

## **Operational and Follow-up Licence Plan WICA Audits of Darling Walk Recycled Water Scheme**

Independent Pricing and Regulatory Tribunal  
*Water Industry Competition Act 2006*

Network Operator's Licence Audit Report  
(combined Operational Audit and Follow-up Licence Plan Audit report)

Licence No. 10\_008: Darling Walk Recycled Water Scheme, Harbour St, Sydney, NSW  
(also known as the Darling Quarter Recycled Water Scheme)

License holder: Veolia Water Solutions and Technologies (Australia) Pty Ltd (ACN 055 254 003)

Final Report, dated 22<sup>nd</sup> May 2015

# 1. Executive Summary

The purpose of this audit was to complete an Operational Audit and a Follow-up Licence Plan Audit under the network operator's licence (Licence No. 10\_008) for the Darling Quarter Recycled Water Scheme, Sydney, NSW, for the audit period 30<sup>th</sup> November 2013 to 27<sup>th</sup> February 2015.

The auditors were provided with sufficient and appropriate evidence, as described in the *IPART Audit Guideline for Greenfield Schemes, Water Industry Competition Act 2006 (NSW)*, July 2013 (the Audit Guidelines) on which to base the conclusions reached during the audit. The auditors observed the requirements of the Audit Guidelines and the audit deed in conducting the audit, determining audit findings and preparing the report.

The audit report findings accurately reflect the professional opinion of the auditors. The findings have not been unduly influenced either by the Licensee or any of its associates and express the auditors' opinions as to whether the Licensee has met the Licence conditions and regulatory requirements as specified in the scope.

A summary of the audit findings is given in the following chapters and a detailed breakdown of the full audit findings against the audited criteria is given in the detailed Audit Tables in Appendices A to E.

The Licensee (*Veolia Water Solutions and Technologies (Australia) Pty Ltd*) (Veolia) (ACN 055 254 003) was found to be constructing, repairing, maintaining and operating the infrastructure in full compliance with the assessed audit criteria. No non-compliances were identified.

Some opportunities for improvement are noted in the body of this report that might help to ensure that Veolia maintains full compliance into the future.

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## APPENDICES

## 2. Introduction

### 2.1 Objective

This document is an Operational and Follow-up Licence Plan Audit report as required under the *Network Operator's Licence* (Licence No. 10\_008) for the Darling Quarter Recycled Water Scheme, Sydney, NSW for the audit period 30 November 2013 to 27 February 2015. The Licensee is *Veolia Water Solutions and Technologies (Australia) Pty Ltd* (Veolia) (ACN 055 254 003).

### 2.2 Licensee's infrastructure, systems and procedures

The Licensee's infrastructure, systems and procedures audited related to the Darling Quarter Recycled Water Treatment Plant.

### 2.3 Audit method

#### Audit scope

This audit covers the operation and maintenance of the licenced infrastructure and addresses the scope specified in IPART's letter to Mr Jed Lindley, dated 24 February 2015, relating to an Operational and Follow-up Licence Plan Audit for the audit period 30 November 2013 to 27 February 2015.

#### Audit standard

The audit broadly followed the generic principles of auditing given in *ISO 19011:2011 - Guidelines for auditing management systems*. The principal document used to guide the audit was the *IPART Audit Guideline for Greenfield Schemes, Water Industry Competition Act 2006 (NSW), July 2013* (the Audit Guidelines).

Audits are by necessity limited to sampling processes. It is not practicable, nor necessary, to inspect 100 per cent of items within an audit scope. Auditing forms part of the broader risk management process, providing an independent check on the veracity of the processes and procedures in place to manage risk. Finding a balance between audit effort and practicality requires the exercise of experienced professional judgement. The amount of effort allocated to this audit has been kept to a reasonable minimum level.

The audit was reported in accordance with Appendices of the Audit Guidelines. The audit templates given in the Audit Guideline provided the reporting format for the audit as well as providing the detailed audit criteria.

#### Audit steps

An Audit Plan was submitted to both IPART and the Licensee prior to the audit taking place. Documentation was supplied by the Licensee to both the auditor and IPART prior to the audit.

Desktop auditing took place both prior and post the site audit. A site audit took place on Monday, 27<sup>th</sup> April 2015, starting with a plant inspection first thing followed by a desktop and site audit during the remainder of the day. Some evidence was followed up after the audit with the audit report being prepared and submitted to the Licensee as draft, then a final, and then on to IPART.

The audit process involved seeking objective evidence that the Licensee met the audit criteria set by IPART. The auditors collected evidence through interview, document review and site inspection. The auditors randomly sampled examples sufficient to verify claims made by the Licensee.

#### Audit team

The audit was conducted by Dr Dan Deere and quality assurance was undertaken by Mr Jim Sly.

The audit team notes, and greatly appreciates, the participation of IPART representatives Jamie Luke and Javier Canon as observers during the audit:

The audit team notes, and greatly appreciates, the work and effort of representatives of the Licensee, including Jed Lindley and Inshan Sheriff.

## Audit grades

Audit grades were awarded in accordance with the definitions given in the Audit Guidelines. Compliance of operation of the infrastructure with the relevant legal and formal requirements was assessed. More generally, the infrastructure was assessed for its capability to operate safely. Grades were allocated as follows:

- No Requirement (NR)
- Compliant (C)
- Non-compliant Insignificant (NCI)
- Non-compliant Significant (NCS)

## 2.4 Regulatory regime

The scheme operates under the *Water Industry Competition Act 2006* (WICA) which in turn references the following requirements:

- *Water Industry Competition (General) Regulation (2008)*.
- Conditions of *Network Operator's Licence No. 10\_008*.
- *IPART Audit Guideline for Greenfield Schemes, Water Industry Competition Act 2006 (NSW), July 2013* (the Audit Guidelines).
- Relevant aspects of the national *Australian Guidelines for Water Recycling; (Phase 1) Managing Health and Environmental Risks (2006)*.
- Relevant water industry and environmental NSW and national codes of practice and regulations, as applicable.

