

Drinking Water Quality Management Plan Report

North Queensland Bulk Ports (NQBP)

SPID: 548

Financial Year 2017/2018

This report has been prepared in accordance with the Drinking Water Quality Management Plan Report Guidance Note by:

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1 Introduction

This report documents the performance of NQBP'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. Specifically, it covers:

- The activities undertaken over the financial year in operating our drinking water service;
- Drinking water quality summary; and
- Summary of our performance in implementing our approved DWQMP.

This template has been prepared in accordance with the *Drinking Water Quality Management Plan Report Template and Guidance Note* published by the Department of Natural Resources, Mines and Energy accessible at www.dnrme.qld.gov.au.

2 Summary of scheme/s operated

The details of the scheme to which this plan applies, and the corresponding details of connections, and current and future demands, are provided within the DWQMP. Note that as NQBP does not have any residential customers, population figures have not been modelled and are not included in this report.

Results of network modelling, presented in NQBP's Port of Mackay Utilities Water Asset Management Plan (AMP) 2018 shows the network average day (AD) demand as approximately 534 KL/day, the maximum day (MD) demand as 1,911 KL/day (6.1 and 22 L/s equivalent continuous flow rate respectively). The maximum hour (MH) demand was assessed as a rate of 44.5 L/s. According to the Water AMP, future demand over the next 25 years is expected to be driven mostly by land holdings, with maritime demand expected to remain relatively constant.

The Port of Mackay sources water from the Mackay Regional Council (MRC) distribution network. NQBP does not implement any water treatment within its DWQMP.

Table 1 – Summary of schemes

	<i>Water Source</i>	<i>Treatment processes</i>	<i>Treatment capacity</i>	<i>Towns supplied</i>
Port of Mackay	MRC	Nil – Treated by MRC	Nil	Port of Mackay tenants, approximately 122 connections

3 DWQMP implementation

The actions undertaken to implement the DWQMP are summarised below.

During the recent period NQBP continued to implement the DWQMP by:

- Undertaking a detailed review of the plan and incorporating relevant updates and changes relating to multiple sections within the report. The updated DWQMP was subsequently approved by DNRME on 8th March 2018;
- Undertaking a Risk Assessment Review;
- Implementing various improvement items contained within the DWQMP improvement plan; and
- Continuation of monitoring water quality within its system at five (5) locations within the Port of Mackay. There have been no changes made to the monitoring program.

The actions undertaken to implement the risk management improvement program are discussed in Table 2. Note, action items marked as complete within the previous years annual report have not been included within the table below.

Table 2 – Risk management improvement program implementation status

ID #	Category	Improvement actions	Target date	Actions taken to date	Status and revised target date	Responsible Officer / Position
02	1.2 Regulatory and Formal Requirements	Develop formal Bulk Water Supply Agreement between MRC and NQBP. Ensure that this specifies water quality, a statement such as the following is recommended: "MRC shall supply water that meets the latest Australian Drinking Water Guidelines".	30/06/2018	Draft Deed complete; however, not yet agreed between MRC and NQBP. Bulk Water Supply Agreement to be updated to include additional bulk water supply issues such as flow rates, availability, fees, head charges etc.	30/06/2019	Principal Asset Manager
04	2.1 Water Supply and System Analysis	Continue improvement of GIS. Improvement measure shall be identification and positioning of all water supply pipeline components.	30/09/2018	Reliability of data set improved through increased control around Permit to Dig and retrieval of As-Constructed drawings from close-out of NQBP Projects which interface with the water network. All available desktop-based data has been incorporated within the GIS system. On-site inspection and verification/audit still to be undertaken.	Task is ongoing. 30/06/2019	GIS Officer
07	2.2 Assessment of water quality data	Update information under Component 2.2 when more water quality data has been collected.	FY15/16	Action complete	Complete	Port Engineer – Mackay
10	3.1 Preventative measures and multiple barriers	Review planning application approval process to ensure that it covers water quality management.	31/03/2018	Liaison with approval personnel. This review will incorporate water quality management requirements relevant to Port of Mackay. Discussions around potential updates underway. Not yet finalised within the approvals documentation.	01/03/2019	Port Engineer – Mackay
11	3.2 Critical control points	Investigate options for online monitoring of bulk water supply at handover point.	30/06/2018	To be included within bulk water supply agreement with MRC.	30/06/2019	Principal Asset Manager

