



DWQMP Annual Report 2022-23

North Queensland Bulk Ports Corporation

December 2023

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EXECUTIVE SUMMARY

Water suppliers in Queensland (QLD) are required under the *Water Supply (Safety and Reliability) Act 2008* (the Act) to operate under an approved Drinking Water Quality Management Plan (DWQMP) to protect public health.

This Annual Report documents the performance of North Queensland Bulk Ports Corporation (NQBP) in implementing the DWQMP from 1 July 2022 to 30 June 2023.

NQBP is a registered service provider operating the drinking water scheme for the Port of Mackay under an approved DWQMP. Bulk treated water is sourced from Mackay Regional Council (MRC) and supplied to the Port of Mackay.

NQBP has undertaken effective risk management and the required water quality testing to ensure the supply of safe drinking water. The water quality verification results and assessment showed that NQBP supplied safe drinking water to the customers. The absence of water quality related customer complaints indicated good customer satisfaction.

Various improvement actions have been undertaken and/or planned as continual improvement. The improvement actions have been identified through detailed risk assessment to ensure safe quality of drinking water.

No formal DWQMP review was required to be undertaken during the reporting period. The next formal review of the DWQMP and risk assessment was due by 30 September 2023 and will be detailed in the next annual report.

A regulatory audit was also conducted in November 2022, the findings and outcomes are covered in this report.

1. INTRODUCTION

This Report documents the performance of North Queensland Bulk Ports Corporation Limited (NQBP) in implementing the drinking water quality management plan (DWQMP) for the 1 July 2022 – 30 June 2023 financial year as required under the *Water Supply (Safety and Reliability) Act 2008* (the Act).

NQBP is a registered service provider (SPID number 548) operating under an approved DWQMP to ensure a consistent and safe supply of quality drinking water to protect public health. This is achieved through proactive identification and minimisation of public health related risks associated with drinking water.

This Report assists the Regulator in determining 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
- summary of performance in implementing the approved DWQMP.

This Report is submitted to the Regulator to fulfil regulatory requirements and is also made available to NQBP customers through the website or for inspection upon request.

2. SCHEME OPERATED

NQBP operates the drinking water scheme for the Port of Mackay. Bulk potable water is sourced from the Mackay Regional Council (MRC) distribution network and supplied to the Port of Mackay Water Network, including land tenants, maritime customers and general public.

3. DWQMP IMPLEMENTATION

The implementation of the DWQMP is discussed in this section and captured in the other sections that follow.

3.1. Risk management

The process of keeping drinking water safe is one of risk management. Through efficient operations and implementation of the DWQMP, NQBP has ensured effective risk management to assure safe quality of drinking water to their customers.

A risk assessment has been undertaken as part of the DWQMP to identify control measures and process improvements.

The risk assessment is due to be reviewed in conjunction with the regular review by 30 September 2023.

3.2. Monitoring

NQBP undertakes water quality testing on the scheme in accordance with the DWQMP to ensure compliance with the ADWG.

Verification monitoring occurs once per fortnight with samples sent to an external laboratory, which is NATA accredited.

3.3. Implementation of Risk Management Improvement Plan

NQBP has undertaken and/or planned various improvement actions to ensure safety of drinking water to their customers. The improvement actions have been identified through detailed risk assessment to ensure safe quality of drinking water.

Appendix A includes the status and relevant commentary on the open improvement actions. NQBP continues to actively implement the Improvement Plan.

4. VERIFICATION MONITORING

This section discusses the compliance with the water quality criteria, see Table 1. NQBP supplied safe quality drinking water to its customers during the reporting period.

Table 1 Drinking water quality performance – verification monitoring

Parameter	No. of samples to be collected	No. of samples actually tested	Summary of results			Water quality criteria (spec)	No. of non-compliant samples	Comments
			Min	Avg	Max			
<i>E. coli</i> (MPN/100 mL)	65	63	ND	ND	ND	Not detected (H)	0	Compliant. No <i>E. coli</i> over the reporting period indicates supply of safe quality drinking water and 100% compliance with the Public Health Regulation and the DWQMP.
Total coliforms (MPN/100mL)	65	63	0.5	0.6	3	NA	NA	3 MPN/100 mL total coliforms detected on the 12/04/2023 at Site D. Low to no detection still indicates a clean system.
Turbidity (NTU)	65	63	0.05	1.15	13.7	5 (A)	4	There have been four isolated excursions of the ADWG aesthetic limit. This is not considered to have an impact on public health, however, will continue to be monitored.
pH	65	63	7.3	7.6	8.0	6.5-8.5 (A)	0	Compliant.
Free Chlorine (mg/L)	65	63	0.40	1.12	2.01	NA	NA	There are no criteria for free chlorine in ADWG, however, have not fallen below 0.2 mg/L which is an optimal operational target for free chlorine in the reticulation.
Total Chlorine (mg/L)	65	63	0.44	1.22	2.70	5 (H)	0	Compliant.
Conductivity (µS/cm)	65	63	139	238	536	NA	NA	There are no criteria for conductivity in ADWG, however there is a criterion of 600 mg/L of total dissolved solids which equates to about 937 µS/cm.
Dissolved Oxygen (% Sat)	65	63	70.6	86.1	97.3	>85 (A)	26	Several results have fallen below the ADWG aesthetic guideline. This is not considered to have an impact on public health, however, will continue to be monitored.
Temperature (°C)	65	63	18.7	27.2	32.3	NA	NA	There are no criteria for temperature in ADWG.

