Tara Water Works
13-028

2021 Operation and Maintenance Annual Report
February 2022

Prepared for:
Municipality of Arran-Elderslie
PO Box 70, 1925 Bruce Road 10
Chesley, ON N0G 1L0

Prepared By:
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1.0 INTRODUCTION AND BACKGROUND

The purpose of the 2021 Annual Compliance Report is to document the operation and maintenance data for the Tara Water Works for review by the Ministry of the Environment, Conservation and Parks (MECP) in accordance with O. Reg 170/03.

Currently, 511 homes, businesses and institutions are connected to the existing water system servicing a population of approximately 1,032.

The plant was operated by municipal operators namely Mr. Mark O'Leary, Water/Sewer Foreman, the back-up Overall Responsible Operator (ORO) and has a Class II Water Treatment and Class III Water Distribution Certificates; Trevor Sweiger, who holds a Class I Water Distribution and a Class I Water Treatment Certificate; Mr. Chris Legge, who has a Class I Water Treatment Certificate and a Class II Water Distribution Certificate; Mr. Jeff Hayes, who holds a Class II Water Distribution and a Class I Water Treatment Certificate; Mr. Chase McEwen, who is an Operator in Training (OIT); and Mr. Ben Overeem, who is an Operator in Training (OIT). Rakesh Sharma, P. Eng., who has a Class IV Certificate for Water Treatment and Class IV Certificate for Water Distribution is the Overall Responsible Operator (ORO) and Scott McLeod, who has a Class II Certificate for Water Treatment and Class IV Certificate for Water Distribution is the backup ORO. The Tara water system is classified as a Class I Water Treatment system and a Class I Water Distribution system.

The operating authority for the plant is:

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Water works Permit # 079-201 Issue 5 Issued January 8, 2021

Waterworks License # 079-101 Issue 4 Issued January 8, 2021
Permit to take Water #0033-BAGSCC Issued April 12, 2019

2.0 DESCRIPTION OF WATER SYSTEM

The majority of the water distribution system is comprised of cast iron and ductile iron mains that are approximately 40 to 50 years old. There are also numerous small diameter polyethylene watermains throughout the former Village which are being replaced gradually with properly sized watermains.

Pumping Station No. 2 – 59 Market St.

- Pump House building with the approximate dimensions of 4.89 m x 5.6 m, equipped with:
- One (1) cartridge filter with a treatment capacity of 11.37 L/s, equipped with 14 - one (1) micron size filter cartridges used to reduce turbidity spikes on the Well No. 2 pump start up, complete with a differential pressure monitoring system;
- One (1) turbidity sampling point located downstream of the cartridge filter provided with the existing on-line turbidity analyzer;
- Two (2) chemical metering pumps: one (1) duty and one (1) standby with automatic switch over, complete with associated piping appurtenances and controls;
- One (1) sodium hypochlorite solution tank and one (1) secondary containment tank;
- Well pump rated at 4.9 L/s at a total dynamic head (TDH) of 161 m, approximately;
- One (1) flow meter and associated mechanical, electrical and structural work;
- 150 mm diameter x 360 m watermain along River Street, dedicated to provide chlorine contact time necessary for well water discharge from PH No. 2, complete with treated water sample line.

Pumping Station No. 3 – 217 River Street

- Pump House building with approximate dimensions of 6.1 m x 7.3 m, equipped with:
- One (1) cartridge filter with a treatment capacity of 11.3 L/s, equipped with 14 - one (1) micron size filter cartridges, certified for cyst removal in accordance with procedures specified in NSF 53 or equivalent, and used online with the Well No. 3 pump, complete with a differential pressure monitoring system;
- One (1) turbidity sampling point located on the downstream of the cartridge filter for on-line turbidity monitoring;
- A primary disinfection system using, Ultraviolet (UV) disinfection system consisting of two (2) UV disinfection reactors, one (1) duty, one (1) standby, located after the cartridge filter unit, each unit rated at 11.37 L/s, capable of providing minimum dose of 40 mJ/cm^2 at the end of the lamp life, together with automatic cleaning system, on-line UV intensity monitor with alarm, complete with a portable UV transmittance monitor;
- A secondary disinfection system using sodium hypochlorite disinfection, consisting of two (2) chemical metering pumps, one (1) duty, one (1) standby with automatic switch over, dosing sodium hypochlorite solution at the downstream of the UV units, complete with associated piping, appurtenances and controls;
- One (1) sodium hypochlorite solution tank and one (1) secondary containment tank;
- A submersible deep well pump rated at 5.3 L/s at a total dynamic head (TDH) of 164 m, approximately;
- One (1) flow meter and associated mechanical, electrical and structural work;
- One (1) 60 kW natural gas generator set capable of providing power to both Pump Houses No. 2 and No. 3 during power failure.

Pumping Station No. 4 – 158 Yonge Street North

- A 250 mm diameter 25.91 m deep drilled ground water well, located within the Pump House equipped with:
- A submersible deep well pump rated at 9.8 L/s with an operating head varying between approximately 42.06 m and 71.08 m complete with variable frequency drive and well level transducer;
- One (1) cartridge filter with a treatment capacity of 9.8 L/s, equipped with three (3) micron size filter cartridges {One (1) micron cartridges also acceptable} to be used on the well startup to reduce initial turbidity spikes;
- One (1) magnetic flow meter;
- A sodium hypochlorite disinfection system consisting of two (2) chemical metering pumps, one (1) duty, one (1) standby with automatic switch over and a 200 L sodium hypochlorite solution tank with a secondary containment tank and associated piping, appurtenances and controls;
- 12 m of 600 mm diameter watermain buried (chlorine contact chamber) outside the Pump House to provide chlorine contact time necessary for well water discharge from Pump House No. 4.
- One (1) online free chlorine residual analyzer to monitor free chlorine residual after the chlorine contact chamber;
- One (1) treated water turbidity analyzer; and
- Associated SCADA, PLC and controls.

Miscellaneous

- A Supervisory Control and Data Acquisition (SCADA) system for automation of Pump Houses No. 2, No. 3 and No. 4, complete with associated Program Logic Controllers (PLC) and alarm dialers; and
- All associated electrical, mechanical, structural and appurtenances necessary for an operable system.

Water Storage Tank

- An elevated water storage tank (standpipe), constructed in 2010 is located at Pump House No. 4 site on the northern outskirts of Tara (NAD83, UTM Zone 17, 488250 E, 4925627N). It has an operating capacity of 852 m^3 and a total capacity of 3,952 m^3. The standpipe is 12.8 m in diameter and is 30.7 m high.

3.0 SUMMARY OF WATER QUALITY MONITORING

3.1. WATER TREATMENT EQUIPMENT OPERATION MONITORING

3.1.1. POINT OF ENTRY CHLORINE RESIDUAL

In 2021 a total of 365 samples were collected and analyzed for Free Chlorine Residual at the Point of Entry (POE) from each Pump House. The sample results were collected by way of continuous on-line monitoring. **Table 1** shows the monthly minimum and average free Chlorine residual values. Free chlorine residuals ranged from 0.38 mg/L to 1.04 mg/L.

3.1.2. DISTRIBUTION SYSTEM CHLORINE RESIDUAL

In 2021, a total of 365 samples were collected in the distribution system. **Table 1** shows that free chlorine residual ranged from 0.44 mg/L to 1.83 mg/L.

3.1.3. TURBIDITY

The treated water turbidity was measured by both an on-line turbidity analyzer and a portable turbidity analyzer.

Each time a microbiological sample was collected for raw water or from the distribution system a grab sample was also collected and analyzed for turbidity. It can be seen on **Table 2** that no raw water samples from Well No. 2, Well No. 3 and Well No. 4 exceeded the maximum acceptable concentration (MAC) of 2 NTU or the aesthetic Objective (AO) of 5 NTU. None of the POE turbidity samples collected at Pumphouses No. 2 or 4 exceeded 1 NTU. 1 NTU turbidity criteria does not apply to Well No. 2 and Well No. 4 as they are groundwater supplies.

3.2. MICROBIOLOGICAL SAMPLING AS PER SCHEDULE 10, O.REG. 10, O. REG. 170/03

3.2.1. DISTRIBUTION SYSTEM

Schedule 10 of Ontario Regulation 170/03 requires that at least nine (9) distribution samples be collected monthly and tested for E. coli, Total Coliform and 25% of samples analyzed for Heterotrophic Plate Count (HPC). A total of 108 distribution samples were analyzed for E. coli and Total Coliform and 57 were tested for HPC. None of the samples tested positive for E. Coli or Total Coliforms. None of the samples had HPC count of 10 or more except the October 4th sample with a HPC count of 40. All distribution samples results were within compliance. Refer to **Table 3 (Appendix B).**

Table 1
Summary of Water Quality – Free Chlorine Residuals in POE & Distribution
Municipality of Arran-Elderslie – Tara
2021

Month	Treated									Distribution		
	# of Samples	Well No.2 Pump House		# of Samples	Well No. 3 Pump House		# of Samples	Well No. 4 Pump House		# of Samples	Min.	Max.
		Min.	Avg.		Min.	Avg.		Min.	Avg.			
January	31	0.76	0.86	31	0.78	0.90	31	0.91	0.97	31	0.82	1.32
February	28	0.76	0.91	28	0.72	0.94	28	0.89	0.93	28	0.77	1.24
March	31	0.70	0.85	31	0.82	0.98	31	0.87	1.02	31	0.81	1.07
April	30	0.74	0.89	30	0.56	0.87	30	0.62	0.85	30	0.67	1.23
May	31	0.40	0.97	31	0.38	0.94	31	0.89	1.04	31	0.69	1.83
June	30	0.66	0.89	30	0.64	0.90	30	0.85	1.04	30	0.80	1.37
July	31	0.62	0.77	31	0.72	0.79	31	0.77	0.90	31	0.63	1.19
August	31	0.66	0.75	31	0.64	0.74	31	0.78	0.86	31	0.44	1.36
September	30	0.64	0.75	30	0.64	0.76	30	0.79	0.86	30	0.52	1.09
October	31	0.66	0.80	31	0.50	0.77	31	0.79	0.89	31	0.63	1.2
November	30	0.72	0.86	30	0.78	0.87	30	0.80	0.85	30	0.77	1.2
December	31	0.72	0.89	31	0.78	0.94	31	0.95	1.03	31	0.78	1.25
Total	**365**			**365**			**365**			**365**		

Table 2
Summary of Water Quality – Turbidity Sampling of Raw and POE Samples
Municipality of Arran-Elderslie – Tara

2021

Month	Raw									POE at Pumphouse #2	POE at Pumphouse #3	POE at Pumphouse #4
	# of Samples	Well No.2		# of Samples	Well No. 3		# of Samples	Well No. 4				
		Max.	Avg.		Max.	Avg.		Max.	Avg.	Max.	Max.	Max.
January	4	0.2	0.155	4	0.37	0.3	4	0.19	0.1225	0.13	---	0.08
February	4	0.28	0.1975	4	0.48	0.3625	4	0.15	0.12	0.19	---	0.15
March	5	0.45	0.204	5	0.4	0.286	5	0.37	0.144	0.27	---	0.23
April	4	0.13	0.11	4	0.39	0.29	4	0.1	0.08	0.22	---	0.11
May	5	0.16	0.12	5	0.42	0.17	5	0.08	0.062	0.28	---	0.12
June	4	0.3	0.25	4	0.3	0.2025	4	0.15	0.095	0.30	---	0.08
July	4	0.35	0.215	4	0.45	0.355	4	0.23	0.12	0.22	---	0.18
August	5	0.15	0.13	5	0.36	0.264	5	0.11	0.086	0.24	---	0.14
September	4	0.15	0.1225	4	0.37	0.28	4	0.25	0.1325	0.14	---	0.07
October	4	0.16	0.14	4	0.35	0.29	4	0.16	0.0875	0.15	---	0.06
November	4	0.22	0.1675	5	0.49	0.332	5	0.3	0.148	0.16	---	0.11
December	5	0.18	0.116	4	0.22	0.175	4	0.11	0.0725	0.24	---	0.19
Annual	**52**			**52**			**52**					

3.2.2. RAW WATER SAMPLES

Schedule 10 of Ontario Regulation 170/03 requires that at least one (1) raw water sample be collected weekly from each well and tested for E. Coli and Total Coliforms.

In 2021, total of 157 raw samples were collected from Well No. 2, Well No. 3 and Well No. 4 and analyzed for E. Coli and Total Coliforms. Refer to **Table 3 (Appendix B).** Well No. 3 samples frequently tested positive for Total Coliforms and E. Coli throughout the year, confirming the well to be a GUDI well.

3.2.3. TREATED WATER (POINT OF ENTRY) SAMPLES

Schedule 10 of Ontario Regulation 170/03 requires that at least one (1) treated water sample be collected weekly from the Point of Entry (POE). A total of 104 POE samples were collected and analyzed for Total Coliform, E. Coli and HPC. All analysis results were found to be acceptable. Refer to **Table 3 (Appendix B).** None of the samples had a HPC count exceeding 10, unlike in previous years.

All microbiological samples were analyzed by SGS Canada Inc., which is an accredited lab.

3.3. CHEMICAL SAMPLING & TESTING AS PER SCHEDULED 13, O. REG. 170/03

3.3.1. INORGANICS

Schedule 13-2 of Ontario Regulation 170/03 requires that at least one (1) water sample is taken every 12 months if the system obtains water from a groundwater supply that has been deemed GUDI. The combined Well No. 2 and Well No. 3 required sampling annually as Well No. 3 is a GUDI well. Well No.4 requires sampling every 36 months and was due for sampling again in November 2021. As such, Well No.2, No. 3, No.4 had samples collected on November 22, 2021. All parameters were found to be within compliance. Inorganics are required to be sampled and analyzed again before November, 2021 at combined discharge of Well No 2 and Well No. 3. Sampling at Well No. 4 is not required until November 2024. Refer to **Appendix C** for test results.

3.3.2. LEAD

Schedule 15.1 of Ontario Regulation 170/03 requires that 13 samples (11 samples from plumbing plus 2 distribution samples) are taken at various sample points, twice a year: once between December 15 and April 15 and once between June 15 and October 15. Tara Water System is on reduced sampling requirements. Lead sampling was not completed in February due to COVID-19 restrictions imposed at the time. However, lead samples were collected and sent to the lab on

October 12, 2022. All lead samples results were well within MAC of 10 µg/L. In 2021, sampling for alkalinity was undertaken and concentration was found to be 251 mg/L on February 11, 2021 and an average of 282 mg/L on October 12, 2021. Refer to **Appendix C** for lab reports.

3.3.3. ORGANICS

Schedule 13-4 of Ontario Regulation 170/03 requires that at least one (1) water sample is taken every 12 months and tested for organic parameters, as per Schedule 24, if the system obtains water from a groundwater supply that has been deemed as GUDI.

The combined Well No. 2 and Well No. 3 required POE sampling annually as Well No. 3 is a GUDI well. These samples were collected on November 22, 2021 and were all found to be within compliance. Organics are required to be sampled again before November 2022 at Well No. 2 and Well No.3. Well No. 4 only requires sampling every 36 months and was due for sampling again in November 2021. As such, samples were collected and analyzed for organics on November 22, 2021 and all results were in compliance. Sampling is not required at Well No. 4 until November 2024. Refer to **Appendix C** for lab reports.

3.3.4. TRIHALOMETHANES AND HAA

Scheduled 13-6 of Ontario Regulation 170/03 requires that at least one (1) distribution sample is taken every three (3) months from a point in the distribution system and tested for Trihalomethanes (THMs & HAA). In 2021 samples were collected during the months of February, May, August and November. The Ontario Drinking Water Quality Standard (ODWQS) have set a Maximum Allowable Concentration (MAC) of 100 µg/L for THM and 80 (µg/L) for HAA. All test results were within compliance. Refer to the **Table 4** for test results.

In 2022, THMs and HAA should be sampled in February, May, August and November.

Table 4 - Summary of Water Quality – Trihalomethanes (THMs) & Haloacetic Acid Tara Water Works – 2021

Sample Location		Sample received by Lab Date	TTHM (µg/L)	HAA (µg/L)
TTHM	**HAA**			
Park Road	North Street SS	February 08, 2021	5.8	5.3
OC Long Subdivision	Cenotaph	May 17, 2021	8.4	5.3
OC Long Subdivision	North Street SS	August 23, 2021	15	5.3
OC Long Subdivision	Cenotaph	November 22, 2021	11	5.3
Annual Average			**10.05**	**5.3**

3.3.5. NITRATE & NITRATE

Schedule 13-7 of Ontario Regulation 170/03 requires that at least one (1) water sample is taken every three (3) months and tested for nitrate and nitrite. In 2021 samples were collected during the months of February, May, August and November. The analytical results were found to be within compliance. Refer to **Appendix C** for lab reports. During 2022, samples should be collected during February, May, August and November.

3.3.6. SODIUM

Schedule 13-8 of Ontario Regulation 170/03 requires that at least one (1) water sample is collected every 60 months and tested for Sodium. The Ontario Drinking Water Quality Standards (ODWQS) have set a Maximum Acceptable Concentration (MAC) of 200 mg/L for sodium and requires the Medical Officer of Health be notified if the concentration exceeds 20 mg/l. Sodium samples were collected on November 17, 2019, from Wells No. 2 and No. 3 POE and from the Well No. 4 POE. The sodium concentrations reported were 16.8 mg/L (Well#2 and #3) and 15.7mg/L (Well#4). Sodium analysis must be completed again prior to November 17, 2024.

3.3.7. FLUORIDE

Schedule 13-9 of Ontario Regulation 170/03 requires that a water sample be collected at least once in every 60 months and tested for Fluoride. The Ontario Drinking Water Quality Standards (ODWQS) have set a MAC of 1.5 mg/L. On November 17, 2019, POE samples were collected from Well No. 2 and 3 and Well No. 4 Pump House and found to have a concentration 1.32 mg/L and 0.57 mg/L respectively, which is within compliance. This parameter is required to be sampled and analyzed again before November 17, 2024.

4.0 WATER USAGE

The treated water quality supplied to the distribution system in 2021 is provided in **Table 5**. A breakdown of the monthly flow (Refer to **Tables A-1, A-2 & A-3)** provided to the distribution system can be found in **Appendix A.**

Table 6 provides a summary of the capacity utilization of Tara water works. Note that the max day occurrence on May 16th, 2021 was comparatively higher as the Tara water tower was temporarily offline and subsequently refilled. A truer representation of the max day occurrence is from the April 19th flow of 853 m^3, with a capacity utilization of 49%. In 2020, capacity utilization was 46.72%; in 2019 it was 43.70%, in 2018 it was 46.4%; in 2017 it was 45.7% and in 2016 it was 59.9%.

For the volume of water supplied to the distribution system, the Tara Water Works as a whole required 2,438.8 L of NaOCI with an average dosage of 2.50 mg/L approximately.

Refer to **Table 7.**

The water meters for Well No. 2, Well No. 3, and Well No. 4 were calibrated in April 2021 and were found to be acceptable. Refer to **Appendix G.** The water meters for Tara Water Works should be calibrated again by April 2022.

Table 5
Treated Water Quality
Municipality of Arran-Elderslie
Tara Water Works
2021

Items	Well No. 2	Well No. 3	Well No. 4	Total
Annual Treated Water Supplied to the Distribution System (m^3)	22,865	30,952	63,148	116,965
Average Day Treated Water Supplied by well from Pump House (m^3/day)	81.66*	109.37*	205.03*	320.5**
Maximum Day Treated Water Supplied from Pump Houses (m^3/day)	210	405	786	1,178

*** Sum of total water supplied from Pump Houses ÷ No. of days pump operated.**

**** Sum of total water supplied from three (3) Pump Houses ÷ 365 days.**
This represents average day demand of Tara Water System.

Table 6
Summary of Water System's Capacity Utilization
Municipality of Arran-Elderslie
Tara Water Works
2021

Year	Annual Average Day Flow (m^3/day)	Annual Max Day Flow (m^3/day)	% Capacity Utilization
2021	324	1178	67.86%
2020	301	811	46.72%
2019	303	758	43.70%
2018	320	806	46.40%
2017	314	793	45.70%
2016	388	1039	59.9%
2015	369	882	50.8%
2014	334	1018	58.6%
2013	333	947	54.6%
2012	369	900	51.8%
Rated Capacity of Water Works		**1736 m^3/day**	

Table 7
Summary of Disinfectant chemicals used and water supply from Wells
Municipality of Arran-Elderslie
Tara Water Works
2021

Month	Volume of Sodium Hypochlorite (L) Used	Average Chlorine Dosage (mg/L)	Water Used (m^3) including waste flow*
January	176.5	2.7	7,566
February	151.7	2.5	7,392
March	163.2	2.4	8,529
April	196.4	2.2	11,023
May	314.3	2.2	16,907
June	259.6	2.5	12,737
July	213.5	2.6	10,074
August	223.5	2.8	10,041
September	190.8	2.6	8,829
October	191.5	2.7	8,550
November	180.9	2.6	8,206
December	176.9	2.5	8,656
Total	**2,438.8**	**2.5**	**118,510**

* Waste flow was not available at the time of preparing report.

5.0 NON-COMPLIANCE DURING THE REPORTING PERIOD

No Adverse Water Quality Incident Report (AWQI) for the Tara Water System was issued in 2021.

6.0 IMPROVEMENTS TO SYSTEM AND ROUTINE AND PREVENTATIVE MAINTENANCE

January:

- Watermain repair at 105 Maria Street.

February:

- Removed and replaced the block heater timer for the diesel generator at Well #3. Timer was replaced at 444.9 hours.
- Replaced Well #2 filters at 44,603 hours.
- Desiccant packs were replaced at Well #2 and #4 level transducer.
- Removed and replaced water in eye wash station at Well #2 and #4.
- Re-calibrated chlorine analyzer at Well #4.

March:

- Annual servicing for the diesel generator at Well #3. Replaced engine oil and filter at 444.6 hours.
- Completed inspection of water tower. Railings, hatch, and roof all appeared in good condition.
- Well #4 chlorine analyzer was cleaned. Grit and electrolyte were also replaced.

April:

- All flowmeters were calibrated by Tower Electronics Canada
- Watermain break at 82 Union Street occurred on the 19th and 20th, and was subsequently repaired.
- Replaced Well #2 filters at 44,884.5 hours

May:

- Replaced lamp in Turbidimeter (TMS 561) at Well #3.
- Replaced UV filters at 31,191.6 hours, at Well #3.
- Replaced pressure gauge and isolator at Well #3.
- Replaced Well #2 filters at 45,269.6 hours
- Desiccant packs were replaced in Turbidimeter (TMS 561) at Well #2.
- Greatario drained the water tower and replaced the anodes.

June:

- Replaced the protective lining at well casing for level transducer at Well #3.
- Replaced service line from main to property line at #71 Heather Lynn Boulevard.
- Desiccant packs were replaced in Turbidimeter (TMS 561) at Well #3.

July:

- Cleaned Well #3 UV#1 sensor at 9,399.32 hours.
- New watermain on Maria Street put into service.
- Replaced Well #2 filters at 45,521.8 hours.

August:

- Replaced Well #3 filters at 31,615.5 pump hours (9,460.15 URL hours).
- Desiccant packs were replaced in Turbidimeter (TMS 561) at Well #3.
- Replaced Well #2 filters at 45,745.3 hours.

September:

- Watermain repair at 192 Hamilton Street.
- Watermain repair at 196 Hamilton Street.
- Well #3 wall mount gas monitor calibrated by Hetek.
- Cleaned UVI sensor at 9,692.34 hours.
- Replaced uninterrupted power supply (UPS) at Well #2.

October:

- Replaced Well #2 filters at 45,977.6 hours.
- Annual test runs for diesel generator at Well #4.

November:

- Watermain repair at 137 Hamilton Street.
- Replaced Well #3 filters at 32,074.6 hours, and Well #3 UVI filters at 9,918.35 hours.
- Completed roof inspection and cleaned eavestroughs at all locations.
- Well #3 WIFI router replaced.
- Desiccant pack replaced on Turbidimeter (TMS 561) at Well #2.
- Dewar replaced variable frequency drive (VFD) at Well #2.

December:

- Well #3 UVI sensor cleaned at 12,045.4 hours.
- Cleaned injection lances and tested injection check valves at Well #2 and Well #4.
- Cleaned both injection points at Well #3.
- Replaced injection check valve on chlorine pump #1 line at Well #3.
- Replaced Well #2 filters at 46,207 hours.
- Desiccant packs replaced on Turbidimeter (TMS 561) at Well #2.
- Replaced red rubber seal on Turbidimeter (TMS 561) at Well #2.

7.0 MINISTRY OF THE ENVIRONMENT INSPECTION AND REGULATORY ISSUES

In 2021, the Ministry of the Environment Conservation and Parks (MECP) performed an inspection of the Tara water system on May 13, 2021. The inspection Report is located in **Appendix D.**

There were no non-compliance issues.

8.0 SUMMARY OF 2021 REQUIREMENTS & OTHER CONSIDERATIONS

1. During 2022, nine (9) distribution samples should be collected monthly from the Tara distribution system. Each sample should be analyzed for Total Coliform, E. Coli and 50% samples analyzed for HPC.

2. During 2022, a raw water sample should be collected each week from all of the three (3) production wells and analyzed for Total Coliform and E. coli.

3. During 2022, a Point of Entry sample should be collected and analyzed for Total Coliform, E. Coli and HPC weekly.

4. By November 2022, a POE sample for inorganics should be collected for Well No. 2 and Well No. 3. Inorganic sampling at Well No. 4 is not required until November 2024.

5. Lead samples are to be collected once between December 15, 2021 and April 15, 2022 and again between June 15 and October 15, 2022.

