

DRINKING WATER QUALITY

MANAGEMENT PLAN

ANNUAL REPORT

01/07/2020 – 30/06/2021

Presented by: Water & Waste Directorate

Current as at 14/12/2021

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INTRODUCTION

This report documents the performance of Isaac Regional Council'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).

OVERVIEW OF OPERATIONS

The approved DWQMP applies to eight drinking water supply schemes owned and operated by Isaac Regional Council - Carmila, Clermont, Dysart, Glenden, Middlemount, Moranbah, Nebo, and St Lawrence. An overview of the treatment processes and capacities of each water supply system is listed below.

CARMILA

Raw water is extracted from 2 shallow bores adjacent to Carmila Creek and pumped to the WTP inlet where it is treated using the following treatment process:

- Coagulation with alum;
- Calcium hypochlorite dosing for iron and manganese oxidation and sufficient residual for final disinfection; (Sodium hypochlorite could also be used)
- Polymer dosing as a flocculation aid;
- Flocculation;
- Clarification;
- Media filtration.

Carmila WTP operates at normal capacity of 1.5 L/s but can run at up to 3 L/s if required. The start-up and shutdown of the treatment plant is automatic, based on pre-set levels in the Treated Water Reservoir.

CLERMONT

Raw water is extracted from the Theresa Creek Dam and pumped to a balance reservoir, then gravity feeds to a 2 ML raw water reservoir and then gravity feed to the WTP inlet where it is treated using the following treatment process:

- PAC dosing for algae, taste and odour removal (when required);
- Potassium permanganate dosing used for metals and organics oxidation (when required);
- Pre-pH correction with sodium hydroxide (when required);
- Pre-chlorine gas dosing for microbe oxidation;
- Coagulation with alum;
- Polymer dosing for flocculation aid (when required);
- Flocculation;
- Clarification;
- PAC dosing for algae, taste and odour removal (when required);
- Pre-filter chlorination for residual metals removal in the filters by coated media process;
- Media filtration;
- pH correction with sodium hydroxide;

- Disinfection with chlorine gas; and
- Trim chlorine gas dosing to maintain a residual in the reticulation.

Clermont WTP operates at normal capacity of 65 L/s but can run at up to 80 L/s if required.

Operation of the WTP starts and stops based on pre-set levels in the Treated Water Reservoir.

DYSART

Raw water is extracted from the Mackenzie River and pumped to BMA's Turkey's Nest Dam located adjacent to the south west corner of the WTP site. Water is pumped on demand from the Turkey's Nest Dam to the new raw water storage tank from where it is treated using the following treatment process:

- Aluminium Chlorohydrate (ACH) dosing before entering DAF unit;
- Two stage flocculation;
- Dissolved Air Flootation (DAF) to remove Algae and other organics;
- Pre-pH correction with sodium hydroxide or hydrochloric acid when required;
- Potassium permanganate dosing for oxidation of metals (preferred method of oxidation);
- Chlorine gas dosing for oxidation of metals (alternative oxidant);
- PAC dosing for taste and odour removal;
- Coagulation with Aluminium Chlorohydrate (ACH);
- Polymer dosing for flocculation aid;
- Flocculation;
- Clarification;
- Media filtration;
- Granular Activated Carbon (GAC) filtration (for the removal of trihalomethanes, residual odour and taste); and
- Disinfection with chlorine gas.

Dysart WTP operates at normal capacity of 80 L/s but can run at up to 100 L/s if required for short periods. The WTP is operated to minimise the number of starts/stops by controlling raw water influent flows based on levels in the Treated Water Reservoirs.

GLENDEN

Raw water is extracted from the Bowen River Weir, stored in 100 ML Mine Dam and pumped to the WTP inlet where it is treated using the following treatment process:

- PAC dosing for removal of tastes and odours (when required);
- Coagulation with aluminium sulphate;
- Polymer dosing for flocculation aid (when required);
- Flocculation;
- Clarification;
- Media filtration;

- Post-pH adjustment with sodium hydroxide; and
- Disinfection with sodium hypochlorite.

Glenden WTP operates at normal capacity of 60 L/s but can run at up to 80 L/s if required. The WTP typically operates depending on levels in the Treated Water Reservoir.

MIDDLEMOUNT

Raw water is extracted from the Mackenzie Weir, pumped to Bingegang Dam and then on to the raw water storage dam on site at Middlemount WTP. It is treated using the following treatment process:

- Potassium permanganate dosing used for metals and organics oxidation (when required);
- PAC dosing prior to the flash mixer, clarifier and filter inlets (when necessary);
- Chlorine gas dosing for iron and manganese oxidation (optional);
- Coagulation with All Clear 345 (When required alternative dose are ACH and Nalco Ultrion 44560);
- Flocculation;
- Clarification;
- Pre-filter chlorination for residual metals removal in the filters by a coated media process;
- Media filtration;
- Post-pH correction with sodium hydroxide or acid (if required);
- Disinfection with chlorine gas.

Middlemount WTP operates at normal capacity of 80 L/s but can run at up to 90 L/s if required and starts and stops based on pre-set levels in the Treated Water Reservoir.

MORANBAH

There are two separate process trains at Moranbah – Bobby WTP and the Main WTP

Raw water is extracted from the Burdekin Dam (occasionally also from Eungella Dam and potentially from the Braeside Bore field) and pumped to the WTP inlet where it is treated using the following treatment process:

- Pre-pH adjustment with Sodium Hydroxide (When required)
- Pre-chlorine gas for iron and manganese oxidation;
- PAC for taste and odour removal;
- Coagulation with ACH;
- Polymer dosing for flocculation aid (Main WTP only);
- Flocculation;
- Clarification;
- Media filtration;
- Sodium Hydroxide dosing for pH adjustment;
- Disinfection with chlorine gas; and
- Fluoridation with sodium fluoride.

Moranbah has a combined capacity of 230 L/s, the Boby Plant processing up to 70 L/s and the Main WTP processing 160 L/s. These WTPs can operate individually or simultaneously, according to the level in the Treated Water Storage reservoirs. The Boby Plant is rarely used but is available during high demand periods and when the main WTP train is offline for maintenance.

NEBO

Raw water is currently pumped from one of two bore trains available; train 1 comprises of bores 2, 4 and 6, while train 2 comprises of bores 3, 5 and 7. The bores train configuration manages extraction allocations and water quality characteristics for treatment, specifically hardness and metal (iron and manganese) concentrations to be managed by blending ratios for treatment.

Bore water is treated by the following processes:

- Pre-chlorine dosing for metals oxidation, if required
- Dual media (glass and filter coal) filtration
- Ion exchange for softening using sodium chloride for regeneration
- Sodium hydroxide for pH correction
- UV Disinfection
- Chlorine gas dosing for disinfection residual and additional trim dosing

Bore Group 1 consists of Bores 2, 4 and 6 and Bores 3, 5 and 7 make up Group 2. These groupings allow. The current total annual allocation of water from the bores is 250 ML/year. Bores 2 and 3 have an allocation of 75 ML/year, Bores 4 and 5 also have an allocation of 75 ML/year and Bores 6 and 7 have an allocation of 100 ML/year.

Nebo WTP is rated for up to 25 L/s, but actual flowrates are dependent on the bores in use and system demand. Bores 2, 3, 4, 6 and 7 have a pump rate of 8 L/s each and are linked to the Nebo Creek Aquifer. Bore 5 has an approved pump rate of 6 L/s.

ST LAWRENCE

Raw water is extracted from St Lawrence Creek and pumped to the WTP inlet where it is treated using the following treatment process:

- Pre-pH correction with soda ash;
- Oxidation of iron, manganese and organics with potassium permanganate (or calcium hypochlorite);
- Coagulation with aluminium sulphate;
- Flocculation;
- Clarification;
- PAC dosing for removal of tastes and odours (when required);
- Media filtration; and
- Calcium hypochlorite dosing for final disinfection

St Lawrence WTP operates at normal capacity of 2.2 L/s but can run at up to 5.4 L/s and starts and stops based on the level in the Treated Water Reservoir.

ACTIONS TAKEN TO IMPLEMENT THE DWQMP

The current Improvement Program with status updates is included in Appendix A. Progress has been made across all water supply systems to meet the requirements of the DWQMP, some improvement items are delayed due to priority and budgetary constraints. A summary of completed and actions in progress are listed below:

COMPLETED (IN CURRENT REPORTING PERIOD)

The following improvements actions have been completed by Council during the 2020/21 reporting year:

- The water mains in Line Street and East Street, Clermont were replacement. This work was identified through the Clermont Sustainable Water Strategy – 2019 and involved an upgrade from 100 mm AC mains to 180 mm HDPE ring main. This has reduced the line breakages (as well as improving firefighting capability).
- The 5 ML treated water reservoir at Clermont WTP has been installed. This provides drinking water storage for the local community – adequate for a 3-day supply and to cater for the increasing population and industrial requirements.
- Dredging at the water intake tower at Teresa Creek Dam removed 15,000 m³ of material, to realise an improvement in raw water quality through turbidity reduction.
- Online analysers on the raw water supply at Clermont WTP have been installed for the measurement of iron and manganese.
- The drinking water reservoirs at St Lawrence and Carmila have been cleaned.
- The Capricorn Street drinking water reservoir and Middlemount clear well tank have been re-roofed to vermin proof and prevent contaminant ingress.
- The air-controls on the filters at Glenden WTP have been renewed to increase the reliability and performance of the operation including backwash.
- The feedwater pumps have been renewed on the Boby WTP at Moranbah to increase reliability and therefore quality.
- Work Instructions have been reviewed for each treatment plant. These have become registered documents within the document control system, with triggers for periodic review. Additional work instructions have been identified and will be workshopped at the monthly Operations Meeting.
- A training matrix has been developed to identify, record and track training needs and competencies for all the water and wastewater staff. The training matrix includes internal training such as work instructions. Re-training is completed at set intervals, initiated through automated triggers in the SMART workflow software.
- Implementation of the Integrated Management System (encompassing quality, environment and health and safety) has continued. This has improved document management and is assisting with issues arising from staff turnover. The system has performed well in an external audit, with further improvements implemented.
- A contract for generator maintenance has been awarded to ensure continuity in treated water supply to communities in the event of power failure.
- Quality-based checklists are being implemented across all sites with a focus on the Operation and Maintenance Manual at Moranbah WTP.