## 2.5 Quality assurance process

Quality was assured using a professional review process. The auditor's work was reviewed and approved by another auditor. Both auditors are longstanding members of the IPART audit panel.

## 2.6 Audit findings

Audit findings are summarised in the above Executive Summary, are presented in more detail in section 3 and in full detail in the following Appendix.

## 2.7 Site audit agenda for Monday 27<sup>th</sup> April 2015

Time	Item and audit questions	Location	Lead
9:00	<p>Site induction and site tour to enable asset inspection to demonstrate the asset is operating in accordance with its licence plans. Audit questions:</p> <ul style="list-style-type: none"> <li>Which infrastructure is currently in commercial operation [WIC Reg Sched 1 cl. 2(2)(a,b)]?</li> <li>Are maintenance procedures relating to securing pipework within the plant were complete [WIC Reg Sched 1 cl. 3(c)]?</li> <li>Is there evidence that the system is being operated in a safe and reliable manner and maintained in a proper condition [WIC Reg Sched 1 cl. 3(c)]?</li> <li>Is there alignment between the IOP and the WQP (npw) on the one hand and the observed assets on the other [WIC Reg Sched 1 cl. 6(2)(a) and 7(4)(a)]?</li> <li>Is there alignment between the turbidity, UV and RO critical limits and requirements between the WQP, daily operator's recording worksheet and SCADA system [WIC Reg Sched 1 cl. 7(4)(a)]?</li> <li>Is there evidence on site that the customer's installation still complies with the <i>Plumbing and Drainage Act 2011(NSW)</i>? [WIC Reg Sched 1 cl. 8(1) and cl. 11]?</li> </ul>	Darling Quarter	Inshan Sheriff, Veolia
10:15	Morning break and travel to Macquarie Park office.	-	-
11:00	<p>What work is undertaken to ensure that the infrastructure operating plan is fully implemented and the network operator's activities are carried out in accordance with that plan and in what way is it kept under regular review [WIC Reg Sched 1 cl.6(2)(a)]?</p> <p>Are the corporate VWS asset management tools currently in use or are simple spreadsheets based record keeping still being used, risking loss of historical records of shutdowns?</p>	Macquarie Park	Dan Deere
11:30	<p>What work is undertaken to ensure that the water quality plan is fully implemented and the network operator's activities are carried out in accordance with that plan and in what way is it kept under regular review [WIC Reg Sched 1 cl.7(4)(a)]?</p> <p>Have processes been formalised for comparing on-line against benchtop instruments, including both the minimum acceptable frequency of formal checks and the maximum tolerance that would trigger action for each instrument?</p> <p>Have measured been taken to ensure that operators are able to access standby benchtop instruments for checking critical limits in the event that one is in for repair?</p>	Macquarie Park	Dan Deere
12:00	Has a significant change been made to the Infrastructure Operating Plan or Water Quality Plan and, if so, has the Licence Holder provided a copy of the Plan to IPART at the same time it provides a copy to the approved auditor engaged to provide a report as to the adequacy of the changed plan [Network Operator Licence cl. B8]?	Macquarie Park	Dan Deere

Time	Item and audit questions	Location	Lead
12:15	Outstanding items from water quality plan adequacy audit. Audit questions: <ul style="list-style-type: none"> <li>Is there an agreement with NSW Health for incident notification?</li> <li>Has there been a joint Jones Lang LaSalle and VWS water quality incident response trial for this scheme?</li> <li>Is there explicit formal documentation and/or procedure in place for immediate first line incident response?</li> </ul>	Macquarie Park	Dan Deere
12:30	Have any incidents occurred during the conduct of the network operator's activities that threaten, or could threaten, water quality, public health or safety and, if so, have the Minister administering the <i>Public Health Act 2010 (NSW)</i> and the Public Health Regulation 2012 (NSW), the Minister administering Part 2 of the <i>Water Industry Competition Act 2006 (NSW)</i> and any connected network operator or public water utility been notified [WIC Reg Sched 1 cl. 1(2)(a,b,d,e)]?	Macquarie Park	Dan Deere
12:45	Lunch	-	-
1:15	How does the licence holder ensure that water meters comply with the requirements of the <i>Plumbing Code of Australia</i> and are properly maintained and periodically tested and read at intervals of no more than 4 months and that written notice of each meter reading is sent to the relevant licensed retail supplier [WIC Reg Sched 1 cl. 8(1) and 8(2)(a,b,c)]?	Macquarie Park	Dan Deere
1:30	How does the licence holder ensure that the customer's installation complies with the <i>Plumbing and Drainage Act 2011(NSW)</i> ? [WIC Reg Sched 1 cl. 11]?	Macquarie Park	Dan Deere
1:45	For what purpose has the non-potable water been supplied and what evidence is there that the water has been fit for that purpose [WIC Reg Sched 1 cl. 10(a)]?	Macquarie Park	Dan Deere
2:00	How has the operators maintained technical and organisational capacity and, in particular, what evidence is there that operators are suitably qualified [Network Operator Licence cl. B1]?	Macquarie Park	Dan Deere
2:30	Are insurance certificates of currency still valid and are the insurance premiums still set at Professional indemnity - \$10M (EUR 20M); Public and Products liability - \$20M; Workers' compensation – as provided under legislation [Network Operator Licence cl. B3.1 and 3.3]?	Macquarie Park	Dan Deere
2:45	Afternoon break	-	-
3:00	Have reports been submitted in accordance with the Reporting Manual and how has the evidence submitted with those reports been verified for accuracy [Network Operator Licence cl. B5]?	Macquarie Park	Dan Deere
3:15	Have records been kept of the water quality monitoring undertaken and were the analyses NATA accredited [Network Operator Licence cl. B7.1 to 7.3]?	Macquarie Park	Dan Deere
3:30	Are the respective responsibilities of the Licence Holder and each licensed network operator, licensed retail supplier and/or public water utility that is responsible for the other water industry infrastructure clearly set out and are the relevant agreements current [Network Operator Licence cl. B9.1 to 9.3]?	Macquarie Park	Dan Deere

<b>Time</b>	<b>Item and audit questions</b>	<b>Location</b>	<b>Lead</b>
<b>3:45</b>	Contingency period – additional items that may arise.	Macquarie Park	Dan Deere
<b>4:00</b>	Audit close	Macquarie Park	Dan Deere



## **3. Audit report**

### **3.1 Summary of findings**

No non-compliances were identified.