6. By November 2022, a sample should be collected from POE for Well No. 2 and Well No. 3 and analyzed for all organic parameters as listed in Schedule 25. Organic sampling at Well No.4 is not required until November 2024.

7. Trihalomethanes and Halo Acetic Acid (HAA) samples from the distribution system should be collected every three (3) months starting in February.

8. Nitrite and Nitrate samples are to be collected quarterly from the point of entry.

9. A sample is to be collected and analyzed for sodium by November 2024.

10. A sample is to be collected and analyzed for Fluoride by November 2024.

11. The Permit to Take Water should be renewed by August 31, 2028.

12. All water meters and flowmeters are to be calibrated by April 2022.

13. The diesel generator is recommended to be tested under full load on a monthly basis and documented.

Respectfully submitted:

GSS Engineering Consultants Ltd.

Rakesh Sharma, P. Eng., M.A.Sc.
ORO, Class IV WT, Class IV WD

Municipality of Arran-Elderslie

Mark O'Leary
Water/Sewer Foreman
Operator, Class II WT & Class III WD,
Backup ORO

Municipality of Arran-Elderslie

Scott McLeod, Public Works Manager
Class II WT & Class IV WD,
Backup ORO

APPENDIX A

FLOW DATA

(TABLE A-1, A-2 & A-3)

TABLE A-1

ANNUAL SUMMARY – TREATED WATER FLOWS, TURBIDITY, AND DISINFECTANT RESIDUAL

WATER WORKS NAME & NUMBER:	Arran-Elderslie - Tara - Well 2
YEAR:	2021
SERVICED POPULATION:	1032
DESIGN CAPACITY:	426 m³/day
LABORATORIES WHICH PERFORMED ANALYZES:	SGS Canada Inc

MONTH	TREATED WATER FLOW				TREATED WATER TURBIDITY			TREATED DISINFECTANT		DISTRIBUTION DISINFECTANT	
	AVERAGE DAY (m3)	MAXIMUM DAY (m3)	NO. OF DAYS WELL OPERATED	MONTHLY TOTAL (m3)	NO. OF SAMPLES COLLECTED	NO. OF SAMPLES >1 NTU	AVERAGE TURBIDITY NTU	NO. OF TREAT. SAMPLES COLLECTED	AVERAGE RESIDUAL (mg/L)	NO. OF DIST. SAMPLES COLELCTED	NO. OF SAMPLES WITH DETECTABLE RES.
JAN.	73.5	154	23	1617	31		0.17	31	0.96	31	31
FEB.	79.8	146	21	1676	28		0.13	28	0.91	28	28
MAR.	84.6	197	23	1945	31		0.13	31	0.98	31	31
APR.	94.3	181	19	1792	30		0.16	30	1.06	30	30
MAY	104.8	190	26	2602	31		0.23	31	1.25	31	31
JUN.	102.8	210	25	2552	30		0.18	30	1.09	30	30
JUL.	86.7	161	24	1995	31		0.19	31	0.96	31	31
AUG.	67.6	167	27	1824	31		0.16	31	0.94	31	31
SEP.	67.7	138	26	1761	30		0.17	30	0.96	30	30
OCT.	82.6	140	21	1652	31		0.17	31	0.98	31	31
NOV.	84.8	168	20	1696	30		0.19	30	0.98	30	30
DEC.	73	150	25	1753	31		0.12	31	1.06	31	31
TOTAL			280	22,865	365	0		365		365	365
AVERAGE*	83.52						0.17		1.01		
MAXIMUM		210									

DISINFECTANT COMPOUND USED:	Sodium Hypochlorite
FORM OF RESIDUAL DISPLAYED ON ABOVE TABLE:	Free
QUANTITY OF DISINFECTANT USED DURING YEAR (l):	2,438.8 L at all three (3) pump houses
DISTRIBUTION SYSTEM TARGET RESIDUAL (mg/L):	0.2 mg/L

Notes:

In Tara there are three (3) pumping stations: Pumping Station No. 2, Pumping Station No. 3 and Pumping Station No.4. The three (3) stations alternate the role of lead and lag pump.

Monthly and annual average based on number of days in operations.

TABLE A-2

ANNUAL SUMMARY – TREATED WATER FLOWS, TURBIDITY, AND DISINFECTANT RESIDUAL

WATER WORKS NAME & NUMBER:	Arran-Elderslie - Tara - Well 3
YEAR:	2021
SERVICED POPULATION:	1032
DESIGN CAPACITY:	458 m³/day
LABORATORIES WHICH PERFORMED ANALYZES:	SGS Canada Inc

MONTH	TREATED WATER FLOW				TREATED WATER TURBIDITY			TREATED DISINFECTANT		DISTRIBUTION DISINFECTANT	
	AVERAGE DAY (m3)	MAXIMUM DAY (m3)	NO. OF DAYS WELL OPERATED	MONTHLY TOTAL (m3)	NO. OF SAMPLES COLLECTED	NO. OF SAMPLES >1 NTU	AVERAGE TURBIDITY NTU	NO. OF TREAT. SAMPLES COLLECTED	AVERAGE RESIDUAL (mg/L)	NO. OF DIST. SAMPLES COLELCTED	NO. OF SAMPLES WITH DETECTABLE RES.
JAN.	88.3	181	23	1943	31		0.09	31	0.99	31	31
FEB.	91.3	171	21	2002	28		0.06	28	1.05	28	28
MAR.	100	232	23	2299	31		0.04	31	1.04	31	31
APR.	155.1	405	19	2792	30		0.11	30	1.02	30	30
MAY	190.7	378	26	4768	31		0.04	31	1.17	31	31
JUN.	127.6	285	25	3445	30		0.09	30	1.09	30	30
JUL.	106.3	203	25	2551	31		0.11	31	0.96	31	31
AUG.	92.8	284	27	2505	31		0.08	31	0.93	31	31
SEP.	81.6	175	28	2286	30		0.1	30	0.97	30	30
OCT.	110.6	229	21	2212	31		0.06	31	0.97	31	31
NOV.	94.8	203	20	2086	30		0.13	30	0.97	30	30
DEC.	85.7	177	25	2056	31		0.04	31	1.06	31	31
TOTAL			283	30,945	365	0		365		365	365
AVERAGE*	110.40						0.08		1.02		
MAXIMUM		405									

DISINFECTANT COMPOUND USED:	Sodium Hypochlorite
FORM OF RESIDUAL DISPLAYED ON ABOVE TABLE:	Free
QUANTITY OF DISINFECTANT USED DURING YEAR (l):	2,438.8 L at all three (3) pump houses
DISTRIBUTION SYSTEM TARGET RESIDUAL (mg/L):	0.2 mg/L

Notes:

In Tara there are three (3) pumping stations: Pumping Station No. 2, Pumping Station No. 3 and Pumping Station No.4. The three (3) stations alternate the role of lead and lag pump.

Monthly and annual average based on number of days in operations.

TABLE A-1
ANNUAL SUMMARY – TREATED WATER FLOWS, TURBIDITY, AND DISINFECTANT RESIDUAL

WATER WORKS NAME & NUMBER:	Arran-Elderslie - Tara - Well 4
YEAR:	2021
SERVICED POPULATION:	1032
DESIGN CAPACITY:	852 m³/day
LABORATORIES WHICH PERFORMED ANALYZES:	SGS Canada Inc

MONTH	TREATED WATER FLOW				TREATED WATER TURBIDITY			TREATED DISINFECTANT		DISTRIBUTION DISINFECTANT	
	AVERAGE DAY (m3)	MAXIMUM DAY (m3)	NO. OF DAYS WELL OPERATED	MONTHLY TOTAL (m3)	NO. OF SAMPLES COLLECTED	NO. OF SAMPLES >1 NTU	AVERAGE TURBIDITY NTU	NO. OF TREAT. SAMPLES COLLECTED	AVERAGE RESIDUAL (mg/L)	NO. OF DIST. SAMPLES COLELCTED	NO. OF SAMPLES WITH DETECTABLE RES.
JAN.	154.1	331	27	4,006	31		0.09	31	1.06	31	31
FEB.	161.2	331	23	3707	28		0.11	28	1.05	28	28
MAR.	171.4	408	25	4285	31		0.07	31	1.01	31	31
APR.	268.3	770	25	6439	30		0.09	30	1.03	30	30
MAY	382	786	25	9169	31		0.05	31	1.34	31	31
JUN.	240.7	627	28	6740	30		0.06	30	1.22	30	30
JUL.	195.2	435	28	5270	31		0.07	31	1.02	31	31
AUG.	205.4	516	27	5341	31		0.13	31	1.01	31	31
SEP.	183.9	332	26	4782	30		0.06	30	1.01	30	30
OCT.	209.9	343	21	4407	31		0.11	31	1.03	31	31
NOV.	170.2	361	26	4424	30		0.03	30	0.98	30	30
DEC.	169.6	494	27	4578	31		0.07	31	1.03	31	31
TOTAL			308	63,148	365	0		365		365	365
AVERAGE*	209.33						0.08		1.07		
MAXIMUM		786									

DISINFECTANT COMPOUND USED:	Sodium Hypochlorite
FORM OF RESIDUAL DISPLAYED ON ABOVE TABLE:	Free
QUANTITY OF DISINFECTANT USED DURING YEAR (l):	2,438.8 L at all three (3) pump houses
DISTRIBUTION SYSTEM TARGET RESIDUAL (mg/L):	0.2 mg/L

Notes:

In Tara there are three (3) pumping stations: Pumping Station No. 2, Pumping Station No. 3 and Pumping Station No.4. The three (3) stations alternate the role of lead and lag pump.

Monthly and annual average based on number of days in operations.

APPENDIX B

MICROBIOLOGICAL SAMPLING AND ANALYSIS

(Table 3)

Table 3

SUMMARY OF WATER QUALITY - MICROBIOLOGICAL

MUNICIPALITY OF ARRAN-ELDERSLIE

TARA WATER SUPPLY

JANUARY 1, 2021 to DECEMBER 31, 2021

Date Rec	Well #	Raw		Point of Entry (POE)			Distribution		
		E.Coli	Total Coliform	E. Coli	Total Coliform	HPC	E. Coli	Total Coliform	HPC
04-Jan	Well #2	0	0	0	0	<10	0	0	<10
	Well #3	0	0	0	0	<10	0	0	<10
	Well #4	0	0				0	0	<10
11-Jan	Well #2	0	0	0	0	<10	0	0	<10
	Well #3	0	0	0	0	<10	0	0	<10
	Well #4	0	0						
18-Jan	Well #2	0	0	0	0	<10	0	0	
	Well #3	0	0	0	0	<10	0	0	
	Well #4	0	0						
25-Jan	Well #2	0	0	0	0	<10	0	0	
	Well #3	0	0	0	0	<10	0	0	
	Well #4	0	0						
02-Feb	Well #2	0	0	0	0	<10	0	0	<10
	Well #3	0	0	0	0	<10	0	0	<10
	Well #4	0	0						
08-Feb	Well #2	0	0	0	0	<10	0	0	<10
	Well #3	0	0	0	0	<10	0	0	<10
	Well #4	0	0						
16-Feb	Well #2	0	0	0	0	<10	0	0	
	Well #3	0	0	0	0	<10	0	0	
	Well #4	0	0						
22-Feb	Well #2	0	0	0	0	<10	0	0	
	Well #3	0	0	0	0	<10	0	0	
	Well #4	0	0						
01-Mar	Well #2	0	0	0	0	<10	0	0	10
	Well #3	0	0	0	0	<10	0	0	<10
	Well #4	0	0						
08-Mar	Well #2	0	0	0	0	<10	0	0	<10
	Well #3	0	0	0	0	<10	0	0	<10
	Well #4	0	0						
15-Mar	Well #2	0	0	0	0	<10	0	0	
	Well #3	0	0	0	0	<10	0	0	
	Well #4	0	0						
22-Mar	Well #2	0	0	0	0	10	0	0	
	Well #3	0	0	0	0	<10	0	0	
	Well #4	0	0						
29-Mar	Well #2	0	0	0	0	<10	0	0	
	Well #3	0	1	0	0	<10			
	Well #4	0	0						
06-Apr	Well #2	0	0	0	0	<10	0	0	10
	Well #3	0	0	0	0	<10	0	0	<10
	Well #4	0	0				0	0	<10
12-Apr	Well #2	0	0	0	0	<10	0	0	<10
	Well #3	0	0	0	0	<10	0	0	<10
	Well #4	0	0						
19-Apr	Well #2	0	0	0	0	<10	0	0	
	Well #3	0	0	0	0	<10	0	0	
	Well #4	0	0						

Table 3

SUMMARY OF WATER QUALITY - MICROBIOLOGICAL

MUNICIPALITY OF ARRAN-ELDERSLIE

TARA WATER SUPPLY

JANUARY 1, 2021 to DECEMBER 31, 2021

Date Rec	Well #	Raw		Point of Entry (POE)			Distribution		
		E.Coli	Total Coliform	E. Coli	Total Coliform	HPC	E. Coli	Total Coliform	HPC
26-Apr	Well #2	0	0	0	0	<10	0	0	
	Well #3	0	0	0	0	<10	0	0	
	Well #4	0	0						
03-May	Well #2	0	0	0	0	<10	0	0	<10
	Well #3	0	7	0	0	<10	0	0	<10
	Well #4	0	0						
10-May	Well #2	0	0	0	0	<10	0	0	<10
	Well #3	0	0	0	0	<10	0	0	<10
	Well #4	0	0						
17-May	Well #2	0	0	0	0	<10	0	0	
	Well #3	0	0	0	0	<10	0	0	
	Well #4	0	0						
25-May	Well #2	0	0	0	0	<10	0	0	
	Well #3	0	0	0	0	<10	0	0	
	Well #4	0	0						
31-May	Well #2	0	0	0	0	<10	0	0	
	Well #3	0	0	0	0	10			
	Well #4	0	0						
07-Jun	Well #2	0	0	0	0	<10	0	0	10
	Well #3	0	0	0	0	<10	0	0	<10
	Well #4	0	0				0	0	<10
14-Jun	Well #2	0	0	0	0	<10	0	0	<10
	Well #3	0	0	0	0	<10	0	0	<10
	Well #4	0	0						
21-Jun	Well #2	0	0	0	0	<10	0	0	
	Well #3	0	0	0	0	<10	0	0	
	Well #4	0	0						
28-Jun	Well #2	0	0	0	0	<10	0	0	
	Well #3	1	5	0	0	<10	0	0	
	Well #4	0	0						
06-Jul	Well #2	0	0	0	0	<10	0	0	<10
	Well #3	0	2	0	0	<10	0	0	<10
	Well #4	0	0				0	0	<10
12-Jul	Well #2	0	0	0	0	10	0	0	<10
	Well #3	0	2	0	0	<10	0	0	<10
	Well #4	0	0						
19-Jul	Well #2	0	0	0	0	<10	0	0	<10
	Well #3	1	22	0	0	<10	0	0	<10
	Well #4	0	0						
26-Jul	Well #2	0	0	0	0	<10	0	0	
	Well #3	1	27	0	0	<10	0	0	
	Well #4	0	0						
03-Aug	Well #2	0	0	0	0	<10	0	0	<10
	Well #3	0	9	0	0	<10	0	0	<10
	Well #4	0	0						
10-Aug	Well #2	0	0	0	0	<10	0	0	<10
	Well #3	0	2	0	0	<10	0	0	<10
	Well #4	0	0						
16-Aug	Well #2	0	0	0	0	<10	0	0	
	Well #3	0	2	0	0	10	0	0	
	Well #4	0	0						

Table 3

SUMMARY OF WATER QUALITY - MICROBIOLOGICAL

MUNICIPALITY OF ARRAN-ELDERSLIE

TARA WATER SUPPLY

JANUARY 1, 2021 to DECEMBER 31, 2021

Date Rec	Well #	Raw		Point of Entry (POE)			Distribution		
		E.Coli	Total Coliform	E. Coli	Total Coliform	HPC	E. Coli	Total Coliform	HPC
23-Aug	Well #2	0	0	0	0	<10	0	0	
	Well #3	0	0	0	0	<10	0	0	
	Well #4	0	0						
30-Aug	Well #2	0	0	0	0	<10	0	0	
	Well #3	0	0	0	0	<10	0	0	
	Well #4	0	0						
07-Sep	Well #2	0	0	0	0	<10	0	0	<10
	Well #3	0	1	0	0	<10	0	0	<10
	Well #4	0	0				0	0	<10
13-Sep	Well #2	0	0	0	0	<10	0	0	<10
	Well #3	0	1	0	0	<10	0	0	<10
	Well #4	0	0						
20-Sep	Well #2	0	0	0	0	10	0	0	
	Well #3	0	0	0	0	<10	0	0	
	Well #4	0	0						
27-Sep	Well #2	0	0	0	0	<10	0	0	
	Well #3	0	4	0	0	<10	0	0	
	Well #4	0	0						
04-Oct	Well #2	0	0	0	0	<10	0	0	10
	Well #3	0	1	0	0	<10	0	0	<10
	Well #4	0	0				0	0	40
12-Oct	Well #2	0	0	0	0	<10	0	0	10
	Well #3	0	1	0	0	<10	0	0	<10
	Well #4	0	0						
18-Oct	Well #2	0	0	0	0	<10	0	0	
	Well #3	0	2	0	0	<10	0	0	
	Well #4	0	0						
25-Oct	Well #2	0	0	0	0	<10	0	0	
	Well #3	0	2	0	0	<10	0	0	
	Well #4	0	0						
01-Nov	Well #2	0	0	0	0	<10	0	0	<10
	Well #3	0	0	0	0	<10			
	Well #4	0	0				0	0	<10
08-Nov	Well #2	0	0	0	0	10	0	0	<10
	Well #3	0	0	0	0	10	0	0	10
	Well #4	0	0						
15-Nov	Well #2	0	0	0	0	<10	0	0	
	Well #3	1	4	0	0	<10			
	Well #4	0	0				0	0	
22-Nov	Well #2	0	0	0	0	<10	0	0	
	Well #3	0	1	0	0	10	0	0	
	Well #4	0	0						
29-Nov	Well #2	0	0	0	0	<10	0	0	
	Well #3	0	0	0	0	<10			
	Well #4	0	0						

Table 3

SUMMARY OF WATER QUALITY - MICROBIOLOGICAL

MUNICIPALITY OF ARRAN-ELDERSLIE

TARA WATER SUPPLY

JANUARY 1, 2021 to DECEMBER 31, 2021

Date Rec	Well #	Raw		Point of Entry (POE)			Distribution		
		E.Coli	Total Coliform	E. Coli	Total Coliform	HPC	E. Coli	Total Coliform	HPC
02-Dec	Well #2	0	0						
	Well #3								
	Well #4								
06-Dec	Well #2	0	0	0	0	<10	0	0	<10
	Well #3	0	1	0	0	<10	0	0	<10
	Well #4	0	0				0	0	<10
13-Dec	Well #2	0	0	0	0	<10	0	0	<10
	Well #3	0	0	0	0	<10			
	Well #4	0	0				0	0	<10
20-Dec	Well #2	0	0	0	0	<10	0	0	
	Well #3	0	0	0	0	<10			
	Well #4	0	0				0	0	
29-Dec	Well #2	0	0	0	0	<10	0	0	
	Well #3	0	0	0	0	<10	0	0	
	Well #4	0	0						
Total of Samples		157	157	104	104	104	108	108	57

USF: Unreliable: Sample Frozen in Transit Samples Processed as Per Client Request

NDSF - No Data: Sample Frozen in Transit

Note: Well #2 & #3 has a common POE sample location

APPENDIX C

SCHEDULE 13 ANALYSIS RESULTS

SGS Canada Inc.
P.O. Box 4300 - 185 Concession St.
Lakefield - Ontario - KOL 2HO
Phone: 705-652-2000 FAX: 705-652-6365

Works #: 220002627

16-February-2021

Mun of Arran Elderslie (Tara)
Attn : Mark O'Leary

1925-10 Bruce Rd., PO Box 70
Chesley, ON
N0G 1L0, Canada

Phone: 519-363-3039 ext:122
Fax:519-363-9337

Feb 08 - Nitrate, HAA, THM

Date Rec. : 08 February 2021
LR Report: **CA30129-FEB21**

Copy: #1

CERTIFICATE OF ANALYSIS

Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: MAC	8: MDL	9: TW Tara Well #2 & 3 POE	10: TW Tara Well #4 POE	11: DW Distribution-Park Road	12: DW Distribution-North Street
Sample Date & Time							08-Feb-21 10:55	08-Feb-21 09:50	08-Feb-21 10:35	08-Feb-21 09:30
Temperature upon Delivery [@ London Lab °C]	---	---	---	---	---	---	13.1	13.1	13.1	13.1
Field Total Chlorine [mg/L]	---	---	---	---	---	---	1.24	1.35	1.09	1.08
Field Free Chlorine [mg/L]	---	---	---	---	---	---	1.07	1.25	1.00	1.00
Nitrite (as N) [mg/L]	10-Feb-21	20:26	12-Feb-21	15:04	1.0	0.003	0.003 <MDL	0.003 <MDL	---	---
Nitrate (as N) [mg/L]	10-Feb-21	20:26	12-Feb-21	15:04	10	0.006	0.066	1.42	---	---
Nitrate + Nitrite (as N) [mg/L]	10-Feb-21	20:26	12-Feb-21	15:04	---	0.006	0.066	1.42	---	---
Trihalomethanes (total) [ug/L]	10-Feb-21	13:17	11-Feb-21	11:32	100 (RAA)	0.37	---	---	5.8	---
Bromodichloromethane [ug/L]	10-Feb-21	13:17	11-Feb-21	11:32	--	0.26	---	---	1.5	---
Bromoform [ug/L]	10-Feb-21	13:17	11-Feb-21	11:32	--	0.34	---	---	1.2	---
Chloroform [ug/L]	10-Feb-21	13:17	11-Feb-21	11:32	--	0.29	---	---	0.74	---
Dibromochloromethane [ug/L]	10-Feb-21	13:17	11-Feb-21	11:32	--	0.37	---	---	2.4	---
Total Haloacetic Acids (HAA5) [ug/L]	11-Feb-21	16:40	16-Feb-21	09:24	80 (RAA)	5.3	---	---	---	5.3 <MDL
Chloroacetic Acid [ug/L]	11-Feb-21	16:40	16-Feb-21	09:24	---	4.7	---	---	---	4.7 <MDL
Bromoacetic Acid [ug/L]	11-Feb-21	16:40	16-Feb-21	09:24	---	2.9	---	---	---	2.9 <MDL
Dichloroacetic Acid [ug/L]	11-Feb-21	16:40	16-Feb-21	09:24	---	2.6	---	---	---	2.6 <MDL
Dibromoacetic Acid [ug/L]	11-Feb-21	16:40	16-Feb-21	09:24	---	2.0	---	---	---	2.0 <MDL
Trichloroacetic Acid [ug/L]	11-Feb-21	16:40	16-Feb-21	09:24	---	5.3	---	---	---	5.3 <MDL

MAC - Maximum Acceptable Concentration
MDL - SGS Method Detection Limit

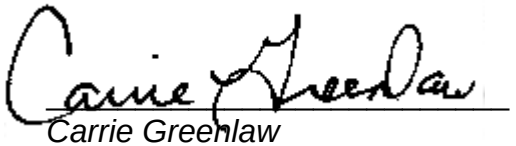
SGS Canada Inc.
P.O. Box 4300 - 185 Concession St.
Lakefield - Ontario - KOL 2HO
Phone: 705-652-2000 FAX: 705-652-6365

Works #: 220002627

LR Report : **CA30129-FEB21**

Method Descriptions

Units	Description	SGS Method Code
ug/L	HAA wtr - DW	ME-CA-[ENV]GC-LAK-AN-013
ug/L	VOC wtr - THM	ME-CA-[ENV]GC-LAK-AN-004
ug/L	VOC wtr - THM	ME-CA-[ENV]GC-LAK-AN-004
ug/L	HAA wtr - DW	ME-CA-[ENV]GC-LAK-AN-013
ug/L	VOC wtr - THM	ME-CA-[ENV]GC-LAK-AN-004
ug/L	HAA wtr - DW	ME-CA-[ENV]GC-LAK-AN-013
ug/L	VOC wtr - THM	ME-CA-[ENV]GC-LAK-AN-004
ug/L	HAA wtr - DW	ME-CA-[ENV]GC-LAK-AN-013
mg/L	Nitrate by Ion Chromatography	ME-CA-[ENV]IC-LAK-AN-001
mg/L	Total Nitrate/Nitrite by Ion Chromatograph	ME-CA-[ENV]IC-LAK-AN-001
mg/L	Nitrite by Ion Chromatography	ME-CA-[ENV]IC-LAK-AN-001
ug/L	HAA wtr - DW	ME-CA-[ENV]GC-LAK-AN-013
ug/L	HAA wtr - DW	ME-CA-[ENV]GC-LAK-AN-013
ug/L	VOC wtr - THM	ME-CA-[ENV]GC-LAK-AN-004



Carrie Greenlaw
Project Specialist,
Environment, Health & Safety

OnLine LIMS

0002404569

SGS Canada Inc.
P.O. Box 4300 - 185 Concession St.
Lakefield - Ontario - KOL 2HO
Phone: 705-652-2000 FAX: 705-652-6365

