

# **DRINKING WATER QUALITY MANAGEMENT PLAN REPORT**

## **12 September 2016 to 30 June 2017**

Port of Townsville Limited

Service Provider Identification Number (SPID): 570

### **POTL Water Distribution Scheme**

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**REVISION 0**



## TABLE OF CONTENTS

1.	Introduction .....	1
2.	Overview of Operations .....	1
3.	Compliance with water quality criteria for drinking water .....	3
3.1	Appropriateness of Operational Monitoring Program .....	3
3.2	Appropriateness of Verification Monitoring Program .....	3
4.	Acronyms and Glossary .....	9

## TABLES

Table 1:	Infrastructure Details .....	2
Table 2:	Operational E. coli Monitoring Results .....	4
Table 3:	Operational Residual Chlorine Monitoring Results and Verification Program Monitoring Results.....	5

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			Page	Page i

## 1. INTRODUCTION

This report documents the performance of Port of Townsville Limited’s (POTL) drinking water service with respect to water quality and performance in implementing the actions detailed in its drinking water quality management plan (DWQMP) as required under the *Water Supply (Safety and Reliability) Act 2008* (the Act). POTL has been registered as a service provider under the *Water Supply (Safety and Reliability) Act 2008* (the Act) since 19 January 2015.

The report has been prepared in accordance with the template provided in the *Water Industry Regulatory Reform – drinking water quality management plan report factsheet* published by the Department of Energy and Water Supply, Queensland, which provides a mechanism for providers to report publicly on their performance in managing drinking water quality.

## 2. OVERVIEW OF OPERATIONS

POTL is responsible for its on-site potable water distribution network within the Port of Townsville, namely the POTL Water Distribution Scheme, which includes the POTL owned and maintained potable water distribution mains across POTL owned lands. This distribution scheme only services POTL owned buildings, lease held lands and facilities and the port berths for visiting ship connection.

The POTL Water Distribution Scheme draws its drinking water supply from Townsville City Council’s (TCC) reticulated supply through two metered supply points. POTL does not store or have the capacity to treat potable water. POTL has no influence over the quality of water distributed through its scheme and has no opportunity to treat water distributed through its scheme. POTL relies solely on the municipal potable water supplier in providing potable water that meets all necessary standards and no recycled water or alternate potable water sources are used within the Port of Townsville. The management of water quality until it is supplied to POTL is the responsibility of TCC. POTL is committed to ensuring that the water scheme is managed so that the supply does not constitute a hazard to employees or the public.

Table 1 details the water source, treatment processes, disinfection processes and other infrastructure of the scheme along with the context of the supply in terms of current population and demand.

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			Page	Page 1

**Table 1: Infrastructure Details**

Component		Details
Name of Scheme		POTL Water Distribution Scheme
Operator		Port of Townsville Limited
Sources	Name	Townsville City Council Municipal Water Supply
	Type	Treated Water Supply
	% of supply	100%
Sourcing Infrastructure	Type (pumped/gravity/equipped bore/etc.)	Supply Mains
	Description	The POTL Water Distribution Scheme is supplied by two water mains from the TCC Municipal Water Supply. One 200 pipeline services the Western area of the port and a second 300 mm pipeline services the Eastern area of the port.
Are there any sources that <b>do not</b> undergo treatment prior to supply?		No
Treatment Plant	Not applicable. The POTL Water Distribution Scheme has no treatment plants. All treatment is performed by the TCC Municipal Water Supply prior to water entering the POTL Water Distribution Scheme.	
Are there any sources that <b>do not</b> undergo disinfection prior to supply?		No
Disinfection	Not applicable. The POTL Water Distribution Scheme has no disinfection processes. All disinfection is performed by the TCC Municipal Water Supply prior to water entering the POTL Water Distribution Scheme.	
Distribution and Reticulation Scheme	Pipe material	Ductile Iron/Polyethylene
	Age range	15~ 50 years
	Approximate percentage % of total length	60% @ 50 year 40% @ 15 year
	Areas where potential long detention periods could be expected	N/A
	Areas where low water pressure (example < 12 m) could be expected during peak or other demand periods)	N/A
	Communities served	Port of Townsville Workplaces
	Population served	approx. 600
	Connections	106
Demand	approx. 550 kL/d	
Reservoirs	Not applicable. The POTL Water Distribution Scheme has no reservoirs. All water storage is performed by the TCC Municipal Water Supply prior to water entering the POTL Water Distribution Scheme.	
Water Quality Responsibility Changes	Upstream location	Townsville City Council – bulk supplier
	Downstream location	None

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			Page	Page 2

### 3. COMPLIANCE WITH WATER QUALITY CRITERIA FOR DRINKING WATER

Tables 2 and 3 provide a summary of the results of the operational and verification monitoring programs for the POTL Water Distribution Scheme. Both monitoring programs were carried out as per the specifications stated in the DWQMP. The reported statistics do not include results derived from repeat samples, or from emergency or investigative samples undertaken in response to an elevated result.