### **3.2 Review of actions**

The Licensee corrected a date error in a reference to the Sewer Mining Agreement following the review of a draft of this report and prior to the final report being issued.

### **3.3 Opportunities for improvement**

The following three opportunities for improvement were identified:

- Measures to prevent plastic discs within the bioreactor from becoming entrapped against the DO meters would be worth pursuing to enable sealing of the vessel and eliminate the need for regular DO analyser removal for maintenance.
- It would be beneficial to set up the SCADA system to show the reverse osmosis conductivity log reduction value continually and have the reverse osmosis conductivity log reduction value recorded and set up as a critical limit since at present it might be possible for the log reduction value to drop below 1.0 without being immediately noticed.
- It would be beneficial for Veolia to contact NSW Health to clarify what NSW Health currently expects with respect to agreements between Veolia and NSW Health for incident notification and to amend current protocols if required.

## Appendix A. General obligations

Network Operator Licence cl. B8	Requirement	Compliance Grade
	Whenever the Licence Holder makes a significant change to its Infrastructure Operating Plan or Water Quality Plan, the Licence Holder is to provide a copy of the Plan to IPART at the same time it provides a copy to the approved auditor engaged to provide a report as to the adequacy of the changed plan as required under the WIC Regulation.	No Requirement
Risk		Target for Full Compliance
No significant risks were identified.		N/A
Evidence sighted		
<ul style="list-style-type: none"><li>▪ <i>Darling Quarter Network Operator's Water Quality Plan</i> Rev 5 January 2014 (Water Quality Plan (non-potable water); WQP).</li><li>▪ <i>Darling Quarter Development Network Operator's Infrastructure Operating Plan</i> Rev 4 January 2014 (Infrastructure Operating Plan; IOP).</li><li>▪ Interview with Inshan Sheriff, Chow Leong and Jed Lindley.</li><li>▪ Site audit on Monday, 27th April 2015.</li></ul>		
Summary of reasons for grade		
No significant changes to the Plans were made during the audit period; accordingly, there was No Requirement in respect of this obligation.		
Discussion and notes		
Review of the <i>Infrastructure Operating Plan</i> and <i>Water Quality Plan</i> revealed that no significant changes to the Plans were made during the audit period.		
Recommendations		
None.		
Opportunities for improvement		
None.		

WIC Sched	Reg 1 cl.	Requirement	Compliance Grade
1(2)(a,b,d,e)		<p>A network operator must immediately notify IPART of any incident in the conduct of its activities that threatens, or could threaten, water quality, public health or safety.</p> <p>A network operator must immediately notify the Minister administering the <i>Public Health Act 2010 (NSW)</i> and the <i>Public Health Regulation 2012 (NSW)</i> of any incident in the conduct of its activities that threatens, or could threaten, water quality, public health or safety.</p> <p>A network operator must immediately notify the Minister administering Part 2 of the <i>Water Industry Competition Act 2006 (NSW)</i> of any incident in the conduct of its activities that threatens, or could threaten, water quality, public health or safety.</p> <p>A network operator must immediately notify any licensed network operator or public water utility whose infrastructure is connected to the licensed network operator's infrastructure of any incident in the conduct of its activities that threatens, or could threaten, water quality, public health or safety.</p>	No Requirement
Risk		Target for Full Compliance	
No significant risks were identified.		N/A	
Evidence sighted			
<ul style="list-style-type: none"><li>• Interview with Inshan Sheriff, Chow Leong and Jed Lindley.</li><li>• Site audit on Monday, 27th April 2015.</li><li>• Test results from January and February 2015 as pdf documents from ALS.</li><li>• Summary reports of weekly test results.</li><li>• SCADA system display at the head office.</li><li>• SCADA system display at the treatment plant.</li><li>• Instrument display at the treatment plant.</li></ul>			
Summary of reasons for grade			
No notifiable events occurred during the audit period; accordingly, there was No Requirement in respect of this obligation.			
Discussion and notes			
The licensee was asked whether or not any incidents occurred during the conduct of the network operator's activities that threatened, or could have threatened, water quality, public health or safety and, if so, were IPART, the Minister administering the <i>Public Health Act 2010 (NSW)</i> and the <i>Public Health Regulation 2012 (NSW)</i> , the Minister administering Part 2 of the <i>Water Industry Competition Act 2006 (NSW)</i> and any connected network operator or public water utility notified. The Licensee advised that no notifiable events occurred during the audit period. Samples of data from SCADA systems and laboratory reports were checked; this did not reveal any evidence that was inconsistent with the Licensee's statements.			
Recommendations			

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None.

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**Opportunities for improvement**

None.

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WIC Sched 2(1)	Reg 1 cl.	Requirement	Compliance Grade
		A network operator must not bring any new water or sewerage infrastructure into commercial operation without the written approval of the Minister.	No Requirement
Risk		Target for Full Compliance	
No significant risks were identified.		N/A	
Evidence sighted			
<ul style="list-style-type: none"><li>Interview with Inshan Sheriff, Chow Leong and Jed Lindley.</li><li>Site audit on Monday, 27th April 2015.</li></ul>			
Summary of reasons for grade			
No new water or sewerage infrastructure has been brought into commercial operation during the audit period; accordingly, there was No Requirement in respect of this obligation.			
Discussion and notes			
The Licensee advised that no new water or sewerage infrastructure had been brought into commercial operation during the audit period; this was confirmed by observations made during the audit site inspection. Accordingly, there was no requirement to obtain the written approval of the Minister.			
Recommendations			
None.			
Opportunities for improvement			
None.			

