Drinking Water Quality Management Report

Financial Year 2018

BRISBANE AIRPORT

SPID 00545

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Contents

Glossary of terms

ADWG 2004	Australian Drinking Water Guidelines (2004). Published by the National Health and Medical Research Council of Australia
ADWG 2011	Australian Drinking Water Guidelines (2011). Published by the National Health and Medical Research Council of Australia
E. coli	*Escherichia coli*, a bacterium which is considered to indicate the presence of faecal contamination and therefore potential health risk
HACCP	Hazard Analysis and Critical Control Points certification for protecting drinking water quality
mg/L	Milligrams per litre
NTU	Nephelometric Turbidity Units
MPN/100mL	Most probable number per 100 millilitres
CFU/100mL	Colony forming units per 100 millilitres
<	Less than
>	Greater than

1. Introduction

This report documents the performance of Brisbane Airport 's drinking water service with respect to water quality and performance in implementing the actions detailed in the drinking water quality management plan (DWQMP) as required under the Water Supply (Safety and Reliability) Act 2008 (the Act).

The report assists the Regulator to determine whether the approved DWQMP and any approval conditions have been complied with and provides a mechanism for providers to report publicly on their performance in managing drinking water quality.

This report has been prepared for the period July 2017 to June 2018.

2. Overview of Operations

Service Provider Name – Brisbane Airport Corporation Limited

Service Provider identification Number (SPID) – 545

Brisbane Airport Corporation (BAC) receives potable water supply from Queensland Urban Utilities (QUU) water system, which is an external service provider. The supply chain is as follows:

a. Seqwater provides water treatment to produce and store potable water at a series of locations around the South-east Queensland area

b. Water is transported via Seqwater owned bulk water transport infrastructure into QUU owned infrastructure

c. QUU (local water distributor) purchases water from Seqwater (formally the SEQ Water Grid manager)

d. BAC purchases water from QUU, which is received from the Bartley's Hill supply scheme via a twin DN300 connection at Sugarmill Road.

BAC owns and operates the trunk services on-airport for potable water and plans for, designs, constructs and maintains these services. Works on these services cannot proceed without approval from BAC. All water reticulation services are designed to achieve BAC's levels of service. All water utilities are designed and installed to Australian Standards and all environmental and Airport Building Controller requirements.

3. Actions taken to implement the DWQMP

3.1. DWMP approval conditions

On 12 August 2016 BAC submitted the updated DWQMP to the Department of Energy and Water Supply (DEWS).

A response was received on 8 November 2016 requesting further information.

A response to the information request and amended plan was submitted to DEWS on 7/12/16.

An information notice was received from DEWS 23 February 2017 to approve the amended DWQMP.

BAC can confirm that it complies with the previous DWQMP approval conditions: and,

- has fully implemented its verification monitoring program.
- is not aware of any non-compliance with the health guideline values in the ADWG that could have been identified through monitoring including research activities.
- has not identified (through its verification monitoring program) any non-compliance with relevant criteria including health guidelines values in the ADWG and standards in Public Health Act.

BAC engaged Bligh Tanner to carry out an independent audit of the BAC DWQMP and this was undertaken on the 5th June 2018. Confirmation of receipt of the audit report was received from DNRME on the 10th July 2018.

3.2. Progress in implementing the risk management improvement program.

The DWQM improvement Plan was developed to identify requirements to fulfil the obligations of DWQMP and for continuous improvement of the system. Refer to the Appendices B for a summary of progress in implementing each of the Improvement Program actions.

3.3. Amendments made to the DWQMP

No amendments were made during this reporting period.

4. Compliance with water quality criteria for drinking water

Routine sampling is conducted under contract by QUU SAS Laboratory with is NATA accredited.

Please refer to Appendices A Table 1 -'Summary of water quality criteria compliance' and Table 2: Reticulation E. coli verification monitoring. All results have met with the recommended values in the Australian Drinking Water Guidelines including standards in the Public Health Regulations 2005

5. Notifications to the Regulator under sections 102 and 102A of the Act

This financial year there was no instances where the Regulator was notified under sections 102 or 102A of the Act.

5.1. Non-compliance with the water quality criteria.

100% compliance with the water quality criteria was achieved for this reporting period.

5.2. Prescribed incidents or Events reported to the Regulator

Incident Description: No incident occurred/reported for this reporting period.

6. Customer complaints related to water quality

Brisbane Airport is required to report on the number of complaints, general details of complaints, and the responses undertaken.

There was one complaint received from a tenant relating to water quality after they had carried out an internal water sample and testing. Further testing was carried out by BAC on the main supply and the results were within the Australian Drinking Water Quality guidelines.

Based on additional investigations, the source of contamination has been identified as an internal tenancy appliance connection and not from the main water line itself.

7. Outcome of the review of the DWQMP and how issues raised have been addressed

The next internal review of the DWQMP is due before June 2019.

There have been low residual chlorine levels recorded historically at most locations throughout the BAC network. The levels recorded at the QUU intake on Sugarmill Road are also traditionally low although during the winter months there is generally some residual chlorine recorded.