Works #: 220002627

Feb 08 - Alkalinity

11-February-2021

Mun of Arran Elderslie (Tara)
Attn : Mark O'Leary

1925-10 Bruce Rd., PO Box 70
Chesley, ON
N0G 1L0, Canada

Phone: 519-363-3039 ext:122
Fax:519-363-9337

Date Rec. : 08 February 2021
LR Report: **CA30130-FEB21**

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CERTIFICATE OF ANALYSIS

Final Report

Sample ID	Sample Date & Time	Temperature upon Delivery @ London Lab °C	Field pH	Alkalinity mg/L as CaCO3
1: Analysis Start Date		---	---	10-Feb-21
2: Analysis Start Time		---	---	15:43
3: Analysis Completed Date		---	---	11-Feb-21
4: Analysis Completed Time		---	---	15:05
6: AO/OG		---	---	30-500
7: MDL		---	---	2
8: DW Sample Station Park Road	08-Feb-21 10:35	13.1	7.13	251

AO/OG - Aesthetic Objective / Operational Guideline
MDL - SGS Method Detection Limit

Method Descriptions

Units	Description	SGS Method Code
mg/L as CaCO3	Alkalinity by Titration	ME-CA-[ENV]EWL-LAK-AN-006

Carrie Greenlaw
Project Specialist,
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OnLine LIMS

0002402173

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Works #: 220002627

May 17 - Nitrate, HAA, THM

25-May-2021

Mun of Arran Elderslie (Tara)
Attn : Mark O'Leary

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Date Rec. : 17 May 2021
LR Report: **CA30289-MAY21**

Copy: #1

CERTIFICATE OF ANALYSIS

Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: MAC	8: MDL	9: TW Tara Well #2 & 3 POE	10: TW Tara Well #4 POE	11: DW Distribution-OC Long Subdivision	12: DW Distribution-Cenet aph
Sample Date & Time							17-May-21 10:30	17-May-21 09:10	17-May-21 09:40	17-May-21 11:30
Temperature upon Delivery [@ London Lab °C]	---	---	---	---	---	---	10.9	10.9	10.9	10.9
Temperature Upon Receipt [°C]	---	---	---	---	---	---	14.0	14.0	14.0	14.0
Field Total Chlorine [mg/L]	---	---	---	---	---	---	1.38	1.28	1.07	1.30
Field Free Chlorine [mg/L]	---	---	---	---	---	---	1.14	1.20	0.92	1.04
Nitrite (as N) [mg/L]	20-May-21	14:18	25-May-21	11:56	1.0	0.003	0.003 <MDL	0.003 <MDL	---	---
Nitrate (as N) [mg/L]	20-May-21	14:18	25-May-21	11:56	10	0.006	0.086	1.20	---	---
Nitrate + Nitrite (as N) [mg/L]	20-May-21	14:18	25-May-21	11:56	---	0.006	0.086	1.20	---	---
Trihalomethanes (total) [ug/L]	20-May-21	13:09	21-May-21	13:24	100 (RAA)	0.37	---	---	8.4	---
Bromodichloromethane [ug/L]	20-May-21	13:09	21-May-21	13:24	---	0.26	---	---	2.4	---
Bromoform [ug/L]	20-May-21	13:09	21-May-21	13:24	---	0.34	---	---	1.3	---
Chloroform [ug/L]	20-May-21	13:09	21-May-21	13:24	---	0.29	---	---	1.3	---
Dibromochloromethane [ug/L]	20-May-21	13:09	21-May-21	13:24	---	0.37	---	---	3.4	---
Total Haloacetic Acids (HAA5) [ug/L]	20-May-21	08:53	21-May-21	13:17	80 (RAA)	5.3	---	---	---	5.3 <MDL
Chloroacetic Acid [ug/L]	20-May-21	08:53	21-May-21	13:17	---	4.7	---	---	---	4.7 <MDL
Bromoacetic Acid [ug/L]	20-May-21	08:53	21-May-21	13:17	---	2.9	---	---	---	2.9 <MDL
Dichloroacetic Acid [ug/L]	20-May-21	08:53	21-May-21	13:17	---	2.6	---	---	---	2.6 <MDL
Dibromoacetic Acid [ug/L]	20-May-21	08:53	21-May-21	13:17	---	2.0	---	---	---	2.0 <MDL
Trichloroacetic Acid [ug/L]	20-May-21	08:53	21-May-21	13:17	---	5.3	---	---	---	5.3 <MDL

MAC - Maximum Acceptable Concentration
MDL - SGS Method Detection Limit

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Works #: 220002627

LR Report : **CA30289-MAY21**

Method Descriptions

Units	Description	SGS Method Code
ug/L	HAA wtr - DW	ME-CA-[ENV]GC-LAK-AN-013
ug/L	VOC wtr - THM	ME-CA-[ENV]GC-LAK-AN-004
ug/L	VOC wtr - THM	ME-CA-[ENV]GC-LAK-AN-004
ug/L	HAA wtr - DW	ME-CA-[ENV]GC-LAK-AN-013
ug/L	VOC wtr - THM	ME-CA-[ENV]GC-LAK-AN-004
ug/L	HAA wtr - DW	ME-CA-[ENV]GC-LAK-AN-013
ug/L	VOC wtr - THM	ME-CA-[ENV]GC-LAK-AN-004
ug/L	HAA wtr - DW	ME-CA-[ENV]GC-LAK-AN-013
mg/L	Nitrate by Ion Chromatography	ME-CA-[ENV]IC-LAK-AN-001
mg/L	Total Nitrate/Nitrite by Ion Chromatograph	ME-CA-[ENV]IC-LAK-AN-001
mg/L	Nitrite by Ion Chromatography	ME-CA-[ENV]IC-LAK-AN-001
ug/L	HAA wtr - DW	ME-CA-[ENV]GC-LAK-AN-013
ug/L	HAA wtr - DW	ME-CA-[ENV]GC-LAK-AN-013
ug/L	VOC wtr - THM	ME-CA-[ENV]GC-LAK-AN-004

Carrie Greenlaw
Project Specialist,
Environment, Health & Safety

OnLine LIMS

00025058B3

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Works #: 220002627

30-August-2021

Date Rec. : 23 August 2021
LR Report: CA30451-AUG21

Copy: #1

Aug 23 - Nitrate, HAA, THM

CERTIFICATE OF ANALYSIS

Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: MAC	8: MDL	9: TW Tara Well #2 & 3 POE	10: TW Tara Well #4 POE	11: DW Distribution-OC Long Subdivision	12: DW Distribution-North Street SS
Sample Date & Time							23-Aug-21 10:00	23-Aug-21 09:25	23-Aug-21 09:00	23-Aug-21 09:45
Temperature upon Delivery [@ London Lab °C]	---	---	---	---	---	---	8.3	8.3	8.3	8.3
Temperature Upon Receipt [at Lakefield Lab °C]							20.0	20.0	20.0	20.0
Field Total Chlorine [mg/L]	---	---	---	---	---	---	1.42	1.27	1.15	1.33
Field Free Chlorine [mg/L]	---	---	---	---	---	---	1.18	1.20	1.06	1.11
Nitrite (as N) [mg/L]	25-Aug-21	16:32	27-Aug-21	07:23	1.0	0.003	0.003 <MDL	0.003 <MDL	---	---
Nitrate (as N) [mg/L]	25-Aug-21	16:32	27-Aug-21	07:23	10	0.006	0.079	1.53	---	---
Nitrate + Nitrite (as N) [mg/L]	25-Aug-21	16:32	27-Aug-21	07:23	---	0.006	0.079	1.53	---	---
Trihalomethanes (total) [ug/L]	26-Aug-21	19:42	30-Aug-21	14:47	100 (RAA)	0.37	---	---	15	---
Bromodichloromethane [ug/L]	26-Aug-21	19:42	30-Aug-21	14:47	--	0.26	---	---	5.1	---
Bromoform [ug/L]	26-Aug-21	19:42	30-Aug-21	14:47	--	0.34	---	---	1.5	---
Chloroform [ug/L]	26-Aug-21	19:42	30-Aug-21	14:47	--	0.29	---	---	2.7	---
Dibromochloromethane [ug/L]	26-Aug-21	19:42	30-Aug-21	14:47	--	0.37	---	---	5.3	---
Total Haloacetic Acids (HAA5) [ug/L]	25-Aug-21	15:15	30-Aug-21	15:02	80 (RAA)	5.3	---	---	---	5.3 <MDL
Chloroacetic Acid [ug/L]	25-Aug-21	15:15	30-Aug-21	15:02	---	4.7	---	---	---	4.7 <MDL
Bromoacetic Acid [ug/L]	25-Aug-21	15:15	30-Aug-21	15:02	---	2.9	---	---	---	2.9 <MDL
Dichloroacetic Acid [ug/L]	25-Aug-21	15:15	30-Aug-21	15:02	---	2.6	---	---	---	2.6 <MDL
Dibromoacetic Acid [ug/L]	25-Aug-21	15:15	30-Aug-21	15:02	---	2.0	---	---	---	2.0 <MDL
Trichloroacetic Acid [ug/L]	25-Aug-21	15:15	30-Aug-21	15:02	---	5.3	---	---	---	5.3 <MDL

MAC - Maximum Acceptable Concentration
MDL - SGS Method Detection Limit

Works #: 220002627

SGS Canada Inc.
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Oct 12 - Lead, Alkalinity

20-October-2021

Mun of Arran Elderslie (Tara)
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Date Rec. : 12 October 2021
LR Report: **CA30256-OCT21**

Copy: #1

CERTIFICATE OF ANALYSIS

Final Report

Sample ID	Sample Date & Time	Temperature Upon Receipt at London Lab °C	Temperature Upon Receipt at Lakefield Lab °C	Field pH no unit	Alkalinity mg/L as CaCO3	Lead ug/L
1: Analysis Start Date		---	---	---	15-Oct-21	18-Oct-21
2: Analysis Start Time		---	---	---	13:07	07:00
3: Analysis Completed Date		---	---	---	18-Oct-21	19-Oct-21
4: Analysis Completed Time		---	---	---	16:31	13:24
5: MAC		---	---	---	---	10
6: AO/OG		---	---	6.5-8.5	30-500	---
7: MDL		---	---	---	2	0.01
8: TAP-PR Kitchen Tap #26 Mill Street 1st	08-Oct-21 14:05	14.2	16.0	7.50	---	0.47
9: TAP-PR Kitchen Tap #26 Mill Street 2nd	08-Oct-21 14:05	14.2	16.0	7.50	---	0.24
10: TAP-PR Kitchen Tap #104 Heatherlynn Blvd 1st	08-Oct-21 15:05	14.2	16.0	7.68	---	1.23
11: TAP-PR Kitchen Tap #104 Heatherlynn Blvd 2nd	08-Oct-21 15:05	14.2	16.0	7.68	---	0.94
12: TAP-PR Kitchen Tap #83 Heatherlynn Blvd 1st	08-Oct-21 15:20	14.2	16.0	7.51	---	0.74
13: TAP-PR Kitchen Tap #83 Heatherlynn Blvd 2nd	08-Oct-21 15:20	14.2	16.0	7.51	---	0.56
14: TAP-PR Kitchen Tap #107 Heatherlynn Blvd 1st	08-Oct-21 15:35	14.2	16.0	7.47	---	0.47
15: TAP-PR Kitchen Tap #107 Heatherlynn Blvd 2nd	08-Oct-21 15:35	14.2	16.0	7.47	---	1.93
16: TAP-PR Kitchen Tap #53 Hamilton Street 1st	08-Oct-21 15:45	14.2	16.0	7.60	---	0.28
17: TAP-PR Kitchen Tap #53 Hamilton Street 2nd	08-Oct-21 15:45	14.2	16.0	7.60	---	0.20
18: TAP-PR Kitchen Tap #106 Mill Street 1st	08-Oct-21 16:40	14.2	16.0	7.57	---	0.32
19: TAP-PR Kitchen Tap #106 Mill Street 2nd	08-Oct-21 16:40	14.2	16.0	7.57	---	0.20
20: TAP-NR Sink Tap #46 Mill Street 1st	08-Oct-21 12:00	14.2	16.0	7.44	---	0.85
21: TAP-NR Sink Tap #46 Mill Street 2nd	08-Oct-21 12:00	14.2	16.0	7.44	---	0.48
22: DW Sample Tap Mill Street Sample Station (MSSS) 1st	08-Oct-21 12:10	14.2	16.0	7.27	---	1.87
23: DW Sample Tap Mill Street Sample Station (MSSS) 2nd	08-Oct-21 12:10	14.2	16.0	7.27	290	---
24: DW Sample Tap OC Long Sample Station (OC) 1st	08-Oct-21 14:25	14.2	16.0	7.82	---	1.07
25: DW Sample Tap OC Long Sample Station (OC) 2nd	08-Oct-21 14:25	14.2	16.0	7.82	274	---
26: TAP-PR Kitchen Tap #18 Mill Street 1st	08-Oct-21 11:35	14.2	16.0	7.67	---	0.39
27: TAP-PR Kitchen Tap #18 Mill Street 2nd	08-Oct-21 11:35	14.2	16.0	7.67	---	0.25
28: TAP-PR Kitchen Tap #38 Mill Street 1st	08-Oct-21 11:50	14.2	16.0	7.50	---	0.57
29: TAP-PR Kitchen Tap #38 Mill Street 2nd	08-Oct-21 11:50	14.2	16.0	7.50	---	0.30
30: TAP-PR Kitchen Tap #95 Mill Street 1st	08-Oct-21 13:40	14.2	16.0	7.45	---	0.43
31: TAP-PR Kitchen Tap #95 Mill Street 2nd	08-Oct-21 13:40	14.2	16.0	7.45	---	0.40

OnLine LIMS

0002682192

Works #: 220002627

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LR Report : **CA30256-OCT21**

Sample ID	Sample Date & Time	Temperature Upon Receipt at London Lab °C	Temperature Upon Receipt at Lakefield Lab °C	Field pH no unit	Alkalinity mg/L as CaCO3	Lead ug/L
32: TAP-PR Kitchen Tap #101 Mill Street 1st	08-Oct-21 13:55	14.2	16.0	7.86	---	0.16
33: TAP-PR Kitchen Tap #101 Mill Street 2nd	08-Oct-21 13:55	14.2	16.0	7.86	---	0.10

MAC - Maximum Acceptable Concentration
AO/OG - Aesthetic Objective / Operational Guideline
MDL - SGS Method Detection Limit

Method Descriptions

Units	Description	SGS Method Code
mg/L as CaCO3	Alkalinity by Titration	ME-CA-[ENV]EWL-LAK-AN-006
ug/L	Lead by ICP-MS Drinking Water	ME-CA-[ENV]SPE-LAK-AN-006

Carrie Greenlaw
Project Specialist,
Environment, Health & Safety

OnLine LIMS

0002682192

SGS Canada Inc.
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Phone: 705-652-2000 FAX: 705-652-6365

Works #: 220002627

Nov 22 - Inorganics, Organics

09-December-2021

Mun of Arran Elderslie (Tara)
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Date Rec. : 22 November 2021
LR Report: **CA30394-NOV21**

Copy: #1

CERTIFICATE OF ANALYSIS

Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: MAC	6: Half MAC	7: AO/OG	8: MDL	9: TW Tara Well # 2 & 3 POE	10: TW Tara Well # 4 POE	11: DW Distribution-OC Long Subdivision	12: DW Distribution-Cenetaph
Sample Date & Time									22-Nov-21 10:00	22-Nov-21 09:30	22-Nov-21 10:35	22-Nov-21 09:15
Temperature upon Delivery [@ London Lab °C]	---	---	---	---	---	---	---	---	12.1	12.1	12.1	12.1
Temperature Upon Receipt [at Lakefield Lab °C]	---	---	---	---	---	---	---	---	7.0	7.0	7.0	7.0
Nitrite (as N) [mg/L]	24-Nov-21	21:49	29-Nov-21	08:47	1	---	---	0.003	0.003 <MDL	0.003 <MDL	---	---
Nitrate (as N) [mg/L]	24-Nov-21	21:49	29-Nov-21	08:47	10	---	---	0.006	0.074	1.04	---	---
Nitrate + Nitrite (as N) [mg/L]	24-Nov-21	21:49	29-Nov-21	08:47	---	---	---	0.006	0.074	1.04	---	---
Trihalomethanes (total) [ug/L]	25-Nov-21	17:48	26-Nov-21	12:09	100 (RAA)	---	---	0.37	---	---	11	---
Bromodichloromethane [ug/L]	25-Nov-21	17:48	26-Nov-21	12:09	---	---	---	0.26	---	---	3.2	---
Bromoform [ug/L]	25-Nov-21	17:48	26-Nov-21	12:09	---	---	---	0.34	---	---	1.7	---
Chloroform [ug/L]	25-Nov-21	17:48	26-Nov-21	12:09	---	---	---	0.29	---	---	1.6	---
Dibromochloromethane [ug/L]	25-Nov-21	17:48	26-Nov-21	12:09	---	---	---	0.37	---	---	4.2	---
Total Haloacetic Acids (HAA5) [ug/L]	05-Dec-21	10:01	09-Dec-21	13:30	80 (RAA)	---	---	5.3	---	---	---	5.3 <MDL
Chloroacetic Acid [ug/L]	05-Dec-21	10:01	09-Dec-21	13:30	---	---	---	4.7	---	---	---	4.7 <MDL
Bromoacetic Acid [ug/L]	05-Dec-21	10:01	09-Dec-21	13:30	---	---	---	2.9	---	---	---	2.9 <MDL
Dichloroacetic Acid [ug/L]	05-Dec-21	10:01	09-Dec-21	13:30	---	---	---	2.6	---	---	---	2.6 <MDL
Dibromoacetic Acid [ug/L]	05-Dec-21	10:01	09-Dec-21	13:30	---	---	---	2	---	---	---	2.0 <MDL
Trichloroacetic Acid [ug/L]	05-Dec-21	10:01	09-Dec-21	13:30	---	---	---	5.3	---	---	---	5.3 <MDL
Antimony [ug/L]	25-Nov-21	12:30	26-Nov-21	11:25	6	3	---	0.6	0.6 <MDL	0.6 <MDL	---	---
Arsenic [ug/L]	25-Nov-21	12:30	26-Nov-21	11:25	10	5	---	0.2	0.2	0.3	---	---
Barium [ug/L]	25-Nov-21	12:30	26-Nov-21	11:25	1000	500	---	0.02	31.3	47.8	---	---
Boron [ug/L]	25-Nov-21	12:30	26-Nov-21	11:25	5000	2500	---	2	219	44	---	---
Cadmium [ug/L]	25-Nov-21	12:30	26-Nov-21	11:25	5	2.5	---	0.003	0.003 <MDL	0.051	---	---

OnLine LIMS

0002738702

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Works #: 220002627

LR Report : **CA30394-NOV21**

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: MAC	6: Half MAC	7: AO/OG	8: MDL	9: TW Tara Well # 2 & 3 POE	10: TW Tara Well # 4 POE	11: DW Distribution-OC Long Subdivision	12: DW Distribution-Cenetaph
Chromium [ug/L]	25-Nov-21	12:30	26-Nov-21	11:25	50	25	---	0.08	0.11	0.16	---	---
Mercury [ug/L]	25-Nov-21	14:56	29-Nov-21	10:51	1	0.5	---	0.01	0.01 <MDL	0.01 <MDL	---	---
Selenium [ug/L]	25-Nov-21	12:30	26-Nov-21	11:25	50	25	---	0.04	0.04 <MDL	0.12	---	---
Uranium [ug/L]	25-Nov-21	12:30	26-Nov-21	11:25	20	10	---	0.002	0.164	0.795	---	---
Benzene [ug/L]	25-Nov-21	17:48	29-Nov-21	10:56	1	0.5	---	0.32	0.32 <MDL	0.32 <MDL	---	---
Carbon tetrachloride [ug/L]	25-Nov-21	17:48	29-Nov-21	10:56	2	1	---	0.17	0.17 <MDL	0.17 <MDL	---	---
1,2-Dichlorobenzene [ug/L]	25-Nov-21	17:48	29-Nov-21	10:56	200	100	3	0.41	0.41 <MDL	0.41 <MDL	---	---
1,4-Dichlorobenzene [ug/L]	25-Nov-21	17:48	29-Nov-21	10:56	5	2.5	1	0.36	0.36 <MDL	0.36 <MDL	---	---
1,1-Dichloroethylene (vinylidene chloride) [ug/L]	25-Nov-21	17:48	29-Nov-21	10:56	14	7	---	0.33	0.33 <MDL	0.33 <MDL	---	---
1,2-Dichloroethane [ug/L]	25-Nov-21	17:48	29-Nov-21	10:56	5	2.5	---	0.35	0.35 <MDL	0.35 <MDL	---	---
Dichloromethane [ug/L]	25-Nov-21	17:48	29-Nov-21	10:56	50	25	---	0.35	0.35 <MDL	0.35 <MDL	---	---
Monochlorobenzene [ug/L]	25-Nov-21	17:48	29-Nov-21	10:56	80	40	30	0.30	0.3 <MDL	0.3 <MDL	---	---
Tetrachloroethylene (perchloroethylene) [ug/L]	25-Nov-21	17:48	29-Nov-21	10:56	10	5	---	0.35	0.35 <MDL	0.35 <MDL	---	---
Trichloroethylene [ug/L]	25-Nov-21	17:48	29-Nov-21	10:56	5	2.5	---	0.44	0.44 <MDL	0.44 <MDL	---	---
Vinyl Chloride [ug/L]	25-Nov-21	17:48	29-Nov-21	10:56	1	0.5	---	0.17	0.17 <MDL	0.17 <MDL	---	---
Diquat [ug/L]	25-Nov-21	19:37	26-Nov-21	16:47	70	35	---	1	1 <MDL	1 <MDL	---	---
Paraquat [ug/L]	25-Nov-21	19:37	26-Nov-21	16:47	10	5	---	1	1 <MDL	1 <MDL	---	---
Glyphosate [ug/L]	29-Nov-21	15:53	02-Dec-21	06:23	280	140	---	1	1 <MDL	1 <MDL	---	---
Polychlorinated Biphenyls (PCBs) - Total [ug/L]	27-Nov-21	09:49	03-Dec-21	12:31	3	1.5	---	0.04	0.04 <MDL	0.04 <MDL	---	---
Benzo(a)pyrene [ug/L]	26-Nov-21	08:28	03-Dec-21	15:31	0.01	0.005	---	0.004	0.004 <MDL	0.004 <MDL	---	---
Alachlor [ug/L]	26-Nov-21	08:28	03-Dec-21	15:31	5	2.5	---	0.02	0.02 <MDL	0.02 <MDL	---	---
Atrazine + N-dealkylated metabolites [ug/L]	26-Nov-21	08:28	03-Dec-21	15:31	5	2.5	---	0.01	0.01 <MDL	0.01 <MDL	---	---
Atrazine [ug/L]	26-Nov-21	08:28	03-Dec-21	15:31	--	--	---	0.01	0.01 <MDL	0.01 <MDL	---	---
Desethyl atrazine [ug/L]	26-Nov-21	08:28	03-Dec-21	15:31	--	--	---	0.01	0.01 <MDL	0.01 <MDL	---	---
Azinphos-methyl [ug/L]	26-Nov-21	08:28	03-Dec-21	15:31	20	10	---	0.05	0.05 <MDL	0.05 <MDL	---	---
Carbaryl [ug/L]	26-Nov-21	08:28	03-Dec-21	15:31	90	45	---	0.05	0.05 <MDL	0.05 <MDL	---	---
Carbofuran [ug/L]	26-Nov-21	08:28	03-Dec-21	15:31	90	45	---	0.01	0.01 <MDL	0.01 <MDL	---	---
Chlorpyrifos [ug/L]	26-Nov-21	08:28	03-Dec-21	15:31	90	45	---	0.02	0.02 <MDL	0.02 <MDL	---	---
Diazinon [ug/L]	26-Nov-21	08:28	03-Dec-21	15:31	20	10	---	0.02	0.02 <MDL	0.02 <MDL	---	---
Dimethoate [ug/L]	26-Nov-21	08:28	03-Dec-21	15:31	20	10	---	0.06	0.06 <MDL	0.06 <MDL	---	---
Diuron [ug/L]	26-Nov-21	08:28	03-Dec-21	15:31	150	75	---	0.03	0.03 <MDL	0.03 <MDL	---	---
Malathion [ug/L]	26-Nov-21	08:28	03-Dec-21	15:31	190	95	---	0.02	0.02 <MDL	0.02 <MDL	---	---
Metolachlor [ug/L]	26-Nov-21	08:28	03-Dec-21	15:31	50	25	---	0.01	0.01 <MDL	0.01 <MDL	---	---
Metribuzin [ug/L]	26-Nov-21	08:28	03-Dec-21	15:31	80	40	---	0.02	0.02 <MDL	0.02 <MDL	---	---
Phorate [ug/L]	26-Nov-21	08:28	03-Dec-21	15:31	2	1	---	0.01	0.01 <MDL	0.01 <MDL	---	---
Prometryne [ug/L]	26-Nov-21	08:28	03-Dec-21	15:31	1	0.5	---	0.03	0.03 <MDL	0.03 <MDL	---	---