WIC Sched 1 cl. 2(2)(a,b)	Reg cl.	Requirement	Compliance Grade
		<p>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.</p> <p>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.</p>	No Requirement
Risk		Target for Full Compliance	
No significant risks were identified.		N/A	
Evidence sighted			
<ul style="list-style-type: none"><li>Interview with Inshan Sheriff, Chow Leong and Jed Lindley.</li><li>Site audit on Monday, 27th April 2015.</li></ul>			
Summary of reasons for grade			
No new water or sewerage infrastructure has been brought into commercial operation during the audit period; accordingly, there was No Requirement in respect of this obligation.			
Discussion and notes			
The Licensee advised that no new water or sewerage infrastructure has been brought into commercial operation during the audit period; this was confirmed by observations made during the audit site inspection. Accordingly, there was no requirement for submission of an audit report to the Minister.			
Recommendations			
None.			
Opportunities for improvement			
None.			

WIC Sched 3(c)	Reg 1 cl.	Requirement	Compliance Grade
		The water or sewerage infrastructure is properly designed and constructed, operated in a safe and reliable manner and maintained in a proper condition, having regard to any publicly available standards or codes relating to its design, construction, operation and maintenance.	Compliant
Risk		Target for Full Compliance	
No significant risks were identified.		N/A	
Evidence sighted			
<ul style="list-style-type: none"><li>▪ Interview with Inshan Sheriff, Chow Leong and Jed Lindley.</li><li>▪ Site audit on Monday, 27th April 2015.</li><li>▪ <i>Darling Quarter Network Operator's Water Quality Plan</i> Rev 5 January 2014 (Water Quality Plan (non-potable water); WQP).</li><li>▪ <i>Darling Quarter Development Network Operator's Infrastructure Operating Plan</i> Rev 4 January 2014 (Infrastructure Operating Plan; IOP).</li><li>▪ Test results from January and February 2015 as pdf documents from ALS.</li><li>▪ Summary reports of weekly test results.</li><li>▪ Routine maintenance and inspection spreadsheets.</li><li>▪ SCADA system display at the head office.</li><li>▪ SCADA system display at the treatment plant.</li><li>▪ Instrument display at the treatment plant.</li></ul>			
Summary of reasons for grade			
The infrastructure that had previously been assessed as having been properly designed and constructed (as set out in previous audit reports) was found being 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.			
Discussion and notes			
The infrastructure in service during the audit period had previously been assessed as having been properly designed and constructed (as set out in previous audit reports in 2011 and 2014).  During the present audit, the infrastructure was found being 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. For further details refer to Appendix B.			
Recommendations			
None.			
Opportunities for improvement			
None.			

## Appendix B. Water supply infrastructure (general)

WIC Sched	Reg cl.	Requirement	Compliance Grade
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			
No significant risks were identified.		Target for Full Compliance	
		N/A	
Evidence sighted			
<ul style="list-style-type: none"><li>Interview with Inshan Sheriff, Chow Leong and Jed Lindley.</li><li>Site audit on Monday, 27th April 2015.</li><li><i>Darling Quarter Development Network Operator's Infrastructure Operating Plan</i> Rev 4 January 2014 (Infrastructure Operating Plan; IOP).</li><li>Routine maintenance and inspection spreadsheets.</li><li>SCADA system display at the head office.</li><li>SCADA system display at the treatment plant.</li><li>Instrument display at the treatment plant.</li></ul>			
Summary of reasons for grade			
The Licensee was able to demonstrate that the Infrastructure Operating Plan was fully implemented and that its activities were carried out in accordance with that Plan.			
Discussion			
<p>The Licensee was asked what was undertaken to ensure that the Infrastructure Operating Plan (IOP) was fully implemented and that its activities were carried out in accordance with that Plan and in what way it was kept under regular review. Veolia explained how the IOP is an overview document with the current document being recently updated (revised Plan dated 4<sup>th</sup> January 2014).</p> <p>The detailed day-to-day activities referred to in the IOP are largely managed via the corporate Veolia asset management system. Currently the system involves the use of simple spreadsheets to record and manage asset management, inspection, replacement, evaluation, calibration and maintenance. Records from the audit period were inspected and found to be compliant with the IOP.</p> <p>It was noted that the use of a simple spreadsheet system potentially risks loss of historical records. However, Veolia was found to be backing up these records daily.</p> <p>The presence of suitable documentation was checked at the treatment plant site. Up to date diagrams of the treatment plant were found at the site (e.g. the process flow diagram and the 3-dimensional perspective plant sketch). Material data safety sheets were found on site for hazardous chemicals on site.</p> <p>The general condition of the site was checked. The chemical tanks were clearly labelled. The spill response systems were found to be adequate. Pipes that were previously noted to be somewhat vulnerable were found to be fully bracketed. Bunds were maintained and were not crowded. The plant was in good general repair and tidiness. Drains were not blocked.</p> <p>Asset replacements were checked. Some assets were getting close to their contracted replacement dates, e.g. MBR and RO membranes and monitoring probes and valves. These assets had yet to be replaced but were not yet due for replacement.</p> <p>The assets inspected were found to be in excellent condition, clean, well-labelled, well-maintained, and functioning. The only unusual observation was the presence of loosely bolted DO meters in the two</p>			



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aerated bioreactors. Of the eight to ten large bolts that are designed to hold the DO meters into the reactor vessel, only one or two bolts were in place. The reason for this was that the DO meters need to be regularly removed in order to retrieve the plastic discs suspended within the aerated bioreactors that become lodged between the probes and their supporting rods.