BAC has actively engaged with QUU to find solutions to increase the residual chlorine levels at the intake. This year BAC used a specialist contractor to scour the mains to remove any potential biofilm from the internal walls of the pipework. QUU also engaged the same contractor to carry out the treatment of the mains along Sugarmill Road prior to the BAC intake.

The results have been an increase in chlorine residual levels at both the intake and other locations throughout the airport.

BAC and QUU are investigating options around a permanent disinfection solution for the intake at the airport.

Water main scouring has continued this year as has the progression with QUU to design and install a Chloramine dosing plant. This project is now finalising the detailed design and should tender for final design and construction around September 2018.

A desktop exercise was completed on the 17th October 2017 and topics included complete loss of supply and water contamination at a BAC controlled building.

7.1. New Hazards identified

There have been no new hazards identified during the reporting period.

8. Appendix A – Summary of compliance with water quality criteria

Test Parameter	Unit of Measurement	Total No of samples collected	Max Concentration / Count	Exceedance Count*
Free Chlorine by Photometer	mg/L	178	0.24	0
Total Chlorine by Photometer	mg/L	178	1.9	0
Temperature - Field	° C	172	30	0
Coliforms (Colilert)	MPN/100mL	184	520	0
E. coli (Colilert)	MPN/100mL	184	<1	0
HPC	cfu/mL	106	770	0
pH	pH Unit	106	7.9	0
Ammonia N	mg/L	106	0.48	0
Nitrite N by FIA	mg/L	106	0.32	0
Nitrite+Nitrate as N	mg/L	106	1.40	0
Nitrate N by FIA (Calc)	mg/L	106	1.40	0
Monochloroacetic Acid	ug/L	106	<10	0
Dichloroacetic Acid	ug/L	106	20	0
Trichloroacetic Acid	ug/L	106	<10	0
Bromochloroacetic Acid	ug/L	106	14	0
Monobromoacetic Acid	ug/L	106	<10	0
Dibromoacetic Acid	ug/L	106	<10	0
Total Haloacetic Acids	µg/L	106	<60	0
Chloroform	µg/L	106	41	0
Bromodichloromethane	µg/L	106	35	0
Chlorodibromomethane	µg/L	106	38	0
Bromoform	µg/L	106	12	0
THMs Total	µg/L	106	109	0
Fluoride	mg/L	35	0.89	0
Aluminium ICPMS	mg/L	35	0.060	0
Copper ICPMS	mg/L	35	0.98	0
Iron ICPMS	mg/L	35	0.071	0
Manganese ICPMS	mg/L	35	0.024	0
Lead ICPMS	mg/L	35	0.007	0
Zinc ICPMS	mg/L	35	0.200	0
C6-C9 Fraction	ug/L	9	<10	0
C10-C14 Fraction	ug/L	9	<50	0
C15-C28 Fraction	ug/L	9	<50	0
C29-C36 Fraction	ug/L	9	<50	0
Benzene	ug/L	9	<1	0
Toluene	ug/L	9	<2	0
Ethyl Benzene	ug/L	9	<1	0
meta & para-Xylene	ug/L	9	<2	0
ortho-Xylene	ug/L	9	<1	0
1.2.4-Trimethylbenzene	ug/L	9	<1	0
1.3.5-Trimethylbenzene	ug/L	9	<1	0
* Exceedence count = number of samples that did not meet the water quality criteria.				

TABLE 1 Summary of water quality criteria compliance

Year	2017						2018					
Month	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**
No. of samples collected	14	15	17	15	17	15	18	13	15	15	16	14
No. of samples collected in which *E coli* is detected	0	0	0	0	0	0	0	0	0	0	0	0
No. of samples collected in previous 12 month period	186	185	187	187	188	190	188	189	188	186	186	185
No. of failures for previous 12 month period	0	0	0	0	0	0	0	0	0	0	0	0
% of samples that comply	100	100	100	100	100	100	100	100	100	100	100	100
Compliance with 98% annual value	100	100	100	100	100	100	100	100	100	100	100	100