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Works #: 220002627

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Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: MAC	6: Half MAC	7: AO/OG	8: MDL	9: TW Tara Well # 2 & 3 POE	10: TW Tara Well # 4 POE	11: DW Distribution-OC Long Subdivision	12: DW Distribution-Cenetaph
Simazine [ug/L]	26-Nov-21	08:28	03-Dec-21	15:31	10	5	---	0.01	0.01 <MDL	0.01 <MDL	---	---
Terbufos [ug/L]	26-Nov-21	08:28	03-Dec-21	15:31	1	0.5	---	0.01	0.01 <MDL	0.01 <MDL	---	---
Triallate [ug/L]	26-Nov-21	08:28	03-Dec-21	15:31	230	115	---	0.01	0.01 <MDL	0.01 <MDL	---	---
Trifluralin [ug/L]	26-Nov-21	08:28	03-Dec-21	15:31	45	22.5	---	0.02	0.02 <MDL	0.02 <MDL	---	---
2,4-dichlorophenoxyacetic acid (2,4-D) [ug/L]	01-Dec-21	14:54	03-Dec-21	12:17	100	50	---	0.19	0.19 <MDL	0.19 <MDL	---	---
Bromoxynil [ug/L]	01-Dec-21	14:54	03-Dec-21	12:17	5	2.5	---	0.33	0.33 <MDL	0.33 <MDL	---	---
Dicamba [ug/L]	01-Dec-21	14:54	03-Dec-21	12:17	120	60	---	0.20	0.20 <MDL	0.20 <MDL	---	---
Diclofop-methyl [ug/L]	01-Dec-21	14:54	03-Dec-21	12:17	9	4.5	---	0.40	0.40 <MDL	0.40 <MDL	---	---
MCPA [mg/L]	01-Dec-21	14:54	03-Dec-21	12:17	0.1	0.05	---	0.00012	0.00012 <MDL	0.00012 <MDL	---	---
Picloram [ug/L]	01-Dec-21	14:54	03-Dec-21	12:17	190	95	---	1	1 <MDL	1 <MDL	---	---
2,4-dichlorophenol [ug/L]	01-Dec-21	14:54	03-Dec-21	12:17	900	450	0.3	0.15	0.15 <MDL	0.15 <MDL	---	---
2,4,6-trichlorophenol [ug/L]	01-Dec-21	14:54	03-Dec-21	12:17	5	2.5	2	0.25	0.25 <MDL	0.25 <MDL	---	---
2,3,4,6-tetrachlorophenol [ug/L]	01-Dec-21	14:54	03-Dec-21	12:17	100	50	1	0.2	0.20 <MDL	0.20 <MDL	---	---
Pentachlorophenol [ug/L]	01-Dec-21	14:54	03-Dec-21	12:17	60	30	30	0.15	0.15 <MDL	0.15 <MDL	---	---

MAC - Maximum Acceptable Concentration
Half MAC - Half of the Maximum Acceptable Concentration
AO/OG - Aesthetic Objective / Operational Guideline
MDL - SGS Method Detection Limit

Method Descriptions

Units	Description	SGS Method Code
ug/L	VOC wtr	ME-CA-[ENV]GC-LAK-AN-004
ug/L	VOC wtr	ME-CA-[ENV]GC-LAK-AN-004
ug/L	VOC wtr	ME-CA-[ENV]GC-LAK-AN-004
ug/L	VOC wtr	ME-CA-[ENV]GC-LAK-AN-004
ug/L	PACP wtr	ME-CA-[ENV]GC-LAK-AN-003
ug/L	PACP wtr	ME-CA-[ENV]GC-LAK-AN-003
ug/L	PACP wtr	ME-CA-[ENV]GC-LAK-AN-003
ug/L	PACP wtr	ME-CA-[ENV]GC-LAK-AN-003
ug/L	Pest wtr	ME-CA-[ENV]GC-LAK-AN-018
ug/L	Antimony by ICP-MS Drinking Water	ME-CA-[ENV]SPE-LAK-AN-006
ug/L	Arsenic by ICP-MS Drinking Water	ME-CA-[ENV]SPE-LAK-AN-006
ug/L	Pest wtr	ME-CA-[ENV]GC-LAK-AN-018
ug/L	Pest wtr	ME-CA-[ENV]GC-LAK-AN-018
ug/L	Pest wtr	ME-CA-[ENV]GC-LAK-AN-018

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Units	Description	SGS Method Code
ug/L	Barium by ICP-MS Drinking Water	ME-CA-[ENV]SPE-LAK-AN-006
ug/L	VOC wtr - BTEX	ME-CA-[ENV]GC-LAK-AN-004
ug/L	Pest wtr - B(a)P	ME-CA-[ENV]GC-LAK-AN-005
ug/L	Boron by ICP-MS Drinking Water	ME-CA-[ENV]SPE-LAK-AN-006
ug/L	HAA wtr - DW	ME-CA-[ENV]GC-LAK-AN-013
ug/L	VOC wtr - THM	ME-CA-[ENV]GC-LAK-AN-004
ug/L	VOC wtr - THM	ME-CA-[ENV]GC-LAK-AN-004
ug/L	PACP wtr	ME-CA-[ENV]GC-LAK-AN-003
ug/L	Cadmium by ICP-MS Drinking Water	ME-CA-[ENV]SPE-LAK-AN-006
ug/L	Pest wtr	ME-CA-[ENV]GC-LAK-AN-018
ug/L	Pest wtr	ME-CA-[ENV]GC-LAK-AN-018
ug/L	VOC wtr	ME-CA-[ENV]GC-LAK-AN-004
ug/L	HAA wtr - DW	ME-CA-[ENV]GC-LAK-AN-013
ug/L	VOC wtr - THM	ME-CA-[ENV]GC-LAK-AN-004
ug/L	Pest wtr	ME-CA-[ENV]GC-LAK-AN-018
ug/L	Chromium by ICP-MS Drinking Water	ME-CA-[ENV]SPE-LAK-AN-006
ug/L	Pest wtr	ME-CA-[ENV]GC-LAK-AN-018
ug/L	Pest wtr	ME-CA-[ENV]GC-LAK-AN-018
ug/L	HAA wtr - DW	ME-CA-[ENV]GC-LAK-AN-013
ug/L	VOC wtr - THM	ME-CA-[ENV]GC-LAK-AN-004
ug/L	PACP wtr	ME-CA-[ENV]GC-LAK-AN-003
ug/L	HAA wtr - DW	ME-CA-[ENV]GC-LAK-AN-013
ug/L	VOC wtr	ME-CA-[ENV]GC-LAK-AN-004
ug/L	PACP wtr	ME-CA-[ENV]GC-LAK-AN-003
ug/L	Pest wtr	ME-CA-[ENV]GC-LAK-AN-018
ug/L	Diquat by Dionex	ME-CA-[ENV]IC-LAK-AN-005
ug/L	Pest wtr	ME-CA-[ENV]GC-LAK-AN-018
ug/L	Glyphosate by Dionex	ME-CA-[ENV]IC-LAK-AN-003
ug/L	Pest wtr	ME-CA-[ENV]GC-LAK-AN-018
mg/L	PACP wtr	ME-CA-[ENV]GC-LAK-AN-003
ug/L	Hg drinking water by CVAAS	ME-CA-[ENV]SPE-LAK-AN-004
ug/L	Pest wtr	ME-CA-[ENV]GC-LAK-AN-018
ug/L	Pest wtr	ME-CA-[ENV]GC-LAK-AN-018
ug/L	VOC wtr	ME-CA-[ENV]GC-LAK-AN-004
mg/L	Nitrate by Ion Chromatography	ME-CA-[ENV]IC-LAK-AN-001
mg/L	Total Nitrate/Nitrite by Ion Chromatograph	ME-CA-[ENV]IC-LAK-AN-001
mg/L	Nitrite by Ion Chromatography	ME-CA-[ENV]IC-LAK-AN-001
ug/L	Paraquat by Dionex	ME-CA-[ENV]IC-LAK-AN-005
ug/L	PACP wtr	ME-CA-[ENV]GC-LAK-AN-003
ug/L	Pest wtr	ME-CA-[ENV]GC-LAK-AN-018
ug/L	PACP wtr	ME-CA-[ENV]GC-LAK-AN-003
ug/L	PCB wtr	ME-CA-[ENV]GC-LAK-AN-001
ug/L	Pest wtr	ME-CA-[ENV]GC-LAK-AN-018
ug/L	Selenium by ICP-MS Drinking Water	ME-CA-[ENV]SPE-LAK-AN-006
ug/L	Pest wtr	ME-CA-[ENV]GC-LAK-AN-018
ug/L	Pest wtr	ME-CA-[ENV]GC-LAK-AN-018
ug/L	VOC wtr	ME-CA-[ENV]GC-LAK-AN-004
ug/L	HAA wtr - DW	ME-CA-[ENV]GC-LAK-AN-013

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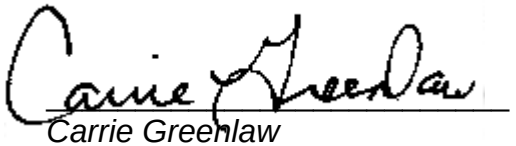
Units	Description	SGS Method Code
ug/L	Pest wtr	ME-CA-[ENV]GC-LAK-AN-018
ug/L	HAA wtr - DW	ME-CA-[ENV]GC-LAK-AN-013
ug/L	VOC wtr	ME-CA-[ENV]GC-LAK-AN-004
ug/L	Pest wtr	ME-CA-[ENV]GC-LAK-AN-018
ug/L	VOC wtr - THM	ME-CA-[ENV]GC-LAK-AN-004
ug/L	Uranium by ICP-MS Drinking Water	ME-CA-[ENV]SPE-LAK-AN-006
ug/L	VOC wtr	ME-CA-[ENV]GC-LAK-AN-004



Carrie Greenlaw
Project Specialist,
Environment, Health & Safety

OnLine LIMS

0002738702

APPENDIX D

MECP INSPECTION REPORT

Ministry of the Environment, Conservation and Parks

Drinking Water and Environmental Compliance Division

Owen Sound District Office
101 17th St. E., 3rd Floor
Owen Sound ON N4K 0A5

Ministère de l'Environnement, de la Protection de la nature et des Parcs

Division de la conformité en matière d'eau potable et d'environnement

Bureau du district de Owen Sound
101, 17e rue Est, 3e étage
Owen Sound ON N4K 0A5

Ontario

July 27, 2021

Sent by Email: cao@arran-elderslie.ca

Municipality of Arran-Elderslie
1925 Bruce County Road 10
Chesley, Ontario
N0G 1L0

Attention: Mr. Bill Jones
CAO/Clerk

Re: 2021/2022 Inspection Report
Tara Drinking Water System
Municipal Drinking Water Licence 079-101, Issue 4
Drinking Water Works Permit 079-201, Issue 5

Thank-you for your cooperation as we continue to work through an altered inspection process due to restrictions surrounding COVID this year. The enclosed report documents findings of the inspection on May 13, 2021. Please note that due to a change in IT systems, the Inspection Rating Report (IRR) cannot be generated at the same time as the inspection report. The IRR will be sent separately and prior to any public release.

Two sections of the report, namely "Actions Required" and "Recommended Actions", specify due dates for the submission of information or plans to my attention. Please note that "Actions Required" are linked to incidents of non-compliance with regulatory requirements contained within an Act, a Regulation, or site-specific approvals, orders or instructions; "Recommended Actions" convey information that the owner or operating authority should consider implementing in order to conform with existing and emerging industry standards.

The report includes an Inspection Summary Rating Record as an appendix. This record forms part of the ministry's comprehensive, risk-based inspection process. The rating provides a quantitative measure of the inspection results for this specific drinking water system for the reporting year. An inspection rating that is less than 100 per cent does not mean that the drinking water from the system is unsafe. The primary goals of this assessment are to encourage ongoing improvement of drinking water systems and to measure this progress from year to year.

I would like to remind you that Section 19 of the Safe Drinking Water Act, 2002 (Standard of Care) creates a number of obligations for individuals who exercise decision-making authority over municipal drinking water systems, including members of municipal councils. "Taking Care of Your Drinking Water: A guide for members of municipal council", a publication found on the Drinking Water Ontario website (http://www.ontario.ca/environment-and-energy/municipal-drinking-water-systems-licencing-registration-and-permits), provides further information about these obligations.

Should you have any questions regarding the content of the enclosed report, please do not hesitate to contact me.

Yours truly,

Rhonda Shannon
Water Compliance Inspector
Phone: 226-668-5873
e-mail: Rhonda.shannon@ontario.ca

Enclosure

ec: Dr. Ian Arra, Medical Officer of Health, Grey-Bruce Health Unit
Scott McLeod, Public Works Manager, Municipality of Arran-Elderslie
Mark O'Leary, Water/Sewer Foreman, Municipality of Arran-Elderslie
Nancy Guest, Administrative Assistant, Source Protection Program Branch
Mark Smith, Water Compliance Supervisor, Ministry of Environment, Conservation and Parks

c: File SI-BR-AE-RI-540 (2021)

TARA DRINKING WATER SYSTEM
217 RIVER ST, ARRAN-ELDERSLIE, ON, N0H 2N0

Inspection Report

System Number:	220002627
Inspection Start Date:	05/13/2021
Inspection End Date:	07/27/2021
Inspected By:	Rhonda Shannon
Badge #:	

(signature)

NON-COMPLIANCE/NON-CONFORMANCE ITEMS

This should not be construed as a confirmation of full compliance with all potential applicable legal requirement and BMPs. These inspection findings are limited to the components and/or activities that were assessed, and the legislative framework(s) that were applied. It remains the responsibility of the owner to ensure compliance with all applicable legislative and regulatory requirements.

If you have any questions related to this inspection, please contact the undersigned Provincial Officer.

INSPECTION DETAILS

This section includes all questions that were assessed during the inspection.

Ministry Program: Regulated Activity: DRINKING WATER : DW Municipal Residential

Question ID	MRDW1001000	
Question	**Question Type**	**Legislative Requirement**
What was the scope of this inspection?	Information	Not Applicable

Observation

The primary focus of this inspection is to confirm compliance with Ministry of the Environment, Conservation and Parks (MECP) legislation as well as evaluating conformance with ministry drinking water policies and guidelines during the inspection period. The ministry utilizes a comprehensive, multi-barrier approach in the inspection of water systems that focuses on the source, treatment, and distribution components as well as management practices.

This drinking water system is subject to the legislative requirements of the Safe Drinking Water Act, 2002 (SDWA) and regulations made therein, including Ontario Regulation 170/03, "Drinking Water Systems" (O.Reg. 170/03). This inspection has been conducted pursuant to Section 81 of the SDWA.

This inspection report does not suggest that all applicable legislation and regulations were evaluated. It remains the responsibility of the owner to ensure compliance with all applicable legislative and regulatory requirements. A drinking water system audit was conducted on May 13, 2021 at the Tara drinking water facility to assess compliance with Ministry legislation and guidelines.

The Municipality of Arran-Elderslie owns and operates this facility, consisting of 3 pump houses in Tara, Ontario; Pumphouse #2 at 59 Market Street, Pumphouse #3 at 217 River Street and Pumphouse #4 at 158 Yonge Street North. There are currently 476 connections with approximately 1032 people served by these facilities.

This inspection covers the time period of May 1, 2020 to May 10, 2021 and includes a review of Ministry files, plant operating data and a detailed assessment of compliance with the terms and conditions of all MECP authorizing documents.

The physical inspection was conducted with Mark O'Leary, Water and Wastewater Foreman for the system and included a tour of all three (3) wells and the Tara standpipe.

Question ID	MRDW1000000	
Question	**Question Type**	**Legislative Requirement**
Does this drinking water system provide primary disinfection?	Information	Not Applicable

Observation
This Drinking Water System provides for both primary and secondary disinfection and distribution of water. Primary disinfection is achieved through chlorination (Well #2 and Well #4) to meet a 2-log inactivation of viruses for this facility and cartridge filtration/UV/chlorination (Well #3) to meet a 4-log inactivation of viruses, as required in Schedule E of Licence #079-101, Issue No. 3. Both Well #2 and #4 are considered groundwater sources while Well #3 is considered to be a GUDI source.

Question ID	MRDW1007000		
Question		**Question Type**	**Legislative Requirement**
Is the owner maintaining the production well(s) in a manner sufficient to prevent entry into the well of surface water and other foreign materials?		Legislative	SDWA | O. Reg. 170/03 | 1-2 | (1)
Observation			
The owner was maintaining the production well(s) in a manner sufficient to prevent entry into the well of surface water and other foreign materials. Production wells #2 and #4 are located within a concrete, locked pump house with keys only available to municipal staff. At the time of the inspection both wells appeared to be well-maintained with no evidence of corrosion, holes or voids in the pump house floor. Well #3 is located outside of the Well #3 pump house in a well maintained, pad-locked concrete well tile. The well casing is secured with a vermin-proof cap that is also locked. Weekly inspections of all the wells were reported, along with all preventative maintenance activities. Sampling of raw water over the last year showed no total coliform results in Well #2 and Well #4 but nineteen (19) results of total coliform presence in Well #3 (1 to 8 cfu/100 mL). In the previous five (5) years there were a minimal number of positive total coliform results in Wells #2 and #4 but seventy-eight (78) results of total coliform presence in Well #3 (1 to 300 cfu/100 mL). There were no results showing the presence of E.coli in any of the wells during this time period. It is recommended that the Municipality monitor trending in Well #3 to ensure the integrity of the source water.			

Question ID	MRDW1009000		
Question		**Question Type**	**Legislative Requirement**
Are measures in place to protect the groundwater and/or GUDI source in accordance with any MDWL and DWWP issued under Part V of the SDWA?		Legislative	SDWA | 31 | (1)
Observation			
Measures were in place to protect the groundwater and/or GUDI source in accordance with any the Municipal Drinking Water Licence and Drinking Water Works Permit issued under Part V of the SDWA. Process map diagrams from April 2009 remain current for all 3 source wells as well as Tara standpipe and are available at the municipal office, Well #3, in the Operations Manual and in Schedule D of the Drinking Water Works Permit. As well, the Operations Manual (OM) and Emergency Response Plan (ERP) includes the following procedures:			

- Chemical Spills, Pumphouses (SOP 14)
- General/Daily/Weekly/Monthly Duties (Section 2.0 of OM)
- Aquifer Contamination (ERP 1)
- Clear Well/Standpipe Contamination (ERP 2)
- Flooding (ERP 3)
- Maintenance Visits and Inspection Procedures (Appendix D, OM)
- Well Inspection and Maintenance Plan (Appendix E, OM)

All Standard Operating Procedures, Emergency Response Plans and the Operations Manual are reviewed by administration every 2 years as part of the Municipality's internal policy.

Question ID	MRDW1014000	
Question	**Question Type**	**Legislative Requirement**
Is there sufficient monitoring of flow as required by the MDWL or DWWP issued under Part V of the SDWA?	Legislative	SDWA | 31 | (1)
Observation		
There was sufficient monitoring of flow as required by the Municipal Drinking Water Licence or Drinking Water Works Permit issued under Part V of the SDWA. Flows are measured prior to contact time and prior to water being directed to the distribution system. by Endress Hauser flow meters.		

Question ID	MRDW1016000	
Question	**Question Type**	**Legislative Requirement**
Is the owner in compliance with the conditions associated with maximum flow rate or the rated capacity conditions in the MDWL issued under Part V of the SDWA?	Legislative	SDWA | 31 | (1)
Observation		
The owner was in compliance with the conditions associated with maximum flow rate or the rated capacity conditions in the Municipal Drinking Water Licence issued under Part V of the SDWA. The rated capacity for this system is 426 m3/day for Well #2, 458 m3/day for Well #3 and 852 m3/day for Well #4 as authorized under the DWS Licence No. 079-101, Issue 3. There were no flow exceedences nor flow monitoring anomalies found in the data reviewed. The maximum flow rated occurred in April 2021 with a combined flow of 853 cubic metres of water used, which represents approximately 49% of the total combined rated capacity allowed in the Licence.		

Question ID	MRDW1030000	
Question	**Question Type**	**Legislative Requirement**
Is primary disinfection chlorine monitoring being conducted	Legislative	SDWA | O. Reg.

at a location approved by MDWL and/or DWWP issued under Part V of the SDWA, or at/near a location where the intended CT has just been achieved?		170/03 | 7-2 | (1), SDWA | O. Reg. 170/03 | 7-2 | (2)
Observation		
Primary disinfection chlorine monitoring was conducted at a location approved by Municipal Drinking Water Licence and/or Drinking Water Works Permit issued under Part V of the SDWA, or at/near a location where the intended CT has just been achieved.		

Question ID	MRDW1033000	
Question	**Question Type**	**Legislative Requirement**
Is the secondary disinfectant residual measured as required for the large municipal residential distribution system?	Legislative	SDWA | O. Reg. 170/03 | 7-2 | (3), SDWA | O. Reg. 170/03 | 7-2 | (4)
Observation		
The secondary disinfectant residual was measured as required for the distribution system. According to logsheets provided, chlorine residuals in the distribution system were greater than 0.05 mg/L free chlorine at all times during the inspection period reviewed.		

Question ID	MRDW1037000	
Question	**Question Type**	**Legislative Requirement**
Are all continuous monitoring equipment utilized for sampling and testing required by O. Reg.170/03, or MDWL or DWWP or order, equipped with alarms or shut-off mechanisms that satisfy the standards described in Schedule 6?	Legislative	SDWA | O. Reg. 170/03 | 6-5 | (1) 1-4,SDWA | O. Reg. 170/03 | 6-5 | (1)5-10,SDWA | O. Reg. 170/03 | 6-5 | (1.1)
Observation		
All continuous monitoring equipment utilized for sampling and testing required by O. Reg.170/03, or Municipal Drinking Water Licence or Drinking Water Works Permit or order, were equipped with alarms or shut-off mechanisms that satisfy the standards described in Schedule 6. The alarm set-points on the continuous chlorine monitors are currently set at: • Well #2 - 0.75 mg/L (low) and 3.0 mg/L (high) • Well #3 – 0.75 mg/L (low) and 3.0 mg/L (high) • Well #4 – 0.75 mg/L (low) and 3.0 mg/L (high) Alarms are directed through a dialer to the on-call pager, followed by a sequential dial out of alternate numbers. The alarm setpoints for turbidity are 1.0 NTU and 30 mJ for each UV unit.		

Question ID	MRDW1038000

Question	Question Type	Legislative Requirement
Is continuous monitoring equipment that is being utilized to fulfill O. Reg. 170/03 requirements performing tests for the parameters with at least the minimum frequency specified in the Table in Schedule 6 of O. Reg. 170/03 and recording data with the prescribed format?	Legislative	SDWA | O. Reg. 170/03 | 6-5 | (1) 1-4
Observation		
Continuous monitoring equipment that was being utilized to fulfill O. Reg. 170/03 requirements was performing tests for the parameters with at least the minimum frequency specified in the Table in Schedule 6 of O. Reg. 170/03 and recording data with the prescribed format.		

Question ID	MRDW1039000		
Question		**Question Type**	**Legislative Requirement**
If primary disinfection equipment that does not use chlorination or chloramination is provided, has the owner and operating authority ensured that the equipment has a recording device that continuously records the performance of the disinfection equipment?		Legislative	SDWA | O. Reg. 170/03 | 1-6 | (3)
Observation			
The owner and operating authority ensured that the primary disinfection equipment had a recording device that continuously recorded the performance of the disinfection equipment. UV intensity is recorded daily and transmittance recorded weekly on logsheets. The minimum required continuous pass-through dose remains at 24 mJ, which is validated to be equivalent to 40 mJ/cm2.			

Question ID	MRDW1042000		
Question		**Question Type**	**Legislative Requirement**
If UV disinfection is used were duty sensors and reference UV sensors checked and calibrated as per the requirements of Schedule E of the MDWL or at a frequency as otherwise recommended by the UV equipment manufacturer?		Legislative	SDWA | 31 | (1)
Observation			
All UV sensors were checked and calibrated as required. Schedule E of the MDWL requires that the UV sensors be checked on a monthly basis against a reference UV sensor and have a calibration ratio less than or equal to 1.2. As well, the UV reference sensors are required to be validated against a Master Reference Assembly once every three years. Monthly reference checks were found to be done during the time period reviewed and both sensors were checked against the Master Assembly on February 13, 2020. New sensors were purchased at this time.			

Question ID	MRDW1035000		
Question		**Question**	**Legislative**

	Type	Requirement
Are operators examining continuous monitoring test results and are they examining the results within 72 hours of the test?	Legislative	SDWA | O. Reg. 170/03 | 6-5 | (1) 1-4,SDWA | O. Reg. 170/03 | 6-5 | (1)5-10

Observation

Operators were examining continuous monitoring test results and they were examining the results within 72 hours of the test. Continuous monitoring results are reviewed daily.

Question ID	MRDW1040000

Question	Question Type	Legislative Requirement
Are all continuous analysers calibrated, maintained, and operated, in accordance with the manufacturer's instructions or the regulation?	Legislative	SDWA | O. Reg. 170/03 | 6-5 | (1) 1-4,SDWA | O. Reg. 170/03 | 6-5 | (1)5-10

Observation

All continuous analysers were calibrated, maintained, and operated, in accordance with the manufacturer's instructions or the regulation. Well #2, #3 and #4 flow meters were calibrated and passed calibration standards on April 6, 2021 by Tower Electronics Canada. Verification of the online chlorine analyzers are completed weekly with a hand held HACH colorimeter. Handheld colorimeters are calibrated annually by Nichol Water Services and were last calibrated on February 23, 2021. Trending of these weekly verifications is monitored closely to determine maintenance actions.

Verification of the online turbidimeter is conducted weekly. Handheld turbidimeters are also calibrated annually by Nichol Water Services and were last calibrated on February 23, 2021.

Question ID	MRDW1108000

Question	Question Type	Legislative Requirement
Where continuous monitoring equipment used for the monitoring of free chlorine residual, total chlorine residual, combined chlorine residual or turbidity, required by Regulation 170, an Order, MDWL, or DWWP issued under Part V, SDWA, has triggered an alarm or an automatic shut-off, did a qualified person respond in a timely manner and take appropriate actions?	Legislative	SDWA | O. Reg. 170/03 | 6-5 | (1) 1-4,SDWA | O. Reg. 170/03 | 6-5 | (1)5-10,SDWA | O. Reg. 170/03 | 6-5 | (1.1)

Observation

Where required continuous monitoring equipment used for the monitoring of chlorine residual and/or turbidity triggered an alarm or an automatic shut-off, a qualified person responded in a timely manner and took appropriate actions. A review of logbook entries for this inspection time period indicates that appropriate actions and timelines were followed.

