ***Permitted Uses:***

The *Water Quality Plan*<sup>34</sup> identifies the purposes for which recycled water will be used as “toilet flushing and cooling towers”. As discussed in Table E.6, there was no evidence to indicate that the recycled water was being used for any other purposes.

Identification of the presence of recycled water is a key barrier to inadvertent cross connections, as is effective communication. It is noted that the *1 Bligh House Rules*,<sup>35</sup> which all contractors must read and acknowledge as part of the induction process prior to gaining access to undertake work at 1 Bligh Street,<sup>36</sup> does not make any reference to the presence of recycled water in the building. As an opportunity for improvement (**OFI-2017.06**), it is suggested that Aquacell encourages DEXUS building management to include advice in respect of the presence of recycled water and its permitted uses in the *1 Bligh House Rules* document.

#### ***Regular Review of Water Quality Plan:***

The *Water Quality Plan* remained unchanged throughout the audit period. It is noted within the *Plan*<sup>37</sup> that “The RWQMP is reviewed and updated annually.” The *Infrastructure Operating Plan*<sup>38</sup> also indicates that “The RWQMP will be updated annually, at a minimum ...”.

Aquacell confirmed that the *Water Quality Plan* is reviewed annually. A Google calendar reminder to review both the *Infrastructure Operating Plan* and *Water Quality Plan* on 4<sup>th</sup> July (recurring) was sighted.

Aquacell provided a *Periodic Review of Regulatory Documentation* register,<sup>39</sup> which indicated that Revision 8,

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<sup>32</sup> *Water Quality Plan*, section 4.1.

<sup>33</sup> Envirolab Certificates of Analysis No: 152112 and 158121.

<sup>34</sup> *Water Quality Plan*, section 1.2.1.

<sup>35</sup> DEXUS, *1 Bligh House Rules*, revised 14 December 2012, page 22.

<sup>36</sup> The auditor was required to read this document as part of the site induction process.

<sup>37</sup> *Water Quality Plan*, section 13.

<sup>38</sup> *Infrastructure Operating Plan*, section 2.

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dated 24 June 2015, of the *Water Quality Plan* had been reviewed in July 2016. The review comment indicated: “No changes to operation. All information current. No update to document required.” The review was undertaken by Justin Taylor.

As noted in Table C.1, Aquacell advised that it is planning a minor update to both its *Infrastructure Operating Plan* and *Water Quality Plan* to reflect the change in address of its principal office.

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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-2017.05:** It is suggested that Aquacell takes action to align the critical limits for free chlorine between the SCADA system and the *Water Quality Plan* by either adjusting the setting in the SCADA system or updating the *Water Quality Plan*.
  - **OFI-2017.06:** It is suggested that Aquacell encourages DEXUS building management to include advice in respect of the presence of recycled water and its permitted uses in the *1 Bligh House Rules* document.
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<sup>39</sup> Aquacell, *Periodic Review of Regulatory Documentation* register, record of review dated July 2016.

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

Clause	Requirement	Compliance Grade
WIC Reg Sched 1 cl.8(1), 8(2)(a) and 8(2)(c)	[8(1)] Any water meter that is connected to a licensee’s water main must comply with the requirements of the <i>Plumbing Code of Australia</i> .	No Requirement
	[8(2)(a)] While water is being supplied to premises in respect of which a water meter has been installed, the licensee must ensure that the water meter is properly maintained and periodically tested.	
	[8(2)(c)] While water is being supplied to premises in respect of which a water meter has been installed, the licensee must ensure that written notice of each meter reading is sent to the relevant licensed retail supplier.	
Risk	Target for Full Compliance	
This requirement reflects a medium business risk. Non-compliant and/or inaccurate water meters may result in incorrect water consumption readings which are then reflected in customer billing.	Evidence that meters are compliant with the <i>Code</i> . Documented procedures for management of the meter fleet and/or evidence that performance monitoring and maintenance (when required) is undertaken. Evidence that meter readings are passed on to the relevant retail supplier.	
Evidence sighted		
<ul style="list-style-type: none"><li>Interviews with Justin Taylor and Belinda Layson on 6 July 2017.</li><li>Site inspection of the infrastructure at 1 Bligh Street on 6 July 2017.</li><li><i>Building Services Contract</i> between DEXUS Funds Management Limited and Aquacell Pty Ltd, signed 12 December 2014.</li></ul>		
Summary of reasons for grade		
Under the contractual arrangements between Aquacell (the Licensee) and DEXUS (its sole customer) there is “No Requirement” for compliance with the requirements of the <i>WIC Regulation</i> in relation to water metering. Aquacell provides operation and maintenance services to the infrastructure owner (DEXUS) for an annual fee, thereby negating any requirement for volumetric metering.		
Discussion and notes		
There are no meters connected to the Licensee’s water mains/pipework. Whilst there are meters installed within the Licensee’s delivery pipework, these are not used for billing purposes; they are used for monitoring and reporting purposes only.		
Under the provisions of the <i>Building Services Contract</i> <sup>40</sup> with the infrastructure owner/its client, DEXUS, Aquacell operates and maintains the infrastructure for an agreed annual fee (which may be subject to variation). Accordingly, there is no need to maintain meters for billing purposes.		
Notwithstanding, as part of its reporting regime to DEXUS (this does not appear to be a requirement under the <i>Building Services Contract</i> ), Aquacell includes details of the recycled water produced on a monthly basis.		

<sup>40</sup> *Building Services Contract* between DEXUS Funds Management Limited and Aquacell Pty Ltd, signed 12 December 2014.

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Aquacell holds both Network Operator and Retail Supplier Licences in relation to the non-potable water scheme at 1 Bligh Street. Accordingly, there is (in effect) no need to provide written notice of any meter readings.