CURRENTLY IN PROGRESS

Implementation of the following improvement actions are currently in progress;

- A floating raw water off-take will be installed at Teresa Creek Dam to withdraw water from higher levels within the dam to increase the raw water quality and reduce the treatment required.
- The Treated Water Reservoir 1 at Moranbah to be re-roofed.
- Replacement of media and filter nozzles in the Bobby plant filters at Moranbah. The internal surfaces of the filter are to be epoxy lined for corrosion protection and to ensure longevity of the assets.
- Feasibility study to investigate the upstream protection of clay core at Moranbah raw water reservoir to maintain asset capability and continuity of supply.
- Water main replacement at Nebo and Moranbah sports fields and 280 m water main replacement in Archer Drive, Moranbah to address ageing infrastructure.
- A SCADA review across all water schemes has commenced to identify opportunities and strategic direction.
- Implementation of action plan to reduce the risk of trihalomethanes across all schemes have been identified with priorities for implementation.
- A tender for annual maintenance of air compressors and blowers across all treatment plants is in the final stages of approval.
- Trials are currently underway at Moranbah for the recording of Operational Monitoring onto SWIMS with the potential for data entry via a tablet.
- The Council Water and Waste Directorate functional review has identified the requirement for a maintenance planner who will coordinate the scheduling of periodic maintenance across all water schemes and will enhance the response in addressing issues relating to quality and continuity of supply.
- The Council Water and Waste Directorate functional review has identified the requirement for a Dam Technical Officer who will coordinate Dam improvement projects that contribute to raw water quality and supply.

COMPLIANCE WITH WATER QUALITY CRITERIA

Summaries of each supply system's verification monitoring and *E. coli* compliance with water quality criteria are included in Appendix B. A summary of these exceedances is presented below in Table 1.

IRC periodically conducts a review of the verification monitoring program and testing conducted by Mackay Regional Council Laboratory to ensure it is appropriate for the raw water sources used and to minimise any unnecessary testing. The revised verification monitoring program implemented following the DWQMP update approved in July 2020 has been followed for this reporting period

E. COLI

No *E. coli* detections were recorded for any schemes analysed during the 2020/21 reporting year. Complete scheme summaries for *E. coli* compliance are included in Appendix B.

Table 1: Drinking Water Quality Summary

	HEALTH	AESTHETIC	IRC DWQMP	RETICULATION	E.COLI	NOT MEASURED
CARMILA	0	2x Al 1x Fe 1x Mn 8x DO	0	1x Residual chlorine (low)	0	0
CLERMONT	1x THM	4x Al	1x Turbidity	0	0	0
DYSART	0	4x Al 1x Fe 1x Mn	2x Turbidity	1x Residual chlorine (low)	0	0
GLENDEN	0	0	0	0	0	0
MIDDLEMOUNT		1x DO	0	0	0	0
MORANBAH	0	1x TDS 1x Al	0	0	0	0
NEBO	0	21x TDS 13x Hardness	0	0	0	0
ST LAWRENCE	1x THM	7x Al 7x Mn 7x DO	0	0	0	0

NOTIFICATIONS TO THE REGULATOR

Five exceedances of water quality parameters with health limits under the ADWG or limits under the IRC DWQMP were recorded in the treated water across the IRC schemes. These exceedances are summarised in Table 2. No ADWG or IRC DWQMP exceedances were recorded at Glenden. There were two instances where the trihalomethane (THM) concentration exceeded the health limit within the ADWG as detailed below. These were reported to the Regulator and the notification status remains open until the investigation and actions are complete. There were three instances where the turbidity was reported to exceed the IRC DWQMP as detailed below. These were also reported to the Regulator with actions to be completed prior to closure of the Notification.

Table 2: Summary of Notifications

INCIDENT DATE	SCHEME	LOCATION	PARAMETER	PREVENTATIVE ACTION
11/11/2020	Dysart	Ex-clear well	Turbidity (2.56 NTU)	Transcription error
06/01/2021	Clermont	Ex-clear well	THM (0.254 mg/L)	Changeover to potassium permanganate for pre-oxidation planned for January 2022
13/01/2021	Clermont	Ex-clear well	Turbidity (1.2 NTU)	Under investigation
05/05/2021	St Lawrence	Ex-clear well	THM (0.341 mg/L)	Changeover to potassium permanganate for pre-oxidation complete – now being validated
23/06/2021	Dysart	Ex-clear well	Turbidity (3.03 NTU)	Transcription error

Carmila: No ADWG health exceedance

Clermont:

- On 06/01/2021 there was one detection of 0.254 mg/L for THM in drinking water against the ADWG health limit of 0.25 mg/L.
- On 13/01/2021 the turbidity was reported to be 1.2 NTU against the IRC DWQMP CCP of 1 NTU.

Dysart: No ADWG health exceedance

- On 11/11/2020 and 23/06/2021 the turbidity was reported to be 2.56 NTU and 3.03 NTU respectively, against the IRC DWQMP CCP of 1 NTU. The follow-up indicates both exceedances are transcription errors.

Glenden: No ADWG health exceedance

Middlemount: No ADWG health exceedance

Moranbah: No ADWG health exceedance

Nebo: No ADWG health exceedance

St Lawrence:

- On 05/05/2021 there was one detection of 0.341 mg/L for THM in drinking water against the ADWG health limit of 0.25 mg/L.

CUSTOMER COMPLAINTS RELATED TO WATER QUALITY

Table 3 outlines the water quality complaints reported by consumers in the 2020-2021 reporting year. Complaints decreased significantly in the 2020-2021 compared with the year prior. The majority of complaints for the current reporting year related to discoloured water at Clermont, with ten of these complaints (35%) related to one incident on 22 January 2021. Overall, 89% of the complaints were related to discoloured water.

Table 3: Summary of Water Quality Complaints

	HEALTH CONCERN	DISCOLOURED WATER	TASTE	ODOUR	OTHER	TOTAL
CARMILA	0	0	0	0	0	0
CLERMONT	0	28	0	0	0	28
DYSART	0	0	0	2	0	2
GLENDEN	0	0	0	0	0	0
MIDDLEMOUNT	1	0	0	0	0	1
MORANBAH	0	4	0	0	0	4
NEBO	0	0	0	0	1	1
ST LAWRENCE	0	0	0	0	0	0
TOTAL	1	32	0	2	1	36

HEALTH CONCERN

Customers who suspect their water may be of a health concern can contact Isaac Regional Council on 1300 ISAACS. This concern will be further investigated with respect to water quality, typically by testing closest reticulation sampling point.

During 2020-2021 there was a single complaint from a customer developing a rash after showering. This was the only complaint arising for Middlemount during the 2020/2021 reporting year. Water was sampled and tested the day after the complaint and reported to the customer within 48 hours. The results were found to be acceptable with pH of 7.56, chlorine of 1.12 mg/L, turbidity of 0.27 NTU and colour of 0 HU. The customer was provided with feedback on the water quality results and she advised the rash had not reoccurred.

AESTHETIC COMPLAINTS

When water quality complaints are received, the following standard responses are performed as appropriate. Between each action, the water is sampled to determine whether the situation has been rectified.

1. Localised flushing.
2. Mains flushing.

3. Samples collected for further investigation (if required, particularly if the cause of the complaint is unknown).

DISCOLOURED WATER

When a complaint is received that relates to discolouration of drinking water, the following investigations are conducted, and corrective action taken where possible:

- a. Review of treatment processes and chemical dosing systems.
- b. Drain vessels in treatment plant if contamination is suspected.
- c. Perform action as per Aesthetic Complaints section.

TASTE AND ODOURS

When a complaint is received that relates to discolouration of drinking water, the following investigations are conducted, and corrective action taken where possible:

- a. Review raw water quality and make necessary adjustments to the treatment process (e.g. PAC dose and/or Potassium Permanganate dose changes, chlorine dose change and pH correction chemical adjustment).
- b. If the problem persists, down rate the water treatment plant and introduce water restrictions.
- c. Perform action as per Aesthetic Complaints section.

FINDINGS AND RECOMMENDATION OF THE DWQMP AUDITOR

The next audit of IRC DWQMP is due to be completed by 11 November 2022.

OUTCOME OF THE REVIEW OF THE DWQMP

A review of the IRC DWQMP was completed prior to 11 November 2021. Minor amendments were identified, and these are due to be reported to the Regulator.

APPENDIX A: IMPLEMENTATION OF THE DWQMP IMPROVEMENT PROGRAM

Refer to a separate spreadsheet

APPENDIX B: SUMMARY OF COMPLIANCE WITH WATER QUALITY CRITERIA

All testing results were obtained via the Mackay NATA accredited Laboratory, with the exception of daily free chlorine residuals which were obtained from operational plant monitoring data. Health and aesthetic exceedances are highlighted.