The result is that the bioreactor vessels are neither hydraulically sealed nor airtight. However, no odour and no evidence of overflows from the tank were evident at the site. It was noted that there was an odour extraction system for the tanks and another one for the room. In addition, the room was noted to be under negative pressure. If odour were to escape the tank then it would be captured by the room odour treatment system and would not escape the recycled water treatment plant area. Any spill would drain from the plant via the drain for the room. Therefore, no evident risk was noted and a non-compliance was not recorded.

Nonetheless, as an opportunity for improvement, measures to prevent the plastic discs from becoming entrapped against the DO meters would be worth pursuing to enable sealing of the vessel and to eliminate the need for regular DO analyser removal for maintenance.

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### **Recommendations**

None.

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### **Opportunities for improvement**

Measures to prevent plastic discs within the bioreactor from becoming entrapped against the DO meters would be worth pursuing to enable sealing of the vessel and to eliminate the need for regular DO analyser removal for maintenance.

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

Risk	Target for Full Compliance
No significant risks were identified.	N/A

#### Evidence sighted

- Interview with Inshan Sheriff, Chow Leong and Jed Lindley.
- Site audit on Monday, 27th April 2015.
- *Darling Quarter Network Operator's Water Quality Plan* Rev 5 January 2014 (Water Quality Plan (non-potable water); WQP).
- Test results from January and February 2015 as pdf documents from ALS.
- Summary reports of weekly test results.
- Routine maintenance and inspection spreadsheets.
- SCADA system display at the head office.
- SCADA system display at the treatment plant.
- Instrument display at the treatment plant.

#### Summary of reasons for grade

The Licensee was able to demonstrate that the Water Quality Plan (non-potable water) was fully implemented and that its activities were carried out in accordance with that Plan.

#### Discussion

The audit checked that there was alignment between the turbidity, UV, RO and chlorine critical limits and the requirements between the WQP<sup>1</sup>, the daily operator's recording worksheet, the displays on the instruments in the field and SCADA system.

The head office SCADA was checked approximately two hours later and so readings were not directly compared but functionality was checked as was compliance with critical limits.

All of the critical limits were found to be recording on both on-line instruments at the treatment plant and on the plant and head office SCADA systems. Alarm limits on the SCADA were set in line with the critical limits in the WQP with the exception of the RO conductivity which was set at a marginally more stringent 120 µS/cm as compared to the WQP value of 160 µS/cm. Readings on the three displays were consistent with one another. For instance:

- The dissolved oxygen measured in the MBBR compartments 1 and 2 on assets identification DOIT1023 and DOIT1022 was reported at 2.78 mg/L and 2.58 mg/L, respectively, on the instruments as displayed at the plant.
- The pH measured in the bioreactor on asset identification AIT2017 was displayed at 6.97 on the instrument as displayed at the plant.
- The turbidity post MBR (measured on asset identification AIT 2023) was 0.01 NTU on the instrument as displayed at the plant and 0.1 NTU on the head office SCADA as compared to the critical limit of 0.3 NTU.

<sup>1</sup> Page 32 of the WQP (npw).

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- The post RO conductivity (measured on asset identification AIT3201) was ranging around 46 to 52  $\mu\text{S}/\text{cm}$  at the plant and 37 to 39  $\mu\text{S}/\text{cm}$  on the head office SCADA as compared to the critical limit of 160  $\mu\text{S}/\text{cm}$ .
  - The Aquafides UV disinfection system displayed a UVI of 53  $\text{W}/\text{m}^2$  on site and 44.8  $\text{W}/\text{m}^2$  on the head office SCADA with a flow rate displayed on the system of 6.0  $\text{m}^3/\text{h}$  as compared to the critical limit of 40  $\text{W}/\text{m}^2$  and upper flow rate of 7  $\text{m}^3/\text{h}$ . The unit stated that all lamps were 'OK'.
  - The pH analyser unit (measured after the second treated water tank measured on asset identification AIT 8040) displayed 7.92 at the plant as compared to the critical limit of 6 to 9.
  - The chlorine analyser unit (measured after the second treated water tank) displayed 0.38  $\text{mg}/\text{L}$  in the plant and 0.3 to 0.4  $\text{mg}/\text{L}$  on the head office SCADA as compared to the critical limit of 0.2 (to 2)  $\text{mg}/\text{L}$ .

The plant showed the chlorine tank levels at the plant and on line. Drop test equipment was in good working order to verify chlorine dosing rates.

At the treatment plant, records were checked (for July and December 2014) and it was found that the operator had been taking check readings that were reasonably consistent with the on-line instruments; these observations indicate that checking and calibration frequencies are adequate and calibration processes are effective. All relevant records were being collected and were correct. Triggers for the plant to page the operator in response to exceedances were found to be appropriate. Check readings were found to be taken using a suitable Endress and Hauser dedicated hand held instrument.

During the audit it was noticed the RO permeate online transmitter (asset identification AIT3201) read approximately 50  $\mu\text{S}/\text{cm}$ . It was noted that the SCADA RO permeate conductivity limit was set to 120  $\mu\text{S}/\text{cm}$ , to avoid plant shutdown, which was just below the 160  $\mu\text{S}/\text{cm}$  critical limit. It was noted, however, that the log reduction value achieved by the plant, in comparing raw and treated water, appeared close to the 1 log critical limit required for the water to be fit for purpose and the 1.1 log reduction limit identified within the WQP in order for the water to be fit for purpose.

Review of SCADA data supplied by Veolia showed that the log reduction value (LRV) across the RO ( $\log_{10}(\text{feed conductivity}/\text{permeate conductivity})$ ) was approximately 1.1. Veolia advised that the LRV was constantly  $\geq 1$ . It would be useful, as an opportunity for improvement, if the RO unit could be interrogated so that the SCADA system showed the LRV continually and that the LRV be recorded.

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## Recommendations

None.

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## Opportunities for improvement

Set up the SCADA system to show the reverse osmosis conductivity log reduction value continually and have the reverse osmosis conductivity log reduction value recorded and set up as a critical limit.