Question ID	MRDW1109000	
Question	**Question Type**	**Legislative Requirement**
If the system uses equipment for primary disinfection other than chlorination or chloramination and the equipment has malfunctioned, lost power or ceased to provide the appropriate level of disinfection, causing an alarm or an automatic shut-off, did a qualified person respond in a timely manner and take appropriate actions?	Legislative	SDWA | O. Reg. 170/03 | 1-6 | (1)
Observation		
When the primary disinfection equipment, other than that used for chlorination or chloramination, has failed causing an alarm to sound or an automatic shut-off to occur, a certified operator responded in a timely manner and took appropriate actions. A review of logbook entries for this inspection time period indicates that appropriate actions and timelines were followed.		

Question ID	MRDW1018000	
Question	**Question Type**	**Legislative Requirement**
Has the owner ensured that all equipment is installed in accordance with Schedule A and Schedule C of the Drinking Water Works Permit?	Legislative	SDWA | 31 | (1)
Observation		
The owner had ensured that all equipment was installed in accordance with Schedule A and Schedule C of the Drinking Water Works Permit.		

Question ID	MRDW1021000	
Question	**Question Type**	**Legislative Requirement**
Is the owner/operating authority able to demonstrate that, when required during the inspection period, Form 2 documents were prepared in accordance with their Drinking Water Works Permit?	Legislative	SDWA | 31 | (1)
Observation		
The owner/operating authority was in compliance with the requirement to prepare Form 2 documents as required by their Drinking Water Works Permit during the inspection period. One (1) Form 2 was utilized during this inspection period. The wet-end pump at the well site was replaced on June 3, 2020.		

Question ID	MRDW1023000	
Question	**Question Type**	**Legislative Requirement**
Do records indicate that the treatment equipment was	Legislative	SDWA | O. Reg.

operated in a manner that achieved the design capabilities required under Ontario Regulation 170/03 or a DWWP and/or MDWL issued under Part V of the SDWA at all times that water was being supplied to consumers?		170/03 | 1-2 | (2)
Observation		
Records indicated that the treatment equipment was operated in a manner that achieved the design capabilities required under Ontario Regulation 170/03 or a Drinking Water Works Permit and/or Municipal Drinking Water Licence issued under Part V of the SDWA at all times that water was being supplied to consumers. The minimum CT necessary to meet a 2-log inactivation of viruses for Well #2 and Well #3 as well as a 4-log inactivation of viruses in Well #4 has been determined to be 3.0 mg/l*min. (Calculations available in Appendix G of the OM) This has an equivalent minimum chlorine residual of 0.14 mg/L for Well #2, 0.21 mg/L for Well #3 and 0.52 mg/L for Well #4 necessary to achieve primary disinfection. UV equipment must provide a minimum dosage of 40 mJ/cm2 at 11.37 L/min to meet primary disinfection requirements for Well #3. Based on the records reviewed, this facility met current primary treatment requirements at all times during this inspection period.		

Question ID	MRDW1024000	
Question	**Question Type**	**Legislative Requirement**
Do records confirm that the water treatment equipment which provides chlorination or chloramination for secondary disinfection purposes was operated so that at all times and all locations in the distribution system the chlorine residual was never less than 0.05 mg/l free or 0.25 mg/l combined?	Legislative	SDWA | O. Reg. 170/03 | 1-2 | (2)
Observation		
Records confirmed that the water treatment equipment which provides chlorination or chloramination for secondary disinfection purposes was operated so that at all times and all locations in the distribution system the chlorine residual was never less than 0.05 mg/l free or 0.25 mg/l combined. According to logsheets provided, chlorine residuals in the distribution system were greater than 0.05 mg/L free chlorine at all times during the inspection period reviewed.		

Question ID	MRDW1025000	
Question	**Question Type**	**Legislative Requirement**
Were all parts of the drinking water system that came in contact with drinking water (added, modified, replaced or extended) disinfected in accordance with a procedure listed in Schedule B of the Drinking Water Works Permit?	Legislative	SDWA | 31 | (1)
Observation		
All parts of the drinking water system were disinfected in accordance with a procedure listed in Schedule B of the Drinking Water Works Permit. It was reported that the disinfection guidelines		

outlined in Schedule B, Section 2.3 of Drinking Water Works Permit 079-201, Issue 4 are followed. All pertinent AWWA Standards are outlined in Appendix F of the OM as well.

Question ID	MRDW1026000		
Question		**Question Type**	**Legislative Requirement**
If primary disinfection equipment that does not use chlorination or chloramination is provided, is the equipment equipped with alarms or shut-off mechanisms that satisfy the standards described in Section 1-6 (1) of Schedule 1 of Ontario Regulation 170/03?		Legislative	SDWA | O. Reg. 170/03 | 1-6 | (1)
Observation			
The primary disinfection equipment was equipped with alarms or shut-off mechanisms that satisfied the standards described in Section 1-6 (1) of Schedule 1 of Ontario Regulation 170/03. There are two (2) Trojan UVSwift UV reactors that are run with a manual switch over. Each reactor is equipped with an on-line intensity UV alarm and a shut off so that no water is directed to users upon alarm conditions. The current alarm setpoint for each reactor remain at 30 mj; an intensity of 24 mj is required to meet the equivalent of 40 mj/cm2.			

Question ID	MRDW1062000		
Question		**Question Type**	**Legislative Requirement**
Do records or other record keeping mechanisms confirm that operational testing not performed by continuous monitoring equipment is being done by a certified operator, water quality analyst, or person who meets the requirements of O. Reg. 170/03 7-5?		Legislative	SDWA | O. Reg. 170/03 | 7-5
Observation			
Records or other record keeping mechanisms confirmed that operational testing not performed by continuous monitoring equipment was being done by a certified operator, water quality analyst, or person who suffices the requirements of O. Reg. 170/03 7-5. The logbook entries reviewed show that only certified Operators conducted operational testing at this facility during the time period reviewed.			

Question ID	MRDW1060000		
Question		**Question Type**	**Legislative Requirement**
Do the operations and maintenance manuals meet the requirements of the DWWP and MDWL issued under Part V of the SDWA?		Legislative	SDWA | 31 | (1)
Observation			
The operations and maintenance manuals met the requirements of the Drinking Water Works Permit and Municipal Drinking Water Licence issued under Part V of the SDWA. The Operations Manual appears to be current and comprehensive. Review of the manual is done every			

two (2) years and was last completed in 2020. DWQMS review, including contingency and ERP's, was last done in April 2021.

Question ID	MRDW1071000	
Question	**Question Type**	**Legislative Requirement**
Has the owner provided security measures to protect components of the drinking water system?	BMP	Not Applicable
Observation		
The owner had provided security measures to protect components of the drinking water system.		

Question ID	MRDW1073000	
Question	**Question Type**	**Legislative Requirement**
Has the overall responsible operator been designated for all subsystems which comprise the drinking water system?	Legislative	SDWA | O. Reg. 128/04 | 23 | (1)
Observation		
The overall responsible operator has been designated for each subsystem. ORO services are currently provided by GSS Engineering Consultants Ltd. It is anticipated that ORO services will be provided by the Municipality after July 2021.		

Question ID	MRDW1074000	
Question	**Question Type**	**Legislative Requirement**
Have operators in charge been designated for all subsystems for which comprise the drinking water system?	Legislative	SDWA | O. Reg. 128/04 | 25 | (1)
Observation		
Operators-in-charge had been designated for all subsystems which comprised the drinking water system. The OIC is designated as the operator on-call for that time period. The schedule is maintained at the municipal office.		

Question ID	MRDW1075000	
Question	**Question Type**	**Legislative Requirement**
Do all operators possess the required certification?	Legislative	SDWA | O. Reg. 128/04 | 22
Observation		
All operators possessed the required certification. The Owner is reminded that there are a number of licences that expire in 2021.		

Question ID	MRDW1076000	
Question	**Question**	**Legislative**

	Type	Requirement
Do only certified operators make adjustments to the treatment equipment?	Legislative	SDWA | O. Reg. 170/03 | 1-2 | (2)
Observation		
Only certified operators made adjustments to the treatment equipment. During the time period reviewed, Operators were found to have the appropriate licencing for all recorded actions.		

Question ID	MRDW1099000		
Question		**Question Type**	**Legislative Requirement**
Do records show that all water sample results taken during the inspection review period did not exceed the values of tables 1, 2 and 3 of the Ontario Drinking Water Quality Standards (O. Reg.. 169/03)?		Information	Not Applicable
Observation			
Records showed that all water sample results taken during the inspection review period did not exceed the values of tables 1, 2 and 3 of the Ontario Drinking Water Quality Standards (O.Reg. 169/03).			

Question ID	MRDW1094000		
Question		**Question Type**	**Legislative Requirement**
Are all water quality monitoring requirements imposed by the MDWL and DWWP being met?		Legislative	SDWA | 31 | (1)
Observation			
All water quality monitoring requirements imposed by the MDWL or DWWP issued under Part V of the SDWA were being met.			

Question ID	MRDW1096000		
Question		**Question Type**	**Legislative Requirement**
Do records confirm that chlorine residual tests are being conducted at the same time and at the same location that microbiological samples are obtained?		Legislative	SDWA | O. Reg. 170/03 | 6-3 | (1)
Observation			
Records confirmed that chlorine residual tests were being conducted at the same time and at the same location that microbiological samples were obtained.			

Question ID	MRDW1081000		
Question		**Question Type**	**Legislative Requirement**
Are all microbiological water quality monitoring requirements for distribution samples being met?		Legislative	SDWA | O. Reg. 170/03 | 10-2 |

		(1),SDWA | O. Reg. 170/03 | 10-2 | (2),SDWA | O. Reg. 170/03 | 10-2 | (3)

Observation

All microbiological water quality monitoring requirements for distribution samples were being met. Distribution samples were found to be taken weekly with a total of either 9 or 10 samples taken during each month of the time period reviewed. Based on population there are 9 distribution samples required monthly to meets the requirements outlined in O.Reg. 170/03.

All samples were analyzed for the required total coliforms, E.coli. Heterotrophic plate counts were taken in at least 25% of samples for all months with the exception of August 2020, when there was slightly less than 25 %. The Operating Authority is reminded to ensure the 25% requirement is continually met.

Question ID	MRDW1083000	
Question	**Question Type**	**Legislative Requirement**
Are all microbiological water quality monitoring requirements for treated samples being met?	Legislative	SDWA | O. Reg. 170/03 | 10-3

Observation

All microbiological water quality monitoring requirements for treated samples were being met. Microbial samples were found to be taken weekly during the time period reviewed and analyzed for total coliform, E.coli and heterotrophic plate count.

Question ID	MRDW1084000	
Question	**Question Type**	**Legislative Requirement**
Are all inorganic water quality monitoring requirements prescribed by legislation conducted within the required frequency?	Legislative	SDWA | O. Reg. 170/03 | 13-2

Observation

All inorganic water quality monitoring requirements prescribed by legislation were conducted within the required frequency. Inorganic sampling for parameters of Schedule 23, O.Reg. 170 is required every thirty-six (36) months for groundwater sources and every twelve (12) months for GUDI sources. The most current sample event occurred on November 23, 2020 from Well #2 and #3 and November 19, 2018 from Well #4. All sample results were within the prescribed limits.

The next sample event required will be November 2021 from Well #2, #3 and Well #4.

Question ID	MRDW1085000	
Question	**Question Type**	**Legislative Requirement**

Are all organic water quality monitoring requirements prescribed by legislation conducted within the required frequency?	Legislative	SDWA | O. Reg. 170/03 | 13-4 | (1),SDWA | O. Reg. 170/03 | 13-4 | (2),SDWA | O. Reg. 170/03 | 13-4 | (3)

Observation

All organic water quality monitoring requirements prescribed by legislation were conducted within the required frequency. Organic sampling for parameters of Schedule 23, O.Reg. 170 is required every thirty-six (36) months for groundwater sources and every twelve (12) months for GUDI sources. The most current sample event occurred on November 23, 2020 from Well #2 and #3 and November 19, 2018 from Well #4. All sample results were within the prescribed limits.

The next sample event required will be November 2021 from Well #2, #3 and Well #4.

Question ID	MRDW1086000	
Question	**Question Type**	**Legislative Requirement**
Are all haloacetic acid water quality monitoring requirements prescribed by legislation conducted within the required frequency and at the required location?	Legislative	SDWA | O. Reg. 170/03 | 13-6.1 | (1),SDWA | O. Reg. 170/03 | 13-6.1 | (2),SDWA | O. Reg. 170/03 | 13-6.1 | (3), SDWA | O. Reg. 170/03 | 13-6.1 | (4),SDWA | O. Reg. 170/03 | 13-6.1 | (5),SDWA | O. Reg. 170/03 | 13-6.1 | (6)

Observation

All haloacetic acid water quality monitoring requirements prescribed by legislation are being conducted within the required frequency and at the required location. Haloacetic acid (HAA) monitoring is being conducted in conjunction with THM sampling; the following were the sample dates within this time period reviewed.
- May 19, 2020 (5.3 ug/L)
- August 24, 2020 (5.3 ug/L),
- November 23, 2020 (5.3 ug/L), and
- February 8, 2021 (5.3 ug/L).

The Ontario Drinking Water Quality Standard (ODWQS) for haloacetic acids came into force on January 1, 2020 and is expressed as a running annual average of quarterly results. The current rolling average is 5.3 ug/L, which is the laboratory detection limit and below the ODWQS of 80

ug/L.

Question ID	MRDW1087000		
Question		**Question Type**	**Legislative Requirement**
Have all trihalomethane water quality monitoring requirements prescribed by legislation been conducted within the required frequency and at the required location?		Legislative	SDWA | O. Reg. 170/03 | 13-6 | (1)
Observation			
All trihalomethane water quality monitoring requirements prescribed by legislation were conducted within the required frequency and at the required location. Trihalomethanes were sampled on the following dates within the time period reviewed: - May 19, 2020 (14 ug/L) - August 24, 2020 (21 ug/L), - November 23, 2020 (14 ug/L), and - February 8, 2021 (5.8 ug/L). The current rolling average is 13.7 ug/L, which is below the ODWQS of 100 ug/L.			

Question ID	MRDW1088000		
Question		**Question Type**	**Legislative Requirement**
Are all nitrate/nitrite water quality monitoring requirements prescribed by legislation conducted within the required frequency for the DWS?		Legislative	SDWA | O. Reg. 170/03 | 13-7
Observation			
All nitrate/nitrite water quality monitoring requirements prescribed by legislation were conducted within the required frequency for the DWS. Nitrate and nitrite samples were found to be taken every three (3) months from this drinking water system. The sample dates were as follows: - May 19, 2020, - August 24, 2020, - November 23, 2020 and - February 8, 2021.			

Question ID	MRDW1089000		
Question		**Question Type**	**Legislative Requirement**
Are all sodium water quality monitoring requirements prescribed by legislation conducted within the required frequency?		Legislative	SDWA | O. Reg. 170/03 | 13-8
Observation			
All sodium water quality monitoring requirements prescribed by legislation were conducted within the required frequency. Sodium sampling is required every sixty (60) months; the most current sodium sample date was November 18, 2019 with results of 16.8 mg/L at Well #2 & #3			

and 15.7 mg/L at Well #4. These are below the O.Reg. 170/03 reporting limit of 20.0 mg/L.

The Operating Authority is reminded that the next 60-month sample will be required in November 2024.

Question ID	MRDW1090000	
Question	**Question Type**	**Legislative Requirement**
Where fluoridation is not practiced, are all fluoride water quality monitoring requirements prescribed by legislation conducted within the required frequency?	Legislative	SDWA | O. Reg. 170/03 | 13-9

Observation

All fluoride water quality monitoring requirements prescribed by legislation were conducted within the required frequency. Fluoride sampling is required every sixty (60) months. The last sample event reported was on November 18, 2019 with a result of 1.32 mg/L at Well #2 & #3 and 0.57 mg/L at Well #4, which are within the prescribed limits of 1.5 mg/L.

The Operating Authority is reminded that the next 60-month sample will be required in November 2024.

Question ID	MRDW1100000	
Question	**Question Type**	**Legislative Requirement**
Did any reportable adverse/exceedance conditions occur during the inspection period?	Information	Not Applicable

Observation

There were reportable adverse/exceedances during the inpsection period. There was one (1) AWQI reported during this inspection period for a total coliform result of 1 CFU/100 mL at Well #3 on June 10, 2020. Resamples were taken and all resample results show 0 CFU/100 mL for both total coliforms and E.coli.

Question ID	MRDW1101000	
Question	**Question Type**	**Legislative Requirement**
Have corrective actions (as per Schedule 17) been taken to address adverse conditions, including any other steps as directed by the Medical Officer of Health?	Legislative	SDWA | O. Reg. 170/03 | 17-1, SDWA | O. Reg. 170/03 | 17-10 | (1),SDWA | O. Reg. 170/03 | 17-10 | (2),SDWA | O. Reg. 170/03 | 17-11,SDWA | O. Reg. 170/03 | 17-

		12,SDWA | O. Reg. 170/03 | 17-13,SDWA | O. Reg. 170/03 | 17-14,SDWA | O. Reg. 170/03 | 17-2,SDWA | O. Reg. 170/03 | 17-3,SDWA | O. Reg. 170/03 | 17-4,SDWA | O. Reg. 170/03 | 17-5,SDWA | O. Reg. 170/03 | 17-6,SDWA | O. Reg. 170/03 | 17-9
Observation		
Corrective actions (as per Schedule 17) had been taken to address adverse conditions, including any other steps that were directed by the Medical Officer of Health. All required reporting and corrective actions, including instructions from the Medical Officer of Health, occurred within the legislated timeframes.		

Question ID	MRDW1104000	
Question	**Question Type**	**Legislative Requirement**
Were all required verbal notifications of adverse water quality incidents immediately provided as per O. Reg. 170/03 16-6?	Legislative	SDWA | O. Reg. 170/03 | 16-6 | (1),SDWA | O. Reg. 170/03 | 16-6 | (2),SDWA | O. Reg. 170/03 | 16-6 | (3),SDWA | O. Reg. 170/03 | 16-6 | (3.1),SDWA | O. Reg. 170/03 | 16-6 | (3.2), SDWA | O. Reg. 170/03 | 16-6 | (4),SDWA | O. Reg. 170/03 | 16-6 | (5),SDWA | O. Reg. 170/03 | 16-6 | (6)
Observation		
All required notifications of adverse water quality incidents were immediately provided as per O.		

Reg. 170/03 16-6. All required reporting and corrective actions, including instructions from the Medical Officer of Health, occurred within the legislated timeframes.

Question ID	MRDW1059000	
Question	**Question Type**	**Legislative Requirement**
Do the operations and maintenance manuals contain plans, drawings and process descriptions sufficient for the safe and efficient operation of the system?	Legislative	SDWA | O. Reg. 128/04 | 28
Observation		
The operations and maintenance manuals contained plans, drawings and process descriptions sufficient for the safe and efficient operation of the system.		

Question ID	MRDW1061000	
Question	**Question Type**	**Legislative Requirement**
Are logbooks properly maintained and contain the required information?	Legislative	SDWA | O. Reg. 128/04 | 27 | (1), SDWA | O. Reg. 128/04 | 27 | (2), SDWA | O. Reg. 128/04 | 27 | (3), SDWA | O. Reg. 128/04 | 27 | (4), SDWA | O. Reg. 128/04 | 27 | (5), SDWA | O. Reg. 128/04 | 27 | (6), SDWA | O. Reg. 128/04 | 27 | (7)
Observation		
Logbooks were properly maintained and contained the required information.		

Ontario

Ministry of the Environment, Conservation and Parks
Drinking Water Inspection Report

APPENDIX A

STAKEHOLDERS

Key Reference and Guidance Material for Municipal Residential Drinking Water Systems

Many useful materials are available to help you operate your drinking water system. Below is a list of key materials owners and operators of municipal residential drinking water systems frequently use.

To access these materials online click on their titles in the table below or use your web browser to search for their titles. Contact the Ministry if you need assistance or have questions at 1-866-793-2588 or waterforms@ontario.ca.

For more information on Ontario's drinking water visit www.ontario.ca/drinkingwater

PUBLICATION TITLE	PUBLICATION NUMBER
FORMS: Drinking Water System Profile Information Laboratory Services Notification Adverse Test Result Notification	 012-2149E 012-2148E 012-4444E
Taking Care of Your Drinking Water: A Guide for Members of Municipal Councils	Website
Procedure for Disinfection of Drinking Water in Ontario	Website
Strategies for Minimizing the Disinfection Products Trihalomethanes and Haloacetic Acids	Website
Filtration Processes Technical Bulletin	Website
Ultraviolet Disinfection Technical Bulletin	Website
Guide for Applying for Drinking Water Works Permit Amendments, & License Amendments	Website
Certification Guide for Operators and Water Quality Analysts	Website
Guide to Drinking Water Operator Training Requirements	9802E
Community Sampling and Testing for Lead: Standard and Reduced Sampling and Eligibility for Exemption	Website
Drinking Water System Contact List	7128E01
Ontario's Drinking Water Quality Management Standard - Pocket Guide	Website
Watermain Disinfection Procedure	Website
List of Licensed Laboratories	Website

Ontario

Principaux guides et documents de référence sur les réseaux résidentiels municipaux d'eau potable

De nombreux documents utiles peuvent vous aider à exploiter votre réseau d'eau potable. Vous trouverez ci-après une liste de documents que les propriétaires et exploitants de réseaux résidentiels municipaux d'eau potable utilisent fréquemment. Pour accéder à ces documents en ligne, cliquez sur leur titre dans le tableau ci-dessous ou faites une recherche à l'aide de votre navigateur Web. Communiquez avec le ministère au 1-866-793-2588, ou encore à waterforms@ontario.ca si vous avez des questions ou besoin d'aide.

Pour plus de renseignements sur l'eau potable en Ontario, consultez le site www.ontario.ca/eaupotable

TITRE DE LA PUBLICATION	NUMÉRO DE PUBLICATION
Renseignements sur le profil du réseau d'eau potable Avis de demande de services de laboratoire Avis de résultats d'analyse insatisfaisants et de règlement des problèmes	012-2149F 012-2148F 012-4444F
Prendre soin de votre eau potable - Un guide destiné aux membres des conseils municipaux	Site Web
Marche à suivre pour désinfecter l'eau portable en Ontario	Site Web
Stratégies pour minimiser les trihalométhanes et les acides haloacétiques de sous-produits de désinfection	Site Web
Filtration Processes Technical Bulletin (en anglais seulement)	Site Web
Ultraviolet Disinfection Technical Bulletin (en anglais seulement)	Site Web
Guide de présentation d'une demande de modification du permis d'aménagement de station de production d'eau potable	Site Web
Guide sur l'accréditation des exploitants de réseaux d'eau potable et des analystes de la qualité de l'eau de réseaux d'eau potable	Site Web
Guide sur les exigences relatives à la formation des exploitants de réseaux d'eau potable	9802F
Échantillonnage et analyse du plomb dans les collectivités : échantillonnage normalisé ou réduit et admissibilité à l'exemption	Site Web
Liste des personnes-ressources du réseau d'eau potable	Site Web
L'eau potable en Ontario - Norme de gestion de la qualité - Guide de poche	Site Web
Procédure de désinfection des conduites principales	Site Web
Laboratoires autorisés	Site Web

Ontario

APPENDIX E

MUNICIPAL DRINKING WATER LICENSE AND DRINKING WATER WORKS PERMITS

Ontario

MUNICIPAL DRINKING WATER LICENCE

Licence Number: 079-101
Issue Number: 4

Pursuant to the *Safe Drinking Water Act*, 2002, S.O. 2002, c. 32, and the regulations made thereunder and subject to the limitations thereof, I hereby issue this municipal drinking water licence under Part V of the *Safe Drinking Water Act*, 2002, S.O. 2002, c. 32 to:

The Corporation of the Municipality of Arran-Elderslie

PO Box 70
1925 Bruce Road #10
Chesley ON N0G 1L0

For the following municipal residential drinking water system:

Tara Drinking Water System

This municipal drinking water licence includes the following:

Schedule	Description
Schedule A	Drinking Water System Information
Schedule B	General Conditions
Schedule C	System-Specific Conditions
Schedule D	Conditions for Relief from Regulatory Requirements
Schedule E	Pathogen Log Removal/Inactivation Credits

Upon the effective date of this drinking water licence # 079-101, all previously issued versions of licence # 079-101 are revoked and replaced by this licence.