A – aesthetic guidelines (spec) as per the ADWG. Does not impact public health.

H – health-based guidelines (spec) as per the ADWG. Requires investigation and corrective actions.

The verification monitoring for each sample point has been graphically summarised in Figure 1. The water supplied by NQBP has conformed 100% to the ADWG health guidelines. Only turbidity and dissolved oxygen have recorded excursions of the ADWG limits, which are aesthetic parameters and are considered to not have an impact on public health.

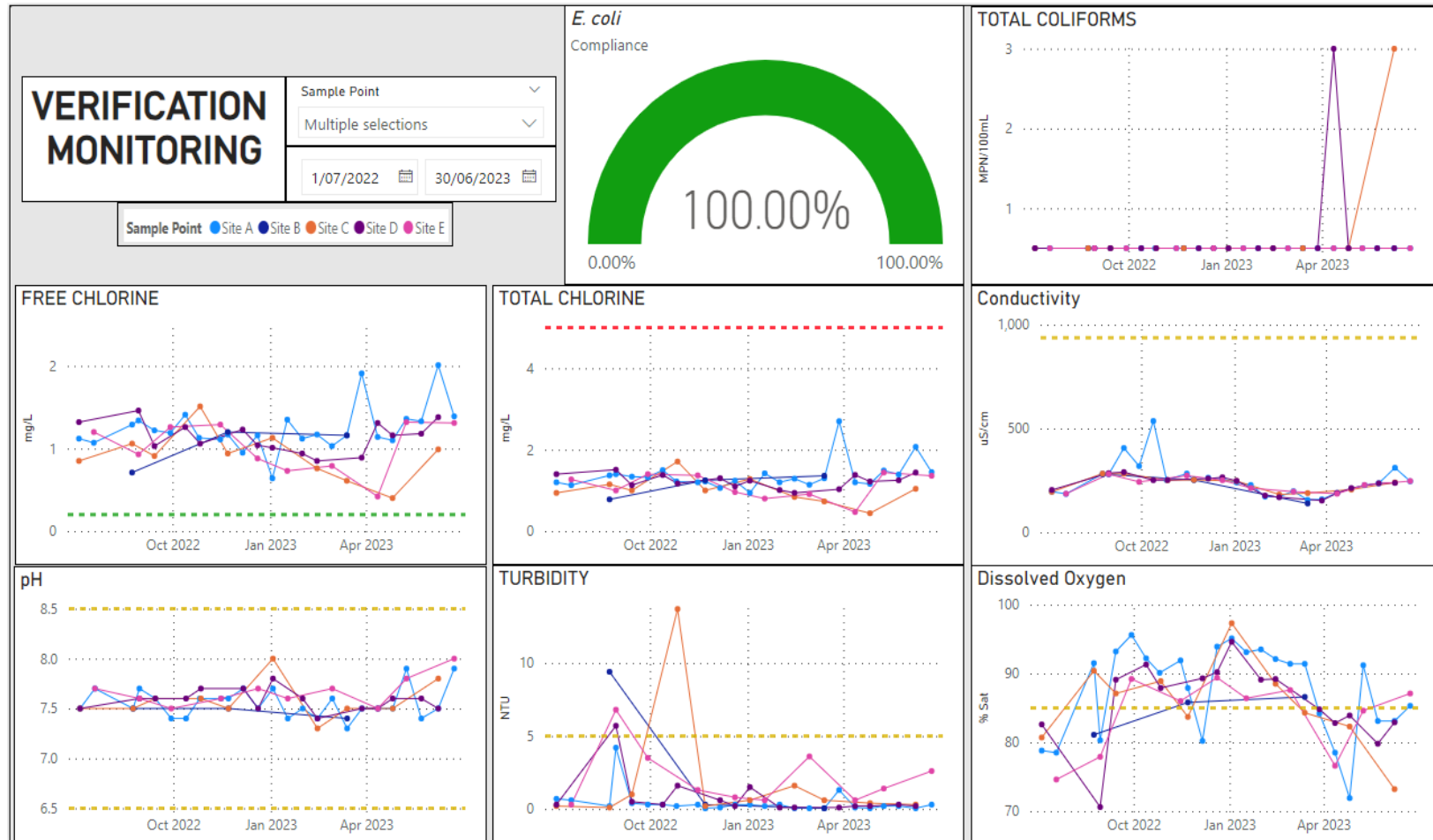


Figure 1 Verification monitoring - graphical analysis

The rolling annual *E. coli* compliance for the reporting period is shown in Table 2. There has been 100% compliance with the Public Health Regulation and the DWQMP.