In summary, given the contractual arrangements between Aquacell (the Licensee) and DEXUS (its sole customer) there is no requirement for compliance with the requirements of the *WIC Regulation* in relation to water metering.

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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 C.4 Water Supply Infrastructure – WIC Reg Sched 1 cl.11**

Clause	Requirement	Compliance Grade
WIC Reg Sched 1 cl.11	The licensee must not allow a customer's installation to be connected to a licensee's water main unless the installation is code compliant (within the meaning of the <i>Plumbing and Drainage Act 2011</i> ).	Complaint
<hr/>		
Risk	Target for Full Compliance	
This requirement reflects a high operational risk. Compliance of customer installations with appropriate standards is essential to ensuring safe and reliable service delivery.	Evidence of customer installation compliance with the <i>Plumbing and Drainage Act</i> (or such other legislative or statutory guidance that may be applicable).	
<hr/>		
Evidence sighted		
<ul style="list-style-type: none"><li>Interviews with Justin Taylor and Belinda Layson on 6 July 2017.</li><li>Site inspection of the infrastructure at 1 Bligh Street on 6 July 2017.</li><li>Aquacell, <i>Infrastructure Operating Plan; Blackwater Recycling Scheme; 1 Bligh Street, Sydney NSW 2000 (Revision 4)</i>, 23 June 2015 [<i>Infrastructure Operating Plan</i>].</li><li>DEXUS, <i>1 Bligh House Rules</i>, revised 14 December 2012.</li><li>Email dated 14 July 2017 from DEXUS to Aquacell (re: <i>Plumbing works</i>).</li><li>Minister for Finance and Services, <i>Notice of approval to bring new infrastructure into commercial operation</i>, 23 August 2012.</li><li>Water Futures, <i>Report on the Operational Audit of the 1 Bligh Street Recycled Water Scheme (Final Report)</i>, 6 May 2016.</li></ul>		
<hr/>		
Summary of reasons for grade		
On the basis that there is a requirement in place for certificates of compliance in respect of any plumbing works undertaken to be provided to the building owner, previously assessed compliance of the customer's installations and observations made during the audit, Aquacell was assessed to be complaint with this obligation.		
<hr/>		
Discussion and notes		
Customer's installations for the purposes of the recycled water system at 1 Bligh Street are deemed to comprise the recycled water tanks and all downstream plumbing within the building. It is understood that there is no distribution of recycled water to other sites.		
Aquacell has no direct control over plumbing installations within the building; however, these are controlled and overseen by DEXUS building management (owner of the licensed infrastructure and Aquacell's client). Review of the <i>1 Bligh House Rules</i> , <sup>41</sup> which all contractors must read and acknowledge as part of the induction process prior to gaining access to undertake work at 1 Bligh Street, reveals that the document includes a requirement to provide certificates of compliance upon the completion of any fitout works, including plumbing works.		
Enquiries to Aquacell, which in turn followed up with DEXUS building management, did not reveal any compliance certificates that had been provided during the audit period. DEXUS advised as follows: <sup>42</sup>		

<sup>41</sup> DEXUS, *1 Bligh House Rules*, revised 14 December 2012, page 22.

<sup>42</sup> Email dated 14 July 2017 from DEXUS to Aquacell (re: *Plumbing works*).

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*“Confirming no Plumbing works were completed between the below date range other than maintenance items and a change in maintenance providers.”*

Compliance of the building plumbing (customer’s installations) would have been assessed prior to the Minister granting approval to commence commercial operation in August 2012,<sup>43</sup> and has been assessed during previous Operational Audits (for example the 2016 Operational Audit).<sup>44</sup>

Recycled water pipework sighted during the audit site inspection was considered compliant with AS/NZS 3500.1<sup>45,46</sup> insofar as the colour of the pipework is concerned (refer Figure B.3.2, for example). Inspection of a toilet facility confirmed that appropriate labelling, again consistent with the requirements of AS/NZS 3500.1, was in place (refer Figure C.4.1).

On this basis, it was assessed that Aquacell had demonstrated compliance with this obligation. Nonetheless, there remains an opportunity to implement a mechanism (in conjunction with DEXUS) to ensure that certificates of compliance are obtained in relation to all plumbing works undertaken at 1 Bligh Street, and copies of all certificates of compliance are provided to Aquacell. An opportunity for improvement (**OFI-2017.07**) has been identified in respect of this issue.

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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-2017.07:** It is suggested that Aquacell implements a mechanism (in conjunction with DEXUS) to ensure that certificates of compliance are obtained in relation to all plumbing works undertaken at 1 Bligh Street, and copies of all certificates of compliance are provided to Aquacell.  
*[It is noted that an equivalent OFI was raised in the 2016 Operational Audit]*

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<sup>43</sup> Minister for Finance and Services, *Notice of approval to bring new infrastructure into commercial operation*, 23 August 2012.

<sup>44</sup> Water Futures, *Report on the Operational Audit of the 1 Bligh Street Recycled Water Scheme (Final Report)*, 6 May 2016, page 23.

<sup>45</sup> Australian/New Zealand Standard AS/NZS 3500.1, *Plumbing and drainage – Part 1: Water services*, clause 9.5.2.

<sup>46</sup> Under the provisions of Section 7(1) of the *Plumbing and Drainage Act 2011* (NSW),<sup>46</sup> plumbing and drainage works must comply with the *Plumbing Code of Australia*. The ‘deemed to comply’ provisions of the *Plumbing Code of Australia* include compliance with AS/NZS 3500.



Figure C.4.1 Recycled water labelling in toilet facility.