The results from the operational and verification monitoring programs have been compared against the levels of the water quality criteria specified by the Regulator in the *Water Quality and Reporting Guideline for a Drinking Water Service*. The water quality criteria mean health guideline values in the most current Australian Drinking Water Guidelines, as well as the standards in the Public Health Regulation 2005

The water quality results met the recommended values in the *E. coli* and fluoride standards and Australian Drinking Water Guidelines, except for 1 sample for Iron and Lead at the Lennon Drive supply mains, which is outside of POTL's control.

The limit of reporting for Selenium is the same as the guideline limit and the limit of reporting for Benzo(a)pyrene is higher than the guideline limit.

#### 3.1 Appropriateness of Operational Monitoring Program

POTL does not store or treat water in its Water Distribution Scheme. The only operational parameter under POTL's control is residence time of water in its distribution scheme. Long residence times in the POTL scheme may result in low disinfectant residuals, microbial growth or regrowth and high concentrations of contaminants due to leaching or corrosion of system materials. Residual chlorine remains a useful measure of the potential for microbial growth and residence time of water in a system.

#### 3.2 Appropriateness of Verification Monitoring Program

POTL will continue to review the scope of testing and/or the frequency of testing for particular parameters as confidence is gained regarding the risks which are significant to the POTL water distribution scheme. In future, consideration will be given to the removal of Polynuclear Aromatic Hydrocarbons, which are currently below the limit of reporting.

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			Page	Page 3

**Table 2: Operational *E. coli* Monitoring Results**

Scheme Name	POTL Water Distribution Scheme									
Scheme Component	Distribution									
Year	2016/2017									
Month	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
No. of samples collected	5	5	5	5	5	5	5	5	5	5
No. of samples collected in which <i>E. coli</i> is detected (i.e. a failure)	0	0	0	0	0	0	0	0	0	0
No. of failures for previous 12 month period	N/A	N/A	N/A	N/A	N/A	0	0	0	0	0
% of samples that comply	100	100	100	100	100	100	100	100	100	100
Compliance with 98% annual value	N/A	N/A	N/A	N/A	N/A	100%	100%	100%	100%	100%
Laboratory	TCC	TCC	TCC	TCC	TCC	TCC	TCC	ALS	ALS	ALS
Unit	org/100ml	org/100ml	org/100ml	org/100ml	org/100ml	org/100ml	org/100ml	CFU/100ml	CFU/100ml	CFU/100ml
Limit of reporting	1	1	1	1	1	1	1	1	1	1

Note: N/A indicates that 12 months data is not available.

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			Page	Page 4

**Table 3: Operational Residual Chlorine Monitoring Results and Verification Program Monitoring Results**

Scheme Name		POTL Water Distribution Scheme								
Scheme Component		Distribution								
Parameter	Units	Limit of reporting	Frequency of sampling	Total No. samples collected	No. of samples in which parameter was detected	No. of samples exceeding water quality criteria	Min	Max	Average (Mean)	Laboratory name
Residual Chlorine	mg/L	0.05 / 0.02	monthly	50	39	N/A	<0.05	1.77	0.53	TCC / ALS
ph	pH unit	0.01	six-monthly	10	10	0	7.17	7.78	7.51	ALS
Turbidity	NTU	0.1	six-monthly	10	10	0	0.1	0.7	0.25	ALS
Fluoride	mg/L	0.1	six-monthly	10	10	0	0.6	0.7	0.64	ALS
Sulphate	mg/L	1	six-monthly	10	10	0	2	3	2.3	ALS
Chloride	mg/L	1	six-monthly	10	10	0	29	40	33.6	ALS
Calcium	mg/L	1	six-monthly	10	10	N/A	10	12	11	ALS
Magnesium	mg/L	1	six-monthly	10	10	N/A	3	6	4.5	ALS
Potassium	mg/L	1	six-monthly	10	10	N/A	2	4	3	ALS
Sodium	mg/L	1	six-monthly	10	10	0	30	43	35.4	ALS
Nitrite	mg/L	0.01	six-monthly	10	2	0	<0.01	0.02	0.015	ALS
Nitrate	mg/L	0.01	six-monthly	10	10	0	0.04	0.18	0.11	ALS
Aluminium	mg/L	0.01	six-monthly	10	10	0	0.01	0.04	0.02	ALS
Antimony	mg/L	0.001	six-monthly	10	0	0	<0.001	<0.001	<0.001	ALS
Arsenic	mg/L	0.001	six-monthly	10	0	0	<0.001	<0.001	<0.001	ALS
Barium	mg/L	0.001	six-monthly	10	10	0	0.042	0.054	0.047	ALS