Legend	
-	- Number of Aesthetic exceedances
-	- Number of Health exceedances

CARMILA SUPPLY SYSTEM

CARMILA TREATED WATER

Parameter	Units	Frequency	No. Samples	Detections	Exceedances	Min	5 th %ile	Average	95 th %ile	Max	LOR
Aluminium	µg/L	Weekly	54	53	2 (Aesthetic)	0.00	24.5	79.5	140.5	775.1	none
Conductivity	µS/cm		53	53	0	244.0	262.4	318.8	364.8	574.0	none
E. coli	MPN/100mL		53	0	0	<1	<1	<1	<1	<1	1.00
Iron	µg/L		48	48	1 (Aesthetic)	2.16	4.44	62.5	168.9	599.4	1.00
Manganese	µg/L		53	49	1 (Aesthetic)	<1	<1	10.24	23.72	129.12	1.00
pH			53	53	0	6.95	7.00	7.43	7.80	7.80	none
Residual Chlorine	mg/L		53	53	0	0.70	1.38	1.95	2.50	2.80	none
Total Dissolved Solids (TDS)	mg/L		52	52	0	146.0	157.6	191.6	219.5	344.0	none
Turbidity	NTU		53	35	0	<0.1	<0.1	0.12	0.10	1.00	0.1
Alkalinity	mg/L	Monthly	12	12	0	67.3	74.1	86.8	95.1	95.3	none
Bromate	µg/L		12	0	4	<20	<20	<50	<50	<50	20.0
Calcium	mg/L		12	12	0	18.0	18.8	23.1	27.1	27.5	none
Chlorate	µg/L		12	9	0	<20	<20	176.5	575.6	897.0	20.0
Chlorite	µg/L		12	0	0	<20	<20	<50	<50	<50	20.0
Dissolved Oxygen	% Sat		12	12	8	50.1	58.1	76.0	89.6	91.7	none
Fluoride	mg/L		12	1	0	<0.1	<0.1	<0.1	<0.1	0.10	0.10
Magnesium	mg/L		12	12	0	7.79	8.04	9.52	10.44	10.52	none
Nitrate	mg/L		12	1	0	<0.3	<0.3	<0.3	0.33	0.47	0.30
Nitrite	mg/L		12	0	0	<0.4	<0.4	<0.4	<0.4	<0.4	0.40
Residual Alkalinity	mg/L		12	0	0	<0.1	<0.1	<0.1	<0.1	<0.1	0.10
Temporary Hardness	mg/L		12	12	0	67.3	74.1	86.9	95.1	95.3	none

Parameter	Units	Frequency	No. Samples	Detections	Exceedances	Min	5 th %ile	Average	95 th %ile	Max	LOR
THMs	µg/L		12	12	0	30.1	37.3	72.1	134.8	148.0	none
Total Hardness	mg/L		12	12	0	79.0	79.7	97.0	110.6	111.9	none
True Colour	TCU		12	4	0	<1	<1	<1	1.00	1.00	1.00
Ammonia	mg/L	Quarterly	4	1	0	<0.01	<0.01	0.014	0.030	0.034	0.01
Arsenic	µg/L		4	0	0	<1	<1	<1	<1	<1	1.00
Cadmium	µg/L		4	0	0	<0.1	<0.1	<0.1	<0.1	<0.1	0.10
Chromium	µg/L		4	1	0	<0.1	<0.1	0.10	0.16	0.17	0.10
Copper	µg/L		4	2	0	<1	<1	4.08	8.50	8.95	1.00
Formaldehyde	mg/L		6	0	0	<0.1	<0.1	<0.1	<0.1	<0.1	0.10
Hydrogen Sulphide	mg/L		4	0	0	<0.005	<0.005	<0.005	<0.005	<0.005	0.005
Lead	µg/L		4	0	0	<0.5	<0.5	<1	<1	<1	0.50
Mercury	µg/L		4	1	0	<0.05	<0.05	<0.05	0.10	0.11	0.05
Nickel	µg/L		4	0	0	<0.5	<0.5	<0.5	<0.5	<0.5	0.50
Pesticides	µg/L		4	0	0	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001
Selenium	µg/L		4	0	0	<5	<5	<5	<5	<5	5.00
Zinc	µg/L		4	4	0	5.46	5.66	7.52	9.40	9.61	1.00
Barium	µg/L		Annually	1	1	0	30.7	30.7	30.7	30.7	30.7
Beryllium	µg/L	1		0	0	<0.5	<0.5	<0.5	<0.5	<0.5	0.50
Boron	µg/L	1		1	0	10.0	10.0	10.0	10.0	10.0	none
Iodide	µg/L	1		0	0	<20	<20	<20	<20	<20	20.00
Molybdenum	µg/L	1		0	0	<1	<1	<1	<1	<1	1.00
Radionuclides - Gross alpha	Bq/L	1		0	0	<0.05	<0.05	<0.05	<0.05	<0.05	0.05
Radionuclides - Gross beta	Bq/L	1		0	0	<0.1	<0.1	<0.1	<0.1	<0.1	0.10
Silver	µg/L	1		0	0	<0.1	<0.1	<0.1	<0.1	<0.1	0.10
Tin	µg/L	1		0	0	<1	<1	<1	<1	<1	1.00
Uranium	µg/L	1		0	0	<0.5	<0.5	<0.5	<0.5	<0.5	0.50

CARMILA RETICULATION

Parameter	Units	No. Samples	Detections	Exceedances	Min	5 th %ile	Average	95 th %ile	Max	LOR
Sample Location: Carmila Network 6 Music St (Jul 2020 - Jun 2021)										
pH	-	53	53	0	7.00	7.10	7.50	7.80	7.80	none
Free Chlorine	mg/L	53	53	1* (Health)	0.06	0.22	0.40	1.00	2.30	none
E. coli	MPN/100mL	53	0	0	<1	<1	<1	<1	<1	1

* Denotes detection below the ADWG and WHO preferred minimum chlorine residual limit for the reticulation.

CARMILA E. COLI COMPLIANCE

Year	2020-2021												
	Month	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
No. of samples collected		10	8	14	8	8	11	8	8	12	8	8	12
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		105	105	105	111	109	109	110	111	109	113	111	111
No. of failures for previous 12-month period		0	0	0	0	0	0	0	0	0	0	0	0
% of samples that comply		100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Compliance with 98% annual value		YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES

CLERMONT SUPPLY SYSTEM

CLERMONT TREATED WATER

Parameter	Units	Frequency	No. Samples	Detections	Exceedances	Min	5 th %ile	Average	95 th %ile	Max	LOR
Aluminium	µg/L	Weekly	53	53	4 (Aesthetic)	10.4	49.6	128.2	357.7	2156.0	5.00
Conductivity	µS/cm		53	53	0	215.6	340.0	337.3	478.0	528.0	none
E. coli	MPN/100mL		53	0	0	<1	<1	<1	<1	<1	1.00
Iron	µg/L		50	42	0	<1	5.24	10.64	36.95	72.99	1.00
Manganese	µg/L		53	41	0	<1	3.93	9.85	36.59	89.10	1.00
pH			53	53	0	6.65	7.24	7.25	7.67	8.36	none
Residual Chlorine	mg/L		53	53	0	1.26	2.10	2.13	2.90	3.90	none
Total Dissolved Solids (TDS)	mg/L		53	53	0	129.0	204.0	202.4	287.2	317.0	none
Turbidity	NTU		53	49	1 (Health)	<0.1	0.23	0.29	0.85	1.20	0.10
Alkalinity	mg/L	Monthly	12	12	0	36.92	78.05	79.38	114.4	114.8	none
Bromate	µg/L		12	0	0	<20	<20	<50	<50	<50	20.00
Calcium	mg/L		12	12	0	10.06	21.34	21.45	31.75	34.75	none
Chlorate	µg/L		12	0	0	<20	<20	<50	<50	<50	20.00
Chlorite	µg/L		12	0	0	<20	<20	<50	<50	<50	20.00
Dissolved Oxygen	% Sat		12	12	0	85.90	93.10	93.32	98.29	98.40	none
Fluoride	mg/L		12	12	0	<0.1	<0.1	<0.1	0.12	0.14	0.10
Magnesium	mg/L		12	12	0	2.87	6.58	6.68	10.32	10.89	none
Nitrate	mg/L		12	12	0	0.34	0.52	0.73	1.50	1.75	0.30
Nitrite	mg/L		12	0	0	<0.4	<0.4	<0.4	<0.4	<0.4	0.40
Residual Alkalinity	mg/L		12	0	0	<0.1	<0.1	<0.1	<0.1	<0.1	0.10
Temporary Hardness	mg/L		12	12	0	36.9	78.1	79.4	114.4	114.8	none
THMs	µg/L		12	12	1 (Health)	87.6	144.5	154.6	226.0	254.0	none
Total Algae	cells/mL		5	0	0	<1	<1	<1	<1	<1	1.00
Total Hardness	mg/L		12	12	0	36.9	80.3	81.0	120.8	131.6	none
True Colour	TCU	12	5	0	<1	<1	<1	1.00	1.00	1.00	

Parameter	Units	Frequency	No. Samples	Detections	Exceedances	Min	5 th %ile	Average	95 th %ile	Max	LOR
Ammonia	mg/L	Quarterly	4	0	0	<0.01	<0.01	<0.01	<0.01	<0.01	0.01
Arsenic	µg/L		4	0	0	<1	<1	<1	<1	<1	1.00
Cadmium	µg/L		4	0	0	<0.1	<0.1	<0.1	<0.1	<0.1	0.10
Chromium	µg/L		4	0	0	<0.1	<0.1	<0.1	<0.1	<0.1	0.10
Copper	µg/L		4	3	0	<1	3.86	5.23	11.28	12.49	1.00
Formaldehyde	mg/L		6	0	0	<0.1	<0.1	0.07	<0.1	<0.1	0.10
Hydrogen Sulphide	mg/L		4	0	0	<0.005	<0.005	<0.005	<0.005	<0.005	0.005
Lead	µg/L		4	0	0	<0.5	<1	<1	<1	<1	0.50
Mercury	µg/L		4	0	0	<0.05	<0.05	0.05	0.08	0.09	0.05
Nickel	µg/L		4	1	0	<0.5	<0.5	<0.5	0.61	0.66	0.50
Pesticides*	µg/L		4	0	0	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001
Selenium	mg/L		4	0	0	<5	<5	<5	<5	<5	5.00
Zinc	µg/L		4	3	0	<1	1.38	1.28	1.65	1.68	1.00
Barium	µg/L		Annually	1	1	0	44.8	44.8	44.8	44.8	44.8
Beryllium	µg/L	1		0	0	<0.5	<0.5	<0.5	<0.5	<0.5	0.50
Boron	µg/L	1		0	0	34.3	34.3	34.3	34.3	34.3	none
Iodide	µg/L	1		0	0	<20	<20	<20	<20	<20	20.00
Molybdenum	µg/L	1		0	0	<1	<1	<1	<1	<1	1.00
Radionuclides - Gross alpha	Bq/L	1		0	0	<0.05	<0.05	<0.05	<0.05	<0.05	0.05
Radionuclides - Gross beta	Bq/L	1		0	0	<0.1	<0.1	<0.1	<0.1	<0.1	0.10
Silver	µg/L	1		0	0	<0.1	<0.1	<0.1	<0.1	<0.1	0.10
Tin	µg/L	1		0	0	<1	<1	<1	<1	<1	1.00
Uranium	µg/L	1		0	0	<0.5	<0.5	<0.5	<0.5	<0.5	0.50

