

**Tara Water Works  
13-028**

**2020 Operation and Maintenance  
Annual Report  
January 2021**



**Prepared for:  
Municipality of Arran-Elderslie  
PO Box 70, 1925 Bruce Road 10  
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**2020 Annual Compliance Report, Operations and Maintenance  
Tara Water Works,  
Municipality of Arran-Elderslie**

January 2021

13-028

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## **1.0 INTRODUCTION AND BACKGROUND**

The purpose of the 2020 Annual Compliance Report is to document the operation and maintenance data for the Tara Water Works for review by the Ministry of the Environment in accordance with O. Reg 170/03.

Currently, 476 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 and Mr. Ted Knapp, who has a Class II Water Treatment Certificate and Class II Water Distribution System license. Rakesh Sharma, P. Eng., who has a Class IV Certificate for Water Treatment and Class IV Certificate for Water Distribution and 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:

### **Municipality of Arran-Elderslie**

P.O. Box 70, 1925 County Road #10  
Chesley, ON N0G 1L0  
Telephone: 519-363-3039  
Fax: 519-363-2203

### **ORO service is provided by:**

GSS Engineering Consultants Ltd.  
Unit 104D, 1010 9th Ave. W.  
Owen Sound, ON N4K 5R7  
Telephone: 519-372-4828

Water works Permit # 079-201 Issue 5  
Waterworks License # 079-101 Issue 4  
Permit to take Water #0033-BAGSCC

Issued January 8, 2021  
Issued January 8, 2021  
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<sup>2</sup> 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<sup>3</sup> and a total capacity of 3,952 m<sup>3</sup>. 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 2020 a total of 366 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. All free chlorine residuals were greater than 0.2 mg/L.

##### **3.1.2. CHLORINE RESIDUAL DISTRIBUTION**

In 2020, a total of 366 samples were collected in the distribution system. **Table 1** shows that all free chlorine residual distribution samples were greater than 0.2 mg/L and less than 4.00 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 112 distribution samples were analyzed for E. coli and Total Coliform and 58 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 one sample with HPC count of 30. 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**  
**2020**

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	0.4	1.07	31	0.48	1.06	31	0.85	1	31	0.69	1.23
February	29	0.38	1.06	29	0.8	1.06	29	0.8	1.04	29	0.74	1.12
March	31	0.5	1.04	31	0.78	1.02	31	0.86	1.02	31	0.59	1.13
April	30	0.48	1.11	30	0.74	1.03	30	0.84	1.08	30	0.86	1.15
May	31	0.14	1	31	0.7	1	31	0.79	1.09	31	0.79	1.21
June	30	0.5	1.04	30	0.62	1.09	30	0.41	1.11	30	0.61	1.34
July	31	0.48	0.96	31	0.48	0.92	31	0.42	1.03	31	0.53	1.23
August	31	0.52	0.94	31	0.54	0.94	31	0.76	0.99	31	0.35	1.15
September	30	0.6	0.98	30	0.6	0.98	30	0.69	0.97	30	0.41	1.24
October	31	0.7	1.01	31	0.68	0.99	31	0.86	1.09	31	0.45	1.23
November	30	0.74	0.99	30	0.42	1	30	0.77	0.96	30	0.55	1.17
December	31	0.74	1.06	31	0.78	1.05	31	0.79	1	31	0.73	1.22
<b>Total</b>	<b>366</b>			<b>366</b>			<b>366</b>			<b>366</b>		

**Table 2**  
**Summary of Water Quality – Turbidity Sampling of Raw and POE Samples**  
**Municipality of Arran-Elderslie – Tara**  
**2020**

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.			
January	4	0.36	0.32	4	0.39	0.32	4	0.3	0.25	0.31	---	0.27
February	4	0.4	0.37	4	0.43	0.35	4	0.33	0.31	0.36	---	0.29
March	5	0.39	0.36	5	0.41	0.35	5	0.31	0.3	0.37	---	0.31
April	4	0.35	0.35	4	0.37	0.35	4	0.33	0.31	0.35	---	0.33
May	4	0.33	0.30	4	0.40	0.31	4	0.28	0.23	0.34	---	0.28
June	5	0.54	0.32	5	0.48	0.33	5	0.36	0.22	0.39	---	0.43
July	4	0.45	0.34	4	0.6	0.40	4	0.45	0.19	0.29	---	0.33
August	5	0.41	0.28	5	0.23	0.19	5	0.23	0.15	0.42	---	0.21
September	4	0.22	0.14	4	0.27	0.22	4	0.15	0.12	0.18	---	0.23
October	4	0.23	0.14	4	0.25	0.21	4	0.14	0.10	0.17	---	0.12
November	5	0.24	0.18	5	0.41	0.34	5	0.16	0.12	0.34	---	0.15
December	4	0.32	0.2	4	0.45	0.34	4	0.17	0.12	0.19	---	0.08
<b>Annual</b>	<b>52</b>			<b>52</b>			<b>52</b>					

### **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 2020, total of 154 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 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 103 POE samples were collected and analyzed for Total Coliform, E. Coli and HPC. All analysis results, except one (1) on June 8, 2020, were found to be acceptable. Refer to **Table 3 (Appendix B)**. None of the samples, except two samples, had high HPC count 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. The samples were collected on November 23, 2020. 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. Well No. 4 requires sampling every 36 months. The sample was last collected on November 19, 2018 and all results were within compliance limits. Sampling at Well No. 4 is not required until November 2021. 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. Tara Water System is on reduced sampling requirements. Lead samples were collected in 2018 and received by lab on

March 19, 2018 and October 5, 2018. All lead samples results were well within MAC of 10 µg/L. In 2020, sampling for alkalinity was undertaken and concentration was found to be 243 mg/L on February 3, 2020 and 347 mg/L on August 24, 2020. 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 23, 2020 and were all found to be within compliance. Organics are required to be sampled again before November 2021 at Well No. 2 and Well No.3. Well No. 4 only requires sampling every 36 months. The samples were last collected and received by lab on November 19, 2018 and all results were in compliance. Sampling is not required at Well No. 4 until November 2021. 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 2020 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. Please refer to the **Table 4** for test results.

In 2021, 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 – 2020**

Sample Location		Sample received by Lab Date	TTHM (µg/L)	HAA (µg/L)
TTHM	HAA			
OC Long Subdivision	Community Centre	February 03, 2020	9.6	5.3
OC Long Subdivision	Community Centre	May 19, 2020	14	5.3
OC Long Subdivision	North Street SS	August 24, 2020	21	5.3
OC Long Subdivision	Cenotaph	November 23, 2020	14.0	5.3
<b>Annual Average</b>			<b>14.65</b>	

### **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 2020 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 2021, 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 2020 is provided in **Table 5** as follows. 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 capacity utilization of Tara Water Works. In 2020, capacity utilization was 46.7% of rated capacity of 1736 m<sup>3</sup>/day. In 2019, capacity utilization was 43.7%; in 2018; it was 46.4%; in 2017 it was 45.7% and in 2016 it was 59.9%. It would appear that water usage is levelling off due to sustained effort by Municipality to replace old CI watermain that are prone to watermain breaks.

For the volume of water supplied to the distribution system, the Tara Water Works as a whole required 2,319.9 L of NaOCl with an average dosage of 2.33 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 2020 and were found to be acceptable. Refer to **Appendix G**. The water meters for Tara Water Works should be calibrated again by April 2021.