## **Appendix D**   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 D.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 Justin Taylor and Belinda Layson on 6 July 2017.</li> <li>Site inspection of the infrastructure at 1 Bligh Street on 6 July 2017.</li> <li>Network Operator's Licence 09_003 issued to Aquacell Pty Ltd (as varied 26 July 2015).</li> <li>Aquacell, <i>1 Bligh Street Recycled Water Scheme; Recycled Water Quality Management Plan (Revision 8)</i>, 24 June 2015 [<i>Water Quality Plan</i>].</li> </ul>		
<b>Summary of reasons for grade</b>		
Review of operational monitoring data and water quality verification test results indicated that recycled water supplied during the audit period was fit for the nominated purposes. Accordingly, Aquacell was assessed as having demonstrated compliance with this obligation.		
<b>Discussion and notes</b>		
<p>The purposes for which the recycled water is being supplied are identified in the <i>Water Quality Plan</i>.<sup>47</sup> These purposes are consistent with the "Authorised purposes" nominated in the Network Operator's Licence.<sup>48</sup> The <i>Water Quality Plan</i> also nominates critical limits for operational monitoring parameters at Critical Control Points (CCPs),<sup>49</sup> and characteristics to be monitored for the purpose of recycled water quality verification.<sup>50</sup></p> <p>Performance against CCP targets and verification parameters is discussed in Table C.2 and, as reported in Table B.1, there were no reportable incidents in which the specified water quality had been compromised during the audit period.</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.		

<sup>47</sup> *Water Quality Plan*, section 1.2.1.

<sup>48</sup> Network Operator's Licence No: 09\_003, table 1.3.

<sup>49</sup> *Water Quality Plan*, section 7.1.

<sup>50</sup> *Water Quality Plan*, section 8.



## **Appendix E   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 E.1**      **Schedule B to the Network Operator's Licence – Clause B1**

Clause	Requirement	Compliance Grade
<b>Network Operator's Licence cl.B1</b>	The Licensee must have the <b>technical</b> , financial and <b>organisational</b> capacity to carry out the activities authorised by this Licence. If the Licensee ceases to have this capacity, it must report this to IPART immediately in accordance with the Reporting Manual.	<b>Compliant</b>
<b>Risk</b>	<b>Target for Full Compliance</b>	
This requirement reflects a high operational risk. Without the technical, financial and organisational capacity to carry out the activities authorised by the Licence, the Licensee may be unable to meet its obligations under the Licence, specifically the safe and effective delivery of agreed levels of service.		Evidence that the Licensee has the technical, financial and organisational capacity to carry out the activities authorised by the Licence. If the Licensee has ceased to have this capacity, evidence that it has reported this to IPART immediately in accordance with the Reporting Manual.
<b>Evidence sighted</b>		
<ul style="list-style-type: none"> <li>Interviews with Justin Taylor and Belinda Layson on 6 July 2017.</li> <li>Aquacell, <i>Infrastructure Operating Plan; Blackwater Recycling Scheme; 1 Bligh Street, Sydney NSW 2000 (Revision 4)</i>, 23 June 2015 [<i>Infrastructure Operating Plan</i>].</li> <li>Aquacell, <i>1 Bligh Street Recycled Water Scheme; Recycled Water Quality Management Plan (Revision 8)</i>, 24 June 2015 [<i>Water Quality Plan</i>].</li> <li>Aquacell, <i>Operations Engineer; Job Description (Revision 4)</i>, 6 June 2013 (Belinda Layson incumbent).</li> <li>Aquacell, <i>Service Technician; Job Description (Revision 1.2)</i>, 16 March 2017 (Sean Cole-Hunter incumbent).</li> <li>Qualification (degree), academic transcript and curriculum vitae for Belinda Layson (Operations Engineer).</li> <li>Academic transcript for Sean Cole-Hunter (Service Technician).</li> <li>Curriculum Vitae for Justin Taylor, Warren Johnson and Simon Grimwood.</li> <li>Aquacell, <i>Organisation Chart November 2015</i>.</li> <li>Aquacell, <i>Organisation Chart July 2017</i>.</li> <li>Aquacell, <i>Internal Training and Competency Register (Version 6)</i>, 3 January 2017.</li> <li>Aquacell, <i>External Training and Competency Register (Version 7)</i>, 3 January 2017.</li> <li>IPART, <i>Network Operators' Reporting Manual under the Water Industry Competition Act 2006</i>, August 2015.</li> </ul>		
<b>Summary of reasons for grade</b>		
<p>Aquacell demonstrated that it maintained the technical and organisational capacity to carry out the activities authorised by the Licence during the audit period (and subsequently), and that it continued to implement a program to ensure the competency of its staff. Given that it maintained the required technical and organisational capacity, there was no requirement to report the contrary to IPART.</p> <p>Accordingly, it was assessed that Aquacell was compliant with this obligation.</p>		

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## Discussion and notes

*[It is noted that, consistent with the audit scope defined by IPART, the auditor has not assessed the financial capacity of the Licensee as part of this audit.]*

### **Technical Capacity:**

During the audit period, operation of the treatment plant was undertaken principally by an Operations Engineer (Belinda Layson) and more recently a Service Technician (Sean Cole-Hunter) under direction of the Operations Manager (Justin Taylor). Job Descriptions<sup>51,52</sup> for these roles identify specific responsibilities in relation to operation and maintenance of Aquacell treatment plants. In the case of the Operations Engineer, they include P&L and KPI responsibility for operating contracts; commissioning of new plants; system optimisation; management and calibration of hand-held instrument sets; administration of plant maintenance records; troubleshooting and project support; and providing assistance with approval submissions and management plans.