Table 2 *E. coli* compliance with annual value

Year	FY 2022-2023											
Month	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
No. of samples collected	5	6	5	5	5	5	7	5	5	6	4	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	0	0
No. of samples collected in previous 12-month period	55	56	55	58	60	63	65	64	63	64	62	63
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

There were no Events¹ or Incidents² to report.

6. CUSTOMER COMPLAINTS

There were no water quality related customer complaints during the reporting period.

7. DWQMP REVIEW

No formal DWQMP review was required or conducted during the reporting period.

The next regular review is due on the 30 September 2023.

8. DWQMP AUDIT FINDINGS

The regular audit of NQBP's DWQMP was undertaken in November 2022, through the engagement of Viridis Consultants Pty Ltd, who are Exemplar Global certified drinking water quality management system auditors. The auditor submitted the audit report to the regulator on the 30/11/2022. The purpose of the audit was to undertake the following:

- Verify the accuracy of monitoring and performance data given to the regulator under the plan.
- Assess compliance with the plan and its conditions.
- Assess the relevance of the plan to the drinking water service.

The audit report concluded that:

- NQBP is forthcoming with information and presented data in an accurate manner.
- The DWQMP is appropriate to the system and the risk assessment is relevant to the scheme.

Recommendations and opportunities for improvement (OFI) have been identified, where relevant. Actions undertaken to address the recommendations are outlined in Table 3.

The next formal audit is due by 30 September 2026.

¹ Potential to impact water quality

² Non-compliance against ADWG value

Table 3 DWQMP audit findings and status

Item	Action	Status of actions
Review and update the relevant SOPs to ensure they are relevant to the current operation, up to date and available to all relevant staff. Revise the DWQMP to identify the SOPs that are currently relevant to the system.	At the time of writing this report the DWQMP is under review.	In progress
Ensure sample taps are of a suitable standard to enable sterilisation a collection of a sterile sample.	Sample taps have been replaced with a type that can be flamed.	Complete
Establish robust record keeping processes that include: <ul style="list-style-type: none"> • Clear identification of regulated documents (e.g. approved DWQMP) and supersede older version • Regulator notices and correspondence • Incident reports • Monitoring results • Communications with other organisations – e.g. MRC 	At the time of writing this report the DWQMP is under review.	In progress
Ensure regulatory timeframes are identified and processes are in place to ensure they are met.	As part of the current DWQMP review regulatory deadlines will be explicitly identified.	In progress

9. GLOSSARY

ADWG	Australian Drinking Water Guidelines (2011)
DWQMP	Drinking Water Quality Management Plan
mg/L	milligrams per litre
MPN/100mL	Most Probable Number per 100 millilitres
MRC	Mackay Regional Council
NATA	National Association of Testing Authorities
NQBP	North Queensland Bulk Ports Corporation
NTU	Nephelometric Turbidity Units
OFI	Opportunity for improvement

A. IMPROVEMENT PLAN PROGRESS

The improvement actions relevant for this reporting period are included in the table below with relevant commentary on implementation status. Additional actions identified after the risk assessment undertaken in September 2023 will be included in the next financial year’s annual report.