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			Page	Page 5

Scheme Name		POTL Water Distribution Scheme								
Scheme Component		Distribution								
Parameter	Units	Limit of reporting	Frequency of sampling	Total No. samples collected	No. of samples in which parameter was detected	No. of samples exceeding water quality criteria	Min	Max	Average (Mean)	Laboratory name
Boron	mg/L	0.05	six-monthly	10	0	0	<0.05	<0.05	<0.05	ALS
Cadmium	mg/L	0.0001	six-monthly	10	0	0	<0.0001	<0.0001	<0.0001	ALS
Chromium	mg/L	0.001	six-monthly	10	0	0	<0.001	<0.001	<0.001	ALS
Copper	mg/L	0.001	six-monthly	10	10	0	0.006	0.170	0.057	ALS
Iron	mg/L	0.05	six-monthly	10	2	1	<0.05	0.64	0.36	ALS
Lead	mg/L	0.001	six-monthly	10	6	1	<0.001	0.041	0.009	ALS
Manganese	mg/L	0.001	six-monthly	10	4	0	<0.001	0.004	0.002	ALS
Molybdenum	mg/L	0.001	six-monthly	10	0	0	<0.001	<0.001	<0.001	ALS
Nickel	mg/L	0.001	six-monthly	10	2	0	<0.001	0.005	0.0035	ALS
Selenium	mg/L	0.01	six-monthly	10	0	N/A	<0.01	<0.01	<0.01	ALS
Silver	mg/L	0.001	six-monthly	10	0	0	<0.001	<0.001	<0.001	ALS
Uranium	mg/L	0.001	six-monthly	10	0	0	<0.001	<0.001	<0.001	ALS
Zinc	mg/L	0.005	six-monthly	10	10	0	0.009	0.085	0.027	ALS
Mercury	mg/L	0.0001	six-monthly	10	0	0	<0.0001	<0.0001	<0.0001	ALS
Acenaphthene	µg/L	2	six-monthly	10	0	N/A	<2	<2	<2	ALS
Acenaphthylene	µg/L	2	six-monthly	10	0	N/A	<2	<2	<2	ALS
Anthracene	µg/L	2	six-monthly	10	0	N/A	<2	<2	<2	ALS

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			Page	Page 6



Scheme Name		POTL Water Distribution Scheme								
Scheme Component		Distribution								
Parameter	Units	Limit of reporting	Frequency of sampling	Total No. samples collected	No. of samples in which parameter was detected	No. of samples exceeding water quality criteria	Min	Max	Average (Mean)	Laboratory name
Benz(a)anthracene	µg/L	2	six-monthly	10	0	N/A	<2	<2	<2	ALS
Benzo(a)pyrene	µg/L	2	six-monthly	10	0	N/A	<2	<2	<2	ALS
Benzo(a)pyrene TEQ (zero)	µg/L	2	six-monthly	10	0	N/A	<2	<2	<2	ALS
Benzo(b+j) & Benzo(k)fluoranthene	µg/L	4	six-monthly	10	0	N/A	<4	<4	<4	ALS
Benzo(g,h,i)perylene	µg/L	2	six-monthly	10	0	N/A	<2	<2	<2	ALS
Chrysene	µg/L	2	six-monthly	10	0	N/A	<2	<2	<2	ALS
Dibenz(a,h)anthracene	µg/L	2	six-monthly	10	0	N/A	<2	<2	<2	ALS
Fluoranthene	µg/L	2	six-monthly	10	0	N/A	<2	<2	<2	ALS
Fluorene	µg/L	2	six-monthly	10	0	N/A	<2	<2	<2	ALS
Indeno(1.2.3.cd)pyrene	µg/L	2	six-monthly	10	0	N/A	<2	<2	<2	ALS
Naphthalene	µg/L	2	six-monthly	10	0	N/A	<2	<2	<2	ALS
Phenanthrene	µg/L	2	six-monthly	10	0	N/A	<2	<2	<2	ALS
Pyrene	µg/L	2	six-monthly	10	0	N/A	<2	<2	<2	ALS
Sum of polycyclic aromatic hydrocarbons	µg/L	2	six-monthly	10	0	N/A	<2	<2	<2	ALS
2-Fluorobiphenyl	µg/L	surrogate	six-monthly	10	10	N/A	3.7	9	6.06	ALS

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			Page	Page 7

Scheme Name		POTL Water Distribution Scheme								
Scheme Component		Distribution								
Parameter	Units	Limit of reporting	Frequency of sampling	Total No. samples collected	No. of samples in which parameter was detected	No. of samples exceeding water quality criteria	Min	Max	Average (Mean)	Laboratory name
4-Terphenyl-d14	µg/L	surrogate	six-monthly	10	10	N/A	3.5	13	7.95	ALS
Anthracene-d10	µg/L	surrogate	six-monthly	10	10	N/A	3.3	10	6.09	ALS

Note: N/A indicates that no guideline value is specified.

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			Page	Page 8

## 4. ACRONYMS AND GLOSSARY

<b>ALS</b>	Australian Laboratory Services
<b>CFU/100ml</b>	Colony forming units per 100 millilitres
<b><i>E. coli</i></b>	<i>Escherichia coli</i> , a bacterium which is considered to indicate the presence of faecal contamination and therefore potential health risk
<b>POTL</b>	Port of Townsville Limited
<b>mg/L</b>	Milligrams per litre
<b>NTU</b>	Nephelometric Turbidity Units
<b>org/100ml</b>	Organisms per 100 millilitres
<b>TCC</b>	Townsville City Council
<b>&lt;</b>	Less than

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			Page	Page 9