CLERMONT RETICULATION

Parameter	Units	No. Samples	Detections	Exceedances	Min	5 th %ile	Average	95 th %ile	Max	LOR
Sample Location: Clermont Network Centenary Park (Jul 2020 - Jun 2021)										
pH	-	8	8	0	7.06	7.07	7.32	7.55	7.56	none
Free Chlorine	mg/L	8	8	0	0.67	0.76	1.62	2.33	2.40	none
E. coli	MPN/100mL	8	0	0	<1	<1	<1	<1	<1	1
Sample Location: Clermont Network Hospital (Jul 2020 - Jun 2021)										
pH	-	8	8	0	7.04	7.10	7.37	7.71	7.79	none
Free Chlorine	mg/L	8	8	0	1.18	1.22	1.63	2.51	2.80	none
E. coli	MPN/100mL	8	0	0	<1	<1	<1	<1	<1	1
Sample Location: Clermont Network Jeffery Street (Jul 2020 - Jun 2021)										
pH	-	10	10	0	6.88	7.00	7.45	8.25	8.50	none
Free Chlorine	mg/L	10	10	0	1.48	1.53	2.04	2.78	3.00	none
E. coli	MPN/100mL	10	0	0	<1	<1	<1	<1	<1	1
Sample Location: Clermont Network Library (Jul 2020 - Jun 2021)										
pH	-	9	9	0	6.81	6.94	7.28	7.61	7.70	none
Free Chlorine	mg/L	9	9	0	0.81	1.02	1.56	2.11	2.20	none
E. coli	MPN/100mL	9	0	0	<1	<1	<1	<1	<1	1
Sample Location: Clermont Network Jeffery Rose Harris Park (Jul 2020 - Jun 2021)										
pH	-	9	9	0	7.11	7.13	7.26	7.51	7.58	none
Free Chlorine	mg/L	9	9	0	1.02	1.04	1.64	2.44	2.60	none
E. coli	MPN/100mL	9	0	0	<1	<1	<1	<1	<1	1
Sample Location: Clermont Network Spring Park (Jul 2020 - Jun 2021)										
pH	-	9	9	0	7.17	7.17	7.32	7.60	7.68	none
Free Chlorine	mg/L	9	9	0	1.03	1.16	1.87	2.74	3.10	none
E. coli	MPN/100mL	9	0	0	<1	<1	<1	<1	<1	1
Combined Results for all Sample Points										
pH	-	53	53	0	6.81	7.05	7.34	7.74	8.50	none
Free Chlorine	mg/L	53	53	0	0.67	0.99	1.74	2.68	3.10	none
E. coli	MPN/100mL	53	0	0	<1	<1	<1	<1	<1	1

CLERMONT *E. COLI* COMPLIANCE

Year	2020-2021											
Month	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
No. of samples collected	10	8	10	8	8	10	8	8	10	8	8	10
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	134	133	133	136	129	129	131	131	117	105	103	103
No. of failures for previous 12-month period	0	0	0	0	0	0	0	0	0	0	0	0
% of samples that comply	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Compliance with 98% annual value	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES

DYSART SUPPLY SYSTEM

DYSART TREATED WATER

Parameter	Units	Frequency	No. Samples	Detections	Exceedances	Min	5th %ile	Average	95 th %ile	Max	LOR
Aluminium	µg/L	Weekly	53	53	4 (Aesthetic)	9.22	10.2	63.4	298.0	626.1	5
Conductivity	µS/cm		53	53	0	201.3	212.6	243.2	280.9	304.0	none
E. coli	MPN/100mL		53	0	0	<1	<1	<1	<1	<1	1.00
Iron	µg/L		48	33	1 (Aesthetic)	<1	<1	11.2	13.9	337.9	1.00
Manganese	µg/L		53	23	1 (Aesthetic)	<1	<1	4.43	6.95	125.7	1.00
pH			53	53	0	7.05	7.10	7.32	7.60	8.49	none
Residual Chlorine	mg/L		53	53	0	0.70	1.39	1.84	2.20	2.50	none
Total Dissolved Solids (TDS)	mg/L		53	53	0	121.0	127.6	146.3	168.4	182.0	none
Turbidity	NTU		52	47	2 (Health)	<0.1	<0.1	0.27	0.65	3.03	0.10
Alkalinity	mg/L	Monthly	12	12	0	57.0	57.8	75.4	85.9	86.2	none
Bromate	µg/L		12	0	0	<20	<20	<50	<50	<50	20.00
Calcium	mg/L		12	12	0	14.8	15.4	19.2	22.1	23.0	none
Chlorate	µg/L		12	1	0	<20	<20	<50	93.3	164.1	20.00
Chlorite	µg/L		12	0	0	<20	<20	<50	<50	<50	20.00
Dissolved Oxygen	% Sat		12	12	0	85.6	86.4	91.5	97.6	98.5	none
Fluoride	mg/L		12	9	0	<0.1	<0.1	0.10	0.13	0.13	0.10
Magnesium	mg/L		12	12	0	5.47	5.51	7.30	8.96	9.08	none
Nitrate	mg/L		12	9	0	<0.3	<0.3	0.50	0.89	0.93	0.30
Nitrite	mg/L		12	0	0	<0.4	<0.4	<0.4	<0.4	<0.4	0.40
Residual Alkalinity	mg/L		12	0	0	<0.1	<0.1	<0.1	<0.1	<0.1	0.10
Temporary Hardness	mg/L		12	12	0	57.0	57.8	75.4	85.9	86.2	none
THMs	µg/L		12	12	0	13.3	15.6	34.1	53.6	53.7	none
Total Algae	cells/mL		5	0	0	<1	<1	<1	<1	<1	1

Parameter	Units	Frequency	No. Samples	Detections	Exceedances	Min	5th %ile	Average	95 th %ile	Max	LOR
Total Hardness	mg/L		12	12	0	59.7	62.2	77.9	92.1	94.8	none
True Colour	TCU		12	4	0	<1	<1	<1	1.45	2.00	1.00
Ammonia	mg/L	Quarterly	4	0	0	<0.01	<0.01	<0.01	<0.01	<0.01	0.01
Arsenic	µg/L		4	0	0	<1	<1	<1	<1	<1	1.00
Cadmium	µg/L		4	0	0	<0.1	<0.1	<0.1	<0.1	<0.1	0.10
Chromium	µg/L		3	1	0	<0.1	<0.1	<0.1	0.13	0.14	0.10
Copper	µg/L		4	4	0	2.92	3.96	10.7	16.8	17.6	1.00
Formaldehyde	mg/L		6	0	0	<0.1	<0.1	<0.1	<0.1	<0.1	0.10
Hydrogen Sulphide	mg/L		4	0	0	<0.005	<0.005	<0.005	<0.005	<0.005	0.005
Lead	µg/L		4	2	0	<0.5	<0.5	<1	<1	<1	0.05
Mercury	µg/L		4	0	0	<0.05	<0.05	0.05	0.07	0.08	0.05
Nickel	µg/L		4	2	0	<0.5	<0.5	0.53	0.76	0.78	0.50
Pesticides*	µg/L		4	0	0	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001
Selenium	µg/L		4	0	0	3.54	3.54	3.54	3.54	3.54	5.00
Zinc	µg/L		4	3	0	<1	1.17	5.39	10.0	10.6	1.00
Barium	µg/L	Annually	1	1	0	36.1	36.1	36.1	36.1	36.1	none
Beryllium	µg/L		1	0	0	<0.5	<0.5	<0.5	<0.5	<0.5	0.50
Boron	µg/L		1	1	0	54.2	54.2	54.2	54.2	54.2	none
Iodide	µg/L		1	0	0	<20	<20	<20	<20	<20	20.00
Molybdenum	µg/L		1	0	0	<1	<1	<1	<1	<1	1.00
Radionuclides - Gross alpha	Bq/L		1	0	0	<0.05	<0.05	<0.05	<0.05	<0.05	0.05
Radionuclides - Gross beta	Bq/L		1	0	0	<0.1	<0.1	<0.1	<0.1	<0.1	0.10
Silver	µg/L		1	0	0	<0.1	<0.1	<0.1	<0.1	<0.1	0.10
Tin	µg/L		1	0	1	<1	<1	<1	<1	<1	1.00
Uranium	µg/L		1	0	0	<0.5	<0.5	<0.5	<0.5	<0.5	0.50

DYSART RETICULATION

Parameter	Units	No. Samples	Detections	Exceedances	Min	5 th %ile	Average	95 th %ile	Max	LOR
Sample Location: Dysart Network 1 Fisher St (Jul 2020 - Jun 2021)										
pH	-	2	2	0	2.00	7.44	7.57	7.70	7.71	none
Free Chlorine	mg/L	2	2	0	0.99	1.02	1.30	1.57	1.60	none
E. coli	MPN/100mL	2	0	0	<1	<1	<1	<1	<1	<1
Sample Location: Dysart Network Centenary Park (Jul 2020 - Jun 2021)										
pH	-	17	17	0	7.05	7.14	7.43	7.84	8.00	none
Free Chlorine	mg/L	17	17	0	0.27	0.53	1.01	1.50	1.60	none
E. coli	MPN/100mL	17	0	0	<1	<1	<1	<1	<1	<1
Sample Location: Dysart Network Fisher St Sports Complex (Jul 2020 - Jun 2021)										
pH	-	5	5	0	7.33	7.34	7.47	7.59	7.61	none
Free Chlorine	mg/L	5	5	0	0.89	0.96	1.24	1.40	1.41	none
E. coli	MPN/100mL	5	0	0	<1	<1	<1	<1	<1	<1
Sample Location: Dysart Network Fox Park (Jul 2020 - Jun 2021)										
pH	-	11	11	0	7.30	7.32	7.49	7.80	7.85	none
Free Chlorine	mg/L	11	11	0	0.54	0.72	1.18	1.80	1.94	none
E. coli	MPN/100mL	11	0	0	<1	<1	<1	<1	<1	<1
Sample Location: Dysart Network Lions Park (Jul 2020 - Jun 2021)										
pH	-	9	9	0	7.23	7.27	7.52	7.77	7.80	none
Free Chlorine	mg/L	9	9	0	0.28	0.30	0.77	1.17	1.30	none
E. coli	MPN/100mL	9	0	0	<1	<1	<1	<1	<1	<1
Sample Location: Dysart Network Powell St SPS (Jul 2020 - Jun 2021)										
pH	-	9	9	0	7.29	7.30	7.46	7.67	7.71	none
Free Chlorine	mg/L	9	9	1* (Health)	0.13	0.37	0.83	1.12	1.12	none
E. coli	MPN/100mL	9	0	0	<1	<1	<1	<1	<1	<1
Combined Results for All Sample Points										
pH	-	53	53	0	7.05	7.21	7.47	7.80	8.00	none
Free Chlorine	mg/L	53	53	1* (Health)	0.13	0.32	1.01	1.60	1.94	none
E. coli	MPN/100mL	53	0	0	<1	<1	<1	<1	<1	<1

* Denotes detection below the ADWG and WHO preferred minimum chlorine residual limit for the reticulation.