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WIC Sched	Reg 1 cl.	Requirement	Compliance Grade
8(1) and 8(2)(a,b,c)		<p>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>.</p> <p>While water is being supplied to premises in respect of which a water meter has been installed, a network operator must ensure that the water meter is properly maintained and periodically tested.</p> <p>While water is being supplied to premises in respect of which a water meter has been installed, a network operator must ensure that the water meter is read at intervals of no more than 4 months.</p> <p>While water is being supplied to premises in respect of which a water meter has been installed, a network operator must ensure that written notice of each meter reading is sent to the relevant licensed retail supplier.</p>	No Requirement
Risk		Target for Full Compliance	
No significant risks were identified.		N/A	
Evidence sighted			
<ul style="list-style-type: none"><li>Interview with Inshan Sheriff and Jed Lindley.</li></ul>			
Summary of reasons for grade			
Water meter readings were not used for charging for recycled water during the audit period; therefore, there was No Requirement in respect of these obligations.			
Discussion and notes			
The Licensee was asked how they ensure that water meters comply with the requirements of the <i>Plumbing Code of Australia</i> and are properly maintained and periodically tested and read at intervals of no more than 4 months and that written notice of each meter reading is sent to the relevant licensed retail supplier. The Licensee advised that charges in this case were not volume based and, therefore, this clause was not a requirement.			
Recommendations			
None.			
Opportunities for improvement			
None.			

WIC Sched 11	Reg 1 cl.	Requirement	Compliance Grade
		The licensee must not allow a customer’s installation to be connected to a licensee’s water main unless the installation complies with the <i>Plumbing and Drainage Act 2011(NSW)</i> .	Compliant
Risk		Target for Full Compliance	
No significant risks were identified.		N/A	
Evidence sighted			
<ul style="list-style-type: none"><li>Email from John Scott, Property Services Manager at Darling Quarter, dated 11<sup>th</sup> May 2015, relating to plumbing certification.</li><li>Letter from Luke Ruckley of Wagner Group Services, dated 28<sup>th</sup> April 2015, relating to plumbing certification.</li></ul>			
Summary of reasons for grade			
The Licensee provided evidence that the customer’s installation adequately complies with the <i>Plumbing and Drainage Act 2011 (NSW)</i> .			
Discussion and notes			
The Licensee was asked how it ensures that the customer’s installations comply with the <i>Plumbing and Drainage Act 2011 (NSW)</i> .			
It was noted that contractors have to get an induction and enter the building via security so that there is good control over access by plumbers and other tradesmen to the site.			
John Scott, the Property Services Manager at Darling Quarter, send an email dated 11 <sup>th</sup> May 2015 that explained how plumbing certification was managed on site. The Property Services Manager oversees the complete operations of the site, including financial control of the contractors. For plumbing, the firm Wagner Group Services are engaged as building plumbers for both planned and emergency plumbing works. They are asked to carry out all routine maintenance, upgrades and breakdown works and are said to currently be the only plumbing contractor used on the site. It is understood by the Property Services Manager that all works undertaken at Darling Quarter by Wagner Group Services comply with AS3500 and that random audits are undertaken of contractor work to ensure compliance.			
Luke Ruckley of Wagner Group Services, supplied a letter to John Scott (Property Services Manager) dated 28 <sup>th</sup> April 2015, relating to plumbing certification. The letter stated that all plumbing work conducted by Wager Group Services complied with AS3500.			
Recommendations			
None.			
Opportunities for improvement			
None.			

## Appendix C. Non-potable water supply infrastructure

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

Risk	Target for Full Compliance
No significant risks were identified.	N/A

Evidence sighted
<ul style="list-style-type: none"><li>▪ Interview with Inshan Sheriff, Chow Leong and Jed Lindley.</li><li>▪ Site audit on Monday, 27th April 2015.</li><li>▪ <i>Darling Quarter Network Operator's Water Quality Plan</i> Rev 5 January 2014 (Water Quality Plan (non-potable water); WQP).</li><li>▪ Test results from January and February 2015 as pdf documents from ALS.</li><li>▪ Summary reports of weekly test results.</li><li>▪ Routine maintenance and inspection spreadsheets.</li><li>▪ SCADA system display at the head office.</li><li>▪ SCADA system display at the treatment plant.</li><li>▪ Instrument display at the treatment plant.</li></ul>

Summary of reasons for grade
The licensee was not aware that water was being used for anything else other than its permitted uses (garden, toilets and cooling towers). Review of the water quality verification data and the SCADA operational monitoring data found results that were consistent with the water supplied being fit for purpose throughout the audit period.

Discussion
The Licensee was asked for what purpose the non-potable water had been supplied and what evidence was there that the water had been fit for that purpose. The Licensee was not aware that water was being used for anything else other than its permitted uses (garden, toilets and cooling towers). No evidence to the contrary was observed during the audit site inspection.
Water quality verification was found to be taking place in line with the testing parameters and test frequency set out in the WQP (npw) <sup>2</sup> . Review of the water quality verification data and the SCADA operational monitoring data found results that were consistent with the water supplied being fit for purpose throughout the audit period.

Recommendations
None.

Opportunities for improvement
None.

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<sup>2</sup> Page 32 of the WQP (npw).

## Appendix D. Schedule B to the network operator's licence

Network Operators	Requirement	Compliance Grade
Licence B1	cl. The Licence Holder must have the capacity (including technical, financial and organisational capacity) to carry out the activities authorised by this licence. If the Licence Holder ceases to have this capacity, it must notify IPART immediately.	Compliant
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Risk	Target for Full Compliance	
...	...	
<hr/>		
Evidence sighted		
■		
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Broadly, the Licensee, Veolia, is very well set up with respect to its technical, financial and organisational capacity to carry out the activities authorised by this Licence. At the more detailed level, the plant operator demonstrated a solid understanding of the issues relevant to operating the plant and had sufficient expertise, training and experience.		
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Discussion		
The Licensee was asked how the plant operators maintained technical and organisational capacity and, in particular, what evidence there was that operators were suitably qualified.		
At the broad level, Veolia was shown to be very well set up with respect to its technical, financial and organisational capacity to carry out the activities authorised by this Licence.		
At the more detailed level, the plant operator was running the plant after several years' experience running the Darling Quarter plant and also running the Bingara Gorge plant. Back up is provided by field services engineers from Veolia. The operator has certified operator training. Interviews with the operator demonstrated a solid understanding of the issues relevant to operation of the plant.		
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Recommendations		
None.		
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Opportunities for improvement		
None.		

