

Drinking Water Quality Management Plan Report

North Queensland Bulk Ports (NQBP)

SPID: 548

Financial Year 2020/2021

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 North Queensland Bulk Port's (NQBP) 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) for the financial year 2020-21. NQBP is a registered service provider with identification (SPID) number 548.

The 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; and
- Summary of our performance in implementing our approved DWQMP.

This template has been prepared following 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.

The report is submitted to the Regulator to fulfil our regulatory requirement and is also made available to our customers through our website or for inspection upon request.

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 Water Network Modelling Water Booster Pump Station report by Premise, 2021 shows the network average day (AD) demand as approximately 579 KL/day, the maximum day (MD) demand as 1,814 KL/day (6.7 and 21 L/s equivalent continuous flow rates respectively). The maximum hour (MH) demand was assessed as a rate of 51 L/s. According to the NQBP Water Asset Management Plan, 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 internal training on the DWQMP;
- Implementing various improvement items contained within the DWQMP improvement plan;
- 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;
- Undertake regular meetings with relevant departments to ensure compliance and to discuss and investigate strategies to improve the Port of Mackay reticulated water network; and
- Water Network Strategy for Port of Mackay developed to ensure continued safety and reliability of the water supply

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

The next section provides a brief presentation of the improvement plan undertaking to meet the requirements of our Water Network Strategy

3.1 Water Network Strategy and Improvement Plan

Port of Mackay developed a Water Network Strategy during 2019 which comprises of several works to upgrade or maintain the water network aiming to achieve full compliance in all respects.

The Water Network Strategy has identified all the opportunities to improve our Water Network and classified them under to broad categories. The first category is associated with improvement works combined with road upgrade projects, so to achieve better delivery outcomes. The second category is associated with developments to be undertaken as a standalone activity.

Hence, we have been planning and implementing the following improvements/ developments:

- 1) Renewal of an existing galvanised iron main crossing Ken White Avenue to service Wharf 2
This main has historical performance issues and that it most recently failed when the new secondary connection from Gudyara Road was in operation. The pipeline has been isolated. However, this results in 'dead-ending' of water for Wharf 2 and reduces the reliability of supply in this area.
- 2) Decommissioning of the DN250 Harbour Road asbestos concrete water main and connection of DN150 Graeme Heggie Street water main to the DN250 Harbour Road PVC water main.
The DN250 AC water main has a history of poor performance. It currently services only the Graeme Heggie Street area and potentially 1-2 fire hydrants on Harbour Road. It is proposed to decommission this water main and 'cut-over' existing services to an existing DN250 PVC water main installed on Harbour Road.
- 3) Upgrade of the Harbour Road Water Main, including installation of a DN375 DICL water main to replace the existing DN375 AC main.
- 4) Upgrade of the DN100 AC Satellite Crescent water main with an OD210 HDPE water main.

5) Wharf Water Supply Integration.

6) Installation of a pressure control device (PCD) downstream of the secondary connection on Gudyara Road.

This recently constructed secondary connection on Gudyara Road will be a supplementary or emergency supply. To enable regular use of this connection, installation of a PCD is required to protect NQBP water assets and to reduce backflow risks to MackayRegional Council (MRC) assets.