Review of the qualification (degree), academic transcript and curriculum vitae for Belinda Layson and academic transcript for Sean Cole-Hunter reveals that they are both appropriately qualified for their roles. Belinda Layson holds a Bachelor of Engineering (Chemical and Biomolecular Engineering) Honours Class 1 from the University of Sydney, whilst Sean Cole-Hunter holds a Bachelor of Engineering (Chemical Engineering) Honours Class 2B from the University of Queensland. Both joined Aquacell as graduate engineers and have developed their experience in their current roles.

Review of Justin Taylor's (Operations Manager) curriculum vitae reveals more than eleven years engineering experience including seven years involvement with water and wastewater treatment systems. Further technical support is available from Warren Johnson (Aquacell Technical Manager) and Simon Grimwood (Projects Manager), both of whom are Chemical Engineers with extensive relevant experience.

### **Organisational Capacity:**

Review of Aquacell's *Organisation Charts*<sup>53,54</sup> reveals that it has continued to maintain resource capacity in respect of engineering/research and development, project delivery, sales and marketing, business and finance, and corporate support as well as operations (as discussed above). Total staff complement appears to have been maintained over the last two years.

During the audit interviews, Aquacell advised that, in addition to locally based technical support, it can also draw operational support from its resources based in Melbourne and Brisbane.

Capacity can also be assessed from the perspective of organisational preparedness to undertake the authorised activities. As discussed in Table C.1, Aquacell has operational procedures in place (principally an *Operation and Maintenance Manual*) that provides the required guidance to operate the infrastructure at 1 Bligh Street. Furthermore, it has demonstrated its ability to operate the infrastructure in accordance with the arrangements set out in the *Infrastructure Operating Plan* and *Water Quality Plan*.

### **Training:**

Aquacell provided copies of its *Internal and External Training and Competency Registers*. The *Internal Training and Competency Register*<sup>55</sup> is used to record competency assessments undertaken in respect of Aquacell's internal procedures, whilst the *External Training and Competency Register*<sup>56</sup> is used to record externally obtained skills and competencies.

For example, during the audit period, Sean Cole-Hunter was certified as competent in respect of:

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<sup>51</sup> Aquacell, *Operations Engineer; Job Description (Revision 4)*, 6 June 2013 (Belinda Layson incumbent).

<sup>52</sup> Aquacell, *Service Technician; Job Description (Revision 1.2)*, 16 March 2017 (Sean Cole-Hunter incumbent).

<sup>53</sup> Aquacell, *Organisation Chart November 2015*.

<sup>54</sup> Aquacell, *Organisation Chart November 2015*.

<sup>55</sup> Aquacell, *Internal Training and Competency Register (Version 6)*, 3 January 2017.

<sup>56</sup> Aquacell, *External Training and Competency Register (Version 7)*, 3 January 2017.



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- an extensive range of Aquacell procedures, including the following (for example), on 4 March 2016:
    - Hach Multi Instrument Work Instruction;
    - Online Dissolved Oxygen Work Instructions;
    - Online pH Controller Work Instructions;
    - Pocket Chlorine Colorimeter Work Instructions;
    - Sampling Work Instructions;
    - Instrument Calibration Checklist;
    - Operation & Maintenance Manual; and
    - Operation & Maintenance – Trouble Shooting Guide.
  - Aquacell's Membrane Cleaning Work Instruction on 7 August 2016.

He completed site inductions relevant to 1 Bligh Street (external training) on 16 April 2016.

***Notification to IPART:***

This obligation requires that, in the event that the Licensee ceases to have the technical, financial and organisational capacity to carry out the activities authorised by the Licence, it must report this to IPART immediately in accordance with the *Reporting Manual*. The *Reporting Manual*<sup>57</sup> reiterates the requirement for immediate notification.

On the basis of observations made during the audit, Aquacell has maintained the capacity to carry out the activities authorised by the Licence and there has been no requirement to report the contrary to IPART.

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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>57</sup> IPART, *Network Operators' Reporting Manual under the Water Industry Competition Act 2006, August 2015*, appendix E, pages 36/37.

**Table E.2**      **Schedule B to the Network Operator's Licence – Clause B6**

Clause	Requirement	Compliance Grade
Network Operator's Licence cl.B6	The Licensee must prepare and submit reports in accordance with the Reporting Manual.	Compliant
Risk	Target for Full Compliance	
Non-compliance with this requirement presents no significant risk to the operational safety of the scheme.	Evidence that the Licensee has prepared and submitted the requisite reports to IPART in accordance with the <i>Reporting Manual</i> .	
Evidence sighted		
<ul style="list-style-type: none"><li>Interviews with Justin Taylor and Belinda Layson on 6 July 2017.</li><li>IPART, <i>Network Operators' Reporting Manual under the Water Industry Competition Act 2006</i>, August 2015.</li><li>Aquacell, <i>Annual Network Operator's Report for 1 Bligh Street</i> (letter format), dated (signed) 29 August 2016.</li><li>Email dated 30 August 2016 from Aquacell to IPART (re: <i>Aquacell – Annual Network Operator's and Retail Suppliers Reports</i>).</li><li>Email dated 30 August 2016 from IPART to Aquacell (re: <i>RE: Aquacell – Annual Network Operator's and Retail Suppliers Reports</i>).</li><li>Email dated 7 July 2016 from Aquacell to IPART (re: <i>Updated Certificates of Currency</i>).</li><li>Email dated 7 July 2016 from IPART to Aquacell (re: <i>Automatic reply: Updated Certificates of Currency</i>).</li><li>Letter (undated) from Davelcorp Insurance Brokers to IPART (re <i>Aquacell Insurance Policies</i>).</li><li>Email dated 19 August 2016 from Aquacell to IPART (re: <i>Retail Licence – Kurrajong – updated financials</i>).</li></ul>		
Summary of reasons for grade		
<p>Aquacell provided evidence that it had prepared and submitted its <i>Annual Compliance Report</i> in accordance with the <i>Reporting Manual</i>; it also provided evidence that it had submitted updated insurance certificates of currency and a report in relation to the adequacy of its insurance during the audit period. Audit of a number of obligations in respect of which immediate reporting may potentially have been required revealed that the need to submit any such reports had not been triggered during the audit period.</p> <p>Accordingly, Aquacell was assessed as being compliant with this obligation.</p>		
Discussion and notes		
<p>The auditor sought evidence that the Licensee had prepared and submitted reports in accordance with the <i>Reporting Manual</i>.<sup>58</sup> The <i>Reporting Manual</i> requires the submission of an <i>Annual Compliance Report</i> comprising of an Annual Compliance Report Certification, a Non Compliance Schedule (Schedule A) and a report in relation to Performance Indicators (Schedule B); the report is to be submitted to IPART no later than 31 August each year.</p> <p>The <i>Annual Compliance Report</i><sup>59</sup> for the 2015/16 financial year was sighted; the report was signed by the Managing Director on 29 August 2016. A brief review confirmed that the report contained the requisite</p>		