Network Operator Licence	Requirement	Compliance Grade
cl. B3.1 and B3.3	<p>The Licence Holder must maintain appropriate insurance sufficient for the size and nature of the activities authorised under this licence.</p> <p>Whenever there is a change in the type, level or period of insurance held by the Licence Holder in relation to the activities authorised under this licence, the Licence Holder must provide a copy of the certificate of currency to IPART within 10 days of the change being made.</p>	Compliant

Risk	Target for Full Compliance
No significant risks were identified.	N/A

#### Evidence sighted

- Certificate of Currency for Professional Indemnity Insurance dated 16<sup>th</sup> December 2014 (Marsh).
- Certificate of Currency for Public and Products Liability Insurance dated 16<sup>th</sup> December 2014 (Marsh).
- Certificate of Currency for Workers' Compensation Insurance dated 24<sup>th</sup> June 2014 (Allianz).

#### Summary of reasons for grade

Compliant certificates of currency were sighted for all insurances, all of which were found to be current and to have been sent to IPART.

#### Discussion and notes

The Licensee was asked whether or not insurance certificates of currency were still valid and appropriate. Insurance certificates of currency were supplied and all were found to be current. Insurance premiums and expiry dates for insurance periods were: Professional Indemnity \$10 M until 31<sup>st</sup> December 2015; Public and Products Liability \$20 M until 31<sup>st</sup> December 2015; and Workers' Compensation as provided under legislation until 30<sup>th</sup> June 2015. Certificates of currency had been supplied to IPART. Therefore, compliant certificates of currency were sighted for all insurances, all of which were found to be current and to have been sent to IPART.

#### Recommendations

None.

#### Opportunities for improvement

None.



Network Operator Licence cl. B5	Requirement	Compliance Grade
	The Licence Holder must prepare and submit reports in accordance with the applicable Reporting Manual issued by IPART.	Compliant
Risk	Target for Full Compliance	
No significant risks were identified.	N/A	
Evidence sighted		
<ul style="list-style-type: none"><li>Annual Compliance Report for Network Operators Licence</li><li>Annual Compliance Report for and Retail Licence</li><li>Evidence of submission of the above two reports (email 29<sup>th</sup> August 2014)</li></ul>		
Summary of reasons for grade		
The Licensee supplied its Annual Compliance Report for Network Operators and Retail Licences on 29 <sup>th</sup> August 2014 (just ahead of the 31 <sup>st</sup> August 2014 deadline). The content of the reports was compliant with IPART requirements.		
Discussion and notes		
The Licensee was asked to show that reports had been submitted in accordance with the Reporting Manual. The Licensee supplied its Annual Compliance Report for Network Operators and Retail Licences on 29 <sup>th</sup> August 2014 (just ahead of the 31 <sup>st</sup> August 2014 deadline). The content of the reports was found to be compliant with IPART requirements.		
Recommendations		
None.		
Opportunities for improvement		
None.		

Network Operator Licence	Requirement	Compliance Grade
cl. B7.1, B7.2 and B7.3	<p>Any monitoring required to be undertaken by the Licence Holder for the purposes of this Licence of any Plans required under the Regulation must be undertaken in accordance to the requirements set out below.</p> <p>The following records must be kept of any samples collected:</p> <ul style="list-style-type: none"> <li>(a) the date(s) on which the sample was taken,</li> <li>(b) the time(s) at which the sample was collected,</li> <li>(c) the point or location at which the sample was taken, and</li> <li>(d) the name of the person who collected the sample.</li> </ul> <p>A laboratory accredited for the specified tests by an independent body acceptable to NSW Health, such as the National Association of Testing Authorities (NATA) or equivalent, shall carry out all analyses of samples.</p>	Compliant
Risk	Target for Full Compliance	
No significant risks were identified.	N/A	
<b>Evidence sighted</b>		
<ul style="list-style-type: none"> <li>▪ Interview with Inshan Sheriff, Chow Leong and Jed Lindley.</li> <li>▪ Site audit on Monday, 27th April 2015.</li> <li>▪ Test results from January and February 2015 as pdf documents from ALS.</li> <li>▪ Summary reports of weekly test results.</li> </ul>		
<b>Summary of reasons for grade</b>		
<p>The Licensee provided evidence that monitoring had been undertaken as required and that the analysis records included the sampling date, sampling time and name of sampler. The laboratory used (ALS) is accredited for the specified tests by NATA and is acceptable to NSW Health.</p>		
<b>Discussion and notes</b>		
<p>The Licensee was asked to show the reports of water quality verification monitoring undertaken during the audit period. The Licensee showed that ALS has been used for its water quality monitoring. ALS is the only test laboratory that carries out the tests for Veolia and the laboratory is NATA accredited for the relevant tests in water samples.</p>		
<p>Examples were shown of test certificates, signed by the NATA signatory, from January and February 2015. The test certificates included details of sample date, location, time and chain of custody. The results of weekly tests were witnessed from within the audit period. The analysis included the sampling date, sampling time and name of sampler.</p>		
<p>The laboratory used (ALS) is accredited for the specified tests by NATA and is acceptable to NSW Health. No results of microbial water quality tests above detection limits were reported. Results were shown to be emailed directly to Jed Lindley.</p>		

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**Recommendations**

None.

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**Opportunities for improvement**

None.