ID #	Category	Improvement actions	Target date	Actions taken to date	Status and revised target date	Responsible Officer / Position
12	3.2 Critical control points	Consider options for dealing with non-conforming water received at handover point	30/06/2018	To be included within bulk water supply agreement with MRC.	30/06/2019	Principal Asset Manager
15	4.4 Equipment capability and maintenance	Ensure criticality of assets is covered in Asset Management Plan	30/06/2018	Asset Management Plan updated to include criticality of assets.	Complete	Port Engineer – Mackay
16	4.4 Equipment capability and maintenance	Ensure that valves and backflow devices are covered in Asset Management Plan.	30/06/2018	Asset Management Plan updated to include valves and backflow devices.	Complete	Port Engineer – Mackay
19	5.3 Short-term evaluation of results	Develop protocol for reporting water quality results through line of management.	FY 15/16	MRC laboratories have established a reporting protocol with NQBP. This will be captured within the bulk water supply agreement.	Complete	Port Engineer – Mackay
23	6.2 Incident and emergency response protocols	Adopt and integrate Drinking Water Incident and Emergency Plan and associated Drinking Water Incident Response Procedures.	31/03/2018	Review and training undertaken with Emergency Response Manager. DWQMP incident management to be updated to reflect Emergency Response Procedures which are currently being finalised.	Underway 31/03/2019	Port Engineer – Mackay
24	6.2 Incident and emergency response protocols	Align DWEMP and DWIRP's with Emergency and Business Continuity Manual.	31/03/2018	Review and training undertaken with Emergency Response Manager. DWQMP incident management to be updated to reflect Emergency Response Procedures which are currently being finalised.	Underway 31/03/2019	Port Engineer – Mackay
25	7.2 Employee training	Develop list of approved contractors.	31/03/2018	An informal panel of providers is understood within the engineering and maintenance group. This list is still to be formalised and approved by NQBP senior management.	Underway 30/06/2019	Port Engineer – Mackay
26	7.2 Employee training	Develop list of approved suppliers.	31/03/2018	An informal panel of suppliers is understood within the engineering and maintenance group. This list is still to be formalised and approved by NQBP senior management.	Underway 30/06/2019	Port Engineer – Mackay

ID #	Category	Improvement actions	Target date	Actions taken to date	Status and revised target date	Responsible Officer / Position
28	8.1 Community Consultation	Encourage tenants and staff to report suspicious activity - highlight risks to THEIR drinking water.	31/12/2018	Encourage tenants and staff to report suspicious activity - highlight risks to THEIR drinking water. DWQMP training undertaken with appropriate staff members. Updates to port tenants to increase their awareness surrounding the importance of remaining vigilant with respect to water quality and supply to be formally issued.	Underway. 31/03/2019	Port Engineer – Mackay
33	4.4 Equipment capability and maintenance	Prepare a plan for progressive system wide replacement of all A/C and steel pipe within the water supply network for the Port of Mackay.	30/06/2018	Asset Management Plan and 10-Year CAPEX plan updated to include for replacement of piping through the network.	Complete	Principal Asset Manager
34	3.1 Preventive measures and multiple barriers	Include root cause information within reactive maintenance tasks within MEX	30/06/2018	MEX training undertaken by all maintenance and engineering personnel. It was specifically highlighted that root cause information must be included within all reactive maintenance tasks within MEX.	Complete	Port Engineer – Mackay
35	7.2 Employee Training	Provide refresher training for staff with direct responsibilities within DWQMP and provide a briefing session for whole of staff regarding NQBP's broad obligations under the DWQMP and how they can assist NQBP in meeting these obligations.	31/03/2018	Training sessions held via City Water in August 2018 with all appropriate personnel.	Complete	Port Engineer – Mackay
36	2.2 Assessment of water quality data	Expansion of water quality testing regime for Port of Mackay	31/03/2018	Water quality testing regime reviewed and verified by City Water. Review noted that no additional testing required. Following this review, an audit was undertaken by Viridis which resulted in	Complete	Port Engineer – Mackay