<sup>58</sup> IPART, *Network Operators' Reporting Manual under the Water Industry Competition Act 2006*, August 2015.

<sup>59</sup> Aquacell, *Annual Network Operator's Report for 1 Bligh Street* (letter format), dated (signed) 29 August 2016.

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information. A copy of an email chain including submission of the *Annual Compliance Report*<sup>60</sup> and IPART's acknowledgement<sup>61</sup> was provided as evidence of submission.

Aquacell noted that it had submitted copies of updated certificates of insurance, as required by the *Reporting Manual*.<sup>62</sup> The updated certificates were submitted via an email,<sup>63</sup> in which Aquacell also noted that it had changed the level of cover for its Professional Indemnity insurance and that it would submit a report as to the adequacy of the revised cover. An automated email response was provided as evidence that the updated certificates had been received by IPART.<sup>64</sup> A letter<sup>65</sup> from Aquacell's insurance broker attesting to the adequacy of its insurance cover was subsequently provided to IPART.<sup>66</sup>

The *Reporting Manual* also requires immediate reporting in the event that such requirement is triggered; obligations in respect of which immediate reporting may be required are identified in the *Reporting Manual*.<sup>67</sup> A review indicates that there was no requirement to report in respect of any of the obligations during the audit period (refer Tables B.1, E.1, E.4, E.6, E.7 and E.8 for obligations specifically addressed as part of the audit).

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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>60</sup> Email dated 30 August 2016 from Aquacell to IPART (re: *Aquacell – Annual Network Operator's and Retail Suppliers Reports*).

<sup>61</sup> Email dated 30 August 2016 from IPART to Aquacell (re: *RE: Aquacell – Annual Network Operator's and Retail Suppliers Reports*).

<sup>62</sup> IPART, *Network Operators' Reporting Manual under the Water Industry Competition Act 2006*, August 2015, Appendix E (requirement under clause B3.2 of the Network Operator's Licence).

<sup>63</sup> Email dated 7 July 2016 from Aquacell to IPART (re: *Updated Certificates of Currency*).

<sup>64</sup> Email dated 7 July 2016 from IPART to Aquacell (re: *Automatic reply: Updated Certificates of Currency*).

<sup>65</sup> Letter (undated) from Davelcorp Insurance Brokers to IPART (re *Aquacell Insurance Policies*).

<sup>66</sup> Email dated 19 August 2016 from Aquacell to IPART (re: *Retail Licence – Kurrajong – updated financials*).

<sup>67</sup> IPART, *Network Operators' Reporting Manual under the Water Industry Competition Act 2006*, August 2015, Appendix E.

**Table E.3 Schedule B to the Network Operator's Licence – Clause B8**

Clause	Requirement	Compliance Grade
Network Operator's Licence cl.B8	<p>[B8.1] The Licensee must undertake any monitoring that is required for the purposes of this Licence, any Plan, the Act or the Regulation in accordance to the requirements of this clause B8.</p> <p>[B8.2] The Licensee must keep the following records of any samples taken for monitoring purposes specified in the Water Quality Plan:</p> <ul style="list-style-type: none"><li>a) the date on which the sample was taken;</li><li>b) the time at which the sample was collected;</li><li>c) the point or location at which the sample was taken; and</li><li>d) the chain of custody of the sample (if applicable).</li></ul> <p>[B8.3] The Licensee must ensure that analyses of all samples taken for the purposes of Verification Monitoring are carried out by a laboratory accredited for the specified tests by an independent body acceptable to NSW Health, such as the National Association of Testing Authorities or equivalent body.</p>	Compliant
<hr/>		
Risk	Target for Full Compliance	
<p>This requirement reflects a high operational risk. It is essential that:</p> <ul style="list-style-type: none"><li>detailed sample records are maintained to ensure traceability in the event of a non-compliance; and</li><li>testing is undertaken by an accredited laboratory to ensure credibility of results.</li></ul>	<p>Evidence that:</p> <ul style="list-style-type: none"><li>the required records have been kept in respect of collected samples; and</li><li>sample analysis has been undertaken by NATA accredited laboratory (or equivalent).</li></ul>	
<hr/>		
Evidence sighted		
<ul style="list-style-type: none"><li>Interviews with Justin Taylor and Belinda Layson on 6 July 2017.</li><li>Site inspection of the infrastructure at 1 Bligh Street on 6 July 2017.</li><li>Aquacell, <i>Infrastructure Operating Plan; Blackwater Recycling Scheme; 1 Bligh Street, Sydney NSW 2000 (Revision 4)</i>, 23 June 2015 [<i>Infrastructure Operating Plan</i>].</li><li>Aquacell, <i>1 Bligh Street Recycled Water Scheme; Recycled Water Quality Management Plan (Revision 8)</i>, 24 June 2015 [<i>Water Quality Plan</i>].</li><li>Envirolab Certificates of Analysis No: 152112 and 158121.</li><li>Envirolab <i>Chain of Custody</i> forms for samples 152112-1 and 158121-1.</li><li><a href="https://www.nata.com.au/nata/labsearchresults">https://www.nata.com.au/nata/labsearchresults</a></li></ul>		

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### Summary of reasons for grade

Aquacell demonstrated that it had collected data and retained records in accordance with the requirements; the records included details of the date, time, location and sampler. The laboratory to which testing was subcontracted is accredited for the specified tests by the National Association of Testing Authorities (NATA).