7) Backflow Prevention Device (BPD) Installation

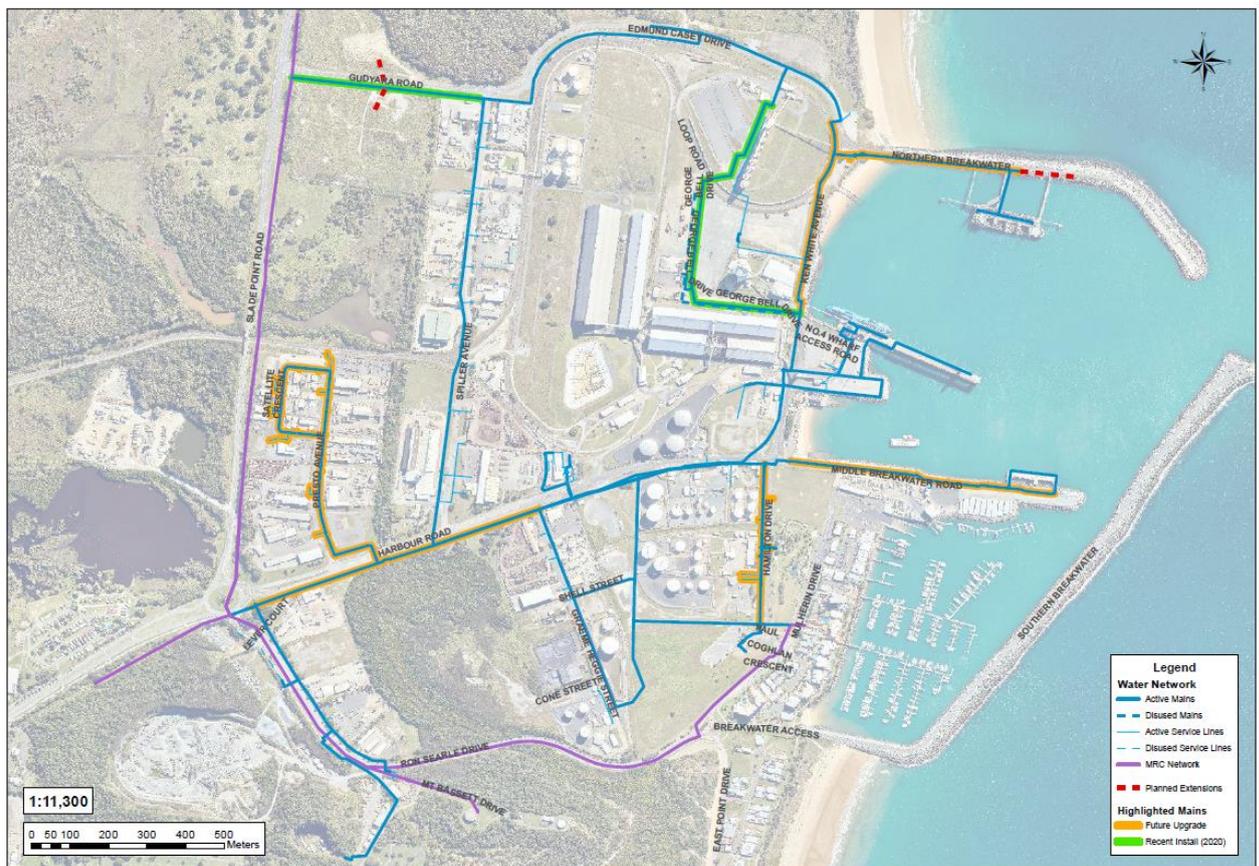
- MRC and NQBP agreed in progressing the installation of appropriate backflow prevention devices (BPD's) at the most critical facilities. However, upon the installation of a number of BPD's, the water pressure dropped around 100KPa, past BPD, resulted negatively in the performance of the firefighting network.
- In parallel, MRC and NQBP agreed to undertake a hazard rating assessment of every customers and rate the sites as "Low", "Medium" or "High" based on the business activities. The assessment has been completed, following the recommended AS3500.1 and agreed in principle with MRC.
- However, in situ installation will be finalised after completion of item 8 below.

8) Installation of booster pump station

In order to ensure the agreed supply pressure of 220 kPa at the property boundaries (past the BPD's) it required to revisit the water network model, which has been updated to incorporate all the required BPD's.

The outcome of the water network model indicated the size and number of Booster pumps required. NQBP proceeds with the procurement of this works as well.

Figure 1 - Port Water Network



3.2 Bulk Water Supply Agreement

The Bulk Water Supply Agreement has been drafted and recently discussed in detail with MRC with the following items outstanding:

- a. Water Supply Flow requirements considering the new developments
- b. Water Supply Connection requirements considering the new developments
- c. Water Supply Pressure considering the installation of a BPDs and Booster Pump Station

Currently we have agreed with MRC on the booster pump station design and installation which will help to enable us to have a solid understanding of the Bulk Water Supply requirements which will facilitate the final drafting of the technical requirements of the Bulk Water Supply Agreement.