DYSART *E. COLI* COMPLIANCE

Year	2020-2021											
Month	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
No. of samples collected	10	8	10	8	8	10	8	8	10	8	8	10
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	109	109	108	110	108	108	109	110	110	112	110	110
No. of failures for previous 12-month period	0	0	0	0	0	0	0	0	0	0	0	0
% of samples that comply	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Compliance with 98% annual value	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES

GLENDEN SUPPLY SYSTEM

GLENDEN TREATED WATER

Parameter	Units	Frequency	No. Samples	Detections	Exceedances	Min	5th %ile	Average	95 th %ile	Max	LOR
Aluminium	µg/L	Weekly	53	53	0	<5	11.6	27.9	44.7	175.6	5.00
Conductivity	µS/cm		53	53	0	150.0	156.0	193.1	231.4	271.0	none
E. coli	MPN/100mL		53	0	0	<1	<1	<1	<1	<1	1.00
Iron	µg/L		48	46	0	<1	1.09	13.6	20.5	163.0	1.00
Manganese	µg/L		53	46	0	<1	<1	4.69	9.59	28.5	1.00
pH			55	55	0	6.85	6.99	7.10	7.30	7.40	none
Residual Chlorine	mg/L		53	53	0	0.81	1.05	1.42	1.82	2.00	none
Total Dissolved Solids (TDS)	mg/L		53	53	0	90.0	93.6	115.9	139.0	163.0	none
Turbidity	NTU		51	32	0	<0.1	<0.1	0.14	0.28	0.38	0.10
Alkalinity	mg/L		Monthly	12	12	0	30.7	31.8	41.6	53.2	53.8
Bromate	µg/L	12		4	0	<20	<20	<50	<50	<50	20.00
Calcium	mg/L	12		12	0	14.0	14.2	16.3	18.6	18.8	none
Chlorate	µg/L	12		10	0	<20	<20	204.40	438.15	461.62	20.00
Chlorite	µg/L	12		4	0	<20	<20	<50	<50	<50	20.00
Dissolved Oxygen	% Sat	12		12	0	92.9	93.9	98.3	107.5	109.4	none
Fluoride	mg/L	12		12	0	<0.1	<0.1	<0.1	<0.1	<0.1	0.10
Magnesium	mg/L	12		12	0	2.35	2.41	3.20	4.64	4.84	none
Nitrate	mg/L	12		6	0	<0.3	<0.3	<0.3	0.46	0.47	0.30
Nitrite	mg/L	12		0	0	<0.4	<0.4	<0.4	<0.4	<0.4	0.40
Residual Alkalinity	mg/L	12		0	0	<0.1	<0.1	<0.1	<0.1	<0.1	0.10
Temporary Hardness	mg/L	12		12	0	45.1	45.4	53.8	64.7	66.2	none
THMs	µg/L	12		12	0	19.4	20.1	38.0	65.6	70.6	none
Total Algae	cells/mL	5		0	0	<1	<1	<1	<1	<1	1.00
Total Hardness	mg/L	12		12	0	45.1	45.4	53.8	64.7	66.2	none
True Colour	TCU	12		3	0	<1	<1	<1	1.00	1.00	1.00
Ammonia	mg/L	Quarterly	4	0	0	<0.01	<0.01	<0.01	<0.01	<0.01	0.01
Arsenic	µg/L		4	0	0	<1	<1	<1	<1	<1	1.00

Parameter	Units	Frequency	No. Samples	Detections	Exceedances	Min	5th %ile	Average	95 th %ile	Max	LOR
Cadmium	µg/L		4	0	0	<0.1	<0.1	<0.1	<0.1	<0.1	0.10
Chromium	µg/L		4	2	0	<0.1	<0.1	0.10	0.13	0.13	0.10
Copper	µg/L		4	4	0	1.51	1.77	3.61	5.19	5.33	1
Formaldehyde	mg/L		6	0	0	<0.1	<0.1	<0.1	<0.1	<0.1	0.10
Hydrogen Sulphide	mg/L		4	1	0	<0.005	<0.005	<0.005	<0.005	0.005	0.005
Lead	µg/L		4	0	0	<0.5	<0.5	<1	<1	<1	0.50
Mercury	µg/L		4	1	0	<0.05	<0.05	<0.05	0.06	0.07	0.05
Nickel	µg/L		4	0	0	<0.5	<0.5	<0.5	<0.5	<0.5	0.50
Pesticides*	µg/L		4	0	0	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001
Selenium	µg/L		4	0	0	<5	<5	<5	<5	<5	5.00
Zinc	µg/L		4	3	0	<1	<1	3.49	7.58	8.32	1.00
Barium	µg/L		Annually	1	1	0	14.2	14.2	14.2	14.2	14.2
Beryllium	µg/L	1		0	0	<0.5	<0.5	<0.5	<0.5	<0.5	0.50
Boron	µg/L	1		1	0	5.52	5.52	5.52	5.52	5.52	none
Iodide	µg/L	1		0	0	<20	<20	<20	<20	<20	20.00
Molybdenum	µg/L	1		0	0	<1	<1	<1	<1	<1	1.00
Radionuclides - Gross alpha	Bq/L	1		0	0	<0.04	<0.04	<0.04	<0.04	<0.04	0.04
Radionuclides - Gross beta	Bq/L	1		0	0	<0.1	<0.1	<0.1	<0.1	<0.1	0.10
Silver	µg/L	1		0	0	<0.1	<0.1	<0.1	<0.1	<0.1	0.10
Tin	µg/L	1		0	0	<1	<1	<1	<1	<1	1.00
Uranium	µg/L	1		0	0	<0.5	<0.5	<0.5	<0.5	<0.5	0.50

GLENDEN RETICULATION

Parameter	Units	No. Samples	Detections	Exceedances	Min	5 th %ile	Average	95 th %ile	Max	LOR
Sample Location: Glenden Network 7B Usher Terrace (Jul 2020 - Jun 2021)										
pH	-	16	16	0	7.05	7.09	7.26	7.43	7.50	none
Free Chlorine	mg/L	16	16	0	0.60	0.75	1.20	1.64	1.68	none
E. Coli	MPN/100mL	16	0	0	<1	<1	<1	<1	<1	1
Sample Location: Glenden Network Depot (Jul 2020 - Jun 2021)										
pH	-	13	13	0	7.00	7.09	7.45	7.74	7.80	none
Free Chlorine	mg/L	13	13	0	0.78	0.79	1.23	1.55	1.72	none
E. Coli	MPN/100mL	13	0	0	<1	<1	<1	<1	<1	1
Sample Location: Glenden Network Golf Club (Jul 2020 - Jun 2021)										
pH	-	12	12	0	7.00	7.00	7.30	7.52	7.55	none
Free Chlorine	mg/L	12	12	0	0.55	0.69	1.18	1.49	1.52	none
E. Coli	MPN/100mL	12	0	0	<1	<1	<1	<1	<1	1
Sample Location: Glenden Network Library (Jul 2020 - Jun 2021)										
pH	-	12	12	0	6.90	6.96	7.43	7.84	8.00	none
Free Chlorine	mg/L	12	12	0	0.60	0.62	1.04	1.51	1.58	none
E. Coli	MPN/100mL	12	0	0	<1	<1	<1	<1	<1	1
Combined Results for All Sample Points										
pH	-	53	53	0	6.90	7.00	7.36	7.70	8.00	none
Free Chlorine	mg/L	53	53	0	0.55	0.62	1.16	1.60	1.72	none
E. Coli	MPN/100mL	53	0	0	<1	<1	<1	<1	<1	1

GLENDEN *E. COLI* COMPLIANCE

Year	2020-2021											
Month	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
No. of samples collected	10	8	10	8	8	10	8	8	10	8	8	10
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
No. of samples collected in previous 12-month period	102	103	103	105	103	103	103	103	103	105	103	104
No. of failures for previous 12-month period	0	0	0	0	0	0	0	0	0	0	0	0
% of samples that comply	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Compliance with 98% annual value	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES

MIDDLEMOUNT SUPPLY SYSTEM

MIDDLEMOUNT TREATED WATER

Parameter	Units	Frequency	No. Samples	Detections	Exceedances	Min	5th %ile	Average	95 th %ile	Max	LOR
Aluminium	µg/L	Weekly	53	28	0	<5	<5	6.72	13.3	15.5	5.00
Conductivity	µS/cm		53	53	0	175.0	179.6	226.7	288.0	621.6	none
E. coli	MPN/100mL		53	0	0	<1	<1	<1	<1	<1	1.00
Iron	µg/L		48	34	0	<1	<1	4.41	15.2	19.0	1.00
Manganese	µg/L		53	22	0	<1	<1	1.59	5.04	9.70	1.00
pH			54	54	0	7.00	7.18	7.45	7.68	7.87	none
Residual Chlorine	mg/L		53	53	0	1.04	1.62	2.05	2.68	2.83	none
Total Dissolved Solids (TDS)	mg/L		53	53	0	105.0	107.6	136.0	172.6	373.0	none
Turbidity	NTU		52	47	0	<0.1	<0.1	0.16	0.28	0.37	0.10
Alkalinity	mg/L		Monthly	11	11	0	37.9	42.0	66.3	84.0	87.2
Bromate	µg/L	11		0	0	<20	<20	<50	<50	<50	20.00
Calcium	mg/L	11		11	0	9.83	9.98	16.3	21.5	22.7	none
Chlorate	µg/L	11		5	0	<20	<20	34.7	95.6	155.9	20.00
Chlorite	µg/L	11		4	0	<20	<20	21.86	<50	<50	20.00
Dissolved Oxygen	% Sat	11		11	1 (Aesthetic)	80.4	87.4	96.5	102.8	104.0	none
Fluoride	mg/L	11		10	0	<0.1	<0.1	0.13	0.16	0.17	0.10
Magnesium	mg/L	11		11	0	4.05	4.37	6.62	8.92	9.14	none
Nitrate	mg/L	11		10	0	<0.3	0.32	0.95	1.68	1.77	0.30
Nitrite	mg/L	11		0	0	<0.4	<0.4	<0.4	<0.4	<0.4	0.40
Residual Alkalinity	mg/L	11		0	0	<0.1	<0.1	<0.1	<0.1	<0.1	0.10
Temporary Hardness	mg/L	11		11	0	37.9	42.0	66.3	84.0	87.2	none
THMs	µg/L	11		11	0	90.1	90.8	143.9	184.5	189.0	none
Total Algae	cells/mL	5		0	0	<1	<1	<1	<1	<1	1
Total Hardness	mg/L	11		11	0	42.0	42.9	68.0	90.4	94.2	none
True Colour	TCU	11	6	0	<1	<1	1.05	2.00	2.00	1.00	
Ammonia	mg/L	Quarterly	4	0	0	<0.01	<0.01	<0.01	<0.01	<0.01	0.01