**Table 5**  
**Treated Water Quality**  
**Municipality of Arran-Elderslie**  
**Tara Water Works**  
**2020**

Items	Well No. 2	Well No. 3	Well No. 4	Total
Annual Treated Water Supplied to the Distribution System (m <sup>3</sup> )	22,417	29,253	60,581	112,251
Average Day Treated Water Supplied by well from Pump House (m <sup>3</sup> /day)	81.8**	107.5**	204.8**	307.5*
Maximum Day Treated Water Supplied from Pump Houses (m <sup>3</sup> /day)	226	306	770	811

\* Sum of total water supplied from three (3) Pump Houses ÷ No. of days pump(s) operated.

\*\* Sum of total water supplied from Pump House(s) ÷ 365 days



**Table 6**  
**Summary of Water System's Capacity Utilization**  
**Municipality of Arran-Elderslie**  
**Tara Water Works**  
**2020**

<b>Year</b>	<b>Annual Average Day Flow (m<sup>3</sup>/day)</b>	<b>Annual Max Day Flow (m<sup>3</sup>/day)</b>	<b>% Capacity Utilization</b>
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%
<b>Rated Capacity of Water Works</b>		<b>1736 m<sup>3</sup>/day</b>	

**Table 7**  
**Summary of Disinfectant chemicals used and water supply from Wells**  
**Municipality of Arran-Elderslie**  
**Tara Water Works**  
**2020**

<b>Month</b>	<b>Volume of Sodium Hypochlorite (L) Used</b>	<b>Average Chlorine Dosage (mg/L)</b>	<b>Water Used (m<sup>3</sup>) including waste flow</b>
January	144.2	2.5	7,115
February	164.2	2.5	8,069
March	158.4	2.4	8,146
April	183.0	2.3	9,769
May	199.7	2.6	9,326
June	254.7	2.5	12,437
July	266.9	2.4	13,320
August	212.4	2.6	9,746
September	213.1	3.1	8,421
October	179.1	2.8	7,704
November	180.4	2.8	7,783
December	163.8	2.5	8,075
<b>Total</b>	<b>2,319.9</b>	<b>31.0</b>	<b>109,911</b>

## **5.0 NON-COMPLIANCE DURING THE REPORTING PERIOD**

There was one (1) incidence of non-compliance on June 8, 2020, when the TC in POE sample tested positive, with a TC count of 1. Corrective action(s) were taken and resampling on June 10<sup>th</sup> and June 15, 2020 was acceptable.

## **6.0 IMPROVEMENTS TO SYSTEM AND ROUTINE AND PREVENTATIVE MAINTENANCE**

### **January:**

- Foot suction and discharge valve were replaced on Chlorination Pump #1 at Well #2 Pumphouse.
- PRV on both Chlorination pumps at Well #2 were replaced.
- The Water Tower Antenna had to be thawed as there was ice build-up.

### **February:**

- Decant packs were replaced on Well #2 level transducer
- Air filters on UV #1 Disinfection Unit were cleaned.
- At 125 Hamilton Street, 32 mm poly watermain was repaired.
- Annual Service was completed on generator at Well #3 Pumphouse.
- Decant packs were replaced on Well #4 level transducer
- Well #4 chlorine analyzer was cleaned. Grit and electrolyte were also replaced.

### **March:**

- Replaced inlet piping on TMS 561 turbidimeter at Well #2 Pumphouse.
- Stainless steel piping and valves were cleaned and wiped down with protectant at all well sites.
- Both NaOCl tank at Well #2 pumphouse were cleaned and tubing replaced from the tank to the bottom of the pumps. Two (2) new foot valves were also installed.
- Hetek replaced gas sensor and calibrated wall mounted gas monitor at Well #3.
- Solenoid on chlorination pump #2 at Well #4 Pumphouse was repaired.

### **April:**

- Metcon was on site to replace Surefeed PLC system at Well #2 pumphouse.
- Flow meters were calibrated at all well site locations.
- Backflushing of the Distribution system began which is done annually.
- A TMS 561 Turbidimeter, Data Logger was installed in Well #3 pumphouse to monitor possible raw water turbidity issues.
- At Well #3 pumphouse, cartridge filters were replaced.

### **May:**

- Float switch in the NaOCl tank at Well #2 pumphouse was replaced.
- Suction Valve on NaOCl pump #1 at Well #2 pumphouse was replaced.
- Filters, the filter rod stems, and stem seat gaskets were replaced for cartridge filters at Well #2 pumphouse.
- The circuit board on the gas heater at Well #3 pumphouse was replaced.
- Suction valve and the degassing valve on NaOCl pump #2 at Well #4 pumphouse were replaced.

**June:**

- IWS replaced pump, motor and three pieces of pipe Tara Well #3.
- Enbridge replace the regulator at Tara Well #3 pumphouse.

**July:**

- Cartridge filters were replaced at Tara Well #2 pumphouse.
- UV sensors were cleaned on four (4) separate occasions at Well #3 pumphouse. On July 23<sup>rd</sup>, the sleeves were cleaned.
- On July 21<sup>st</sup>, the MECP conducted their annual inspection
- At 90 Brook Street West, the homeowner replaced the water line from their property to the house due to leakage.
- On July 30<sup>th</sup>, watermain break at 93 Maria Street was repaired.
- On July 31<sup>st</sup>, watermain break at 115 Maria Street was repaired.
- At Tara Well #4 pumphouse the decant pack on TMS 561 was replaced.
- Annual generator run at Tara Well #4 pumphouse was completed.

**August:**

- Well #2 pumphouse cartridge filters were replaced
- On August 1<sup>st</sup>, at 155 Maria Street there was a watermain break, which was repaired.
- On several occasions the UV #1 sensors and sleeves were cleaned and bulb five was replaced.

**September:**

- Additional maintenance work was completed on UV #1 unit including cleaning the sensors and sleeves.

**October:**

- Cartridge filters were replaced at Well #2 pumphouse.
- An inspection of all motor actuators at well sites was done by Rotork.

**November:**

- Roof drains and eavestroughs were checked and cleaned at all sites.
- Additional work was completed on UV #1 including cleaning the sensors and sleeves.

**December:**

- Cartridge filters were replaced at Well #2 and Well #3 pumphouse.,
- Chlorine pumps were calibrated all well sites. Injection points were cleaned, and check valves were also tested on injectors.

## **7.0 MINISTRY OF THE ENVIRONMENT INSPECTION AND REGULATORY ISSUES**

In 2020, the Ministry of the Environment performed an inspection of the Tara water system on April 30, 2020. The inspection Report is located in **Appendix D**.

There were no non-compliance issues.

MECP awarded a Final Inspection Rating of 100% and 0% Inspection Risk Rating for Tara Water Systems.