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
01	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".	31-Dec-19	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.	Task is ongoing 01/06/2022	Senior Manager Asset Services
02	2.1 Water supply system analysis	Continue improvement of GIS. Improvement measure shall be identification and positioning of all water supply pipeline and components.	30-Sep-19	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 (final meter positioning is expected Nov 2021). Ongoing GIS updates will then become part of BAU as upgrades are completed.	Task is ongoing 28/02/2022	GIS Officer
03	3.1 Preventive measures and multiple barriers	Review planning application approval process to ensure that it covers water quality management	31-Mar-20	Asset 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.	Underway 30/06/2022	Asset Engineer
04	3.2 Critical control points	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.	31-Dec-19	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	Not completed 30/06/2022	Asset Engineer

ID#	Category	Improvement actions	Target date	Actions taken to date	Status and revised target date	Responsible Officer / Position
05	3.2 Critical control points	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.	31-Dec-19	As above. NQBP and MRC to establish WQ requirements at the handover point in the Bulk Water Supply Agreement.	Underway 30/06/2022	Asset Engineer
06	6.2 Incident and emergency response protocols	Adopt and integrate Drinking Water Incident and Emergency Plan and associated Drinking Water Incident Response Procedures and align DWIEMP and DWIRPs with Emergency and Business Continuity Manual.	30-Jun-20	Completed	Completed	Asset Engineer
07	6.2 Incident and emergency response protocols	Align DWIEMP and DWIRPs with Emergency and Business Continuity Manual	30-Jun-20	Completed	Completed	Asset Engineer
8	2.2 Assessment of water quality data	Expansion of water quality testing regime for Port of Mackay.	31-Dec-19	Network upgrades have been progressively implemented to remove dead ends from the system. A colorimeter has been purchased to assist with residual monitoring throughout the network and for additional event-based sampling as required.	Completed	Asset Engineer
9	1.2 Regulatory and formal requirements	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. Refer also Action #01.	31-Dec-19	-	Task is ongoing. 30/06/2022	Senior Manager Asset Services
10	1.2 Regulatory and formal requirements	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. Refer also Action #01.	31-Dec-19	-	Task is ongoing. 30/06/2022	Senior Manager Asset Services

ID#	Category	Improvement actions	Target date	Actions taken to date	Status and revised target date	Responsible Officer / Position
11	1.2 Regulatory and formal requirements	Bulk Water Supply Agreement: Include water quality requirements at the handover point. Refer also Action #01.	31-Dec-19	-	Task is ongoing. 30/06/2022	Senior Manager Asset Services
12	1.2 Regulatory and formal requirements	Bulk Water Supply Agreement: Ensure that all notifications have a clear timeframe and appropriate contacts. Refer also Action #01.	31-Dec-19	-	Task is ongoing. 30/06/2022	Senior Manager Asset Services
13	1.2 Regulatory and formal requirements	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. Refer also Action #01.	31-Dec-19	-	Task is ongoing. 30/06/2022	Senior Manager Asset Services
14	7.1 Employee awareness and involvement	Consider requiring all contractors etc to have an 'Aqua-Card' (issued by Queensland Water Directorate) for drinking water quality awareness.	31-Oct-19	Aqua-Card training is a requirement of all internal employees onboarding training. 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.	Underway 28/02/2022	Plumber
15	6.2 Incident and emergency response protocols	Update the emergency plan to reference key documents rather than having the same information in more than one place (creates issues with maintaining currency). Refer also Action #22.	20-Dec-19	Emergency plan revised to reference DWQMP and Master Emergency Contact Port Operations List updated as per Item# 22.	Completed	Asset Engineer
16	6.2 Incident and emergency response protocols	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.	20-Dec-19	Flowchart developed to show the integration and hierarchy of their various systems.	Completed	Asset Engineer

ID#	Category	Improvement actions	Target date	Actions taken to date	Status and revised target date	Responsible Officer / Position
17	1.2 Regulatory and formal requirements	Prioritise establishment of the formal contract (Mackay Water Supply Deed) for the supply of treated drinking water from MRC. (REC-03). Refer also Action #01.	31-Dec-19	-	Underway 30/06/2022	Senior Manager Asset Services
18	4.2 Operational monitoring	Establish operational monitoring of free chlorine and establish appropriate corrective actions in response to low free chlorine results. (REC-05)	31-Dec-19	Colorimeter has been purchased and use has been integrated into the sampling regime. A formalised procedure for the operation of the colorimeter has been documented within OnePort.	Completed	Asset Engineer
19	4.2 Operational monitoring	Review SOPs to include testing of chlorine residual to assess if the actions have been successful in implementing the preventive measure. (REC-06)	31-Dec-19	A colorimeter has been purchased and is used to support routine chlorine residual monitoring within the network (as per Action #29). Testing procedures are incorporated into the maintenance schedule to streamline information storage, rather than having standalone SOPs.	Completed	Asset Engineer
20	10.2 Reporting	Consider capturing the drinking water risk assessment in the Risk Ware program to standardise risk management across the organisation. (OFI-01)	31-Mar-20	-	Not completed 31/03/2022	Asset Engineer
21	6.2 Incident and emergency response protocols	Consider undertaking incident scenario testing in conjunction with MRC to test emergency protocols and lines of communication. (OFI-08)	30-Jun-20	Incident scenario testing is undertaken each year with Council to test response procedures and communication protocols. Note that a WQ specific incident scenario has not been completed.	Completed	Asset Engineer
22	10.1 Management of documentation and records	Consider referencing the master list of emergency contacts, kept by NQBP rather than updating the DWQMP each time the list. (OFI-09)	31-Dec-19	DWQMP updated to reference master list of emergency contacts. The master list has been updated to include regulator contacts and other DWQMP specific contacts.	Completed	Asset Engineer