DATED at TORONTO this 8th day of January, 2021

Signature

Aziz Ahmed, P.Eng.
Director
Part V, *Safe Drinking Water Act*, 2002

Schedule A: Drinking Water System Information

System Owner	**The Corporation of the Municipality of Arran-Elderslie**
Licence Number	**079-101**
Drinking Water System Name	**Tara Drinking Water System**
Licence Effective Date	**January 8th, 2021**

1.0 Licence Information

Licence Issue Date	January 8th, 2021
Licence Effective Date	January 8th, 2021
Licence Expiry Date	2026-01-06
Application for Licence Renewal Date	2025-07-07

2.0 Incorporated Documents

The following documents are applicable to the above drinking water system and form part of this licence:

2.1 Drinking Water Works Permit

Drinking Water System Name	Permit Number	Issue Date
Tara Drinking Water System	079-201	January 8th, 2021

2.2 Permits to Take Water

Water Taking Location	Permit Number	Issue Date
Well No. 2, Well No. 3, Well No. 4	0033-BAGSCC	April 12, 2019

2.3 Other Documents

Document Title	Version Number	Version Date
N/A	N/A	N/A

3.0 Financial Plans

The Financial Plan Number for the Financial Plan required to be developed for this drinking water system in accordance with O. Reg. 453/07 shall be:	079-301
Alternately, if one Financial Plan is developed for all drinking water systems owned by the owner, the Financial Plan Number shall be:	079-301A

4.0 Accredited Operating Authority

Drinking Water System or Operational Subsystems	Accredited Operating Authority	Operational Plan No.	Operating Authority No.
Tara Drinking Water System	Municipality of Arran-Elderslie	079-401	079-OA1

Schedule B: General Conditions

System Owner	**The Corporation of the Municipality of Arran-Elderslie**
Licence Number	**079-101**
Drinking Water System Name	**Tara Drinking Water System**
Licence Effective Date	**January 8th, 2021**

1.0 Definitions

1.1 Words and phrases not defined in this licence and the associated drinking water works permit shall be given the same meaning as those set out in the SDWA and any regulations made in accordance with that act, unless the context requires otherwise.

1.2 In this licence and the associated drinking water works permit:

"**adverse effect**", "**contaminant**" and "**natural environment**" shall have the same meanings as in the EPA;

"**alteration**" may include the following in respect of this drinking water system:

(a) An addition to the system,
(b) A modification of the system,
(c) A replacement of part of the system, and
(d) An extension of the system;

"**compound of concern**" means a contaminant described in paragraph 4 subsection 26 (1) of O. Reg. 419/05, namely, a contaminant that is discharged to the air from a component of the drinking water system in an amount that is not negligible;

"CT" means the CT Disinfection Concept, as described in subsection 3.1.1 of the Ministry's Procedure for Disinfection of Drinking Water in Ontario, dated July 29 2016.

"**Director**" means a Director appointed pursuant to section 6 of the SDWA for the purposes of Part V of the SDWA;

"**drinking water works permit**" means the drinking water works permit for the drinking water system, as identified in Schedule A of this licence and as amended from time to time;

"emission summary table" means a table described in paragraph 14 of subsection 26 (1) of O. Reg. 419/05;

"EPA" means the *Environmental Protection Act*, R.S.O. 1990, c. E.19;

"**financial plan**" means the financial plan required by O. Reg. 453/07;

"Harmful Algal Bloom (HAB)" means an overgrowth of aquatic algal bacteria that produce or have the potential to produce toxins in the surrounding water, when the algal cells are damaged or die. Such bacteria are harmful to people and animals and include microcystins produced by cyanobacterial blooms.

"**licence**" means this municipal drinking water licence for the municipal drinking water system identified in Schedule A of this licence;

"Ministry" means the Ontario Ministry of the Environment, Conservation and Parks;

"**operational plan**" means an operational plan developed in accordance with the Director's Directions – Minimum Requirements for Operational Plans made under the authority of subsection 15(1) of the SDWA;

"**owner**" means the owner of the drinking water system as identified in Schedule A of this licence;

"OWRA" means the *Ontario Water Resources Act*, R.S.O. 1990, c. 0.40;

"**permit to take water**" means the permit to take water that is associated with the taking of water for purposes of the operation of the drinking water system, as identified in Schedule A of this licence and as amended from time to time;

"**point of impingement**" has the same meaning as in section 2 of O. Reg. 419/05 under the EPA;

"**point of impingement limit**" means the appropriate standard from Schedule 2 or 3 of O. Reg. 419/05 under the EPA and if a standard is not provided for a compound of concern, the concentration set out for the compound of concern in the document titled "Air Contaminants Benchmarks (ACB) List: Standards, guidelines and screening levels for assessing point of impingement concentrations of air contaminants", as amended from time to time and published by the Ministry and available on a government of Ontario website;

"**licensed engineering practitioner**" means a person who holds a licence, limited licence or temporary licence under the Professional Engineers Act;

"**provincial officer**" means a provincial officer designated pursuant to section 8 of the SDWA;

"**publication NPC-300**" means the Ministry publication titled "Environmental Noise Guideline: Stationary and Transportation Sources – Approval and Planning" dated August 2013, as amended;

"**SCADA system**" means a supervisory control and data acquisition system used for process monitoring, automation, recording and/or reporting within the drinking water system;

"**SDWA**" means the *Safe Drinking Water* Act, 2002, S.O. 2002, c. 32;

"**sensitive receptor**" means any location where routine or normal activities occurring at reasonably expected times would experience adverse effect(s) from a discharge to air from an emergency generator that is a component of the drinking water system, including one or a combination of:

(a) private residences or public facilities where people sleep (e.g.: single and multi-unit dwellings, nursing homes, hospitals, trailer parks, camping grounds, etc.),
(b) institutional facilities (e.g.: schools, churches, community centres, day care centres, recreational centres, etc.),
(c) outdoor public recreational areas (e.g.: trailer parks, play grounds, picnic areas, etc.), and
(d) other outdoor public areas where there are continuous human activities (e.g.: commercial plazas and office buildings).

"**sub-system**" has the same meaning as in Ontario Regulation 128/04 (Certification of Drinking Water System Operators and Water Quality Analysts) under the SDWA;

"**surface water**" means water bodies (lakes, wetlands, ponds - including dug-outs), water courses (rivers, streams, water-filled drainage ditches), infiltration trenches, and areas of seasonal wetlands;

"UV" means ultraviolet, as in ultraviolet light produced from an ultraviolet reactor.

2.0 Applicability

2.1 In addition to any other applicable legal requirements, the drinking water system identified above shall be established, altered and operated in accordance with the conditions of the drinking water works permit and this licence.

3.0 Licence Expiry

3.1 This licence expires on the date identified as the licence expiry date in Schedule A of this licence.

4.0 Licence Renewal

4.1 Any application to renew this licence shall be made on or before the date identified as the application for licence renewal date set out in Schedule A of this licence.

5.0 Compliance

5.1 The owner and operating authority shall ensure that any person authorized to carry out work on or to operate any aspect of the drinking water system has been informed of the SDWA, all applicable regulations made in accordance with that act, the drinking water works permit and this licence and shall take all reasonable measures to ensure any such person complies with the same.

6.0 Licence and Drinking Water Works Permit Availability

6.1 At least one copy of this licence and the drinking water works permit shall be stored in such a manner that they are readily viewable by all persons involved in the operation of the drinking water system.

7.0 Permit to Take Water and Drinking Water Works Permit

7.1 A permit to take water identified in Schedule A of this licence is the applicable permit on the date identified as the Effective Date of this licence.

7.2 A drinking water works permit identified in Schedule A of this licence is the applicable permit on the date identified as the Effective Date of this licence.

8.0 Financial Plan

8.1 For every financial plan prepared in accordance with subsections 2(1) and 3(1) of O. Reg. 453/07, the owner of the drinking water system shall:

8.1.1 Ensure that the financial plan contains on the front page of the financial plan, the appropriate financial plan number as set out in Schedule A of this licence; and

8.1.2 Submit a copy of the financial plan to the Ministry of Municipal Affairs and Housing within three (3) months of receiving approval by a resolution of municipal council or the governing body of the owner.

9.0 Interpretation

9.1 Where there is a conflict between the provisions of this licence and any other document, the following hierarchy shall be used to determine the provision that takes precedence:

9.1.1 The SDWA*;*

9.1.2 A condition imposed in this licence that explicitly overrides a prescribed regulatory requirement;

9.1.3 A condition imposed in the drinking water works permit that explicitly overrides a prescribed regulatory requirement;

9.1.4 Any regulation made under the SDWA;

9.1.5 Any provision of this licence that does not explicitly override a prescribed regulatory requirement;

9.1.6 Any provision of the drinking water works permit that does not explicitly override a prescribed regulatory requirement;

9.1.7 Any application documents listed in this licence, or the drinking water works permit from the most recent to the earliest; and

9.1.8 All other documents listed in this licence, or the drinking water works permit from the most recent to the earliest.

9.1.9 Any other technical bulletin or procedure issued by the Ministry from the most recent to the earliest.

9.2 If any requirement of this licence or the drinking water works permit is found to be invalid by a court of competent jurisdiction, the remaining requirements of this licence and the drinking water works permit shall continue to apply.

9.3 The issuance of and compliance with the conditions of this licence and the drinking water works permit does not:

9.3.1 Relieve any person of any obligation to comply with any provision of any applicable statute, regulation or other legal requirement, including the *Environmental Assessment Act*, R.S.O. 1990, c. E.18; and

9.3.2 Limit in any way the authority of the appointed Directors and provincial officers of the Ministry to require certain steps be taken or to require the owner to furnish any further information related to compliance with the conditions of this licence or the drinking water works permit.

9.4 For greater certainty, nothing in this licence or the drinking water works permit shall be read to provide relief from regulatory requirements in accordance with section 46 of the SDWA, except as expressly provided in the licence or the drinking water works permit.

10.0 Adverse Effects

10.1 Nothing in this licence or the drinking water works permit shall be read as to permit:

10.1.1 The discharge of a contaminant into the natural environment that causes or is likely to cause an adverse effect; or

10.1.2 The discharge of any material of any kind into or in any waters or on any shore or bank thereof or into or in any place that may impair the quality of the water of any waters.

10.2 All reasonable steps shall be taken to minimize and ameliorate any adverse effect on the natural environment or impairment of the quality of water of any waters resulting from the operation of the drinking water system including such accelerated or additional monitoring as may be necessary to determine the nature and extent of the effect or impairment.

10.3 Fulfillment of one or more conditions imposed by this licence or the drinking water works permit does not eliminate the requirement to fulfill any other condition of this licence or the drinking water works permit.

11.0 Change of Owner or Operating Authority

11.1 This licence is not transferable without the prior written consent of the Director.

11.2 The owner shall notify the Director in writing at least 30 days prior to a change of any operating authority identified in Schedule A of this licence.

11.2.1 Where the change of operating authority is the result of an emergency situation, the owner shall notify the Director in writing of the change as soon as practicable.

12.0 Information to be Provided

12.1 Any information requested by a Director or a provincial officer concerning the drinking water system and its operation, including but not limited to any records required to be kept by this licence or the drinking water works permit, shall be provided upon request.

13.0 Records Retention

13.1 Except as otherwise required in this licence or the drinking water works permit, any records required by or created in accordance with this licence or the drinking water works permit, other than the records specifically referenced in section 12 or section 13 of O. Reg. 170/03, shall be retained for at least 5 years and made available for inspection by a provincial officer, upon request.

14.0 Chemicals and Materials

14.1 All chemicals and materials used in the alteration or operation of the drinking water system that come into contact with water within the system shall meet all applicable standards set by both the American Water Works Association ("AWWA") and the American National Standards Institute ("ANSI") safety criteria standards NSF/60, NSF/61 and NSF/372.

14.1.1 In the event that the standards are updated, the owner may request authorization from the Director to use any on hand chemicals and materials that previously met the applicable standards.

14.2 The most current chemical and material product registration documentation from a testing institution accredited by either the Standards Council of Canada or by the American National Standards Institution ("ANSI") shall be available at all times for each chemical and material used in the operation of the drinking water system that comes into contact with water within the system.

14.3 Conditions 14.1 and 14.2 do not apply in the case of the following:

14.3.1 Water pipe and pipe fittings meeting AWWA specifications made from ductile iron, cast iron, PVC, fibre and/or steel wire reinforced cement pipe or high density polyethylene (HDPE);

14.3.2 Articles made from stainless steel, glass, HDPE or Teflon®;

14.3.3 Cement mortar for watermain lining and for water contacting surfaces of concrete structures made from washed aggregates and Portland cement;

14.3.4 Gaskets that are made from NSF approved materials;

14.3.5 Food grade oils and lubricants, food grade anti-freeze, and other food grade chemicals and materials that are compatible for drinking water use that may come into contact with drinking water, but are not added directly to the drinking water; or

14.3.6 Any particular chemical or material where the owner has written documentation signed by the Director that indicates that the Ministry is satisfied that the chemical or material is acceptable for use within the drinking water system and the chemical or material is only used as permitted by the documentation.

15.0 Drawings

15.1 All drawings and diagrams in the possession of the owner that show any treatment subsystem as constructed shall be retained by the owner unless the drawings and diagrams are replaced by a revised or updated version showing the subsystem as constructed subsequent to the alteration.

15.2 Any alteration to any treatment subsystem shall be incorporated into process flow diagrams, process and instrumentation diagrams, and record drawings and diagrams within one year of the alteration being completed or placed into service.

15.3 Process flow diagrams and process and instrumentation diagrams for any treatment subsystem shall be kept in a place, or made available in such a manner, that they may be readily viewed by all persons responsible for all or part of the operation of the drinking water system.

16.0 Operations and Maintenance Manual

16.1 An up-to-date operations and maintenance manual or manuals shall be maintained and applicable parts of the manual or manuals shall be made available for reference to all persons responsible for all or part of the operation or maintenance of the drinking water system.

16.2 The operations and maintenance manual or manuals, shall include at a minimum:

16.2.1 The requirements of this licence and associated procedures;

16.2.2 The requirements of the drinking water works permit for the drinking water system;

16.2.3 A description of the processes used to achieve primary and secondary disinfection within the drinking water system including where applicable:

a) A copy of the CT calculations that were used as the basis for primary disinfection under worst case operating conditions and other operating conditions, if applicable; and

b) The validated operating conditions for UV disinfection equipment, including a copy of the validation certificate;

16.2.4 Procedures for monitoring and recording the in-process parameters necessary for the control of any treatment subsystem and for assessing the performance of the drinking water system;

16.2.5 Procedures for the operation and maintenance of monitoring equipment;

16.2.6 Contingency plans and procedures for the provision of adequate equipment and material to deal with emergencies, upset conditions and equipment breakdown;

16.2.7 Procedures for dealing with complaints related to the drinking water system, including the recording of the nature of the complaint and any investigation and corrective action taken in respect of the complaint;

16.2.8 An inspection schedule for all wells associated with the drinking water system, including all production wells, standby wells, test wells and monitoring wells;

16.2.9 Well inspection and maintenance procedures that consider the entire well structure of each well including all above and below grade well components; and

16.2.10 Remedial action plans for situations where an inspection indicates non-compliance with respect to regulatory requirements and/or risk to raw well water quality.

16.3 Procedures necessary for the operation and maintenance of any alterations to the drinking water system shall be incorporated into the operations and maintenance manual or manuals prior to those alterations coming into operation.

16.4 All of the procedures included or referenced within the operations and maintenance manual must be implemented.

Schedule C: System-Specific Conditions

System Owner	**The Corporation of the Municipality of Arran-Elderslie**
Licence Number	**079-101**
Drinking Water System Name	**Tara Drinking Water System**
Licence Effective Date	**January 8th, 2021**

1.0 System Performance

Rated Capacity

1.1 For each treatment subsystem listed in column 1 of Table 1, the maximum daily volume of treated water that flows from the treatment subsystem to the distribution system shall not exceed the value identified as the rated capacity in column 2 of the same row.

Table 1: Rated Capacity

Column 1 Treatment Subsystem Name	Column 2 Rated Capacity (m^3/day)
Pumphouse No. 2	426
Pumphouse No. 3	458
Pumphouse No. 4	852

Maximum Flow Rates

1.2 For each treatment subsystem listed in column 1 of Table 2, the maximum flow rate of water that flows into a treatment subsystem component listed in column 2 shall not exceed the value listed in column 3 of the same row.

Table 2: Maximum Flow Rates

Column 1 Treatment Subsystem Name	Column 2 Treatment Subsystem Component	Column 3 Maximum Flow Rate (L/s)
Not Applicable	Not Applicable	Not Applicable

1.3 Despite conditions 1.1 and 1.2, a treatment subsystem may be operated temporarily at a maximum daily volume and/or a maximum flow rate above the values set out in column 2 of Table 1 and column 3 of Table 2 respectively for the purposes of fighting a large fire or for the maintenance of the drinking water system.

1.4 Condition 1.3 does not authorize the discharge into the distribution system of any water that does not meet all of the requirements of this licence and all other regulatory requirements, including compliance with the Ontario Drinking Water Quality Standards.

Residuals Management

1.5 In respect of an effluent discharged into the natural environment from a treatment subsystem or treatment subsystem component listed in column 1 of Table 3:

1.5.1 The annual average concentration of a test parameter identified in column 2 shall not exceed the value in column 3 of the same row; and

1.5.2 The maximum concentration of a test parameter identified in column 2 shall not exceed the value in column 4 of the same row.

1.5.3 The test parameters listed in column 2 of Table 3 shall be sampled in accordance with conditions 5.2, 5.3 and 5.4 of this Licence.

Table 3: Residuals Management

Column 1 Treatment Subsystem or Treatment Subsystem Component Name	Column 2 Test Parameter	Column 3 Annual Average Concentration (mg/L)	Column 4 Maximum Concentration (mg/L)
Not Applicable	Not Applicable	Not Applicable	Not Applicable

UV Disinfection Equipment Performance

1.6 For each treatment subsystem or treatment subsystem component listed in column 1 of Table 4, and while directing water to the distribution system and being used to meet pathogen log removal/inactivation credits specified in Schedule E:

1.6.1 The UV disinfection equipment shall be operated within the validated limits for the equipment at all times such that a continuous pass-through UV dose is maintained throughout the life time of the UV lamp(s) that is at least the minimum continuous pass-through UV dose set out in column 2 of the same row

1.6.2 In addition to any other sampling, analysis and recording that may be required, the ultraviolet light disinfection equipment shall test for the test parameters set out in column 4 of the same row at a testing frequency of once every five (5) minutes or less and record the test data at a recording frequency of once every four (4) hours or less;

1.6.3 If there is a UV disinfection equipment alarm signaling that the disinfection equipment is malfunctioning, has lost power, or is not providing the appropriate level of disinfection the test parameters set out in column 4 of the same row shall be recorded at a recording frequency of once every five minutes or less until the alarm condition has been corrected;

1.6.4 A monthly summary report shall be prepared at the end of each calendar month which sets out the time, date and duration of each UV equipment alarm described in condition 1.6.3, the volume of water treated during each alarm period and the actions taken by the operating authority to correct the alarm situation;

Table 4: UV Disinfection Equipment			
Column 1 Treatment Subsystem or Treatment Subsystem Component Name	**Column 2 Minimum Continuous Pass-Through UV Dose (mJ/cm^2)**	**Column 3 Control Strategy**	**Column 4 Test Parameter**
Pumphouse No. 3	40	UV Intensity Set Point	Flow Rate
			UV Intensity
			UV Lamp Status

2.0 Flow Measurement and Recording Requirements

2.1 For each treatment subsystem identified in column 1 of Table 1 and in addition to any other flow measurement and recording that may be required, continuous flow measurement and recording shall be undertaken for:

2.1.1 The flow rate (L/s) and daily volume (m^3/day) of treated water that flows from the treatment subsystem to the distribution system.

2.1.2 The flow rate (L/s) and daily volume (m^3/day) of water that flows into the treatment subsystem.

2.2 For each treatment subsystem component identified in column 2 of Table 2 and in addition to any other flow measurement and recording that may be required, continuous flow measurement and recording shall be undertaken for the flow rate and daily volume of water that flows into the treatment subsystem component.

2.3 Where a rated capacity from Table 1 or a maximum flow rate from Table 2 is exceeded, the following shall be recorded:

2.3.1 The difference between the measured amount and the applicable rated capacity or maximum flow rate specified in Table 1 or Table 2;

2.3.2 The time and date of the measurement;

2.3.3 The reason for the exceedance; and

2.3.4 The duration of time that lapses between the applicable rated capacity or maximum flow rate first being exceeded and the next measurement where the applicable rated capacity or maximum flow rate is no longer exceeded.

3.0 Calibration of Flow Measuring Devices

3.1 All flow measuring devices that are required by regulation, by a condition in the drinking water works permit 079-201, or by a condition otherwise imposed by the Ministry, shall be checked and where necessary calibrated in accordance with the manufacturer's instructions.

3.2 If the manufacturer's instructions do not indicate how often to check and calibrate a flow measuring device, the equipment shall be checked and where necessary calibrated at least once every 12 months during which the drinking water system is in operation.

3.2.1 For greater certainty, if condition 3.2 applies, the equipment shall be checked and where necessary calibrated not more than 30 days after the first anniversary of the day the equipment was checked and calibrated in the previous 12-month period.

4.0 Calibration of CT Monitoring System

4.1 Any measuring instrumentation that forms part of the monitoring system for CT shall be checked and where necessary calibrated at least once every 12 months during which the drinking water system is in operation, or more frequently in accordance with the manufacturer's instructions.

4.1.1 For greater certainty, if condition 4.1 applies, the instrumentation shall be checked and where necessary calibrated not more than 30 days after the first anniversary of the day the equipment was checked and calibrated in the previous 12-month period.

5.0 Additional Sampling, Testing and Monitoring

Drinking Water Health and Non-Health Related Parameters

5.1 For each treatment subsystem or treatment subsystem component identified in column 1 of Tables 5 and 6 and in addition to any other sampling, testing and monitoring that may be required, sampling, testing and monitoring shall be undertaken for a test parameter listed in column 2 at the sampling frequency listed in column 3 and at the monitoring location listed in column 4 of the same row.

Table 5: Drinking Water Health Related Parameters

Column 1 Treatment Subsystem or Treatment Subsystem Component Name	Column 2 Test Parameter	Column 3 Sampling Frequency	Column 4 Monitoring Location
Not Applicable	Not Applicable	Not Applicable	Not Applicable

Table 6: Drinking Water Non-Health Related Parameters

Column 1 Treatment Subsystem or Treatment Subsystem Component Name	Column 2 Test Parameter	Column 3 Sampling Frequency	Column 4 Monitoring Location
Not Applicable	Not Applicable	Not Applicable	Not Applicable

Environmental Discharge Parameters

5.2 For each treatment subsystem or treatment subsystem component identified in column 1 of Table 7 and in addition to any other sampling, testing and monitoring that may be required, sampling, testing and monitoring shall be undertaken for a test parameter listed in column 2 using the sample type identified in column 3 at the sampling frequency listed in column 4 and at the monitoring location listed in column 5 of the same row.

5.3 For the purposes of Table 7:

5.3.1 Manual Composite means the mean of at least three grab samples taken during a discharge event, with one sample being taken immediately following the commencement of the discharge event, one sample being taken approximately at the mid-point of the discharge event and one sample being taken immediately before the end of the discharge event; and

5.3.2 Automated Composite means samples must be taken during a discharge event by an automated sampler at a minimum sampling frequency of once per hour.

5.4 Any sampling, testing and monitoring for the test parameter Total Suspended Solids shall be performed in accordance with the requirements set out in the publication "Standard Methods for the Examination of Water and Wastewater", 23rd Edition, 2017, or as amended from time to time by more recently published editions.

Table 7: Environmental Discharge Parameters

Column 1 Treatment Subsystem or Treatment Subsystem Component Name	Column 2 Test Parameter	Column 3 Sample Type	Column 4 Sampling Frequency	Column 5 Monitoring Location
Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable

5.5 Pursuant to Condition 10 of Schedule B of this licence, the owner may undertake the following environmental discharges associated with the maintenance and/or repair of the drinking water system:

5.5.1 The discharge of potable water from a watermain to a road or storm sewer;

5.5.2 The discharge of potable water from a water storage facility or pumping station:

5.5.2.1 To a road or storm sewer; or

5.5.2.2 To a watercourse where the discharge has been dechlorinated and if necessary, sediment and erosion control measures have been implemented.

5.5.3 The discharge of dechlorinated non-potable water from a watermain, water storage facility or pumping station to a road or storm sewer;

5.5.4 The discharge of raw water from a groundwater well to the environment where if necessary, sediment and erosion control measures have been implemented; and

5.5.5 The discharge of raw water, potable water or non-potable water from a treatment subsystem to the environment where if necessary, the discharge has been dechlorinated and sediment and erosion control measures have been implemented.

5.5.6 The discharge of any excess water to a road, storm sewer or the environment, associated with the management of materials excavated as part of watermain construction or repair, where necessary sediment, erosion and environmental control measures have been implemented.

6.0 Studies Required

6.1 Not Applicable.

7.0 Source Protection

7.1 The owner of the drinking water system shall implement risk management measures, as appropriate, to manage any potential threat to drinking water that results from the operation of the drinking water system.

7.2 The owner of the system shall notify the Director in writing within thirty (30) days of any approved changes to an applicable source protection plan that impact the assessed threat level of a fuel oil system identified in Schedule A of drinking water works permit.

7.3 The notification required in condition 7.2 shall include:

7.3.1 A description of the changes and their impact on the assessed threat level of the fuel oil system(s); and,

7.3.2 A timeline for re-assessing the threat level and providing the results of the assessment to the Director.

Schedule D: Conditions for Relief from Regulatory Requirements

System Owner	**The Corporation of the Municipality of Arran-Elderslie**
Licence Number	**079-101**
Drinking Water System Name	**Tara Drinking Water System**
Licence Effective Date	**January 8th, 2021**

As of the effective date of the MDWL, no relief from regulatory requirements is authorized by the Director under section 46 of the SDWA in respect of the drinking water system.

Schedule E: Pathogen Log Removal/Inactivation Credits

System Owner	**The Corporation of the Municipality of Arran-Elderslie**
Licence Number	**079-101**
Drinking Water System Name	**Tara Drinking Water System**
Licence Effective Date	**January 8th, 2021**

1.0 Primary Disinfection Pathogen Log Removal/Inactivation Credits

Well No. 2 Pumphouse

Well No. 2 [GROUNDWATER]

Minimum Log Removal/ Inactivation Required	Cryptosporidium Oocysts	Giardia Cysts	Viruses
Well No. 2 Pumphouse	0	0	2

Log Removal/Inactivation Credits Assigned [a]	Cryptosporidium Oocysts	Giardia Cysts	Viruses
Chlorination [CT: Chlorine Contact Pipe]	-	-	2+

[a] Log removal/inactivation credit assignment is based on each treatment process being fully operational and the applicable log removal/inactivation credit assignment criteria being met.