## **8.0 SUMMARY OF 2021 REQUIREMENTS & OTHER CONSIDERATIONS**

1. During 2021, 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 2021, 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 2021, a Point of Entry sample should be collected and analyzed for Total Coliform, E. Coli and HPC weekly.
4. By November 2021, a POE sample for inorganics should be collected for Well No. 2 and Well No. 3. Well No. 4 is also to be sampled by November 2021 for inorganics parameters testing.
5. Lead samples are to be collected twice between December 15, 2021 and April 15, 2022 and again between June 15 and October 15, 2022.
6. By November 2021, 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. Well No. 4 is also to be sampled by November 2021 for Sch 25 parameters testing.
7. Trihalomethanes and Halo Acetic Acid (HAA) from the distribution system samples should be collected every three (3) months starting in February, from the distribution system.
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 2021.
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:

2020

SERVICED POPULATION:

1032

DESIGN CAPACITY:

426 m<sup>3</sup>/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 COLELECTED	NO. OF SAMPLES WITH DETECTABLE RES.
JAN.	79.6	150	23	1831	31		0.13	31	1.07	31	31
FEB.	99.8	167	20	1995	29		0.13	31	1.06	29	29
MAR.	90	173	20	1801	31		0.11	31	1.04	31	31
APR.	69.1	151	21	1313	31		0.09	30	1.11	30	30
MAY	83.4	146	24	2084	31		0.1	31	1	31	31
JUN.	85.5	164	30	2556	31		0.18	30	1.04	30	30
JUL.	96.8	226	26	2517	31		0.25	31	0.96	31	31
AUG.	81.2	218	20	1624	31		0.24	31	0.94	31	31
SEP.	76.7	144	23	1763	31		0.18	30	0.98	30	30
OCT.	60.6	157	21	1272	31		0.19	31	1	31	31
NOV.	79.4	138	23	1826	31		0.14	30	0.99	30	30
DEC.	79.8	150	23	1835	31		0.14	31	1.06	31	31
<b>TOTAL</b>			274	22,417	370	0		368		366	366
<b>AVERAGE*</b>	81.83						0.16		1.02		
<b>MAXIMUM</b>		226									

DISINFECTANT COMPOUND USED:

Sodium Hypochlorite

FORM OF RESIDUAL DISPLAYED ON ABOVE TABLE:

Free

QUANTITY OF DISINFECTANT USED DURING YEAR (l):

2,319.9 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:

2020

SERVICED POPULATION:

1032

DESIGN CAPACITY:

458 m<sup>3</sup>/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.	92.2	174	23	2121	31		0.09	31	1.06	31	31
FEB.	114	207	21	2395	29		0.05	29	1.06	29	29
MAR.	103.2	196	20	2064	31		0.1	31	1.03	31	31
APR.	96.3	266	22	2118	30		0.04	30	1.03	30	30
MAY	97.6	177	25	2439	31		0.06	31	1.01	31	31
JUN.	93.7	181	29	2716	30		0.13	30	1.09	30	30
JUL.	144	306	17	2448	31		0.1	31	0.92	31	31
AUG.	140.2	289	26	3646	31		0.1	31	0.95	31	31
SEP.	123.4	212	22	2714	30		0.08	30	0.98	30	30
OCT.	89.2	224	21	1873	31		0.05	31	0.99	31	31
NOV.	99	181	24	2375	30		0.1	30	1	30	30
DEC.	97.7	190	24	2344	31		0.15	31	1.05	31	31
<b>TOTAL</b>			274	29,253	366	0		366		366	366
<b>AVERAGE*</b>	107.54						0.09		1.01		
<b>MAXIMUM</b>		306									

DISINFECTANT COMPOUND USED:

Sodium Hypochlorite

FORM OF RESIDUAL DISPLAYED ON ABOVE TABLE:

Free

QUANTITY OF DISINFECTANT USED DURING YEAR (l):

2,319.9L 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-3**  
**ANNUAL SUMMARY – TREATED WATER FLOWS, TURBIDITY, AND DISINFECTANT RESIDUAL**

WATER WORKS NAME & NUMBER:

Arran-Elderslie - Tara - Well 4

YEAR:

2020

SERVICED POPULATION:

1032

DESIGN CAPACITY:

852 m<sup>3</sup>/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 COLECTCTED	NO. OF SAMPLES WITH DETECTABLE RES.
JAN.	175.3	341	19	3331	31		0.07	31	1	31	31
FEB.	193.6	346	19	3679	29		0.06	29	1.04	29	29
MAR.	200.9	412	23	4620	31		0.04	31	1.02	31	31
APR.	234.7	770	27	6338	30		0.05	30	1.08	30	30
MAY	213.4	408	24	5121	31		0.06	31	1.09	31	31
JUN.	238.5	455	30	7155	30		0.1	30	1.11	30	30
JUL.	336.4	580	27	9084	31		0.11	31	1.04	31	31
AUG.	179.2	441	26	4659	31		0.08	31	0.99	31	31
SEP.	187.8	377	21	3944	30		0.05	30	0.97	30	30
OCT.	173	335	28	4844	31		0.08	31	1.09	31	31
NOV.	155.7	328	23	3582	30		0.1	30	0.96	30	30
DEC.	169	375	24	4224	31		0.07	31	1	31	31
<b>TOTAL</b>			291	60581	366	0		366		366	366
<b>AVERAGE*</b>	204.79						0.07		1.03		
<b>MAXIMUM</b>		770									

DISINFECTANT COMPOUND USED:

Sodium Hypochlorite

FORM OF RESIDUAL DISPLAYED ON ABOVE TABLE:

Free

QUANTITY OF DISINFECTANT USED DURING YEAR (l):

2,319.9 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 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, 2020 to DECEMBER 31, 2020**

Date Rec	Well #	Raw		Point of Entry (POE)			Distribution		
		E.Coli	Total Coliform	E. Coli	Total Coliform	HPC	E. Coli	Total Coliform	HPC
JAN 06	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
JAN 13	Well #2	0	0						
	Well #3	0	1	0	0	<10	0	0	<10
	Well #4	0	0	0	0	<10	0	0	<10
JAN 20	Well #2	0	0				0	0	
	Well #3	0	0	0	0	<10	0	0	
	Well #4	0	0	0	0	<10	0	0	
JAN 27	Well #2	0	0				0	0	
	Well #3	0	0	0	0	<10	0	0	
	Well #4	0	0	0	0	<10	0	0	
FEB 03	Well #2	0	0				0	0	<10
	Well #3	0	0	0	0	<10	0	0	<10
	Well #4	0	0	0	0	<10	0	0	<10
FEB 10	Well #2	0	0						
	Well #3	0	0	0	0	<10	0	0	<10
	Well #4	0	0	0	0	<10	0	0	<10
FEB 19	Well #2	0	0						
	Well #3	0	1	0	0	<10	0	0	
	Well #4	0	0	0	0	<10	0	0	
FEB 24	Well #2	0	0						
	Well #3	0	0	0	0	<10	0	0	
	Well #4	0	0	0	0	<10	0	0	
MAR 02	Well #2	0	0						
	Well #3	0	0	0	0	<10	0	0	<10
	Well #4	0	0	0	0	<10	0	0	<10
MAR 09	Well #2	0	0						
	Well #3	0	0	0	0	<10	0	0	<10
	Well #4	0	0	0	0	<10	0	0	<10
MAR 16	Well #2	0	0						
	Well #3	0	0	0	0	<10	0	0	
	Well #4	0	0	0	0	<10	0	0	
MAR 23	Well #2	0	0						
	Well #3	0	0	0	0	<10	0	0	
	Well #4	0	0	0	0	<10	0	0	
MAR 30	Well #2	0	0						
	Well #3	0	0	0	0	<10	0	0	
	Well #4	0	0	0	0	<10	0	0	
APR 06	Well #2	0	0				0	0	<10
	Well #3	0	0	0	0	<10	0	0	<10
	Well #4	0	0	0	0	<10	0	0	<10
APR 15	Well #2	0	0						
	Well #3	0	0	0	0	<10	0	0	<10
	Well #4	0	0	0	0	<10	0	0	<10
APR 20	Well #2	0	0						
	Well #3	0	0	0	0	<10	0	0	
	Well #4	0	0	0	0	<10	0	0	
APR 27	Well #2	0	0						
	Well #3	0	0	0	0	<10	0	0	
	Well #4	0	0	0	0	<10	0	0	