ID#	Category	Improvement actions	Target date	Actions taken to date	Status and revised target date	Responsible Officer / Position
23	4.2 Operational monitoring	Consider liaising with MRC to receive relevant verification data on the bulk water supplied to NQBP. (OFI-10) Refer also Action #01.	31-Dec-19	NQBP regularly receive fortnightly verification data. Bulk Water Supply Agreement to be updated to include regular provision of verification data.	Completed	Senior Manager Asset Services
24	1.2 Regulatory and formal requirements	Enter into Bulk Water Supply Agreement between NQBP and MRC by December 2019. Consider including the requirement for a minimum free chlorine residual at the bulk water handover point in the drinking water supply deed. (OFI-14). Refer also Action #01.	31-Dec-19	-	Underway 30/06/2022	Senior Manager Asset Services
25	4.4 Equipment capability and maintenance	Confirm, document and install as appropriate, a BPD at: 1. Each (high risk tenant) meter 2. Atom (If not BPD check for an airgap) 3. Each wharf (to install). Ensure any unregistered BPD is added to register to track asset condition and ensure tenant is undertaking routine maintenance.	30-Jun-20	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.	Underway 30/11/2022	Asset Engineer
26	6.1 Communication	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.	31-Dec-19	-	Underway 30/06/2022	Asset Engineer
27	4.4 Equipment capability and maintenance	Investigate directional flow devices at two fire-fighting tanks for their efficiency in preventing backflow into reticulation particularly in the event of the pipe breaks (or low pressure) in reticulation.	31-Mar-20	These devices have now been installed.	Completed	Plumber
28	7.1 Employee awareness and involvement	Consider including the requirement of the Aqua card.	31-Oct-19	This has now been integrated into NQBP's internal employee training requirements.	Completed	Plumber

ID#	Category	Improvement actions	Target date	Actions taken to date	Status and revised target date	Responsible Officer / Position
29	4.2 Operational monitoring	Once a chlorine meter is procured, establish a monitoring program to monitor loss of chlorine residual; particularly after periods of time where water has not been supplied in bulk from wharfs.	30-Jun-20	Chlorine meters are listed in the NQBP asset management system. A monitoring program has been established for chlorine residual.	Completed	Asset Engineer
30	4.4 Equipment capability and maintenance	Install fence or barrier (e.g. bollard) around Harbour Rd connection flowmeter (subject to MRC approval).	30-Jun-20	Project is in the design stage for installation within the 2021/22 FY	Underway 30/11/2022	Asset Engineer
31	4.4 Equipment capability and maintenance	Determine requirement for assigning criticality levels to equipment in AMP and/or MEX to ensure that sufficient redundancy (spares) are available in the event of a failure of critical equipment.	31-Jul-20	Redundancy is already considered in the design of NQBP's infrastructure. NQBP still to update AMP to ensure criticality is documented, as well as in OnePort as appropriate	Underway 30/06/2022	Asset Engineer
32	2.1 Water Supply System Analysis	Update demand projections for new planning horizons	31-Dec-22	-	Completed	Asset Engineer
33	2.1 Water Supply System Analysis	Establish another sample point at the northern end of the reticulation	30-Jun-22	-	30/04/2022	Asset Engineer
34	2.3 Hazard Identification and Risk Assessment	Consider streamlining the water quality risk matrix with the Business risk matrix for consistency	30-Jun-23	-	30/04/2022	Asset Engineer