Accordingly, Aquacell was assessed to be compliant with these requirements.

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### Discussion and notes

The auditor sought evidence that monitoring had been undertaken pursuant to requirements set out in the Licence, any Plan or otherwise.

Aquacell undertakes ongoing monitoring of water quality, including monthly verification testing for *E. coli*, in accordance with the *Water Quality Plan*.<sup>68</sup> As evidence that verification monitoring had been undertaken during the audit period, Aquacell provided two laboratory test reports, as follows:

- Envirolab Certificate of Analysis No: 152112 – sample taken 19 August 2016 and tested on 20 August 2016; results reported 23 August 2016 indicate an *E. coli* value of less than one (<1) per 100 ml (i.e. none detected). Testing was subcontracted to Sonic Food & Water Testing; Report No: W1614332 is referenced.
- Envirolab Certificate of Analysis No: 158121 – sample taken 29 November 2016 and tested on 30 November 2016; results reported 1 December 2016 indicate an *E. coli* value of less than one (<1) per 100 ml (i.e. none detected). Testing was again subcontracted to Sonic Food & Water Testing; Report No: W1620852 is referenced.

Sonic Healthcare Limited (trading as Sonic Food & Water Testing) holds NATA Accreditation No: 4034, which includes accreditation for *Bacteriological condition of recycled waters*.<sup>69</sup>

Aquacell also provided copies of the relevant Envirolab *Chain of Custody* forms for samples corresponding to each of the abovementioned verification tests. Name of sampler, time and date of sample and location (Bligh Street) was identified in each case. A single sample was taken on both occasions; sample was identified by job/sample number (152112-1 and 158121-1 respectively), thereby correlating with the resultant Certificates of Analysis.

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### Recommendations

There are no recommendations in respect of these obligations.

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### Opportunities for improvement

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

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<sup>68</sup> *Water Quality Plan*, table 8b.

<sup>69</sup> <https://www.nata.com.au/nata/labsearchresults>

**Table E.4**      **Schedule B to the Network Operator's Licence – Clause B9**

Clause	Requirement	Compliance Grade
Network Operator's Licence cl.B9	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.	No Requirement
Risk	Target for Full Compliance	
This requirement reflects a moderate operational risk. Whilst it is essential that the adequacy of the amended Plans is assessed, failure to provide a copy of the Plans to IPART presents a lesser risk.		Evidence that, in the event of a significant amendment to a Plan, the Licensee has provided a copy of the amended Plan to IPART at the same time as it provides a copy to an approved auditor engaged to prepare a report as to the adequacy of the amended Plan.
Evidence sighted		
<ul style="list-style-type: none"><li>Interviews with Justin Taylor and Belinda Layson on 6 July 2017.</li><li>Aquacell, <i>Infrastructure Operating Plan; Blackwater Recycling Scheme; 1 Bligh Street, Sydney NSW 2000 (Revision 4)</i>, 23 June 2015 [<i>Infrastructure Operating Plan</i>].</li><li>Aquacell, <i>1 Bligh Street Recycled Water Scheme; Recycled Water Quality Management Plan (Revision 8)</i>, 24 June 2015 [<i>Water Quality Plan</i>].</li><li>Aquacell, <i>Periodic Review of Regulatory Documentation</i> register, record of review dated July 2016.</li></ul>		
Summary of reasons for grade		
As there had been no changes, significant or otherwise, to either the <i>Infrastructure Operating Plan</i> or the <i>Water Quality Plan</i> during the audit period, it was assessed that there was “No Requirement” for compliance with this obligation during the audit period.		
Discussion and notes		
Aquacell advised that the current versions of both the <i>Infrastructure Operating Plan</i> and <i>Water Quality Plan</i> had been in place throughout the audit period. This indicated that there had been no changes, significant or otherwise, during the audit period.		
The following evidence supported Aquacell’s advice:		
<ul style="list-style-type: none"><li>the current version of the <i>Infrastructure Operating Plan</i> is dated 23 June 2015;</li><li>the current version of the <i>Water Quality Plan</i> is dated 24 June 2015;</li><li>Aquacell’s <i>Periodic Review of Regulatory Documentation</i> register<sup>70</sup> indicated that the current versions of both the <i>Infrastructure Operating Plan</i> and <i>Water Quality Plan</i> had been reviewed in July 2016. The review comments in both cases indicated: “No changes to operation. All information current. No update to document required.”</li></ul>		
On the basis that there had been no changes to either the <i>Infrastructure Operating Plan</i> or the <i>Water Quality Plan</i> during the audit period, there was no requirement to provide a copy of an amended Plan to IPART or to engage an auditor to prepare a report as to the adequacy of any amended Plan.		

<sup>70</sup> Aquacell, *Periodic Review of Regulatory Documentation* register, record of review dated July 2016.