**Table 3**  
**SUMMARY OF WATER QUALITY - MICROBIOLOGICAL**  
**MUNICIPALITY OF ARRAN-ELDERSLIE**  
**TARA WATER SUPPLY**  
**JANUARY 1, 2020 to DECEMBER 31, 2020**

Date Rec	Well #	Raw		Point of Entry (POE)			Distribution		
		E.Coli	Total Coliform	E. Coli	Total Coliform	HPC	E. Coli	Total Coliform	HPC
MAY 04	Well #2	0	0				0	0	<10
	Well #3	0	0	0	0	<10	0	0	<10
	Well #4	0	0	0	0	<10	0	0	<10
MAY 11	Well #2	0	0						
	Well #3	0	0	0	0	<10	0	0	<10
	Well #4	0	0	0	0	<10	0	0	<10
MAY 20	Well #2	0	0						
	Well #3	0	0	0	0	<10	0	0	
	Well #4	0	0	0	0	<10	0	0	
MAY 25	Well #2	0	0						
	Well #3	0	0	0	0	<10	0	0	
	Well #4	0	0	0	0	<10	0	0	
JUN 01	Well #2	0	0						
	Well #3	0	0	0	0	30	0	0	<10
	Well #4	0	0	0	0	<10	0	0	<10
JUN 08	Well #2	0	0						
	Well #3	0	0	0	1 MAC	<10	0	0	<10
	Well #4	0	0	0	0	<10	0	0	<10
JUN 11	Well #2								
	Well #3			0	0	<10	0	0	
	Well #4								
JUN 15	Well #2	0	0						
	Well #3	0	1	0	0	<10	0	0	<10
	Well #4	0	0	0	0	<10	0	0	<10
JUN 22	Well #2	0	0						
	Well #3	0	0	0	0	<10	0	0	
	Well #4	0	0	0	0	<10	0	0	
JUN 29	Well #2	0	0						
	Well #3	0	8	0	0	<10	0	0	
	Well #4	0	0	0	0	<10	0	0	
JUL 10									
	Well #3	0	0						
JUL 13	Well #2	0	0						
	Well #3	0	1	0	0	<10	0	0	<10
	Well #4	0	0	0	0	<10	0	0	<10
JUL 20	Well #2	0	0						
	Well #3	0	6	0	0	<10	0	0	<10
	Well #4	0	0	0	0	<10	0	0	<10
JUL 27	Well #2	0	0						
	Well #3	0	7	0	0	<10	0	0	
	Well #4	0	0	0	0	<10	0	0	
AUG 05	Well #2	0	0				0	0	<10
	Well #3	0	1	0	0	<10	0	0	<10
	Well #4	0	0	0	0	<10	0	0	<10
AUG 10	Well #2	0	0						
	Well #3	0	1	0	0	<10	0	0	<10
	Well #4	0	0	0	0	<10	0	0	<10
AUG 17	Well #2	0	0						
	Well #3	0	2	0	0	<10	0	0	
	Well #4	0	0	0	0	<10	0	0	

**Table 3**  
**SUMMARY OF WATER QUALITY - MICROBIOLOGICAL**  
**MUNICIPALITY OF ARRAN-ELDERSLIE**  
**TARA WATER SUPPLY**  
**JANUARY 1, 2020 to DECEMBER 31, 2020**

Date Rec	Well #	Raw		Point of Entry (POE)			Distribution		
		E.Coli	Total Coliform	E. Coli	Total Coliform	HPC	E. Coli	Total Coliform	HPC
AUG 24	Well #2	0	0						
	Well #3	0	1	0	0	<10	0	0	
	Well #4	0	0	0	0	<10	0	0	
AUG 31	Well #2	0	0						
	Well #3	0	0	0	0	<10	0	0	
	Well #4	0	0	0	0	<10	0	0	
SEPT 09	Well #2	0	0				0	0	<10
	Well #3	0	0	0	0	10	0	0	10
	Well #4	0	0	0	0	<10	0	0	<10
SEPT 14	Well #2	0	0						
	Well #3	0	0	0	0	<10	0	0	<10
	Well #4	0	0	0	0	10	0	0	30
SEPT 21	Well #2	0	0						
	Well #3	0	1	0	0	10	0	0	
	Well #4	0	0	0	0	<10	0	0	
SEPT 28	Well #2	0	0						
	Well #3	0	0	0	0	<10	0	0	
	Well #4	0	0	0	0	<10	0	0	
OCT 05	Well #2	0	0				0	0	<10
	Well #3	0	7	0	0	440	0	0	<10
	Well #4	0	0	0	0	<10	0	0	<10
OCT 14	Well #2	0	0						
	Well #3	0	0	0	0	<10	0	0	<10
	Well #4	0	0	0	0	<10	0	0	<10
OCT 19	Well #2	0	0						
	Well #3	0	0	0	0	<10	0	0	
	Well #4	0	0	0	0	<10	0	0	
OCT 26	Well #2	0	0						
	Well #3	0	2	0	0	<10	0	0	
	Well #4	0	0	0	0	<10	0	0	
NOV 02	Well #2	0	0						
	Well #3	0	2	0	0	<10	0	0	<10
	Well #4	0	0	0	0	<10	0	0	<10
NOV 09	Well #2	0	0						
	Well #3	0	1	0	0	<10	0	0	10
	Well #4	0	0	0	0	<10	0	0	10
NOV 16	Well #2	0	0						
	Well #3	0	2	0	0	<10	0	0	
	Well #4	0	0	0	0	<10	0	0	
NOV 24	Well #2	0	0						
	Well #3	0	0	0	0	<10	0	0	
	Well #4	0	0	0	0	<10	0	0	
NOV 30	Well #2	0	0						
	Well #3	0	0	0	0	<10	0	0	
	Well #4	0	0	0	0	<10			
DEC 07	Well #2	0	0				0	0	<10
	Well #3	1	0	0	0	<10	0	0	<10
	Well #4	0	0	0	0	<10	0	0	<10
DEC 14	Well #2	0	0						
	Well #3	0	0	0	0	<10	0	0	<10
	Well #4	0	0	0	0	<10	0	0	<10



**Table 3**  
**SUMMARY OF WATER QUALITY - MICROBIOLOGICAL**  
**MUNICIPALITY OF ARRAN-ELDERSLIE**  
**TARA WATER SUPPLY**  
**JANUARY 1, 2020 to DECEMBER 31, 2020**

Date Rec	Well #	Raw		Point of Entry (POE)			Distribution		
		E.Coli	Total Coliform	E. Coli	Total Coliform	HPC	E. Coli	Total Coliform	HPC
DEC 21	Well #2	0	0						
	Well #3	1	0	0	0	<10	0	0	
	Well #4	0	0	0	0	<10	0	0	
DEC 30	Well #2	0	0						
	Well #3	0	0	0	0	<10	0	0	
	Well #4	0	0	0	0	<10	0	0	
Total of Samples		154	154	103	103	103	112	112	58

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

1st Quarter



SGS Canada Inc.  
P.O. Box 4300 - 185 Concession St  
Lakefield - Ontario - K0L 2H0  
Phone: 705-652-2000 FAX: 705-652-6365

Works #: 220002627

14-February-2020

Mun of Arran Elderslie (Tara)