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Network Operator	Requirement	Compliance Grade
Licence cl. B9.1, B9.2 and B9.3	<p>Where a water industry code of conduct under clause 25 of the Regulation has not been established by order published in the Gazette and the water industry infrastructure specified in Schedule A, clause 1, Table 2 of this Licence is connected to any other water industry infrastructure, the Licence Holder must establish a code of conduct in relation to the respective responsibilities of the Licence Holder and each licensed network operator, licensed retail supplier and/or public water utility that is responsible for the other water industry infrastructure.</p> <p>The arrangements in B9.1 are to be agreed in writing between the Licence Holder and the other licensed network operators, licensed retail suppliers and/or public water utilities prior to commencing commercial operation of the water industry infrastructure specified in Schedule A, clause 1, Table 2 of this licence.</p> <p>The arrangements in B9.1 must address the following matters:</p> <ul style="list-style-type: none"> <li>(a) responsibility for the repair, replacement or maintenance of any pipes, pumps, valves, storages or other infrastructure connecting the water industry infrastructure specified in Schedule A, clause 1, Table 2 of this licence to any water industry infrastructure owned by another person,</li> <li>(b) responsibility for water quality,</li> <li>(c) liability in the event of the unavailability of water,</li> <li>(d) liability in the event of infrastructure failure,</li> <li>(e) responsibility for handling customer complaints.</li> </ul>	Compliant

Risk	Target for Full Compliance
No significant risks were identified.	N/A

#### Evidence sighted

- *Sewer Mining Agreement* with Sydney Water dated 29<sup>th</sup> October 2010.
- Terms and conditions of recycled water supply in the Non-drinking water building management plan with Jones Lang LaSalle dated 2010.

#### Summary of reasons for grade

The *Sewer Mining Agreement* with Sydney Water was dated 29<sup>th</sup> October 2010, was valid for ten years, and was current during the audit period.

#### Discussion and notes

The respective responsibilities of the Licence Holder and each licensed network operator, licensed retail supplier and/or public water utility that was responsible for the other water industry infrastructure were checked to ensure that these were clearly set out and that the relevant agreements were in place and current.

A sewer mining agreement between Veolia and Sydney Water, signed on 21<sup>st</sup> November 2011, and valid

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for five years, was current during the audit period. The agreement was found to clearly assign: (a) responsibility for the repair, replacement or maintenance of any pipes, pumps, valves, storages or other infrastructure connecting the water industry infrastructure specified in Schedule A, clause 1, Table 2 of the licence to any water industry infrastructure owned by another person; (b) responsibility for water quality; (c) liability in the event of the unavailability of water; (d) liability in the event of infrastructure failure; and (e) responsibility for handling customer complaints.

Jones Lang LaSalle signed off on the terms and conditions of recycled water supply (dated 2012) and has cited the *Non-drinking water building management plan* for the details. The *Non-drinking water building management plan* covers intended use and uses of the water, the required plumbing and pipe labelling requirements and the requirements to notify tenants and train staff and contractors on site.

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### **Recommendations**

None.

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### **Opportunities for improvement**

None.

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## Appendix E. Water quality plan (non-potable water) WQP (npw) Audit Tables

WIC Sched	Reg 1	Requirement	Compliance Grade
cl.7(1)(a)		Element six. The WQP (npw) includes details on the management of incidents and emergencies.	Compliant
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Risk		Target for Full Compliance	
No significant risks were identified.		N/A	
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Evidence sighted			
<ul style="list-style-type: none"><li>Interview with Inshan Sheriff, Chow Leong and Jed Lindley.</li><li>Site audit on Monday, 27th April 2015.</li><li><i>Darling Quarter Network Operator's Water Quality Plan</i> Rev 5 January 2014 (Water Quality Plan (non-potable water); WQP).</li><li>Email thread involving Tracey Murray and Chow Leong from Veolia and Colin Begg and John Scott from Darling Quarter Management verifying Veolia's involvement in a an emergency response drill held 13<sup>th</sup> June 2014.</li><li><i>Veolia Public Health Emergency Response Plan</i> dated 1st April 2015.</li><li><i>Veolia Emergency Preparedness and Response Plan</i>.</li></ul>			
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Summary of reasons for grade			
Veolia was found to have adequate and up to date emergency and incident preparedness planning documentation in place and to have recently undertaken and incident response practice with Jones Lang LaSalle.			
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Discussion and notes			
<p>There is explicit formal documentation and procedures in place for incident response. Veolia has an Emergency Preparedness and Response Plan and six more detailed Emergency Response Plans covering scenarios such as risks to public health, customer and public complaints and a site-specific response plan. The Public Health Emergency Response Plan appears detailed, adequate and current (1<sup>st</sup> April 2015), as an example. The plan covered the notification in the event of out of specification water, odour or spills among other scenarios.</p> <p>The documented approach for handling incidents and incident notification that Veolia has in place appears acceptable, but is not up to the standards required by NSW Health for more recent WICA schemes. As an opportunity for improvement, it would be beneficial for Veolia to contact NSW Health to clarify what NSW Health currently expects with respect to agreements between Veolia and NSW Health for incident notification and to amend current protocols if required.</p> <p>A joint Jones Lang LaSalle and Veolia incident response trial was undertaken for the scheme. This entailed an emergency evacuation drill carried out during June 2014.</p> <p>It is noted the Jones Lang LaSalle is the customer of recycled water and the supplier of trade waste. Sydney Water is not a connected customer from Veolia's perspective. Nonetheless, during an incident, there may be value in notifying Sydney Water. In practice, such a notification would need to be undertaken by Jones Lang LaSalle which has a Trade Waste agreement with Sydney Water that in turn includes clauses about notification of Sydney Water.</p>			
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Recommendations			
None.			

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### **Opportunities for improvement**

It would be beneficial for Veolia to contact NSW Health to clarify what NSW Health currently expects with respect to agreements between Veolia and NSW Health for incident notification and to amend current protocols if required.

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