ID #	Category	Improvement actions	Target date	Actions taken to date	Status and revised target date	Responsible Officer / Position
				recommendation to undertake additional operational monitoring of free chlorine via hand-held instrument (new action below).		
37	2.2 Assessment of water quality data	Purchase hand held testing instrument and undertake additional operational monitoring of free chlorine within the network. Update MEX with Preventative Maintenance task associated with this.	30/06/2019	Investigation of pricing. Not yet purchased.	Underway	Port Engineer – Mackay

4 Verification monitoring - water quality information and summary

This section discusses the compliance with the water quality criteria.

The results from the verification monitoring program 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 reported statistics do include results derived from repeat samples, but do not include those from emergency or investigative samples undertaken in response to an elevated result. Verification monitoring was carried out as per the program stated within the DWQMP. Refer to Tables 3 and 4 below for relevant monitoring data.

Table 3 – Drinking water quality performance - verification monitoring – Mackay Scheme

Parameter	No. of samples required to be collected (as per the approved DWQMP)	No. of samples actually collected and tested	Water quality criteria (i.e ADWG health guideline value)	No. of non compliant samples	Comments
Free Residual Chlorine (mg/L)	65	93	>0.2, <5	9	9 samples resulted in a chlorine reading < 0.2 mg/L. Reactive flushes were undertaken when free chlorine results came back at < 0.2mg/L.
Total Chlorine (mg/L)	65	93	>0.2, <5	1	1 sample resulted in a total chlorine reading < 0.2 mg/L. A reactive flush was taken following receipt of results.
Turbidity (NTU)	65	93	<5	1	An extremely high turbidity result occurred in 1 instance. It is believed that this was due to an error in the data.
E. Coli (MPN/100mL)	65	93	0	0	
pH	65	93	>6.5, <8.5	1	1 sample resulted in a pH reading of 8.6
Conductivity (µS/cm)	65	93	-	n/a	Min = 147 µS/cm Median = 258.5 µS/cm

Parameter	No. of samples required to be collected (as per the approved DWQMP)	No. of samples actually collected and tested	Water quality criteria (i.e ADWG health guideline value)	No. of non compliant samples	Comments
					Avg = 89 μ S/cm Max = 351 μ S/cm
Dissolved Oxygen (% Sat)	65	93	<85	7	7 samples exceeded the guideline value of 85 % sat. The maximum value was 94.
Temperature ($^{\circ}$ C)	65	93	-	n/a	Min = 21.2 $^{\circ}$ C Median = 25.5 $^{\circ}$ C Avg = 25.7 $^{\circ}$ C Max = 33.5 $^{\circ}$ C
Total Coliforms (MPN/100mL)	65	93	0	n/a	Min = 0 MPN/100mL Max = <1 MPN/100mL

Table 4. E. coli compliance with annual value

Drinking water scheme: Port of Mackay

Year	2017 – 2018											
	Month	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
No. of samples collected	10	7	7	7	7	8	10	7	9	8	7	7
No. of samples collected in which E. coli is detected (i.e. a failure)	0	0	0	0	0	0	0	0	0	0	0	0
No. of samples collected in previous 12 month period	8	10	7	7	7	7	10	8	6	8	7	8
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	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES

5 Incidents reported to the regulator

The incidents reported to the regulator and management actions undertaken over the financial year are provided in this section.