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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.5**      **Schedule B to the Network Operator's Licence – Clause B10.5**

Clause	Requirement	Compliance Grade
Network Operator's Licence cl.B10.5	The Licensee must not contravene the Licensee's Code of Conduct to the extent that it makes the Licensee responsible or liable for the matters set out in it.	Compliant
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Risk	Target for Full Compliance	
This requirement reflects a high operational risk. In the absence of a clear definition of responsibilities, there is no guarantee that the licensed services will continue to be delivered in a safe and effective manner.	Evidence that, in the absence of a gazetted Water Industry Code of Practice, there is an agreement setting out the respective responsibilities of the Licensee and the party(ies) that are responsible for connected infrastructure.	
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Evidence sighted		
<ul style="list-style-type: none"><li>Interviews with Justin Taylor and Belinda Layson on 6 July 2017.</li><li>Site inspection of the infrastructure at 1 Bligh Street on 6 July 2017.</li><li><i>Building Services Contract</i> between DEXUS Funds Management Limited and Aquacell Pty Ltd, signed 12 December 2014.</li><li><i>Sewer Mining Agreement</i> between Sydney Water Corporation and DEXUS Funds Management Limited, signed 14 August 2009.</li><li>Sydney Water, <i>Consent to discharge industrial trade wastewater</i>, dated 5 June 2014 (for discharge of Reuse - Biomass to Sewer (ZM02) at 1 Bligh Street).</li><li>Aquacell, <i>Monthly Report (for August 2016)</i>, 20 September 2016.</li><li>Aquacell, <i>Monthly Report (for November 2016)</i>, 1 December 2016.</li></ul>		
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Summary of reasons for grade		
<p>Aquacell is responsible for operation and maintenance only of the licensed infrastructure under a Building Services Contract with the owner/its client, DEXUS. DEXUS has in place a <i>Sewer Mining Agreement</i> and a <i>Trade Waste Agreement</i> with Sydney Water, both of which are required to facilitate operation of the infrastructure.</p> <p>Although there is no Licensee's Code of Conduct as such, Aquacell demonstrated that it has continued to support DEXUS in meeting its obligations under these agreements. On the basis of the observations made during the audit, and in the absence of any evidence to the contrary, it is assessed that Aquacell has complied with the intent of this obligation during the audit period.</p>		
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Discussion and notes		
<p>Aquacell operates and maintains the infrastructure (principally a treatment plant) at 1 Bligh Street under a <i>Building Services Contract</i><sup>71</sup> with the owner/its client, DEXUS. As the Licensee, Aquacell does not have any Licensee's Codes of Conduct in place in relation to the licensed infrastructure.</p> <p>DEXUS holds the following relevant agreements with Sydney Water:</p> <ul style="list-style-type: none"><li><i>Sewer Mining Agreement</i><sup>72</sup> – signed on 14 August 2009 for a period of thirty (30) years from the date of execution; and</li></ul>		

<sup>71</sup> *Building Services Contract* between DEXUS Funds Management Limited and Aquacell Pty Ltd, signed 12 December 2014.



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- *Trade Waste Agreement*<sup>73</sup> – signed on 5 June 2014 and covers a period of 48 months from 1 December 2013.

Water used for potable top-up purposes is supplied to DEXUS under a standard customer arrangement.

Whilst there is no Licensee's Code of Conduct as such, it is reasonable to assume that Aquacell must comply with the terms of both the *Sewer Mining Agreement* and the *Trade Waste Agreement* pursuant to its obligations under the *Building Services Contact* with DEXUS.

Review of monthly reports (submitted to DEXUS) for August 2016<sup>74</sup> and November 2016<sup>75</sup> reveal that trade waste characteristics remained within the 'Acceptance Standards' nominated in the *Trade Waste Agreement*<sup>76</sup> throughout the period covered by the reports (total daily and long term average daily mass conditions were not assessed by the auditor).

Under the provisions of the *Sewer Mining Agreement*,<sup>77</sup> DEXUS "... has sole responsibility for and control of all aspects of the construction, operation, maintenance and removal of the Facility [treatment plant] and Connection Points ...". Review of the monthly report for August 2016<sup>78</sup> identifies activity undertaken by Aquacell in relation to cleaning of the feed tank and installation of a new actuated BOOS feed valve; this is taken as evidence that Aquacell is supporting DEXUS in meeting its obligations under the *Sewer Mining Agreement*.

Although there is no Licensee's Code of Conduct, on the basis these observations and in the absence of any evidence to the contrary, it is assessed that Aquacell has complied with the intent of this obligation during the audit period.

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## Recommendations

There are no recommendations in respect of these obligations.

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## Opportunities for improvement

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

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<sup>72</sup> *Sewer Mining Agreement* between Sydney Water Corporation and DEXUS Funds Management Limited, signed 14 August 2009.

<sup>73</sup> Sydney Water, *Consent to discharge industrial trade wastewater*, dated 5 June 2014 (for discharge of Reuse - Biomass to Sewer (ZM02) at 1 Bligh Street).

<sup>74</sup> Aquacell, *Monthly Report (for August 2016)*, 20 September 2016.

<sup>75</sup> Aquacell, *Monthly Report (for November 2016)*, 1 December 2016.

<sup>76</sup> Sydney Water, *Consent to discharge industrial trade wastewater*, dated 5 June 2014 (for discharge of Reuse - Biomass to Sewer (ZM02) at 1 Bligh Street), Schedule 1.

<sup>77</sup> *Sewer Mining Agreement* between Sydney Water Corporation and DEXUS Funds Management Limited, signed 14 August 2009, clause 5.3.

<sup>78</sup> Aquacell, *Monthly Report (for August 2016)*, 20 September 2016.