Table 2 - Reticulation E. coli verification monitoring

Appendix B – DWQMP Risk Management Improvement Program

Table 3 Risk Management improvement Program STATUS

Risk Management Improvement Plan								Year 2017			Year 2018		
Scheme Component / Sub-component	**Hazard/ Hazardous event**	**Priority**	**Timing**	**Action(s)**	**Responsibility**	**Target date**	**Estimated cost**	**Summary Response**	**Further Actions Required**	**Status**	**Summary Actions**	**Actions**	**Status**
Water quality sampling	Microbial contamination	Sampling currently performed, however does not include sampling into large buildings. TAR building is supplied now by a dead end pipe due to NPR work.	**interim**	Establish new sampling points at the International Terminal Building and TAR building.	Hydraulics Co-ordinator	Completed				Closed			
			short-term	Review water quality results and sampling locations for effectiveness of providing representative water quality samples Review microbial trigger levels for work orders (i.e. HTP)	Airport Facilities Manager	ongoing				In Progress			
			long-term	Monitor and review Increased and/or changes to sampling locations may be required as a result of development and population growth	Airport Facilities Manager	Review Annually				In Progress			
Water Quality	Microbial Contamination, Low Chlorine residual	Medium. No high risk of chemical contamination identified	**interim**	Assessment of microbiological risks investigation and development of a Prevention Plan. Investigation of ITB microbial risks, developing incident response and preventive plans.	Airport Facilities Manager	Completed				Closed			
			short-term	Discuss with QUU options for higher chlorine residual from supply water, Investigate option and install in line dosing system at ITB (currently underway)	Airport Facilities Manager	Ongoing				In Progress	Design was tendered in October 2018. Tender assessment in progress.		
			long-term	Depending on the outcomes of the Southern supply, decide on the need and urgency to undertake an investigation for all-of-system boosting of disinfection in the BAC precinct. QUU new "Southern" supply from Wellers,	Airport Facilities Manager	1 July 2019				In Progress	As above.		

Project approvals	Chemical/microbial contamination or loss of supply resulting from	Medium. Current practise is for O&M to review specifications prior to approval of new designs	**interim**	Identify current project approval procedures	Hydraulics Co-ordinator	Completed				Closed			
			short-term	Develop and formalise a single approvals process for potable water infrastructure.	Airport Facilities Manager	Completed				Closed			
			long-term	Review and monitor documentation.	Airport Facilities Manager	Ongoing							
Technical specifications	Incorrect materials or procedures being used resulting in chemical/microbial contamination or loss of supply	Low. Current guidelines adopt QUU and WASA specifications with exceptions documented in the Airport technical guidelines	**interim**	Continue to use existing BAC and project specific technical specifications	Hydraulics Co-ordinator	Interim - (current)			None	Closed			
			short-term	Review Current BAC, QUU and WASA specifications to identify discrepancies and relevant sections.	Airport Facilities Manager	Completed				Closed			
			long-term	Develop a set of technical specifications specific to BAC that can be used across all potable water projects. A standard approach will decrease the risk for inconsistencies between projects	Airport Facilities Manager	Completed				Closed			
Operational & Maintenance Procedures	Incorrect procedures being used resulting in chemical/microbial contamination or loss of supply	High (based on procedures not currently formalised)	**interim**	Identify current operation and Maintenance practices	Hydraulics Co-ordinator	Completed				Closed			
			short-term	Formalise operation and maintenance procedure	Airport Facilities Manager	Completed				Closed			
			long-term	Review procedures and amend as required to suit BAC operations	Airport Facilities Manager	ongoing							
Mapping infrastructure	Microbial/chemical contamination of potable water system	High (based on number of unknown tanks and connection arrangements)	**interim**	Review BAC supply schematic and identify any infrastructure not currently captured on plans	Hydraulics Co-ordinator	Completed				Closed			
			short-term	Update BAC schematic and layout plans to capture all infrastructure connected to the potable water system.	Airport Facilities Manager	Completed				Closed			
			long-term	Review and monitor current As-constructed and drafting specification to ensure all new infrastructure is captured	Airport Facilities Manager	ongoing				In Progress			

Water supply and quality	microbial contamination due to cross contamination	Medium. Best practice currently adopted on site. Pipes colour coded No hydrants on recycled lines	**interim**	Identify likely areas of cross contamination	Airport Facilities Manager	Completed				Closed			
			short-term	Incorporate controls through BAC standard operation and maintenance procedures Contractor inductions and approvals	Airport Facilities Manager	Completed				Closed			
			long-term	Develop recycled water management plan	Utilities & Energy Manager	in progress		Draft has been completed.					
Water supply and quality	Aesthetic/microbial/chemical contamination from upstream water provider	Medium. Provider (QUU) currently operates under a DWQMP to ensure high water quality to BAC	**interim**	Initiate discussion with QUU	Airport Facilities Manager	Completed	NIL			Closed			
			short-term	Develop MOU with QUU in regards to the quality and supply of water to BAC including residual chlorine levels. Outline communication protocols between BAC and QUU	Airport Facilities Manager	in progress							
			long-term	Review and monitor water supply and address any issues through MOU. Provide feedback and work with QUU to optimise water quality and supply and reduce high risk areas	Airport Facilities Manager	on going							
Training programme	All hazards	Medium.	**interim**	Identify gaps in staff knowledge and/or skills Identify potential gaps in contractor knowledge with regards to the BAC systems. Continue with current approvals process	Hydraulics Co-ordinator	Completed				Closed			
			short-term	Draft training programmes and contractor induction awareness programme. Develop formal approvals process	Airport Facilities Manager	Completed				Closed			
			long-term	Provide guidance to tenants to follow BAC procedures Implement inductions to ensure adequate competencies and awareness for all personnel working on BAC infrastructure. Develop a formalised approvals process for contactors working on BAC site	Utilities & Energy Manager	on going							