Parameter	Units	Frequency	No. Samples	Detections	Exceedances	Min	5th %ile	Average	95 th %ile	Max	LOR	
Arsenic	µg/L		4	1	0	<1	<1	0.79	1.00	1.05	1.00	
Cadmium	µg/L		4	0	0	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.10
Chromium	µg/L		4	2	0	<0.1	<0.1	0.09	0.11	0.11	0.10	
Copper	µg/L		4	4	0	8.71	9.54	21.3	36.3	38.5	1	
Formaldehyde	mg/L		6	0	0	<0.1	<0.1	0.07	<0.1	<0.1	0.10	
Hydrogen Sulphide	mg/L		4	0	0	<0.005	<0.005	<0.005	<0.005	<0.005	0.005	
Lead	µg/L		4	2	0	<0.5	<0.5	<1	<1	<1	0.50	
Mercury	µg/L		4	1	0	<0.05	<0.05	0.05	0.07	0.07	0.05	
Nickel	µg/L		4	4	0	0.75	0.82	1.17	1.45	1.49	none	
Pesticides*	µg/L		3	2*	0	<0.0001	0.02	0.14	0.25	0.26	0.0001	
Selenium	µg/L		4	0	0	<5	<5	<5	<5	<5	5.00	
Zinc	µg/L		4	3	0	<1	1.32	5.01	7.49	7.57	1.00	
Barium	µg/L		Annually	1	1	0	40.4	40.4	40.4	40.4	40.4	none
Beryllium	µg/L	1		0	0	<0.5	<0.5	<0.5	<0.5	<0.5	0.50	
Boron	µg/L	1		1	0	47.9	47.9	47.9	47.9	47.9	none	
Iodide	µg/L	1		0	0	<20	<20	<20	<20	<20	20.00	
Molybdenum	µg/L	1		0	0	<1	<1	<1	<1	<1	1.00	
Radionuclides - Gross alpha	Bq/L	1		0	0	<0.04	<0.04	<0.04	<0.04	<0.04	0.04	
Radionuclides - Gross beta	Bq/L	1		0	0	<0.1	<0.1	<0.1	<0.1	<0.1	0.10	
Silver	µg/L	1		0	0	<0.1	<0.1	<0.1	<0.1	<0.1	0.10	
Tin	µg/L	1		0	0	<1	<1	<1	<1	<1	1.00	
Uranium	µg/L	1		1	0	0.845	0.845	0.845	0.845	0.845	0.5	

*Atrazine was detected in two samples, though both were below the ADWG Health threshold of ≤0.02 mg/L

Middlemount Reticulation

Parameter	Units	No. Samples	Detections	Exceedances	Min	5th %ile	Average	95 th %ile	Max	LOR
Sample Location: Middlemount Network Emu Park (Jul 2020 - Jun 2021)										
pH	-	16	16	0	7.22	7.34	7.61	7.86	7.93	none
Free Chlorine	mg/L	16	16	0	0.27	0.29	0.82	1.52	2.01	none
E. Coli	MPN/100mL	16	0	0	<1	<1	<1	<1	<1	1
Sample Location: Middlemount Network Footy Fields (Jul 2020 - Jun 2021)										
pH	-	13	13	0	7.25	7.31	7.60	7.76	7.79	none
Free Chlorine	mg/L	13	13	0	0.33	0.50	1.26	1.89	1.98	none
E. Coli	MPN/100mL	13	0	0	<1	<1	<1	<1	<1	1
Sample Location: Middlemount Network Kookaburra Park (Jul 2020 - Jun 2021)										
pH	-	9	9	0	7.23	7.29	7.52	7.79	7.79	none
Free Chlorine	mg/L	9	9	0	0.58	0.59	0.79	1.08	1.12	none
E. Coli	MPN/100mL	9	0	0	<1	<1	<1	<1	<1	1
Sample Location: Middlemount Network MMT Golf Course (Jul 2020 - Jun 2021)										
pH	-	4	4	0	7.35	7.38	7.63	7.81	7.81	none
Free Chlorine	mg/L	4	4	0	0.35	0.39	0.65	0.96	1.01	none
E. Coli	MPN/100mL	4	0	0	<1	<1	<1	<1	<1	1
Sample Location: Middlemount Network Reservoir (Jul 2020 - Jun 2021)										
pH	-	2	2	0	7.50	7.51	7.58	7.65	7.66	none
Free Chlorine	mg/L	2	2	0	0.42	0.44	0.66	0.88	0.90	none
E. Coli	MPN/100mL	2	0	0	<1	<1	<1	<1	<1	1
Sample Location: Middlemount Network Shopping Centre (Jul 2020 - Jun 2021)										
pH	-	2	2	0	7.40	7.40	7.60	7.81	7.84	none
Free Chlorine	mg/L	2	2	0	0.43	0.45	0.79	1.14	1.20	none
E. Coli	MPN/100mL	2	0	0	<1	<1	<1	<1	<1	1
Combined Results for All Sample Points										
pH	-	53	53	0	7.22	7.31	7.59	7.82	7.93	none
Free Chlorine	mg/L	53	53	0	0.27	0.33	0.90	1.83	2.01	none
E. Coli	MPN/100mL	53	0	0	<1	<1	<1	<1	<1	1

MIDDLEMOUNT *E. COLI* COMPLIANCE

Year	2020-2021											
Month	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
No. of samples collected	10	8	10	8	8	10	8	8	10	8	8	10
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	104	104	104	106	105	105	105	105	105	107	105	104
No. of failures for previous 12-month period	0	0	0	0	0	0	0	0	0	0	0	0
% of samples that comply	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Compliance with 98% annual value	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES

Moranbah Supply System

MORANBAH TREATED WATER

Parameter	Units	Frequency	No. Samples	Detections	Exceedances	Min	5th %ile	Average	95 th %ile	Max	LOR
Aluminium	µg/L	Weekly	53	50	1 (Aesthetic)	<5	4.68	48.9	130.2	246.7	5.00
Conductivity	µS/cm		53	53	0	134.4	144.2	227.2	227.9	3031.0	none
E. coli	MPN/100mL		53	0	0	<1	<1	<1	<1	<1	1.00
Fluoride	mg/L		53	52	0	<0.1	<0.1	0.61	0.74	0.83	0.10
Iron	µg/L		48	44	0	<1	<1	7.48	17.6	30.9	1.00
Manganese	µg/L		53	25	0	<1	<1	1.51	3.94	6.36	1.00
pH			54	54	0	7.09	7.12	7.33	7.55	7.60	none
Residual Chlorine	mg/L		53	53	0	1.22	1.36	1.65	1.87	1.92	none
Total Dissolved Solids (TDS)	mg/L		53	53	1 (Aesthetic)	81.0	86.6	136.4	137.0	1819.0	none
Turbidity	NTU		53	50	0	<0.1	<0.1	0.17	0.28	0.55	0.10
Alkalinity	mg/L	Monthly	12	12	0	28.3	29.7	34.4	40.7	42.1	none
Bromate	µg/L		12	0	0	<20	<20	<50	<50	<50	20.00
Calcium	mg/L		12	12	0	8.42	8.58	9.55	10.6	10.7	none
Chlorate	µg/L		12	5	0	<20	<20	38.0	116.4	215.4	20.00
Chlorite	µg/L		12	4	0	<20	<20	<50	<50	<50	20.00
Dissolved Oxygen	% Sat		12	12	0	91.8	93.4	98.2	103.3	104.2	none
Magnesium	mg/L		12	12	0	3.73	3.74	4.38	5.61	5.96	none
Nitrate	mg/L		12	4	0	<0.3	<0.3	<0.3	0.42	0.44	0.30
Nitrite	mg/L		12	0	0	<0.4	<0.4	<0.4	<0.4	<0.4	0.40
Residual Alkalinity	mg/L		12	0	0	<0.1	<0.1	<0.1	<0.1	<0.1	0.10
Temporary Hardness	mg/L		12	12	0	28.3	29.7	34.4	40.7	42.1	none
THMs	µg/L		12	12	0	21.0	21.7	34.0	46.4	48.4	none
Total Algae	cells/mL		5	0	0	<1	<1	<1	<1	<1	1
Total Hardness	mg/L		12	12	0	36.4	36.8	41.9	48.8	51.4	none
True Colour	TCU	12	4	0	<1	<1	0.80	1.00	1.00	1.00	
Ammonia	mg/L	Quarterly	4	0	0	<0.01	<0.01	<0.01	<0.01	<0.01	0.01
Arsenic	µg/L		4	0	0	<1	<1	<1	<1	<1	1.00