Improvement Actions	Status	Comments
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".	In Progress	NQBP meeting regularly with MRC to finalise agreement. Several issues are still to be resolved including the installation of backflow prevention devices throughout the NQBP network which will occur once the booster pump station is installed. Alternate water sources and water quality requirements at the hand over point are also to be documented.
Continue improvement of GIS. Improvement measure shall be identification and positioning of all water supply pipeline and components.	In Progress	Updates have been made to the GIS and asset management data. Item to be closed once documentation and positioning of all existing assets is completed. Ongoing GIS updates will then become part of BAU as upgrades are completed.
Review planning application approval process to ensure that it covers water quality management.	In Progress	Planning Engineer is currently considering water quality impacts in his assessment by requiring backflow prevention devices to be installed at the meter. NQBP still to update planning guidelines to include this as a formal requirement.
Investigate options for online monitoring of bulk water supply at handover point. Investigation to be undertaken in consultation with MRC and agreed outcome incorporated into Bulk Water Supply Agreement.	To Start	NQBP to undertake a feasibility study for in house online monitoring of water quality at the handover point vs risks of delayed notification of issues from MRC. Monitoring and communication requirements to implement the outcome of the study to be incorporated into the Bulk Water Supply Agreement
Consider options for dealing with non-conforming water received at handover point. Investigation to be undertaken in consultation with MRC and agreed outcome incorporated into Bulk Water Supply Agreement.	In Progress	As above. NQBP and MRC to establish WQ requirements at the handover point in the Bulk Water Supply Agreement.
Bulk Water Supply Agreement: Ensure that the handover point is specifically referenced in the Agreement – e.g. through specific GIS coordinates or other which clearly delineates the changeover of responsibility from one party to the other.	In Progress	n/a
Bulk Water Supply Agreement: Include notification of any planned and reactive maintenance works on the MRC supply side as these may impact on the water supplied to NQPB.	In Progress	n/a
Bulk Water Supply Agreement: Include water quality requirements at the handover point.	In Progress	n/a

Improvement Actions	Status	Comments
Bulk Water Supply Agreement: Ensure that all notifications have a clear timeframe and appropriate contacts.	In Progress	n/a
Include a requirement in the Bulk Water Supply Agreement that any water quality complaints that are relayed to MRC, but originate from NQBP's infrastructure (e.g. bubblers), are promptly and formally notified to NQBP.	In Progress	n/a
Consider requiring all contractors, etc., to have an 'Aqua-Card' (issued by Queensland Water Directorate) for drinking water quality awareness.	In Progress	<p>Aqua-Card training is a requirement of all internal employees onboarding training.</p> <p>NQBP to review what water quality awareness training is currently required for external contractors. Requirement for proof of formal training or alternatively supervision of works by a trained NQBP employee is to be incorporated into standard works contracts.</p>
Consider developing a diagram to show the architecture of the incident management framework and how other systems such as the external plan and records management systems (such as RiskWare and Guardian) support the framework.	In Progress	NQBP is developing a flowchart to show the integration and hierarchy of their various systems.
Prioritise establishment of the formal contract (Mackay Water Supply Deed) for the supply of treated drinking water from MRC.	In Progress	n/a
Review SOPs to include testing of chlorine residual to assess if the actions has been successful in implementing the preventive measure.	To Start	<p>A colorimeter has been purchased and is used to support routine chlorine residual monitoring within the network.</p> <p>Testing procedures are incorporated into the maintenance schedule to streamline information storage, rather than having standalone SOPs. NQBP is to update the maintenance schedule to ensure all aspects of a typical SOP are documented, including how to take a sample, recording results, response procedures for readings obtained, etc. Otherwise, detailed SOPs may still be required.</p>
Review SOPs to include testing of chlorine residual to assess if the actions has been successful in implementing the preventive measure.	To Start	n/a
Enter into Bulk Water Supply Agreement between NQBP and MRC by December 2022. Consider including the requirement for a minimum free chlorine residual at the bulk water handover point in the drinking water supply deed.	In Progress	n/a

Improvement Actions	Status	Comments
<p>Confirm, document and install as appropriate, a BPD at:</p> <ol style="list-style-type: none"> 1. Each (high risk tenant) meter 2. Atom (If not BPD check for an airgap) 3. Each wharf (to install). <p>Ensure any unregistered BPD is added to register to track asset condition and ensure tenant is undertaking routine maintenance.</p>	In Progress	NQBP is in the process of installing instruments at each of the high-risk tenants' meters. Remaining BPD installations (incl Atom tenant site) will be contracted to the installer of the booster pump station for inclusion in that scope of works.
<p>Establish formal procedures to ensure MRC informs NQBP of breaches of chlorine residual at Mt Bassett register (MRC quality control point). Add this condition to the Bulk Water Supply Agreement.</p>	In Progress	n/a
<p>Install fence or barrier (e.g. bollard) around Harbour Rd connection flowmeter (subject to MRC approval).</p>	In Progress	Project is in the design stage for installation within the 2021/22 FY.
<p>Determine requirement for assigning criticality levels to equipment in AMP and/or MEX to ensure that sufficient redundancy (spares) is available in the event of a failure of critical equipment.</p>	In Progress	<p>Redundancy is already considered in the design of NQBP's infrastructure.</p> <p>NQBP still to update AMP to ensure criticality is documented, as well as in OnePort as appropriate.</p>
<p>Update demand projections for new planning horizons.</p>	To Start	n/a
<p>Establish another sample point at the northern end of the reticulation.</p>	To Start	n/a
<p>Consider streamlining the water quality risk matrix with the Business risk matrix for consistency.</p>	To Start	n/a