Treatment Component	Log Removal/Inactivation Credit Assignment Criteria
Chlorination	1. Sampling and testing for free chlorine residual shall be carried out by continuous monitoring equipment in the treatment process at or near a location where the intended contact time has just been completed in accordance with the Ministry's Procedure for Disinfection of Drinking Water in Ontario; and 2. At all times, CT provided shall be greater than or equal to the CT required to achieve the log removal credits assigned.
Primary Disinfection Notes	

Well No. 3 Pumphouse

Well No. 3 [GUDI]

Minimum Log Removal/ Inactivation Required	Cryptosporidium Oocysts	Giardia Cysts [a]	Viruses [b]
Well No. 3 Pumphouse	2	3	4

[a] At least 0.5 log inactivation of Giardia shall be achieved by the disinfection portion of the overall water treatment process.
[b] At least 2 log inactivation of viruses shall be achieved by disinfection.

Log Removal/Inactivation Credits Assigned [c]	Cryptosporidium Oocysts	Giardia Cysts	Viruses
Cartridge Filtration [1 micron]	0	0	0
UV Disinfection [40 mJ/cm2]	2	3	2
Chlorination [CT: Chlorine Contact Chamber]	-	-	2+

[c] Log removal/inactivation credit assignment is based on each treatment process being fully operational and the applicable log removal/inactivation credit assignment criteria being met.

Treatment Component	Log Removal/Inactivation Credit Assignment Criteria
UV Disinfection	Duty UV Sensor Checks and Calibration 1. Duty UV sensors shall be checked on at least a monthly basis against a reference UV sensor or at a frequency as otherwise recommended by the UV equipment manufacturer; 2. When comparing a duty UV sensor to a reference UV sensor, the calibration ratio (intensity measured with the duty UV sensor/intensity measured with the reference UV sensor) shall be less than or equal to 1.2; 3. If the calibration ratio is greater than 1.2, the duty UV sensor shall be replaced with a calibrated UV sensor or a UV sensor correction factor shall be applied while the problem with the UV sensor is being resolved; 4. Reference UV sensors shall be checked against a Master Reference Assembly at a minimum frequency of once every three years or on a more frequent basis depending upon the recommendations of the equipment manufacturer; Operational Requirements 5. Ultraviolet light disinfection equipment shall have a feature that ensures that no water is directed to users of water treated by the equipment or that causes an alarm to sound in the event that the equipment malfunctions, loses power or ceases to provide the appropriate level of disinfection; 6. Water shall not flow through a UV reactor when the reactor's UV lights are off or not fully energized; 7. UV lamp status shall indicate whether each UV lamp is on or off; 8. All UV sensors shall operate within their calibration range or corrective measures shall be taken; and 9. Installed or replaced UV equipment components shall be equal or better than the components used during validation testing unless the UV equipment was revalidated.
Chlorination	1. Sampling and testing for free chlorine residual shall be carried out by continuous monitoring equipment in the treatment process at or near a location where the intended contact time has just been completed in accordance with the Ministry's Procedure for Disinfection of Drinking Water in Ontario; and 2. At all times, CT provided shall be greater than or equal to the CT required to achieve the log removal credits assigned.
Primary Disinfection Notes	

Well No. 4 Pumphouse

Well No. 4 [GROUNDWATER]

Minimum Log Removal/ Inactivation Required	Cryptosporidium Oocysts	Giardia Cysts	Viruses
Well No. 4 Pumphouse	0	0	2

Log Removal/Inactivation Credits Assigned [a]	Cryptosporidium Oocysts	Giardia Cysts	Viruses
Chlorination [CT: Chlorine Contact Pipe]	-	-	2+

[a] Log removal/inactivation credit assignment is based on each treatment process being fully operational and the applicable log removal/inactivation credit assignment criteria being met.

Treatment Component	Log Removal/Inactivation Credit Assignment Criteria
Chlorination	1. Sampling and testing for free chlorine residual shall be carried out by continuous monitoring equipment in the treatment process at or near a location where the intended contact time has just been completed in accordance with the Ministry's Procedure for Disinfection of Drinking Water in Ontario; and 2. At all times, CT provided shall be greater than or equal to the CT required to achieve the log removal credits assigned.
Primary Disinfection Notes	

Ontario

DRINKING WATER WORKS PERMIT

Permit Number: 079-201
Issue Number: 5

Pursuant to the *Safe Drinking Water Act*, 2002, S.O. 2002, c. 32, and the regulations made thereunder and subject to the limitations thereof, I hereby issue this drinking water works permit under Part V of the *Safe Drinking Water Act*, 2002, S.O. 2002, c. 32 to:

The Corporation of the Municipality of Arran-Elderslie

PO Box 70
1925 Bruce Road #10
Chesley ON N0G 1L0

For the following municipal residential drinking water system:

Tara Drinking Water System

This drinking water works permit includes the following:

Schedule	Description
Schedule A	Drinking Water System Description
Schedule B	General
Schedule C	All documents issued as Schedule C to this drinking water works permit which authorize alterations to the drinking water system
Schedule D	Process Flow Diagrams

Upon the effective date of this drinking water works permit # 079-201, all previously issued versions of permit # 079-201 are revoked and replaced by this permit.

DATED at TORONTO this 8th day of January, 2021

Signature

Aziz Ahmed, P.Eng.
Director
Part V, *Safe Drinking Water Act*, 2002

Schedule A: Drinking Water System Description

System Owner	**The Corporation of the Municipality of Arran-Elderslie**
Permit Number	**079-201**
Drinking Water System Name	**Tara Drinking Water System**
Permit Effective Date	**January 8th, 2021**

1.0 System Description

1.1 The following is a summary description of the works comprising the above drinking water system:

Overview

The **Tara Drinking Water System** consists of three (3) drinking water treatment plants, one (1) standpipe storage tank and approximately 11.4 kilometers of trunk watermains and distribution watermains.

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Ground Water Supplies

Well No. 2

Location	59 Market Street, Tara, Ontario
UTM Coordinates	NAD 27: UTM Zone 17: 488649 m E, 4924786 m N
WWR No.	1402117
Source	Groundwater (Non-GUDI)
Description	150 mm diameter x 118.6 m deep drilled ground water well, located within the pump house with a 70 m deep, 150 mm diameter casing surrounded by a 254 mm diameter casing with grouting provided between the casings over their entire depth
Equipment	A submersible deep well pump rated at 4.9 L/s at 161 m TDH complete with a variable frequency drive
Notes	

Well No. 3

Location	217 River Street, Tara, Ontario
UTM Coordinates	NAD 27: UTM Zone 17: 488530 m E, 4924469 m N
WWR No.	1410885
Source	GUDI
Description	A 156 mm diameter x 119 m deep drilled groundwater well (5 m west of Pumphouse No. 3) with a 70 m deep, 150 mm diameter casing with grouting provided over the entire depth, equipped with a pitless adapter
Equipment	A submersible deep well pump rated at 5.3 L/s at 164 m TDH complete with variable frequency drive
Notes	

Well No. 4

Location	158 Yonge Street North, Tara, Ontario
UTM Coordinates	NAD 83: UTM Zone 17: 488253 m E, 4925557 m N
WWR No.	7123821
Source	Groundwater (Non-GUDI)
Description	A 250 mm diameter x 25.91 m deep drilled ground water well, located within the pump house
Equipment	A submersible deep well pump rated at 9.8 L/s with an operating head varying between approximately 42.06 m to 71.08 m complete with variable frequency drive and well level transducer
Notes	

Treatment Facilities

Pumphouse No. 2

Location	59 Market Street, Tara, Ontario
UTM Coordinates	NAD 27: UTM Zone 17: 488649 m E, 4924786 m N
Description	A pumphouse housing Well No. 2 and treatment and control equipment including cartridge filtration and disinfection equipment
Cartridge Filtration	One (1) cartridge filter housing having a treatment capacity of 11.03 L/s, equipped with 14 separate 1 micron filter cartridges (2 micron minimum required) to be used on the well startup to reduce initial turbidity spikes, complete with a differential pressure monitoring system. When the raw water turbidity falls to an acceptable level the filters are by-passed
Chlorination System	Two (2) sodium hypochlorite chemical feed pumps (one duty and one standby) with automatic switch over. Feed point is the treated water header prior to the cartridge filter
	One (1) sodium hypochlorite chemical storage tank with a secondary containment tank and associated piping, appurtenances and controls
Chlorine Contact Pipe	360 m of 150 mm diameter watermain along River Street providing chlorine contact time
Notes	

Pumphouse No. 3

Location	217 River Street, Tara, Ontario
UTM Coordinates	NAD 27: UTM Zone 17: 488530 m E, 4924469 m N
Description	A pumphouse housing Well No. 3 treatment and control equipment
Cartridge Filtration	One (1) cartridge filter housing having a treatment capacity of 11.03 L/s, equipped with 14 separate 1 micron filter cartridges (2 micron minimum required) to be used online with the Well No. 3 pump, complete with a differential pressure monitoring system
UV Disinfection System	Two (2) UV disinfection reactors (one duty and one standby), located after the cartridge filter unit, each unit rated at 11.37 L/s, capable of providing a minimum dose of 40 mJ/cm^2 at the end of the lamp life, together with automatic cleaning system, on-line UV intensity monitor with alarm, and a portable UV transmittance monitor
Chlorination System	Two (2) sodium hypochlorite chemical feed pumps (one duty and one standby) with automatic switch over. Feed point is on the treated water header after filtration and UV disinfection
	One (1) sodium hypochlorite chemical solution tank with a secondary containment tank and associated piping, appurtenances and controls
Chlorine Contact Pipe	16.4 m of 600 mm diameter pipe adjacent to the pumphouse providing chlorine contact time
Standby Power	One (1) 60 kW natural gas generator set capable of providing power to both pump houses No. 2 and No. 3 when power failure occurs
Notes:	

Pumphouse No. 4

Location	158 Yonge Street North, Tara, Ontario
UTM Coordinates	NAD 83: UTM Zone 17: 488253 m E, 4925557 m N
Description	A pumphouse housing Well No. 4 treatment and control equipment
Cartridge Filtration	One (1) cartridge filter housing having a treatment capacity of 28.4 L/s, equipped with 3 separate 1 micron filter cartridges (5 micron minimum required) to be used on the well startup to reduce initial turbidity spikes, complete with a differential pressure monitoring system. When the raw water turbidity falls to an acceptable level the filters are by-passed
Chlorination System	Two (2) chemical feed pumps (one duty and one standby) with automatic switch over. Feed point is on the water header prior to filtration. The standby injection point is after the filtration equipment
	One (1) sodium hypochlorite chemical solution tank with a secondary containment tank and associated piping, appurtenances and controls;
Chlorine Contact Pipe	12 m of 600 mm diameter watermain to provide chlorine contact time
Notes	

Off-Site Storage Tanks

Tara Standpipe

Location	158 Yonge Street N, Tara, Ontario
UTM Coordinates	NAD 83: UTM Zone 17: 488250 m E, 4925627 m N
Description	Glass-fused-steel standpipe with a top water level of 273.5 m and equalization, fire and emergency storage provided above elevation 267.15 m
Total Volume	3,952 m^3
Notes	

Instrumentation and Control

SCADA System

Pumphouse No. 2	One (1) chlorine residual analyzer sampling after Well No. 2 contact chamber located at Well No. 3
	One (1) turbidity analyzer on the header leaving the plant
	One (1) flow meter on the header leaving the plant
Pumphouse No. 3	One (1) online free chlorine residual analyzer sampling after the chlorine contact chamber
	One (1) turbidity analyzer sampling after the chlorine contact chamber
	One (1) flow meter on the header leaving the plant
Pumphouse No. 4	One (1) online free chlorine residual analyzer sampling after the chlorine contact chamber
	One (1) turbidity analyzer on the treated water header
	One (1) magnetic flow meter on the treated water header
Tara Standpipe	Water level sensing instrumentation to monitor water depth and control the cycling of the three pumphouses by means of the SCADA System located in Treatment Plant Building No. 3
Notes	

Watermains

1.2 Watermains within the distribution system comprise:

1.2.1 Watermains that have been set out in each document or file identified in column 1 of Table 1.

Table 1: Watermains

Column 1 Document or File Name	Column 2 Date
Tara_ Water_ Distribution_Updated_April2018_MO.pdf	April 2016

1.2.2 Watermains that have been added, modified, replaced or extended further to the provisions of Schedule C of this drinking water works permit on or after the date identified in column 2 of Table 1 for each document or file identified in column 1.

1.2.3 Watermains that have been added, modified, replaced or extended further to an authorization by the Director on or after the date identified in column 2 of Table 1 for each document or file identified in column 1.

Schedule B: General

System Owner	**The Corporation of the Municipality of Arran-Elderslie**
Permit Number	**079-201**
Drinking Water System Name	**Tara Drinking Water System**
Permit Effective Date	**January 8th, 2021**

1.0 Applicability

1.1 In addition to any other applicable legal requirements, the drinking water system identified above shall be altered and operated in accordance with the conditions of this drinking water works permit and the licence #079-101.

1.2 The definitions and conditions of licence #079-101 are incorporated into this permit and also apply to this drinking water system.

2.0 Alterations to the Drinking Water System

2.1 Any document issued by the Director to be incorporated into Schedule C to this drinking water works permit shall provide authority to alter the drinking water system in accordance with the applicable conditions of this drinking water works permit and licence #079-101.

2.2 All documents issued by the Director as described in condition 2.1 shall form part of this drinking water works permit.

2.3 All parts of the drinking water system in contact with drinking water that are added, modified, replaced, extended shall be disinfected in accordance with a procedure approved by the Director or in accordance with the applicable provisions of the following documents:

a) Until May 21, 2021, the ministry's Watermain Disinfection Procedure, dated November 2015, as of May 22, 2021, the ministry's Watermain Disinfection Procedure, dated August 1, 2020;
b) Subject to condition 2.3.2, any updated version of the ministry's Watermain Disinfection Procedure;
c) AWWA C652 – Standard for Disinfection of Water-Storage Facilities;
d) AWWA C653 – Standard for Disinfection of Water Treatment Plants; and
e) AWWA C654 – Standard for Disinfection of Wells.

1.0 For greater clarity, where an activity has occurred that could introduce contamination, including but not limited to repair, maintenance, or physical / video inspection, all equipment that may come in contact with the drinking water system shall be disinfected in accordance with the requirements of condition 2.3. above.

2.3.2 Updated requirements described in condition 2.3 b) are effective six months from the date of publication of the updated Watermain Disinfection Procedure.

2.4 The owner shall notify the Director in writing within thirty (30) days of the placing into service or the completion of any addition, modification, replacement, removal or extension of the drinking water system which had been authorized through:

2.4.1 Schedule B to this drinking water works permit which would require an alteration of the description of a drinking water system component described in Schedule A of this drinking water works permit;

2.4.2 Any document to be incorporated in Schedule C to this drinking water works permit respecting works other than watermains; or

2.4.3 Any approval issued prior to the issue date of the first drinking water works permit respecting works other than watermains which were not in service at the time of the issuance of the first drinking water works permit.

2.5 The notification required in condition 2.4 shall be submitted using the "Director Notification Form" published by the Ministry.

2.6 For greater certainty, the notification requirements set out in condition 2.4 do not apply to any addition, modification, replacement, removal or extension in respect of the drinking water system which:

2.6.1 Is exempt from subsection 31(1) of the SDWA by subsection 9.(2) of O. Reg. 170/03;

2.6.2 Constitutes maintenance or repair of the drinking water system; or

2.6.3 Is a watermain authorized by condition 3.1 of Schedule B of this drinking water works permit.

2.7 The owner shall notify the legal owner of any part of the drinking water system that is prescribed as a municipal drinking water system by section 2 of O. Reg. 172/03 of the requirements of the licence and this drinking water works permit as applicable to the prescribed system.

2.8 For greater certainty, the owner may only carry out alterations to the drinking water system in accordance with this drinking water works permit after having satisfied other applicable legal obligations, including those arising from the *Environmental Assessment Act*, *Niagara Escarpment Planning and Development Act*, *Oak Ridges Moraine Conservation Act, 2001* and *Greenbelt Act, 2005*.

3.0 Watermain Additions, Modifications, Replacements and Extensions

3.1 The owner may alter the drinking water system, or permit it to be altered by a person acting on the owner's behalf, by adding, modifying, replacing or extending a watermain within the distribution system subject to the following conditions:

3.1.1 The design of the watermain addition, modification, replacement or extension:

a) Has been prepared by a licensed engineering practitioner;

b) Has been designed only to transmit water and has not been designed to treat water;

c) Satisfies the design criteria set out in the Ministry publication "Watermain Design Criteria for Future Alterations Authorized under a Drinking Water Works Permit – June 2012", as amended from time to time; and

d) Is consistent with or otherwise addresses the design objectives contained within the Ministry publication "Design Guidelines for Drinking Water Systems, 2008", as amended from time to time.

3.1.2 The maximum demand for water exerted by consumers who are serviced by the addition, modification, replacement or extension of the watermain will not result in an exceedance of the rated capacity of a treatment subsystem or the maximum flow rate for a treatment subsystem component as specified in the licence, or the creation of adverse conditions within the drinking water system.

3.1.3 The watermain addition, modification, replacement or extension will not adversely affect the distribution system's ability to maintain a minimum pressure of 140 kPa at ground level at all points in the distribution system under maximum day demand plus fire flow conditions.

3.1.4 Secondary disinfection will be provided to water within the added, modified, replaced or extended watermain to meet the requirements of O. Reg. 170/03.

3.1.5 The watermain addition, modification, replacement or extension is wholly located within the municipal boundary over which the owner has jurisdiction.

3.1.6 The owner of the drinking water system consents in writing to the watermain addition, modification, replacement or extension.

3.1.7 A licensed engineering practitioner has verified in writing that the watermain addition, modification, replacement or extension meets the requirements of condition 3.1.1.

3.1.8 The owner of the drinking water system has verified in writing that the watermain addition, modification, replacement or extension meets the requirements of conditions 3.1.2 to 3.1.6.

3.2 The authorization for the addition, modification, replacement or extension of a watermain provided for in condition 3.1 does not include the addition, modification, replacement or extension of a watermain that:

3.2.1 Passes under or through a body of surface water, unless trenchless construction methods are used;

3.2.2 Has a nominal diameter greater than 750 mm;

3.2.3 Results in the fragmentation of the drinking water system; or

3.2.4 Connects to another drinking water system, unless:

a) Prior to construction, the owner of the drinking water system seeking the connection obtains written consent from the owner or owner's delegate of the drinking water system being connected to; and

b) The owner of the drinking water system seeking the connection retains a copy of the written consent from the owner or owner's delegate of the drinking water system being connected to as part of the record that is recorded and retained under condition 3.3.

3.3 The verifications required in conditions 3.1.7 and 3.1.8 shall be:

3.3.1 Recorded on "Form 1 – Record of Watermains Authorized as a Future Alteration", as published by the Ministry, prior to the watermain addition, modification, replacement or extension being placed into service; and

3.3.2 Retained for a period of ten (10) years by the owner.

3.4 For greater certainty, the verification requirements set out in condition 3.3 do not apply to any addition, modification, replacement or extension in respect of the drinking water system which:

3.4.1 Is exempt from subsection 31(1) of the SDWA by subsection 9.(2) of O. Reg. 170/03; or

3.4.2 Constitutes maintenance or repair of the drinking water system.

3.5 The document or file referenced in Column 1 of Table 1 of Schedule A of this drinking water works permit that sets out watermains shall be retained by the owner and shall be updated to include watermain additions, modifications, replacements and extensions within 12 months of the addition, modification, replacement or extension.

3.6 The updates required by condition 3.5 shall include watermain location relative to named streets or easements and watermain diameter.

3.7 Despite clause (a) of condition 3.1.1 and condition 3.1.7, with respect to the replacement of an existing watermain or section of watermain that is 6.1 meters in length or less, if a licensed engineering practitioner has:

3.7.1 inspected the replacement prior to it being put into service;

3.7.2 prepared a reporting confirming that the replacement satisfies clauses (b), (c) and (d) of condition 3.1.1 (i.e. "Form 1 – Record of Watermains Authorized by a Future Alteration" (Form 1), Part 3, items No. 2, 3 and 4); and

3.7.3 appended the report referred to in condition 3.7.2 to the completed Form 1,

the replacement is exempt from the requirements that the design of the replacement be prepared by a licensed engineering practitioner and that a licensed engineering practitioner verify on Form 1, Part 3, item No. 1 that a licensed engineering practitioner prepared the design of the replacement.

3.8 For greater certainty, the exemption in condition 3.7 does not apply to the replacement of an existing watermain or section of watermain if two or more sections of pipe, each of which is 6.1 meters in length or less, are joined together, if the total length of replacement pipes joined together is greater than 6.1 meters.

4.0 Minor Modifications to the Drinking Water System

4.1 The drinking water system may be altered by adding, modifying or replacing the following components in the drinking water system:

4.1.1 Coagulant feed systems in the treatment system, including the location and number of dosing points:

a) Prior to making any alteration to the drinking water system under condition 4.1.1, the owner shall undertake a review of the impacts that the alteration might have on corrosion control or other treatment processes; and

b) The owner shall notify the Director in writing within thirty (30) days of any alteration made under condition 4.1.1 and shall provide the Director with a copy of the review.

c) The notification required in condition 4.1.1 b) shall be submitted using the "Director Notification Form" published by the Ministry

4.1.2 Instrumentation and controls, including new SCADA systems and upgrades to SCADA system hardware;

4.1.3 SCADA system software or programming that:

a) Measures, monitors or reports on a regulated parameter;
b) Measures, monitor or reports on a parameter that is used to calculate CT; or,
c) Calculates CT for the system or is part of the process algorithm that calculates log removal, where the impacts of addition, modification or replacement have been reviewed by a licensed engineering practitioner;

4.1.4 Filter media, backwashing equipment, filter troughs, and under-drains and associated equipment in the treatment system;

4.1.5 Spill containment works; or,

4.1.6 Coarse screens and fine screens

4.2 The drinking water system may be altered by adding, modifying, replacing or removing the following components in the drinking water system:

4.2.1 Treated water pumps, pressure tanks, and associated equipment;

4.2.2 Raw water pumps and process pumps in the treatment system;

4.2.3 Inline booster pumping stations that are not associated with distribution system storage facilities and are on a watermain with a nominal diameter not exceeding 200 mm;

4.2.4 Re-circulation devices within distribution system storage facilities;

4.2.5 In-line mixing equipment;

4.2.6 Chemical metering pumps and chemical handling pumps;

4.2.7 Chemical storage tanks (excluding fuel storage tanks) and associated equipment; or,

4.2.8 Measuring and monitoring devices that are not required by regulation, by a condition in the Drinking Water Works Permit, or by a condition otherwise imposed by the Ministry.

4.2.9 Chemical injection points.

4.2.10 Valves;

4.3 The drinking water system may be altered by replacing the following:

4.3.1 Raw water piping, treatment process piping or treated water piping within the treatment subsystem;

4.3.2 Measuring and monitoring devices that are required by regulation, by a condition in the Drinking Water Works Permit or by a condition otherwise imposed by the Ministry.

4.3.3 Coagulants and pH adjustment chemicals, where the replacement chemicals perform the same function;

a) Prior to making any alteration to the drinking water system under condition 4.3.3, the owner shall undertake a review of the impacts that the alteration might have on corrosion control or other treatment processes; and

b) The owner shall notify the Director in writing within thirty (30) days of any alteration made under condition 4.3.3 and shall provide the Director with a copy of the review.

c) The notification required in condition 4.3.3 b) shall be submitted using the "Director Notification Form" published by the Ministry

4.4 Any alteration of the drinking water system made under conditions 4.1, 4.2 or 4.3 shall not result in:

4.4.1 An exceedance of a treatment subsystem rated capacity or a treatment subsystem component maximum flow rate as specified in the licence;

4.4.2 The bypassing or removal of any unit process within a treatment subsystem;

4.4.3 The addition of any new unit process other than coagulation within a treatment subsystem;

4.4.4 A deterioration in the quality of drinking water provided to consumers;

4.4.5 A reduction in the reliability or redundancy of any component of the drinking water system;

4.4.6 A negative impact on the ability to undertake compliance and other monitoring necessary for the operation of the drinking water system; or

4.4.7 An adverse effect on the environment.

4.5 The owner shall verify in writing that any addition, modification, replacement or removal of drinking water system components in accordance with conditions 4.1, 4.2 or 4.3 has met the requirements of the conditions listed in condition 4.4.

4.6 The verifications and documentation required in condition 4.5 shall be:

4.6.1 Recorded on "Form 2 – Record of Minor Modifications or Replacements to the Drinking Water System" published by the Ministry, prior to the modified or replaced components being placed into service; and

4.6.2 Retained for a period of ten (10) years by the owner.

4.7 For greater certainty, the verification requirements set out in conditions 4.5 and 4.6 do not apply to any addition, modification, replacement or removal in respect of the drinking water system which:

4.7.1 Is exempt from subsection 31(1) of the SDWA by subsection 9.(2) of O. Reg. 170/03; or

4.7.2 Constitutes maintenance or repair of the drinking water system, including software changes to a SCADA system that are not listed in condition 4.1.3

4.8 The owner shall update any drawings maintained for the drinking water system to reflect the modification or replacement of the works, where applicable.