Parameter	Units	Frequency	No. Samples	Detections	Exceedances	Min	5th %ile	Average	95 th %ile	Max	LOR
Cadmium	µg/L		4	0	0	<0.1	<0.1	<0.1	<0.1	<0.1	0.10
Chromium	µg/L		4	0	0	<0.1	<0.1	<0.1	<0.1	<0.1	0.10
Copper	µg/L		4	1	0	<1	<1	<1	1.30	1.40	1.00
Formaldehyde	mg/L		6	0	0	<0.1	<0.1	0.07	<0.1	<0.1	0.10
Hydrogen Sulphide	mg/L		4	0	0	<0.005	<0.005	<0.005	<0.005	<0.005	0.005
Lead	µg/L		4	2	0	<0.5	<0.5	0.53	<1	<1	0.50
Mercury	µg/L		4	1	0	<0.05	<0.05	0.04	0.06	0.06	0.05
Nickel	µg/L		4	0	0	<0.5	<0.5	<0.5	<0.5	<0.5	0.50
Pesticides*	µg/L		3	0	0	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001
Selenium	µg/L		4	0	0	<5	<5	<5	<5	<5	5.00
Zinc	µg/L		4	3	0	<1	1.81	9.20	15.5	16.1	1.00
Barium	µg/L		Annually	1	1	0	20.4	20.4	20.4	20.4	20.4
Beryllium	µg/L	1		0	0	<0.5	<0.5	<0.5	<0.5	<0.5	0.50
Boron	µg/L	1		1	0	17.7	17.7	17.7	17.7	17.7	none
Iodide	µg/L	1		0	0	<20	<20	<20	<20	<20	20.00
Molybdenum	µg/L	1		0	0	<1	<1	<1	<1	<1	1.00
Radionuclides - Gross alpha	Bq/L	1		0	0	<0.04	<0.04	<0.04	<0.04	<0.04	0.04
Radionuclides - Gross beta	Bq/L	1		0	0	<0.1	<0.1	<0.1	<0.1	<0.1	0.10
Silver	µg/L	1		0	0	<0.1	<0.1	<0.1	<0.1	<0.1	0.10
Tin	µg/L	1		0	0	<1	<1	<1	<1	<1	1.00
Uranium	µg/L	1		0	0	<0.5	<0.5	<0.5	<0.5	<0.5	0.50

MORANBAH RETICULATION

Parameter	Units	No. Samples	Detections	Exceedances	Min	5 th %ile	Average	95 th %ile	Max	LOR
Sample Location: Moranbah Network #1 Belyando Ave (Jul 2020 - Jun 2021)										
pH	-	21	21	0	7.22	7.28	7.49	7.92	8.05	none
Free Chlorine	mg/L	21	21	0	1.12	1.23	1.48	1.66	1.77	none
E. Coli	MPN/100mL	21	21	0	<1	<1	<1	<1	<1	1
Fluoride	mg/L	12	12	0	0.51	0.53	0.62	0.72	0.74	0.1
Sample Location: Moranbah Network #2 cnr Jackson & Cuthbert (Jul 2020 - Jun 2021)										
pH	-	20	20	0	7.14	7.18	7.43	7.63	7.68	none
Free Chlorine	mg/L	20	20	0	0.82	1.12	1.50	1.82	1.88	none
E. Coli	MPN/100mL	20	20	0	<1	<1	<1	<1	<1	1
Fluoride	mg/L	12	12	0	0.54	0.54	0.63	0.71	0.72	0.1
Sample Location: Moranbah Network #3 1A Archer Drive (Jul 2020 - Jun 2021)										
pH	-	21	21	0	7.21	7.21	7.54	7.76	7.90	none
Free Chlorine	mg/L	21	21	0	0.93	1.04	1.39	1.57	1.72	none
E. Coli	MPN/100mL	21	21	0	<1	<1	<1	<1	<1	1
Fluoride	mg/L	12	12	0	0.07	0.30	0.56	0.69	0.70	0.1
Sample Location: Moranbah Network #4 Binda Park (Jul 2020 - Jun 2021)										
pH	-	20	20	0	7.10	7.15	7.34	7.45	7.47	none
Free Chlorine	mg/L	20	20	0	0.74	1.33	1.49	1.74	1.87	none
E. Coli	MPN/100mL	20	20	0	<1	<1	<1	<1	<1	1
Fluoride	mg/L	12	12	0	0.51	0.54	0.62	0.71	0.72	0.1
Sample Location: Moranbah Network #5 O'Neil St (Jul 2020 - Jun 2021)										
pH	-	18	18	0	7.11	7.12	7.41	7.61	7.69	none
Free Chlorine	mg/L	18	18	0	0.65	0.79	1.07	1.29	1.31	none
E. Coli	MPN/100mL	18	18	0	<1	<1	<1	<1	<1	1
Fluoride	mg/L	11	11	0	0.46	0.47	0.59	0.71	0.73	0.1
Combined Results for All Sample Points										
pH	-	100	100	0	7.10	7.18	7.45	7.70	8.05	none
Free Chlorine	mg/L	100	100	0	0.65	0.93	1.39	1.73	1.88	none
E. Coli	MPN/100mL	100	0	0	<1	<1	<1	<1	<1	1
Fluoride	mg/L	59	58	0	<0.01	0.49	0.60	0.72	0.74	0.1

MORANBAH *E. COLI* COMPLIANCE

Year		2020-2021										
Month	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
No. of samples collected	14	12	14	12	8	8	8	8	9	8	8	9
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	149	149	149	151	149	145	140	138	134	131	125	121
No. of failures for previous 12-month period	0	0	0	0	0	0	0	0	0	0	0	0
% of samples that comply	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Compliance with 98% annual value	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES

NEBO SUPPLY SYSTEM

NEBO TREATED WATER

Parameter	Units	Frequency	No. Samples	Detections	Exceedances	Min	5 th %ile	Average	95 th %ile	Max	LOR
Aluminium	µg/L	Weekly	48	1	0	<5	<5	3.78	<5	15.09	5.00
Conductivity	µS/cm		53	53	0	181.7	823.2	959.8	1140.5	1384.7	none
<i>E. coli</i>	MPN/100mL		53	0	0	<1	<1	0.71	<1	<1	1.00
Iron	µg/L		61	52	0	<1	<1	4.15	10.8	19.4	1.00
Manganese	µg/L		61	21	0	<1	<1	1.04	2.42	3.69	1.00
pH			52	52	0	6.71	6.92	7.23	7.50	7.65	none
Residual Chlorine	mg/L		49	49	0	0.98	1.08	1.31	1.62	1.65	none
Total Dissolved Solids (TDS)	mg/L		52	52	21 (Aesthetic)	488.0	501.1	585.9	684.5	831.0	none
Turbidity	NTU		51	24	0	0.07	0.07	0.11	0.21	0.24	0.10
Alkalinity	mg/L	Monthly	17	17	0	45.9	139.3	169.1	185.1	186.5	none
Bromate	µg/L		11	0	0	<20	<20	<20	<50	<50	20.00
Calcium	mg/L		50	50	0	12.2	33.2	38.2	43.2	47.6	none
Chlorate	µg/L		11	4	0	<20	<20	81.4	362.7	690.1	20.00
Chlorite	µg/L		11	0	0	<20	<20	<20	<50	<50	20.00
Dissolved Oxygen	% Sat		11	12	0	90.3	90.4	92.7	96.3	98.0	none
Fluoride	mg/L		12	6	0	<0.1	<0.1	<0.1	0.12	0.12	0.10
Magnesium	mg/L		50	50	0	5.25	19.5	22.4	26.0	29.7	none
Nitrate	mg/L		17	17	0	0.83	1.41	1.83	2.17	2.22	none
Nitrite	mg/L		17	0	0	<0.4	<0.4	<0.4	<0.4	<0.4	0.40
Residual Alkalinity	mg/L		16	0	0	<0.1	<0.1	<0.1	<0.1	<0.1	0.10
Temporary Hardness	mg/L		16	16	0	162.6	167.0	176.8	185.2	186.5	none
THMs	µg/L		11	11	0	17.4	17.8	22.0	27.2	28.2	none
Total Hardness	mg/L		50	50	13 (Aesthetic)	52.0	165.7	187.8	212.1	240.9	none
True Colour	TCU	17	3	0	<1	<1	<1	1.20	2.00	1.00	
Ammonia	mg/L	Quarterly	4	0	0	<0.01	<0.01	<0.01	<0.01	<0.01	0.01
Arsenic	µg/L		5	0	0	<1	<1	<1	<1	<1	1.00
Cadmium	µg/L		5	0	0	<0.1	<0.1	<0.1	<0.1	<0.1	0.10
Chromium	µg/L		5	4	0	<0.1	<0.1	0.23	0.30	0.31	0.10

Parameter	Units	Frequency	No. Samples	Detections	Exceedances	Min	5 th %ile	Average	95 th %ile	Max	LOR
Chromium	µg/L		5	4	0	<0.1	<0.1	0.23	0.30	0.31	0.10
Copper	µg/L		5	5	0	<1	<1	4.77	9.09	9.34	1.00
Formaldehyde	mg/L		5	0	0	<0.1	<0.1	<0.1	<0.1	<0.1	0.10
Hydrogen Sulphide	mg/L		4	0	0	<0.005	<0.005	<0.005	<0.005	<0.005	0.005
Lead	µg/L		5	2	0	<0.5	<0.5	<0.5	<1	<1	0.50
Mercury	µg/L		4	0	0	<0.05	<0.05	<0.05	<0.05	<0.05	0.05
Nickel	µg/L		5	4	0	<0.5	<0.5	0.64	0.79	0.82	0.50
Pesticides	µg/L		4	0	0	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001
Selenium	µg/L		5	0	0	<5	<5	<5	<5	<5	5.00
Zinc	µg/L		5	3	0	<1	<1	3.91	7.86	8.54	1.00
Barium	µg/L		Annually	2	2	0	11.9	12.6	18.5	24.4	25.0
Beryllium	µg/L	2		0	0	<0.5	<0.5	<0.5	<0.5	<0.5	0.50
Boron	µg/L	2		2	0	17.1	17.3	18.8	20.3	20.4	none
Iodide	µg/L	1		0	0	<20	<20	<20	<20	<20	20
Molybdenum	µg/L	2		0	0	<1	<1	<1	<1	<1	1.00
Radionuclides - Gross alpha	Bq/L	1		0	0	<0.05	<0.05	<0.05	<0.05	<0.05	0.05
Radionuclides - Gross beta	Bq/L	1		0	0	<0.1	<0.1	<0.1	<0.1	<0.1	0.1
Silver	µg/L	2		0	0	<0.1	<0.1	<0.1	<0.1	<0.1	0.10
Tin	µg/L	2		1	0	<1	<1	1.27	1.78	1.84	1.00
Uranium	µg/L	2		1	0	<0.5	<0.5	0.52	0.66	0.68	0.50