This financial year there were 0 instances where the Regulator was notified under sections 102 or 102A of the Act. There were a total of 13 instances where the Free Chlorine content within the water tested was below the ADWG and 6 instances where the Total Chlorine within the water tested.

Table 5 – Incidents reported to the regulator

Incident date	Scheme / location	Parameter / issue	Preventive actions
Nil			

6 Customer complaints

This section discusses details of any complaints received about the drinking water service.

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

Throughout the year no complaints were received by NQBP with respect to water quality within the Port of Mackay.

Table 6 – Example: customer complaints about water quality

Scheme	Health concern	Dirty water	Taste and odour	Other
Port of Mackay	0	0	0	0
Total	0	0	0	0

7 DWQMP review outcomes

A summary of the outcomes of the review and how issues/changes raised in the review, were actioned is provided in this section.

A regular review of the DWQMP was conducted in December 2017 and covered the time period from 01/07/16 to 31/06/17. The purpose of the review was to ensure that the DWQMP remains relevant, having regard to the operation of the drinking water service. The review was conducted by:

- Ben Woodman – Port Engineer
- Mark Berts – Plumber
- Cooper Jackson – Apprentice Plumber

A further review was undertaken in September 2018 in conjunction with DWQMP training and the 2018 DWQMP Audit. Outcomes from this review will be covered in next year's annual report.

Table 7 – DWQMP review outcomes

Review Date: December 2017

Review component	Findings	Outcomes	Status of actions	Responsible Officer / Position
Service description	Supply system overview not detailed.	Supply system overview to be updated with MRC information.	Updated water catchment, treatment and storage information provided by MRC. Table added to provide a qualitative assessment of the incoming water quality. Table added to provide a qualitative assessment of the water quality within NQBPs Port of Mackay water distribution network.	Port Engineer – Mackay
Details of infrastructure	No changes.	Not applicable.	Not applicable.	Not applicable.

Review component	Findings	Outcomes	Status of actions	Responsible Officer / Position
Water quality and catchment characteristics	No changes.	Not applicable.	Not applicable.	Not applicable.
Risk assessment	Risk review identified that several system improvements contributed to an overall reduction in residual risk associated with the management of the system. These are detailed within the updated DWQMP.	Risk assessment needs to be updated. Additional items to be added to the Improvement Plan.	Risk assessment updated as applicable and improvement actions incorporated into the Improvement Plan.	Port Engineer – Mackay
Operations and maintenance procedures	No changes.	Not applicable.	Not applicable.	Not applicable.
Management of incidents and emergencies	Contact details not relevant.	Contact details to be updated	DNRME contact details updated along with web links for notification forms and timeframes for notifications for each incident type.	Port Engineer – Mackay
Risk management improvement program	A number of improvement actions have been implemented and some are in progress.	The risk management improvement program needs to be revised.	Risk management improvement program actions updated and included within DWQMP update.	Port Engineer – Mackay
Service wide information management	Stakeholder Register in need of update.	Review of register undertaken with updates made to reflect current stakeholders.	The Tenancy Register within NQBP's Yardi Property Management system referenced as the primary contact for all Lessees within the Port of Mackay. This has simplified the stakeholder register and provides ongoing assurance that contact information is up to	Port Engineer – Mackay

Review component	Findings	Outcomes	Status of actions	Responsible Officer / Position
			date and current for our tenants.	
Operational monitoring	No changes.	Not applicable.	Not applicable.	Not applicable.
Verification monitoring	No changes.	Not applicable.	Not applicable.	Not applicable.

8 DWQMP audit findings

No audit was conducted during the reporting period 01/07/2017 to 30/06/2018.

The actions undertaken to address the audit recommendations are outlined in Table 8.

Table 8 – DWQMP audit findings and status

Item	Recommendation or OFI	Action	Status of actions	Responsible Officer / Position
Not applicable.				