Attn : Mark O'Leary

Date Rec. : 04 February 2020

LR Report: CA30020-FEB20

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

Copy: #1

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

## 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 Community Centre
Sample Date & Time							03-Feb-20 11:20	03-Feb-20 09:45	03-Feb-20 09:25	03-Feb-20 10:00
Temperature Upon Receipt [°C]	---	---	---	---	---	---	8.0	8.0	8.0	8.0
Field Total Chlorine [mg/L]	---	---	---	---	---	---	1.41	1.25	1.09	1.16
Field Free Chlorine [mg/L]	---	---	---	---	---	---	1.12	1.17	0.96	0.95
Nitrite (as N) [mg/L]	05-Feb-20	16:43	07-Feb-20	10:48	1.0	0.003	0.003 <MDL	0.003 <MDL	---	---
Nitrate (as N) [mg/L]	05-Feb-20	16:43	07-Feb-20	10:48	10	0.006	0.053	0.947	---	---
Nitrate + Nitrite (as N) [mg/L]	05-Feb-20	16:43	07-Feb-20	10:48	---	0.006	0.053	0.947	---	---
Trihalomethanes (total) [ug/L]	12-Feb-20	11:56	14-Feb-20	11:38	100 (RAA)	0.37	---	---	9.6	---
Bromodichloromethane [ug/L]	12-Feb-20	11:56	14-Feb-20	11:38	---	0.26	---	---	2.9	---
Bromoform [ug/L]	12-Feb-20	11:56	14-Feb-20	11:38	---	0.34	---	---	1.4	---
Chloroform [ug/L]	12-Feb-20	11:56	14-Feb-20	11:38	---	0.29	---	---	1.6	---
Dibromochloromethane [ug/L]	12-Feb-20	11:56	14-Feb-20	11:38	---	0.37	---	---	3.6	---
Total Haloacetic Acids (HAA5) [ug/L]	06-Feb-20	12:36	07-Feb-20	11:25	80 (RAA)	5.3	---	---	---	5.3 <MDL
Chloroacetic Acid [ug/L]	06-Feb-20	12:36	07-Feb-20	11:25	---	4.7	---	---	---	4.7 <MDL
Bromoacetic Acid [ug/L]	06-Feb-20	12:36	07-Feb-20	11:25	---	2.9	---	---	---	2.9 <MDL
Dichloroacetic Acid [ug/L]	06-Feb-20	12:36	07-Feb-20	11:25	---	2.6	---	---	---	2.6 <MDL
Dibromoacetic Acid [ug/L]	06-Feb-20	12:36	07-Feb-20	11:25	---	2.0	---	---	---	2.0 <MDL
Trichloroacetic Acid [ug/L]	06-Feb-20	12:36	07-Feb-20	11:25	---	5.3	---	---	---	5.3 <MDL

MAC - Maximum Acceptable Concentration  
MDL - SGS Method Detection Limit

2nd Qtr.



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

Works #: 220002627

28-May-2020

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

Date Rec. : 20 May 2020  
LR Report: CA30263-MAY20

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

Copy: #1

Phone: 519-363-3039 ext:122  
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## 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-Hortic ultural Parking Lot
Sample Date & Time							19-May-20 09:45	19-May-20 09:00	19-May-20 10:20	19-May-20 09:10
Temperature Upon Receipt [°C]	---	---	---	---	---	---	2.0	2.0	2.0	2.0
Field Total Chlorine [mg/L]	---	---	---	---	---	---	1.38	1.27	0.91	1.18
Field Free Chlorine [mg/L]	---	---	---	---	---	---	1.08	1.18	0.79	1.03
Nitrite (as N) [mg/L]	22-May-20	15:00	25-May-20	13:39	1.0	0.003	0.003 <MDL	0.003 <MDL	---	---
Nitrate (as N) [mg/L]	22-May-20	15:00	25-May-20	13:39	10	0.006	0.050	1.16	---	---
Nitrate + Nitrite (as N) [mg/L]	22-May-20	15:00	25-May-20	13:39	---	0.006	0.050	1.16	---	---
Trihalomethanes (total) [ug/L]	25-May-20	06:29	27-May-20	20:58	100 (RAA)	0.37	---	---	14	---
Bromodichloromethane [ug/L]	25-May-20	06:29	27-May-20	20:58	--	0.26	---	---	4.6	---
Bromoform [ug/L]	25-May-20	06:29	27-May-20	20:58	--	0.34	---	---	1.8	---
Chloroform [ug/L]	25-May-20	06:29	27-May-20	20:58	--	0.29	---	---	2.3	---
Dibromochloromethane [ug/L]	25-May-20	06:29	27-May-20	20:58	--	0.37	---	---	5.1	---
Total Haloacetic Acids (HAA5) [ug/L]	25-May-20	09:45	27-May-20	21:10	80 (RAA)	5.3	---	---	---	5.3 <MDL
Chloroacetic Acid [ug/L]	25-May-20	09:45	27-May-20	21:10	---	4.7	---	---	---	4.7 <MDL
Bromoacetic Acid [ug/L]	25-May-20	09:45	27-May-20	21:10	---	2.9	---	---	---	2.9 <MDL
Dichloroacetic Acid [ug/L]	25-May-20	09:45	27-May-20	21:10	---	2.6	---	---	---	2.6 <MDL
Dibromoacetic Acid [ug/L]	25-May-20	09:45	27-May-20	21:10	---	2.0	---	---	---	2.0 <MDL
Trichloroacetic Acid [ug/L]	25-May-20	09:45	27-May-20	21:10	---	5.3	---	---	---	5.3 <MDL

MAC - Maximum Acceptable Concentration  
MDL - SGS Method Detection Limit

3rd Quarter

**SGS**  
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Works #: 220002627

04-September-2020

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

Date Rec. : 24 August 2020  
LR Report: CA30353-AUG20

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

Copy: #1

Phone: 519-363-3039 ext:122  
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# 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							24-Aug-20 08:45	24-Aug-20 09:45	24-Aug-20 09:25	24-Aug-20 11:25
Temperature Upon Receipt [°C]	---	---	---	---	---	---	6.0	6.0	6.0	6.0
Field Total Chlorine [mg/L]	---	---	---	---	---	---	1.27	1.36	0.67	1.15
Field Free Chlorine [mg/L]	---	---	---	---	---	---	1.03	1.27	0.56	0.95
Nitrite (as N) [mg/L]	26-Aug-20	20:32	27-Aug-20	14:09	1.0	0.003	0.003 <MDL	0.003 <MDL	---	---
Nitrate (as N) [mg/L]	26-Aug-20	20:32	27-Aug-20	14:09	10	0.006	0.100	1.44	---	---
Nitrate + Nitrite (as N) [mg/L]	26-Aug-20	20:32	27-Aug-20	14:09	---	0.006	0.100	1.44	---	---
Trihalomethanes (total) [ug/L]	27-Aug-20	16:35	28-Aug-20	10:46	100 (RAA)	0.37	---	---	21	---
Bromodichloromethane [ug/L]	27-Aug-20	16:35	28-Aug-20	10:46	---	0.26	---	---	6.9	---
Bromoform [ug/L]	27-Aug-20	16:35	28-Aug-20	10:46	---	0.34	---	---	2.6	---
Chloroform [ug/L]	27-Aug-20	16:35	28-Aug-20	10:46	---	0.29	---	---	3.9	---
Dibromochloromethane [ug/L]	27-Aug-20	16:35	28-Aug-20	10:46	---	0.37	---	---	7.9	---
Total Haloacetic Acids (HAA5) [ug/L]	01-Sep-20	15:31	04-Sep-20	09:50	80 (RAA)	5.3	---	---	---	5.3 <MDL
Chloroacetic Acid [ug/L]	01-Sep-20	15:31	04-Sep-20	09:50	---	4.7	---	---	---	4.7 <MDL
Bromoacetic Acid [ug/L]	01-Sep-20	15:31	04-Sep-20	09:50	---	2.9	---	---	---	2.9 <MDL
Dichloroacetic Acid [ug/L]	01-Sep-20	15:31	04-Sep-20	09:50	---	2.6	---	---	---	2.6 <MDL
Dibromoacetic Acid [ug/L]	01-Sep-20	15:31	04-Sep-20	09:50	---	2.0	---	---	---	2.7
Trichloroacetic Acid [ug/L]	01-Sep-20	15:31	04-Sep-20	09:50	---	5.3	---	---	---	5.3 <MDL