NEBO RETICULATION

Parameter	Units	No. Samples	Detections	Exceedances	Min	5 th %ile	Average	95 th %ile	Max	LOR
Sample Location: Nebo Network Airstrip Rd (Jul 2020 - Jun 2021)										
pH	-	11	11	0	7.25	7.25	7.41	7.53	7.55	none
Free Chlorine	mg/L	11	11	0	1.04	1.06	1.25	1.46	1.50	none
E. coli	MPN/100mL	11	0	0	<1	<1	<1	<1	<1	1
Sample Location: Nebo Network CIVEO (Jul 2020 - Jun 2021)										
pH	-	7	7	0	7.36	7.39	7.48	7.59	7.60	none
Free Chlorine	mg/L	7	7	0	1.08	1.14	1.39	1.60	1.61	none
E. coli	MPN/100mL	7	0	0	<1	<1	<1	<1	<1	1
Sample Location: Nebo Network Depot (Jul 2020 - Jun 2021)										
pH	-	11	11	0	6.92	7.07	7.35	7.55	7.65	none
Free Chlorine	mg/L	11	11	0	0.96	0.99	1.19	1.48	1.54	none
E. coli	MPN/100mL	11	0	0	<1	<1	<1	<1	<1	1
Sample Location: Nebo Network Ian's House (Jul 2020 - Jun 2021)										
pH	-	8	8	0	7.25	7.29	7.45	7.55	7.57	none
Free Chlorine	mg/L	8	8	0	1.06	1.08	1.32	1.57	1.58	none
E. coli	MPN/100mL	8	0	0	<1	<1	<1	<1	<1	1
Sample Location: Nebo Network Office (Jul 2020 - Jun 2021)										
pH	-	1	1	0	7.65	7.65	7.65	7.65	7.65	none
Free Chlorine	mg/L	1	1	0	1.06	1.06	1.06	1.06	1.06	none
E. coli	MPN/100mL	1	0	0	<1	<1	<1	<1	<1	1
Sample Location: Nebo Network Servo (Jul 2020 - Jun 2021)										
pH	-	3	3	0	7.15	7.17	7.28	7.35	7.35	none
Free Chlorine	mg/L	3	3	0	1.04	1.08	1.32	1.46	1.46	none
E. coli	MPN/100mL	3	0	0	<1	<1	<1	<1	<1	1
Sample Location: Nebo Network Water Tower (Jul 2020 - Jun 2021)										
pH	-	12	12	0	7.30	7.32	7.46	7.70	7.75	none
Free Chlorine	mg/L	12	12	0	1.18	1.19	1.32	1.46	1.48	none
E. coli	MPN/100mL	12	0	0	<1	<1	<1	<1	<1	1
Combined Results for All Sample Points										
pH	-	53	53	0	6.92	7.24	7.42	7.65	7.75	none
Free Chlorine	mg/L	53	53	0	0.96	1.04	1.28	1.57	1.61	none
E. Coli	MPN/100mL	53	0	0	<1	<1	<1	<1	<1	1

NEBO *E. COLI* COMPLIANCE

Year	2020-2021											
Month	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
No. of samples collected	13	7	8	7	8	10	8	8	11	8	8	10
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
No. of samples collected in previous 12-month period	102	105	104	104	101	101	101	101	101	104	102	103
No. of failures for previous 12-month period	0	0	0	0	0	0	0	0	0	0	0	0
% of samples that comply	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Compliance with 98% annual value	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES

ST LAWRENCE SUPPLY SYSTEM

ST LAWRENCE TREATED WATER

Parameter	Units	Frequency	No. Samples	Detections	Exceedances	Min	5th %ile	Average	95 th %ile	Max	LOR
Aluminium	µg/L	Weekly	53	53	7 (Aesthetic)	12.9	18.0	95.4	240.6	285.4	5.00
Conductivity	µS/cm		53	53	0	209.5	220.6	260.0	314.6	438.0	none
E. coli	MPN/100mL		53	0	0	<1	<1	<1	<1	<1	1.00
Iron	µg/L		47	46	0	<1	1.06	18.8	66.2	123.4	1.00
Manganese	µg/L		53	51	7 (Aesthetic)	<1	1.11	62.4	284.1	462.1	1.00
pH			53	53	0	7.15	7.20	7.40	7.62	7.70	none
Residual Chlorine	mg/L		53	53	0	1.20	1.50	2.04	2.80	3.00	none
Total Dissolved Solids (TDS)	mg/L		53	53	0	126.0	132.2	156.0	188.6	263.0	none
Turbidity	NTU		53	38	0	<0.1	<0.1	0.15	0.48	1.00	0.10
Alkalinity	mg/L	Monthly	12	12	0	42.9	48.6	64.5	81.3	82.1	none
Bromate	µg/L		12	0	0	<20	<20	<50	<50	<50	20.00
Calcium	mg/L		12	12	0	8.49	8.99	12.8	18.9	20.0	none
Chlorate	µg/L		12	10	0	<20	<20	238.0	564.1	580.1	20.00
Chlorite	µg/L		12	0	0	<20	<20	<50	<50	<50	20.00
Dissolved Oxygen	% Sat		12	12	7 (Aesthetic)	70.2	74.4	87.1	103.8	108.3	none
Fluoride	mg/L		12	0	0	<0.1	<0.1	<0.1	<0.1	<0.1	0.10
Magnesium	mg/L		12	12	0	3.02	3.07	5.26	7.49	7.58	none
Nitrate	mg/L		12	4	0	<0.3	<0.3	<0.3	0.40	0.44	0.30
Nitrite	mg/L		12	0	0	<0.4	<0.4	<0.4	<0.4	<0.4	0.40
Residual Alkalinity	mg/L		12	0	0	<0.1	<0.1	<0.1	<0.1	<0.1	0.10
Temporary Hardness	mg/L		12	12	0	42.9	48.6	64.5	81.3	82.1	none
THMs	µg/L		14	14	1	33.7	49.8	143.3	272.8	341.0	none

Parameter	Units	Frequency	No. Samples	Detections	Exceedances	Min	5th %ile	Average	95 th %ile	Max	LOR
					(Health)						
Total Algae	cells/mL		5	0	0	<1	<1	<1	<1	<1	1.00
Total Hardness	mg/L		12	12	0	33.6	37.8	53.7	78.0	80.3	none
True Colour	TCU		12	5	0	<1	<1	<1	1.45	2.00	1.00
Ammonia	mg/L	Quarterly	4	0	0	<0.01	<0.01	<0.01	<0.01	<0.01	0.01
Arsenic	µg/L		4	0	0	<1	<1	<1	<1	<1	1.00
Cadmium	µg/L		4	0	0	<0.1	<0.1	<0.1	<0.1	<0.1	0.10
Chromium	µg/L		4	2	0	<0.1	<0.1	<0.1	0.14	0.15	0.10
Copper	µg/L		4	4	0	1.11	1.12	2.84	6.78	7.74	1
Formaldehyde	mg/L		6	0	0	<0.1	<0.1	<0.1	<0.1	<0.1	0.10
Hydrogen Sulphide	mg/L		4	0	0	<0.005	<0.005	<0.005	<0.005	<0.005	0.005
Lead	µg/L		4	0	0	<0.5	<0.5	<1	<1	<1	0.50
Mercury	µg/L		4	0	0	<0.05	<0.05	<0.05	<0.05	<0.05	0.05
Nickel	µg/L		4	0	0	<0.5	<0.5	<0.5	<0.5	<0.5	0.50
Pesticides*	µg/L		4	0	0	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001
Selenium	µg/L		4	0	0	<5	<5	<5	<5	<5	5.00
Zinc	µg/L		4	4	0	1.73	1.86	2.94	4.19	4.39	none
Barium	µg/L		Annually	1	1	0	14.6	14.6	14.6	14.6	14.6
Beryllium	µg/L	1		0	0	<0.5	<0.5	<0.5	<0.5	<0.5	0.50
Boron	µg/L	1		1	0	24.3	24.3	24.3	24.3	24.3	none
Iodide	µg/L	1		0	0	<20	<20	<20	<20	<20	20.00
Molybdenum	µg/L	1		0	0	<1	<1	<1	<1	<1	1.00
Radionuclides - Gross alpha	Bq/L	1		0	0	<0.05	<0.05	<0.05	<0.05	<0.05	0.05
Radionuclides - Gross beta	Bq/L	1		0	0	<0.1	<0.1	<0.1	<0.1	<0.1	0.10
Silver	µg/L	1		0	0	<0.1	<0.1	<0.1	<0.1	<0.1	0.10
Tin	µg/L	1		0	0	<1	<1	<1	<1	<1	1.00
Uranium	µg/L	1		0	0	<0.5	<0.5	<0.5	<0.5	<0.5	0.50

ST LAWRENCE RETICULATION

Parameter	Units	No. Samples	Detections	Exceedances	Min	5 th %ile	Average	95 th %ile	Max	LOR
Sample Location: St Lawrence Network 14 Arthur St (Jul 2020 - Jun 2021)										
pH	-	1	1	0	7.40	7.40	7.40	7.40	7.40	none
Free Chlorine	Mg/L	1	1	0	0.22	0.22	0.22	0.22	0.22	none
E. Coli	MPN/100mL	1	0	0	<1	<1	<1	<1	<1	1
Sample Location: St Lawrence Network 36 Macartney St (Jul 2020 - Jun 2021)										
pH	-	52	52	0	7.00	7.15	7.39	7.60	7.65	none
Free Chlorine	Mg/L	52	52	0	0.20	0.21	0.36	0.83	1.90	none
E. Coli	MPN/100mL	52	0	0	<1	<1	<1	<1	<1	1
Combined Results for All Sample Points										
pH	-	53	0	0	7.00	7.15	7.39	7.60	7.65	none
Free Chlorine	Mg/L	53	0	0	0.20	0.21	0.35	0.82	1.90	none
E. Coli	MPN/100mL	53	0	0	<1	<1	<1	<1	<1	1

ST LAWRENCE *E. COLI* COMPLIANCE

Year	2020-2021												
	Month	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
No. of samples collected		10	8	10	8	8	10	8	8	10	8	8	10
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
No. of samples collected in previous 12-month period		101	104	102	105	103	103	106	104	104	106	106	106
No. of failures for previous 12-month period		0	0	0	0	0	0	0	0	0	0	0	0
% of samples that comply		100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Compliance with 98% annual value		YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES



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