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	86	>0.2, <5	0	Min = 0.41 Median = 1.08 Avg = 1.07 Max = 1.58
Total Chlorine (mg/L)	65	86	>0.2, <5	0	Min = 0.46 Median = 1.18 Avg = 1.17 Max = 1.66
Turbidity (NTU)	65	86	<5	0	-
E. Coli (MPN/100mL)	65	86	0	0	-
pH	65	84	>6.5, <8.5	0	-
Conductivity (µS/cm)	65	84	-	n/a	Min = 108 µS/cm Median = 222 µS/cm Avg = 231.32 µS/cm Max = 397 µS/cm
Dissolved Oxygen (% Sat)	65	86	>85	70	70 samples were below the aesthetic guideline value of 85% sat. The minimum value was 53%. Low DO consistent with MRC readings.
Temperature (°C)	65	86	-	n/a	Min = 20.4 °C Median = 25.4 °C Avg = 28°C Max = 33.6°C
Total Coliforms (MPN/100mL)	65	86	0	0	Min = 0 MPN/100mL Max = 0 MPN/100mL

Table 4 - E. coli compliance with annual value

Drinking water scheme: Port of Mackay

Year	FY 2020-2021												
	Month	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
No. of samples collected	6	7	11	7	7	7	7	7	7	7	7	7	6
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	0
No. of samples collected in previous 12 month period	84	90	92	95	91	91	91	91	84	91	88	81	88
No. of failures for previous 12 month period	0	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%	100%
Compliance with 98% annual value	YES	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.

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

However, we would like to note that we had complaints in the 20-21FY regarding the water pressure drop by the tenants of the facilities where we installed the BPDs. Taken into consideration the importance of the water pressure for the current firefighting network, we decided to isolate the BPDs, while in parallel we proceeded with the design studies for construction a Booster Pump Station.

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 risk assessment and review of the DWQMP was conducted in September 2021 and covered the time period 07/20 to 31/06/21. 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:

- Adam Van Nunen – Project Engineer;
- John Hinschen – Senior Manager Asset Services;
- Mark Berts – Plumber;
- Jacqui Osborne – Senior Process Engineer, City Water Technology; and
- Christina Saxvik – Process Engineer, City Water Technology.

The review considered comments and recommendations from the DWQMP review undertaken within April 2019 & April 2020 and external audit undertaken within August 2018 and September 2018 respectively.

A formal update and revision to the DWQMP was issued to the Regulator via an Amendment Application on 22nd November 2021 and is currently awaiting approval by the Regulator.

Refer to Table 8 Appendix 1 for 2020-21 FY review outcomes.

The next scheduled review and audit of the DWQMP is due at the completion of 2021-22 FY.

8 DWQMP audit findings

The first regular audit of NQBP's DWQMP was undertaken in September 2018 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 24th September 2018. The purpose of the audit was to:

- Verify the accuracy of monitoring and performance data;
- Assess NQBP's compliance with its DWQMP; and
- Assess the relevance of the DWQMP in relation to the Port of Mackay drinking water service.

A summary of the auditor's findings includes:

- The data supplied within the 2016/2017 and 2015/2016 Annual Reports was accurate;
- NQBP is generally operating its drinking water service in compliance with its approved DWQMP;
- The DWQMP reflects the current circumstances of the scheme and water quality results are consistent with the outcomes of the risk assessment;
- NQBP will benefit from reviewing the identification and implementation of preventive measures and confirming implementation of the drinking water incident management plan and keeping records of incident management;
- The link between the procedures and the management of water quality risk needs to be strengthened;
- The Water Supply Deed with Mackay Regional Council (MRC) needs to be established as a priority; and
- The maintenance of chlorine residual in the water supply network is the most important preventative measure for the NQBP distribution network. This needs to be captured within the risk assessment and additional monitoring is required to quantify chlorine residual in the network regularly.

The actions undertaken to address the audit recommendations are outlined in Table 7.

Note, action items marked as complete within the previous year's annual report have not been included within the table below.