4th Str, Sch. 23 & 24

**SGS**  
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Works #: 220002627

08-December-2020

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

Date Rec. : 23 November 2020  
 LR Report: CA30290-NOV20

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## CERTIFICATE OF ANALYSIS

### Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: 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-Cenot aph
Sample Date & Time								23-Nov-20 09:55	23-Nov-20 09:30	23-Nov-20 09:45	23-Nov-20 09:10
Temperature upon Delivery [ @ London Lab °C]	---	---	---	---	---	---	---	11.0	11.0	11.0	11.0
Temperature Upon Receipt [°C]	---	---	---	---	---	---	---	9.0	9.0	9.0	9.0
Nitrite (as N) [mg/L]	27-Nov-20	16:56	30-Nov-20	10:26	1	---	0.003	0.003 <MDL	0.003 <MDL	---	---
Nitrate (as N) [mg/L]	27-Nov-20	16:56	30-Nov-20	10:26	10	---	0.006	0.055	1.47	---	---
Nitrate + Nitrite (as N) [mg/L]	27-Nov-20	16:56	30-Nov-20	10:26	---	---	0.006	0.055	1.47	---	---
Trihalomethanes (total) [ug/L]	25-Nov-20	14:56	04-Dec-20	13:49	100 (RAA)	---	0.37	---	---	14	---
Bromodichloromethane [ug/L]	25-Nov-20	14:56	04-Dec-20	13:49	---	---	0.26	---	---	4.1	---
Bromoform [ug/L]	25-Nov-20	14:56	04-Dec-20	13:49	---	---	0.34	---	---	2.2	---
Chloroform [ug/L]	25-Nov-20	14:56	04-Dec-20	13:49	---	---	0.29	---	---	2.1	---
Dibromochloromethane [ug/L]	25-Nov-20	14:56	04-Dec-20	13:49	---	---	0.37	---	---	5.4	---
Total Haloacetic Acids (HAA5) [ug/L]	26-Nov-20	08:54	30-Nov-20	11:50	80 (RAA)	---	5.3	---	---	---	5.3 <MDL
Chloroacetic Acid [ug/L]	26-Nov-20	08:54	30-Nov-20	11:50	---	---	4.7	---	---	---	4.7 <MDL
Bromoacetic Acid [ug/L]	26-Nov-20	08:54	30-Nov-20	11:50	---	---	2.9	---	---	---	2.9 <MDL
Dichloroacetic Acid [ug/L]	26-Nov-20	08:54	30-Nov-20	11:50	---	---	2.6	---	---	---	2.6 <MDL
Dibromoacetic Acid [ug/L]	26-Nov-20	08:54	30-Nov-20	11:50	---	---	2.0	---	---	---	2.0 <MDL
Trichloroacetic Acid [ug/L]	26-Nov-20	08:54	30-Nov-20	11:51	---	---	5.3	---	---	---	5.3 <MDL
Antimony [ug/L]	30-Nov-20	12:12	01-Dec-20	12:44	6	---	0.9	0.9 <MDL	---	---	---
Arsenic [ug/L]	30-Nov-20	12:12	01-Dec-20	12:44	10	---	0.2	0.2 <MDL	---	---	---
Barium [ug/L]	30-Nov-20	12:12	01-Dec-20	12:44	1000	---	0.02	32.4	---	---	---
Boron [ug/L]	30-Nov-20	12:12	01-Dec-20	12:44	5000	---	2	198	---	---	---
Cadmium [ug/L]	30-Nov-20	12:12	01-Dec-20	12:44	5	---	0.003	0.003 <MDL	---	---	---



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Works #: 220002627

LR Report : CA30290-NOV20

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: 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-Cenot aph
Chromium [ug/L]	30-Nov-20	12:12	01-Dec-20	12:44	50	---	0.08	0.73	---	---	---
Mercury [ug/L]	30-Nov-20	08:01	30-Nov-20	11:02	1	---	0.01	0.01 <MDL	---	---	---
Selenium [ug/L]	30-Nov-20	12:12	01-Dec-20	12:44	50	---	0.04	0.04 <MDL	---	---	---
Uranium [ug/L]	30-Nov-20	12:12	01-Dec-20	12:44	20	---	0.002	0.191	---	---	---
Benzene [ug/L]	25-Nov-20	14:56	26-Nov-20	21:28	1	---	0.32	0.32 <MDL	---	---	---
Carbon tetrachloride [ug/L]	25-Nov-20	14:56	26-Nov-20	21:28	2	---	0.17	0.17 <MDL	---	---	---
1,2-Dichlorobenzene [ug/L]	25-Nov-20	14:56	26-Nov-20	21:28	200	3	0.41	0.41 <MDL	---	---	---
1,4-Dichlorobenzene [ug/L]	25-Nov-20	14:56	26-Nov-20	21:28	5	1	0.36	0.36 <MDL	---	---	---
1,1-Dichloroethylene (vinylidene chloride) [ug/L]	25-Nov-20	14:56	26-Nov-20	21:28	14	---	0.33	0.33 <MDL	---	---	---
1,2-Dichloroethane [ug/L]	25-Nov-20	14:56	26-Nov-20	21:28	5	---	0.35	0.35 <MDL	---	---	---
Dichloromethane [ug/L]	25-Nov-20	14:56	26-Nov-20	21:28	50	---	0.35	0.35 <MDL	---	---	---
Monochlorobenzene [ug/L]	25-Nov-20	14:56	26-Nov-20	21:28	80	30	0.30	0.3 <MDL	---	---	---
Tetrachloroethylene (perchloroethylene) [ug/L]	25-Nov-20	14:56	26-Nov-20	21:28	10	---	0.35	0.35 <MDL	---	---	---
Trichloroethylene [ug/L]	25-Nov-20	14:56	26-Nov-20	21:28	5	---	0.44	0.44 <MDL	---	---	---
Vinyl Chloride [ug/L]	25-Nov-20	14:56	26-Nov-20	21:28	1	---	0.17	0.17 <MDL	---	---	---
Diquat [ug/L]	03-Dec-20	15:06	08-Dec-20	15:21	70	---	1	1 <MDL	---	---	---
Paraquat [ug/L]	03-Dec-20	15:06	08-Dec-20	15:21	10	---	1	1 <MDL	---	---	---
Glyphosate [ug/L]	01-Dec-20	11:30	04-Dec-20	11:16	280	---	1	1 <MDL	---	---	---
Polychlorinated Biphenyls (PCBs) - Total [ug/L]	26-Nov-20	12:12	30-Nov-20	14:27	3	---	0.04	0.04 <MDL	---	---	---
Benzo(a)pyrene [ug/L]	27-Nov-20	08:59	30-Nov-20	17:11	0.01	---	0.004	0.004 <MDL	---	---	---
Alachlor [ug/L]	27-Nov-20	08:59	30-Nov-20	17:11	5	---	0.02	0.02 <MDL	---	---	---
Atrazine + N-dealkylated metabolites [ug/L]	27-Nov-20	08:59	30-Nov-20	17:11	5	---	0.01	0.01 <MDL	---	---	---
Atrazine [ug/L]	27-Nov-20	08:59	30-Nov-20	17:11	--	---	0.01	0.01 <MDL	---	---	---
Desethyl atrazine [ug/L]	27-Nov-20	08:59	30-Nov-20	17:11	--	---	0.01	0.01 <MDL	---	---	---
Azinphos-methyl [ug/L]	27-Nov-20	08:59	30-Nov-20	17:11	20	---	0.05	0.05 <MDL	---	---	---
Carbaryl [ug/L]	27-Nov-20	08:59	30-Nov-20	17:11	90	---	0.05	0.05 <MDL	---	---	---
Carbofuran [ug/L]	27-Nov-20	08:59	30-Nov-20	17:11	90	---	0.01	0.01 <MDL	---	---	---
Chlorpyrifos [ug/L]	27-Nov-20	08:59	30-Nov-20	17:11	90	---	0.02	0.02 <MDL	---	---	---
Diazinon [ug/L]	27-Nov-20	08:59	30-Nov-20	17:11	20	---	0.02	0.02 <MDL	---	---	---
Dimethoate [ug/L]	27-Nov-20	08:59	30-Nov-20	17:11	20	---	0.06	0.06 <MDL	---	---	---
Diuron [ug/L]	27-Nov-20	08:59	30-Nov-20	17:11	150	---	0.03	0.03 <MDL	---	---	---
Malathion [ug/L]	27-Nov-20	08:59	30-Nov-20	17:11	190	---	0.02	0.02 <MDL	---	---	---
Metolachlor [ug/L]	27-Nov-20	08:59	30-Nov-20	17:11	50	---	0.01	0.01 <MDL	---	---	---
Metribuzin [ug/L]	27-Nov-20	08:59	30-Nov-20	17:11	80	---	0.02	0.02 <MDL	---	---	---
Phorate [ug/L]	27-Nov-20	08:59	30-Nov-20	17:11	2	---	0.01	0.01 <MDL	---	---	---
Prometryne [ug/L]	27-Nov-20	08:59	30-Nov-20	17:11	1	---	0.03	0.03 <MDL	---	---	---