**Table E.6 Schedule B to the Network Operator's Licence – Clause B11**

Clause	Requirement	Compliance Grade
<b>Network Operator's Licence cl.B11</b>	If the Licensee proposes to operate the Specified Water Industry Infrastructure to supply water for an end-use which is not set out in the most recent Water Quality Plan provided to IPART, the Licensee must notify IPART in writing at least 3 months before commencing such operation.	No Requirement
<b>Risk</b>	<b>Target for Full Compliance</b>	
Non-compliance with this requirement presents a low risk. Notification to IPART is required so that it can assess whether the water to be supplied is suitable for the proposed new end-use.	In the event that the Licensee proposes to operate the Specified Water Industry Infrastructure to supply water for a new end-use, evidence that it provided the requisite notification to IPART.	
<b>Evidence sighted</b>		
<ul style="list-style-type: none"><li>Interviews with Justin Taylor and Belinda Layson on 6 July 2017.</li><li>Site inspection of the infrastructure at 1 Bligh Street on 6 July 2017.</li><li>Aquacell, <i>1 Bligh Street Recycled Water Scheme; Recycled Water Quality Management Plan (Revision 8)</i>, 24 June 2015 [<i>Water Quality Plan</i>].</li></ul>		
<b>Summary of reasons for grade</b>		
Aquacell did not, during the audit period or subsequently, commence distribution of water for an end-use that is not set out in the most recent <i>Water Quality Plan</i> . Accordingly, there was “No Requirement” for compliance with this obligation during the audit period.		
<b>Discussion and notes</b>		
Aquacell advised that it had not commenced (or proposed to commence) operation of the Specified Water Industry Infrastructure to supply water for an end-use which is not set out in its <i>Water Quality Plan</i> most recently supplied to IPART either during the audit period or subsequently. No evidence to the contrary was identified during the audit.		
The <i>Water Quality Plan</i> <sup>79</sup> identifies the purposes for which recycled water will be used as “ <i>toilet flushing and cooling towers</i> ”. Aquacell demonstrated that water is supplied into separate storages (owned by its client) assigned to each of these purposes.		
On the basis of Aquacell’s advice and the absence of any evidence to the contrary, it was assessed that there was no requirement notify IPART in compliance with this obligation.		
<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.		

<sup>79</sup> *Water Quality Plan*, section 1.2.1.

**Table E.7 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.	<b>No Requirement</b>
<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 Justin Taylor and Belinda Layson on 6 July 2017.</li> <li>Site inspection of the infrastructure at 1 Bligh Street on 6 July 2017.</li> <li>Network Operator's Licence 09_003 issued to Aquacell Pty Ltd (as varied 26 July 2015).</li> </ul>		
<b>Summary of reasons for grade</b>		
There are no Authorised Persons specified in the Licence and Aquacell maintained the capacity to carry out the activities authorised by the Licence, both during the audit period and subsequently. Accordingly, there was "No Requirement" for compliance with this obligation during the audit period.		
<b>Discussion and notes</b>		
There are no "Authorised Persons" specified in the Network Operator's Licence for the recycled water scheme at 1 Bligh Street. Aquacell (the Licensee) undertakes or directly supervises all activities authorised by the Licence.		
As reported in Table E.1, Aquacell demonstrated that it has continued to have the technical and organisational capacity to carry out the activities authorised by the Licence, both during the audit period and subsequently. Accordingly, there has been no need to nominate/identify any Authorised Persons to ensure that capacity is maintained.		
On this basis, it is assessed that there was no requirement to notify IPART of any cessation of service provision by an Authorised Person during the audit period.		
<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.		

**Table E.8**      **Schedule B to the Network Operator's Licence – Clause B13**

Clause	Requirement	Compliance Grade
<b>Network Operator's Licence cl.B13</b>	<p>[B13.1] This clause B13 applies each time the Licensee has brought any of the Specified Water Industry Infrastructure into commercial operation.</p> <p>[B13.2] The Licensee must:</p> <ol style="list-style-type: none"> <li>notify IPART in accordance with the Reporting Manual that it has brought the relevant Specified Water Industry Infrastructure into commercial operation; and</li> <li>provide such notification within 10 days after it has brought the relevant Specified Water Industry Infrastructure into commercial operation.</li> </ol>	<b>No Requirement</b>
<b>Risk</b>	<b>Target for Full Compliance</b>	
<p>This presents a relatively low operational risk. Whilst it is essential that the Licensee has approval to bring new infrastructure into commercial operation before doing so, there is a lessor risk associated with failing the notify IPART that it has brought that infrastructure into operation.</p>		<p>Evidence that the Licensee has notified IPART in writing within 10 days of bringing any Specified Water Industry Infrastructure into operation.</p>
<b>Evidence sighted</b>		
<ul style="list-style-type: none"> <li>Interviews with Justin Taylor and Belinda Layson on 6 July 2017.</li> <li>Site inspection of the infrastructure at 1 Bligh Street on 6 July 2017.</li> <li>IPART, <i>Network Operator's Reporting Manual under the Water Industry Competition Act 2006</i>, June 2016.</li> </ul>		
<b>Summary of reasons for grade</b>		
<p>Aquacell did not bring any additional Specified Water Industry Infrastructure into commercial operation during the audit period. Accordingly, there was "No Requirement" for compliance with this obligation.</p>		
<b>Discussion and notes</b>		
<p>As previously reported in Table B.2, the Licensee did not bring any Specified Water Industry Infrastructure into commercial operation during the audit period. All infrastructure in operation at the time of the audit had been so since prior to the audit period.</p> <p>Accordingly, there was no requirement for the Licensee to notify IPART that any such Specified Water Industry Infrastructure had been brought into commercial operation.</p>		
<b>Recommendations</b>		
<p>There are no recommendations in respect of this obligation.</p>		
<b>Opportunities for improvement</b>		
<p>No opportunities for improvement have been identified in respect of this obligation.</p>		