5.0 Equipment with Emissions to the Air

5.1 The drinking water system may be altered by adding, modifying or replacing any of the following drinking water system components that may discharge or alter the rate or manner of a discharge of a compound of concern to the air:

5.1.1 Any equipment, apparatus, mechanism or thing that is used for the transfer of outdoor air into a building or structure that is not a cooling tower;

5.1.2 Any equipment, apparatus, mechanism or thing that is used for the transfer of indoor air out of a space used for the production, processing, repair, maintenance or storage of goods or materials, including chemical storage;

5.1.3 Laboratory fume hoods used for drinking water testing, quality control and quality assurance purposes;

5.1.4 Low temperature handling of compounds with a vapor pressure of less than 1 kilopascal;

5.1.5 Maintenance welding stations;

5.1.6 Minor painting operations used for maintenance purposes;

5.1.7 Parts washers for maintenance shops;

5.1.8 Emergency chlorine and ammonia gas scrubbers and absorbers;

5.1.9 Venting for activated carbon units for drinking water taste and odour control;

5.1.10 Venting for a stripping unit for methane removal from a groundwater supply;

5.1.11 Venting for an ozone treatment unit;

5.1.12 Natural gas or propane fired boilers, water heaters, space heaters and make-up air units with a total facility-wide heat input rating of less than 20 million kilojoules per hour, and with an individual fuel energy input of less than or equal to 10.5 gigajoules per hour; or

5.1.13 Emergency generators that fire No. 2 fuel oil (diesel fuel) with a sulphur content of 0.5 per cent or less measured by weight, natural gas, propane, gasoline or biofuel, and that are used for emergency duty only with periodic testing.

5.2 The owner shall not make an addition, modification, or replacement described in condition 5.1 in relation to an activity that is not related to the treatment and/or distribution of drinking water.

5.3 The emergency generators identified in condition 5.1.13 shall not be used for non-emergency purposes including the generation of electricity for sale or for peak shaving purposes.

5.4 The owner shall prepare an emission summary table for nitrogen oxides emissions only, for each addition, modification or replacement of emergency generators identified in condition 5.1.13.

Performance Limits

5.5 The owner shall ensure that a drinking water system component identified in conditions 5.1.1 to 5.1.13 is operated at all times to comply with the following limits:

5.5.1 For equipment other than emergency generators, the maximum concentration of any compound of concern at a point of impingement shall not exceed the corresponding point of impingement limit;

5.5.2 For emergency generators, the maximum concentration of nitrogen oxides at sensitive receptors shall not exceed the applicable point of impingement limit, and at non-sensitive receptors shall not exceed the Ministry half-hourly screening level of 1880 ug/m^3 as amended; and

5.5.3 The noise emissions comply at all times with the limits set out in publication NPC-300, as applicable.

5.6 The owner shall verify in writing that any addition, modification or replacement of works in accordance with condition 5.1 has met the requirements of the conditions listed in condition 5.5.

5.7 The owner shall document how compliance with the performance limits outlined in condition 5.5.3 is being achieved, through noise abatement equipment and/or operational procedures.

5.8 The verifications and documentation required in conditions 5.6 and 5.7 shall be:

5.8.1 Recorded on “Form 3 – Record of Addition, Modification or Replacement of Equipment Discharging a Contaminant of Concern to the Atmosphere”, as published by the Ministry, prior to the additional, modified or replacement equipment being placed into service; and

5.8.2 Retained for a period of ten (10) years by the owner.

5.9 For greater certainty, the verification and documentation requirements set out in conditions 5.6 and 5.8 do not apply to any addition, modification or replacement in respect of the drinking water system which:

5.9.1 Is exempt from subsection 31(1) of the SDWA by subsection 9.(2) of O. Reg. 170/03; or

5.9.2 Constitutes maintenance or repair of the drinking water system.

5.10 The owner shall update any drawings maintained for the works to reflect the addition, modification or replacement of the works, where applicable.

6.0 Previously Approved Works

6.1 The owner may add, modify, replace or extend, and operate part of a municipal drinking water system if:

6.1.1 An approval was issued after January 1, 2004 under section 36 of the SDWA in respect of the addition, modification, replacement or extension and operation of that part of the municipal drinking water system;

6.1.2 The approval expired by virtue of subsection 36(4) of the SDWA; and

6.1.3 The addition, modification, replacement or extension commenced within five years of the date that activity was approved by the expired approval.

7.0 System-Specific Conditions

7.1 Not Applicable.

8.0 Source Protection

8.1 Not Applicable.

Schedule C: Authorization to Alter the Drinking Water System

System Owner	**The Corporation of the Municipality of Arran-Elderslie**
Permit Number	**079-201**
Drinking Water System Name	**Tara Drinking Water System**
Permit Effective Date	**January 8th, 2021**

1.0 General

1.1 Table 2 provides a reference list of all documents to be incorporated into Schedule C that have been issued as of the date that this permit was issued.

1.1.1 Table 2 is not intended to be a comprehensive list of all documents that are part of Schedule C. For clarity, any document issued by the Director to be incorporated into Schedule C after this permit has been issued is considered part of this drinking water works permit.

Table 2: Schedule C Documents

Column 1 Issue #	Column 2 Issued Date	Column 3 Description	Column 4 Status	Column 5 DN#
Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable

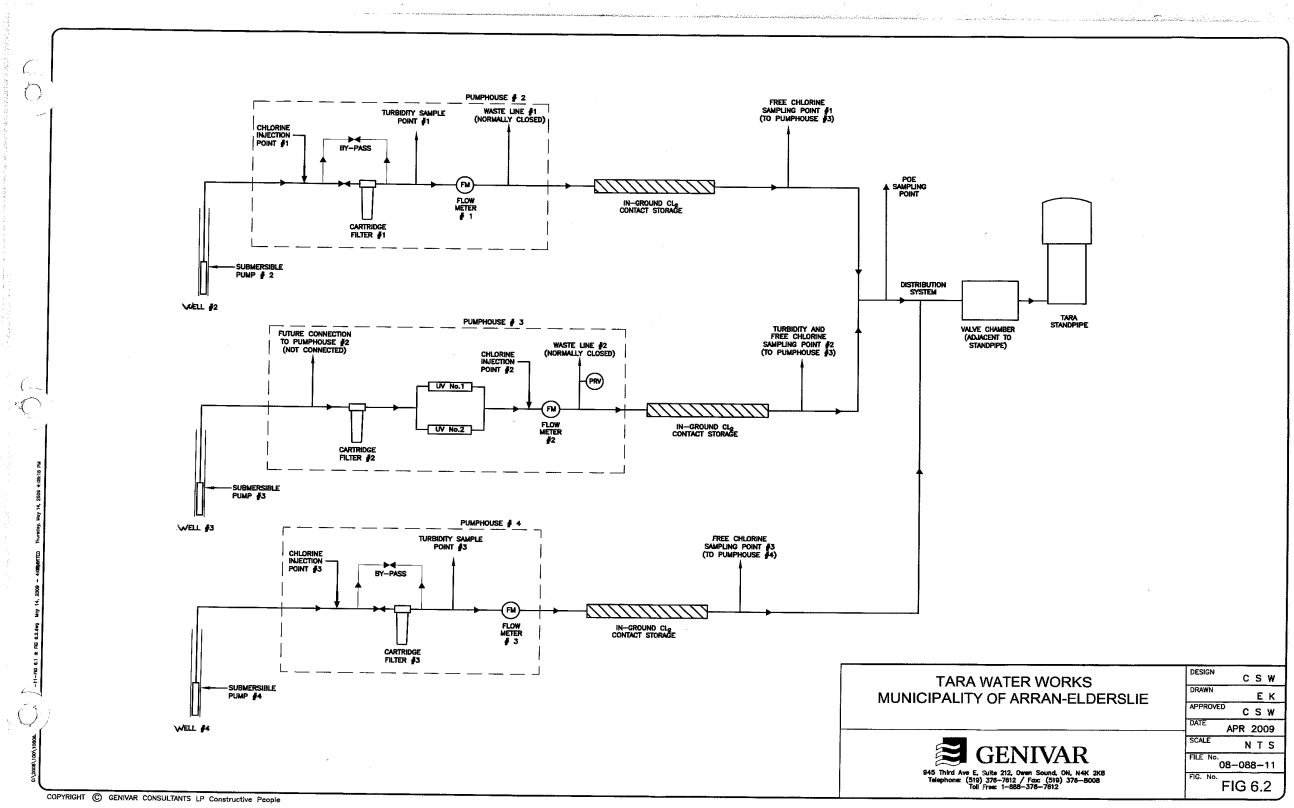
1.2 For each document described in columns 1, 2 and 3 of Table 2, the status of the document is indicated in column 4. Where this status is listed as 'Archived', the approved alterations have been completed and relevant portions of this permit have been updated to reflect the altered works. These 'Archived' Schedule C documents remain as a record of the alterations.

Schedule D: Process Flow Diagrams

System Owner	**The Corporation of the Municipality of Arran-Elderslie**
Permit Number	**079-201**
Drinking Water System Name	**Tara Drinking Water System**
Permit Effective Date	**January 8th, 2021**

1.0 Process Flow Diagrams

Pumphouse No. 2, Pumphouse No. 3 and Pumphouse No. 4



[Source: 'Tara_Process Flow Diagram.pdf' dated April 2009 and received August 2020]

Note: This process flow diagram is for reference only, and represents a high level overview of the system as of August 2020.

APPENDIX F

PERMIT TO TAKE WATER

PERMIT TO TAKE WATER
Ground Water
NUMBER 0033-BAGSCC

Pursuant to Section 34.1 of the Ontario Water Resources Act, R.S.O. 1990 this Permit To Take Water is hereby issued to:

The Corporation of the Municipality of Arran-Elderslie
1925 Bruce County Road 10
Chesley, Ontario, N0G 1L0
Canada

For the water taking from: Tara Well #2, Tara Well #3, Tara Well #4

Located at: 59 Market St Tara
Arran-Elderslie, County of Bruce

217 River St Tara
Arran-Elderslie, County of Bruce

158 Yonge St Tara
Arran-Elderslie, County of Bruce

For the purposes of this Permit, and the terms and conditions specified below, the following definitions apply:

DEFINITIONS

(a) "Director" means any person appointed in writing as a Director pursuant to section 5 of the OWRA for the purposes of section 34.1, OWRA.

(b) "Provincial Officer" means any person designated in writing by the Minister as a Provincial Officer pursuant to section 5 of the OWRA.

(c) "Ministry" means Ontario Ministry of the Environment, Conservation and Parks.

(d) "District Office" means the Owen Sound District Office.

(e) "Permit" means this Permit to Take Water No. 0033-BAGSCC including its Schedules, if any, issued in accordance with Section 34.1 of the OWRA.

(f) "Permit Holder" means The Corporation of the Municipality of Arran-Elderslie.

(g) "OWRA " means the *Ontario Water Resources Act,* R.S.O. 1990, c. O. 40, as amended.

You are hereby notified that this Permit is issued subject to the terms and conditions outlined below:

TERMS AND CONDITIONS

1. Compliance with Permit

1.1 Except where modified by this Permit, the water taking shall be in accordance with the application for this Permit To Take Water, dated February 1, 2019 and signed by Mark O'Leary, and all Schedules included in this Permit.

1.2 The Permit Holder shall ensure that any person authorized by the Permit Holder to take water under this Permit is provided with a copy of this Permit and shall take all reasonable measures to ensure that any such person complies with the conditions of this Permit.

1.3 Any person authorized by the Permit Holder to take water under this Permit shall comply with the conditions of this Permit.

1.4 This Permit is not transferable to another person.

1.5 This Permit provides the Permit Holder with permission to take water in accordance with the conditions of this Permit, up to the date of the expiry of this Permit. This Permit does not constitute a legal right, vested or otherwise, to a water allocation, and the issuance of this Permit does not guarantee that, upon its expiry, it will be renewed.

1.6 The Permit Holder shall keep this Permit available at all times at or near the site of the taking, and shall produce this Permit immediately for inspection by a Provincial Officer upon his or her request.

1.7 The Permit Holder shall report any changes of address to the Director within thirty days of any such change. The Permit Holder shall report any change of ownership of the property for which this Permit is issued within thirty days of any such change. A change in ownership in the property shall cause this Permit to be cancelled.

2. General Conditions and Interpretation

2.1 Inspections
The Permit Holder must forthwith, upon presentation of credentials, permit a Provincial Officer to carry out any and all inspections authorized by the OWRA, the *Environmental Protection Act* , R.S.O. 1990, the *Pesticides Act* , R.S.O. 1990, or the *Safe Drinking Water Act,* S. O. 2002.

2.2 Other Approvals

The issuance of, and compliance with this Permit, does not:

(a) relieve the Permit Holder or any other person from any obligation to comply with any other applicable legal requirements, including the provisions of the *Ontario Water Resources Act* , and the *Environmental Protection Act* , and any regulations made thereunder; or

(b) limit in any way any authority of the Ministry, a Director, or a Provincial Officer, including the authority to require certain steps be taken or to require the Permit Holder to furnish any further information related to this Permit.

2.3 Information

The receipt of any information by the Ministry, the failure of the Ministry to take any action or require any person to take any action in relation to the information, or the failure of a Provincial Officer to prosecute any person in relation to the information, shall not be construed as:

(a) an approval, waiver or justification by the Ministry of any act or omission of any person that contravenes this Permit or other legal requirement; or

(b) acceptance by the Ministry of the information's completeness or accuracy.

2.4 Rights of Action

The issuance of, and compliance with this Permit shall not be construed as precluding or limiting any legal claims or rights of action that any person, including the Crown in right of Ontario or any agency thereof, has or may have against the Permit Holder, its officers, employees, agents, and contractors.

2.5 Severability

The requirements of this Permit are severable. If any requirements of this Permit, or the application of any requirements of this Permit to any circumstance, is held invalid or unenforceable, the application of such requirements to other circumstances and the remainder of this Permit shall not be affected thereby.

2.6 Conflicts

Where there is a conflict between a provision of any submitted document referred to in this Permit, including its Schedules, and the conditions of this Permit, the conditions in this Permit shall take precedence.

3. Water Takings Authorized by This Permit

3.1 **Expiry**

This Permit expires on **April 30, 2029**. No water shall be taken under authority of this Permit after the expiry date.

3.2 Amounts of Taking Permitted

The Permit Holder shall only take water from the source, during the periods and at the rates and

amounts of taking specified in Table A. Water takings are authorized only for the purposes specified in Table A.

Table A

	Source Name / Description:	Source: Type:	Taking Specific Purpose:	Taking Major Category:	Max. Taken per Minute (litres):	Max. Num. of Hrs Taken per Day:	Max. Taken per Day (litres):	Max. Num. of Days Taken per Year:	Zone/ Easting/ Northing:
1	Tara Well #2	Well Drilled	Municipal	Water Supply	296	24	426,240	365	17 488624 4925025
2	Tara Well #3	Well Drilled	Municipal	Water Supply	318	24	457,920	365	17 488532 4924693
3	Tara Well #4	Well Drilled	Municipal	Water Supply	592	24	852,480	365	17 488256 4925560
						Total Taking:	1,736,640		

4. Monitoring

4.1 The Permit Holder shall maintain a record of all water takings. This record shall include the dates of water takings, and the total measured amounts of water pumped per day for each day that water is taken under the authorization of this Permit. A separate record shall be maintained for each source. The Permit Holder shall keep all required records up to date and available at or near the site of the taking and shall produce the records immediately for inspection by a Provincial Officer upon his or her request. The total amounts of water pumped shall be measured using a flow meter or similar devise.

4.2 Based on the hydrogeological report entitled Municipality of Arran-Elderslie, Village of Tara, Well Construction and Testing Report, Well #4, 2007, prepared by International Water Supply Ltd., and dated 29 May 2007, the Permit Holder shall maintain a monitoring program as follows:
(1) Monitor the water levels in Production Wells 2, 3 & 4 on a daily basis;
(2) The Permit Holder shall keep all required records up to date and available at or near the site of the taking and shall produce the records immediately for inspection by a Provincial Officer upon his or her request.

4.3 Any application submitted to the Ministry for renewal or amendment of this Permit shall be accompanied by all records required by the conditions of this Permit.

5. Impacts of the Water Taking

5.1 Notification

The Permit Holder shall immediately notify the local District Office of any complaint arising from the taking of water authorized under this Permit and shall report any action which has been taken or is proposed with regard to such complaint. The Permit Holder shall immediately notify the local District Office if the taking of water is observed to have any significant impact on the surrounding waters. After hours, calls shall be directed to the Ministry's Spills Action Centre at 1-800-268-6060.

5.2 For Groundwater Takings

If the taking of water is observed to cause any negative impact to other water supplies obtained from any adequate sources that were in use prior to initial issuance of a Permit for this water taking, the Permit Holder shall take such action necessary to make available to those affected, a supply of water equivalent in quantity and quality to their normal takings, or shall compensate such persons for their reasonable costs of so doing, or shall reduce the rate and amount of taking to prevent or alleviate the observed negative impact. Pending permanent restoration of the affected supplies, the Permit Holder shall provide, to those affected, temporary water supplies adequate to meet their normal requirements, or shall compensate such persons for their reasonable costs of doing so.

If permanent interference is caused by the water taking, the Permit Holder shall restore the water supplies of those permanently affected.

6. Director May Amend Permit

The Director may amend this Permit by letter requiring the Permit Holder to suspend or reduce the taking to an amount or threshold specified by the Director in the letter. The suspension or reduction in taking shall be effective immediately and may be revoked at any time upon notification by the Director. This condition does not affect your right to appeal the suspension or reduction in taking to the Environmental Review Tribunal under the *Ontario Water Resources Act* , Section 100 (4).

The reasons for the imposition of these terms and conditions are as follows:

1. Condition 1 is included to ensure that the conditions in this Permit are complied with and can be enforced.

2. Condition 2 is included to clarify the legal interpretation of aspects of this Permit.

3. Conditions 3 through 6 are included to protect the quality of the natural environment so as to safeguard the ecosystem and human health and foster efficient use and conservation of waters.

These conditions allow for the beneficial use of waters while ensuring the fair sharing, conservation and sustainable use of the waters of Ontario. The conditions also specify the water takings that are authorized by this Permit and the scope of this Permit.

In accordance with Section 100 of the Ontario Water Resources Act, R.S.O. 1990, you may by written Notice served upon me and the Environmental Review Tribunal within 15 days after receipt of this Notice, require a hearing by the Tribunal. Section 101 of the Ontario Water Resources Act, R.S.O. 1990, as amended, provides that the Notice requiring the hearing shall state:

1. The portions of the Permit or each term or condition in the Permit in respect of which the hearing is required, and;
2. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

In addition to these legal requirements, the Notice should also include:

a. The name of the appellant;
b. The address of the appellant;
c. The Permit to Take Water number;
d. The date of the Permit to Take Water;
e. The name of the Director;
f. The municipality within which the works are located;

This notice must be served upon:

The Secretary
Environmental Review Tribunal
655 Bay Street, 15th Floor
Toronto ON
M5G 1E5
Fax: (416) 326-5370
Email: ERTTribunalsecretary@ontario.ca

AND

The Director, Section 34.1,
Ministry of the Environment, Conservation and Parks
733 Exeter Rd
London ON N6E 1L3
Fax: (519) 873-5020

Further information on the Environmental Review Tribunal's requirements for an appeal can be obtained directly from the Tribunal:

by Telephone at	by Fax at	by e-mail at
(416) 212-6349	(416) 326-5370	www.ert.gov.on.ca
Toll Free 1(866) 448-2248	Toll Free 1(844) 213-3474	

Dated at London this 12th day of April, 2019.

Jason Lehouillier
Director, Section 34.1
Ontario Water Resources Act , R.S.O. 1990

Schedule A

This Schedule “A” forms part of Permit To Take Water 0033-BAGSCC, dated April 12, 2019.

APPENDIX G

WATER METER CALIBRATION

Tower Electronics Canada Inc. Calibration Certificate

Customer:
Municipality of Arran-Elderslie
Mark O'leary
Water Foreman
Water@arran-elderslie.ca

Calibration by:
Dan Matchett

Standards:
Endress and Hauser Field Check S/N:0000551303 Cal Due 3-15-22

Instrument Type
Magnetic Flow Meter

Meter Information

Date of Test:	4/6/2021
Location:	Tara Well House #2
Meter Under Test	Treated Flow
Client Tag:	n/a
Manufacturer:	Endress Hauser
Model:	Promag 53W
Serial Number:	83037416000
Totalizer As Found:	608415.5M3
Totalizer As Left:	608418.6M3

Programming Parameters:

DN Size:	DN80
Cal Factor:	1.0084
Zero:	0
Calibration Due:	April 2022

Method of verification
EnH Field Check Verification/Calibration

Units: LPS
Zero: 0.00
Span: 12.62
Totalizer: M3

Flow Test

Sim Setting	Sim Flow LPS	Meter Display	Current Output	Disp Error%	mA Error %
0.000	0.000	0.000	3.998	0.000	0.050
3.155	3.155	3.155	7.994	0.002	0.075
6.309	6.309	6.302	11.985	0.059	0.125
9.464	9.464	9.504	16.059	0.320	0.369
12.618	12.618	12.623	20.020	0.040	0.100
			Average Error%	0.08	0.14
			Result:	PASS	PASS

Totalizer Test

Sim Flow Rate	12.618	LPS
Start Totalizer	608417.300	M3
End Totalizer	608418.400	M3
Volume Simulated	1.100	M3
Time(Seconds)	90.770	
Calculated Totalizer(MUT)	1.145	
Error%	-3.958	
Result:	PASS	

Comments:
Unit passes verification.

Tower Electronics Canada
2687 Hwy 40
K0K 3M0
Wooler On
Canada

Email: Dan@Tecanada.ca
Website: www.tecanada.ca

Tower Electronics Canada Inc. Calibration Certificate

Customer:
Municipality of Arran-Elderslie
Mark O'leary
Water Foreman
Water@arran-elderslie.ca

Calibration by:
Dan Matchett

Standards:
Endress and Hauser Field Check S/N:0000551303 Cal Due 3-15-22

Instrument Type
Magnetic Flow Meter

Meter Information

Date of Test:	4/6/2021
Location:	Tara Well House #3
Meter Under Test	Treated Flow
Client Tag:	n/a
Manufacturer:	Endress Hauser
Model:	Promag 53W
Serial Number:	H603A516000
Totalizer As Found:	2730440M3
Totalizer As Left:	2730467M3

Programming Parameters:

DN Size:	DN80
Cal Factor:	1.0391
Zero:	4
Calibration Due:	April 2022

Method of verification
EnH Field Check Verification/Calibration

Units:	LPS
Zero:	0.00
Span:	10.00
Totalizer:	M3

Flow Test

Sim Setting	Sim Flow LPS	Meter Display	Current Output	Disp Error%	mA Error %
0.000	0.000	0.000	3.998	0.000	0.050
2.500	2.500	2.500	8.003	0.003	0.038
5.000	5.000	5.003	12.001	0.028	0.008
7.500	7.500	7.501	16.008	0.008	0.050
10.000	10.000	10.002	20.017	0.020	0.085
			Average Error%	0.01	0.05
			Result:	PASS	PASS

Totalizer Test

Sim Flow Rate	10.000	LPS
Start Totalizer	273045.500	M3
End Totalizer	273046.500	M3
Volume Simulated	1.000	M3
Time(Seconds)	99.100	
Calculated Totalizer(MUT)	0.991	
Error%	0.908	
Result:	PASS	

Comments:
Unit passes verification.

Tower Electronics Canada
2687 Hwy 40
K0K 3M0
Wooler On
Canada

Email: Dan@Tecanada.ca
Website: www.tecanada.ca

Tower Electronics Canada Inc. Calibration Certificate

Customer:
Municipality of Arran-Elderslie
Mark O'leary
Water Foreman
Water@arran-elderslie.ca

Calibration by:
Dan Matchett

Standards:
Endress and Hauser Field Check S/N:0000551303 Cal Due 3-15-22

Instrument Type
Magnetic Flow Meter

Meter Information

Date of Test:	4/6/2021
Location:	Tara Well House #4
Meter Under Test	Treated Flow
Client Tag:	n/a
Manufacturer:	Endress Hauser
Model:	Promag 53W
Serial Number:	C5026216000
Totalizer As Found:	741068M3
Totalizer As Left:	741072M3

Programming Parameters:

DN Size:	DN80
Cal Factor:	1.0541
Zero:	7
Calibration Due:	April 2022

Method of verification
EnH Field Check Verification/Calibration

Units: LPS
Zero: 0.00
Span: 15.00
Totalizer: M3

Flow Test

Sim Setting	Sim Flow LPS	Meter Display	Current Output	Disp Error%	mA Error %
0.000	0.000	0.000	4.000	0.000	0.000
3.750	3.750	3.757	8.009	0.049	0.113
7.500	7.500	7.491	11.992	0.061	0.067
11.250	11.250	11.284	16.048	0.227	0.300
15.000	15.000	14.992	20.006	0.053	0.030
			Average Error%	0.08	0.10
			Result:	PASS	PASS

Totalizer Test

Sim Flow Rate	15.000	LPS
Start Totalizer	741070.000	M3
End Totalizer	741072.000	M3
Volume Simulated	2.000	M3
Time(Seconds)	136.570	
Calculated Totalizer(MUT)	2.049	
Error%	-2.370	
Result:	PASS	

Comments:
Unit passes verification.

Tower Electronics Canada
2687 Hwy 40
K0K 3M0
Wooler On
Canada

Email: Dan@Tecanada.ca
Website: www.tecanada.ca