Data reported represents the sample submitted to SGS. Reproduction of this analytical report in full or in part is prohibited without prior written approval. Please refer to SGS General Conditions of Services located at <https://www.sgs.ca/en/terms-and-conditions> (Printed copies are available upon request.)  
Test method information available upon request. "Temperature Upon Receipt" is representative of the whole shipment and may not reflect the temperature of individual samples.  
SGS Canada Inc. Environment-Health & Safety statement of conformity decision rule does not consider uncertainty when analytical results are compared to a specified standard or regulation.



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Phone: 705-652-2000 FAX: 705-652-6365

Works #: 220002627

LR Report : CA30290-NOV20

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: 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-Cenot aph
Simazine [ug/L]	27-Nov-20	08:59	30-Nov-20	17:11	10	---	0.01	0.01 <MDL	---	---	---
Terbufos [ug/L]	27-Nov-20	08:59	30-Nov-20	17:11	1	---	0.01	0.01 <MDL	---	---	---
Triallate [ug/L]	27-Nov-20	08:59	30-Nov-20	17:11	230	---	0.01	0.01 <MDL	---	---	---
Trifluralin [ug/L]	27-Nov-20	08:59	30-Nov-20	17:11	45	---	0.02	0.02 <MDL	---	---	---
2,4-dichlorophenoxyacetic acid (2,4-D) [ug/L]	01-Dec-20	12:00	08-Dec-20	15:27	100	---	0.19	0.19 <MDL	---	---	---
Bromoxynil [ug/L]	01-Dec-20	12:00	08-Dec-20	15:27	5	---	0.33	0.33 <MDL	---	---	---
Dicamba [ug/L]	01-Dec-20	12:00	08-Dec-20	15:27	120	---	0.20	0.20 <MDL	---	---	---
Diclofop-methyl [ug/L]	01-Dec-20	12:00	08-Dec-20	15:27	9	---	0.40	0.40 <MDL	---	---	---
MCPA [mg/L]	01-Dec-20	12:00	08-Dec-20	15:27	0.1	---	0.00012	0.00012 <MDL	---	---	---
Picloram [ug/L]	01-Dec-20	12:00	08-Dec-20	15:27	190	---	1	1 <MDL	---	---	---
2,4-dichlorophenol [ug/L]	01-Dec-20	12:00	08-Dec-20	15:27	900	0.3	0.15	0.15 <MDL	---	---	---
2,4,6-trichlorophenol [ug/L]	01-Dec-20	12:00	08-Dec-20	15:27	5	2	0.25	0.25 <MDL	---	---	---
2,3,4,6-tetrachlorophenol [ug/L]	01-Dec-20	12:00	08-Dec-20	15:27	100	1	0.2	0.20 <MDL	---	---	---
Pentachlorophenol [ug/L]	01-Dec-20	12:00	08-Dec-20	15:27	60	30	0.15	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

Pesticide - QC Batch WSHNOV518 Matrix Spike: Guthion (azinphos-methyl) is outside of acceptance due to sample matrix. The overall quality control has been assessed and meets acceptability criteria.

### 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





**SGS Canada Inc.**  
 P. O. Box 4300 - 185 Concession St.  
 Lakefield - Ontario - K0L 2H0  
 Phone: 705-652-2000 FAX: 705-652-6365

**Works #:** 220002627

**LR Report :** CA30290-NOV20

Units	Description	SGS Method Code
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
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

Data reported represents the sample submitted to SGS. Reproduction of this analytical report in full or in part is prohibited without prior written approval. Please refer to SGS General Conditions of Services located at <https://www.sgs.ca/en/terms-and-conditions> (Printed copies are available upon request.)

Test method information available upon request. "Temperature Upon Receipt" is representative of the whole shipment and may not reflect the temperature of individual samples. SGS Canada Inc. Environment-Health & Safety statement of conformity decision rule does not consider uncertainty when analytical results are compared to a specified standard or regulation.



**SGS Canada Inc.**  
P.O. Box 4300 - 185 Concession St.  
Lakefield - Ontario - K0L 2H0  
Phone: 705-652-2000 FAX: 705-652-6365

**Works #:** 220002627

**LR Report :** CA30290-NOV20

Units	Description	SGS Method Code
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	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

## SGS Canada Inc.

P.O. Box 4300 - 185 Concession St.  
 Lakefield - Ontario - K0L 2H0  
 Phone: 705-652-2000 FAX: 705-652-6365

*Alk*

06-February-2020

**Mun of Arran Elderslie (Tara)**

Attn : Mark O'Leary

Date Rec. : 04 February 2020  
 LR Report: CA30019-FEB20

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

Copy: #1

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

## 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		---	---	05-Feb-20
2: Analysis Start Time		---	---	15:18
3: Analysis Completed Date		---	---	06-Feb-20
4: Analysis Completed Time		---	---	13:53
6: AO/OG		---	6.5-8.5	30-500
7: MDL		---	---	2
8: DW Kitchen	03-Feb-20 10:00	8.6	7.03	243