Table 7 – DWQMP audit findings and status

Item	Recommendation (REC) or OFI	Action	Status of actions	Responsible Officer / Position
Prioritise establishment of the formal contract (Mackay Water Supply Deed) for the supply of treated drinking water from MRC.	REC-03 – Recommendation	Included as Improvement Plan ID 16. Bulk Water Supply Agreement to be implemented with MRC (also Improvement Plan Item 2).	Underway. Agreement to be finalised.	Senior Manager Asset Services
Consider capturing the drinking water risk assessment in the Risk Ware program to standardise risk management across the organisation.	OFI-01 – Opportunity for Improvement	Included as Improvement Plan ID 19. Outcomes of drinking water risk assessment to be loaded into RiskWare	Underway. To be completed.	Asset Engineer
Consider undertaking incident scenario testing in conjunction with MRC to test emergency protocols and lines of communication.	OFI-08 – Opportunity for Improvement	Included as Improvement Plan ID 20. To be discussed with MRC.	Not completed. Scheduled to be completed by 30/06/2020.	Asset Engineer
Consider referencing the master list of emergency contacts, kept by NQBP rather than updating the DWQMP each time the list	OFI-09 – Opportunity for Improvement	DWQMP updated to reference master list of emergency contacts. The master list has been updated to include regulator contacts and other DWQMP specific contacts.	Completed 20/21 FY	Asset Engineer
Consider liaising with MRC to receive relevant verification data on the bulk water supplied to NQBP.	OFI-10 – Opportunity for Improvement	Included as Improvement Plan ID 22. To be included within Bulk Water Supply Agreement.	Underway. Agreement to be finalised.	Asset Engineer
Consider including the requirement for a minimum free chlorine residual at the bulk water handover point in the drinking water supply deed.	OFI-14 – Opportunity for Improvement	Included as Improvement Plan ID 23. To be included within Bulk Water Supply Agreement.	Underway. Agreement to be finalised.	Senior Manager Asset Services

The next scheduled audit of the DWQMP is due at the completion of 2021-22 FY.

Appendix 1

Table 8 – DWQMP review outcomes

Review Date: September 2021

Review component	Findings	Outcomes	Status of actions	Responsible Officer / Position
Service description	<p>Current and future demand not in alignment with 2021 study carried out by Premise for the NQBP Water Network Modeling Water Booster Pump Station</p> <p>Water quality team, including roles and responsibilities, not in alignment with current business structure.</p>	<p>Current and future demand updated to align with most recent water network modeling report by Premise</p> <p>Water quality team along with roles and responsibilities to be updated to align with current business structure.</p>	Complete. Changes included within Rev 5 update.	Asset Engineer
Details of infrastructure	Addition of an overview of the distribution network required inclusive of recently completed and planned works for the network.	Port of Mackay distribution network figure added to give an overview of the system and addition of commentary on recently completed and future network replacement/renewal projects listed.	Complete. Changes included within Rev 5 update.	Asset Engineer
Water quality catchment characteristics	New set of water quality data available for FY 2020-21.	Water quality data in DWQMP to be updated.	Complete. Changes included within Rev 5 update.	Asset Engineer
Risk assessment	Risk Register and Assessment to be separated from Appendix 7	Risk Assessment Summary Paper to become standalone from the Risk Register and Appendix numbers to be updated.	Complete. Changes included within Rev 5 update.	Asset Engineer
Operations and maintenance procedures	No changes	Not Applicable	Not Applicable	Not Applicable

Review component	Findings	Outcomes	Status of actions	Responsible Officer / Position
Management of incidents and emergencies	Stakeholders register to be updated to ensure current details are on file and Emergency Contact details to be removed and listed on the Port Emergency Contact List. Listed communication forms to be reviewed to ensure current.	Emergency contact details to be updated to the Master Port Emergency Contact List and referenced in DQWMP. Appendix 5 Stakeholder Register tenant details to be reviewed and updated. Social media to be added as a form of communication.	Complete. Changes included within Rev 5 update.	Asset Engineer
Risk management improvement program	The Improvement Plan needs to be updated to reflect FY 20-21. current status.	DWQMP Improvement Plan action items updated to reflect current status.	Complete. Changes included within Rev 5 update.	Asset Engineer
Service wide information management	Information management to be updated to reflect system changes.	References to MEX and Trim to be replaced with OnePort and ECM throughout the DWQMP to reflect recent changes to NQBP's Information Management. Descriptions of how and when these programs are used to be added.	Complete. Changes included within Rev 5 update	Asset Engineer
Operational monitoring	Review of sampling locations and references to "Slade Point Rd" to be updated.	Sampling map and locations to be updated to reflect current practices. References to "Slade Point Rd" connection to be updated to "Gudyara Rd" to reflect NQBP's internal naming preference.	Complete. Changes included within Rev 5 update	Asset Engineer
Verification monitoring	No Changes	Not Applicable	Not Applicable	Not Applicable
Other	Review to ensure relevant standards are referenced.	Standard AS NZS 4020 to be added as an additional standard on Appendix 4 – Regulatory and Formal Requirements Register	Complete. Changes included within Rev 5 update.	Asset Engineer