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

#### Method Descriptions

Parameter	Description	SGS Method Code
Alkalinity	Alkalinity by Titration	ME-CA-[ENV]EWL-LAK-AN-006

Kimberley Didsbury  
 Project Specialist,  
 Environment, Health & Safety

**SGS Canada Inc.**

P.O. Box 4300 - 185 Concession St.  
 Lakefield - Ontario - K0L 2H0  
 Phone: 705-652-2000 FAX: 705-652-6365

27-August-2020

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

Date Rec. : 24 August 2020  
 LR Report: CA30352-AUG20

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

Copy: #1

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

## 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		---	---	26-Aug-20
2: Analysis Start Time		---	---	14:06
3: Analysis Completed Date		---	---	27-Aug-20
4: Analysis Completed Time		---	---	13:03
6: AO/OG		---	---	30-500
7: MDL		---	---	2
8: DW Sample Station North Street Sample Station	24-Aug-20 11:25	13.1	7.05	347

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

#### Method Descriptions

Parameter	Description	SGS Method Code
Alkalinity	Alkalinity by Titration	ME-CA-[ENV]EWL-LAK-AN-006

**Kimberley Didsbury**  
 Project Specialist,  
 Environment, Health & Safety

**APPENDIX D**

**MOECC INSPECTION REPORT**

**Ministry of the Environment,  
Conservation and Parks**

Drinking Water and Environmental  
Compliance Division

Owen Sound District Office  
101 17<sup>th</sup> St. E., 3<sup>rd</sup> 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, 17<sup>e</sup> rue Est, 3<sup>e</sup> étage  
Owen Sound ON N4K 0A5



August 7, 2020

**Sent by Email: [cao@arran-elderslie.ca](mailto:cao@arran-elderslie.ca)**

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

Attention: Mr. Bill Jones  
CAO/Clerk

Re: 2020/2021 Inspection Report 1-NY272  
Tara Drinking Water System  
Drinking Water Works Permit 079-201, Issue 4

Thank-you for your cooperation as we worked through an altered inspection process due to restrictions surrounding COVID this year. The enclosed report documents findings of the inspection that started on April 30, 2020 but did not have a site visit until July 21, 2020.

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) (<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,

A handwritten signature in black ink that reads "Rhonda Shannon". The signature is written in a cursive style and is followed by a horizontal line.

Rhonda Shannon

Water Compliance Inspector

Phone: 226-668-5873

e-mail: Rhonda.shannon@ontario.ca

Enclosure

cc: 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 (2020)



**Ministry of the Environment, Conservation and Parks**

**TARA DRINKING WATER SYSTEM**

**Inspection Report**

<b>Site Number:</b>	220002627
<b>Inspection Number:</b>	1-NY272
<b>Date of Inspection:</b>	Apr 30, 2020
<b>Inspected By:</b>	Rhonda Shannon



## OWNER INFORMATION:

**Company Name:** ARRAN-ELDERSLIE, THE CORPORATION OF THE MUNICIPALITY OF  
**Street Number:** 1925 **Unit Identifier:**  
**Street Name:** BRUCE COUNTY ROAD 10 Rd  
**City:** CHESLEY  
**Province:** ON **Postal Code:** N0G 1L0

## CONTACT INFORMATION

---

<b>Type:</b>	Owner	<b>Name:</b>	Bill Jones
<b>Phone:</b>	(519) 363-3039	<b>Fax:</b>	(519) 363-2203
<b>Email:</b>	cao@arran-elderslie.ca		
<b>Title:</b>	CAO/Clerk		

---

<b>Type:</b>	Owner	<b>Name:</b>	Mark O'Leary
<b>Phone:</b>	(519) 363-3039	<b>Fax:</b>	(519) 363-2203
<b>Email:</b>	water@arran-elderslie.ca		
<b>Title:</b>	Water/Sewer Foreman		

---

## INSPECTION DETAILS:

**Site Name:** TARA DRINKING WATER SYSTEM  
**Site Address:** 217 RIVER Street TARA ON N0H 2N0  
**County/District:** ARRAN-ELDERSLIE  
**MECP District/Area Office:** Owen Sound Area Office  
**Health Unit:** GREY BRUCE HEALTH UNIT  
**Conservation Authority:** Grey Sauble Conservation Authority  
**MNR Office:** Owen Sound Field Office  
**Category:** Large Municipal Residential  
**Site Number:** 220002627  
**Inspection Type:** Announced  
**Inspection Number:** 1-NY272  
**Date of Inspection:** Apr 30, 2020  
**Date of Previous Inspection:** May 31, 2019

## COMPONENTS DESCRIPTION

---

<b>Site (Name):</b>	MOE DWS Mapping	<b>Sub Type:</b>	
<b>Type:</b>	DWS Mapping Point		

---

<b>Site (Name):</b>	Well 2	<b>Sub Type:</b>	Ground Water
<b>Type:</b>	Source		

**Comments:**  
Well #2 was drilled in 1958 with the well casing extending into the pumphouse. The well is a 254 mm diameter, 118.6 meter deep drilled groundwater well and is equipped with a submersible pump rated at a capacity of 4.09 liters per second at a total dynamic head of 161 meters. A 63 mm diameter discharge header is connected to the well casing

and conveys the raw water through the treatment processes.

The well was equipped with a 150 mm diameter liner in June of 2002 and was further upgraded in October of 2002 in an attempt to reduce turbidity exceedances and protect the well from surface water influences.

**Site (Name):** Well 3  
**Type:** Source **Sub Type:** GUDI w/o Effective Insitu

**Comments:**

Well #3 was drilled in 1978 and is located approximately two (2) meters southwest of the pumphouse. The well is a 156 mm diameter, 119 meter deep drilled groundwater well equipped with a submersible pump rated at a capacity of 5.3 liters per second at a total dynamic head of 164 meters. The raw water is conveyed to the pumphouse through a pitless adapter. The well cap consists of a vented watertight galvanized enclosure. The wellhead extends approximately 0.5 m above the adjacent ground.

The well was overdrilled to an 8 inch casing and lined in 2004. This was done as an attempt to achieve a secure groundwater source. This attempt failed and Well #3 is currently classified as GUDI.

**Site (Name):** Well 4  
**Type:** Source **Sub Type:** Ground Water

**Comments:**

Well 4 was originally drilled in 2005 as a test well and was upgraded in early 2007 to a full production well.

A nominal 10" diameter casing was set to 65' depth and the annular space was pressure grouted from 65' to 16', with a hole plug placed at 16' depth to surface. An 8" diameter hole was then drilled from 65' to a 75' depth.

A groundwater assessment was performed and determined Well 4 to be non-GUDI.

A submersible well pump, rated at 9.8 L/s, was installed.

**Site (Name):** Well 2 Treated  
**Type:** Treated Water POE **Sub Type:** Pumphouse

**Comments:**

Well #2 pumphouse is equipped with a chlorination system comprised of a sodium hypochlorite solution tank complete with secondary containment, 2 chemical metering pumps (one duty and one standby) complete with automatic switchover capabilities, and continuous on-line analyzers for turbidity and chlorine. The chemical metering pumps utilized at Well #2 pumphouse are rated at two (2) liters per hour.

After chlorination, water is directed through cartridge filters having a treatment capacity of 11.37 L/s, equipped with one micron size filter cartridges (14 in total). The cartridge filtration is used on the Well #2 pump start up to reduce initial turbidity spikes. The flow restrictor and a differential pressure monitoring system have been installed. There is one turbidity sampling point located downstream of the cartridge filter used with the existing on-line turbidity analyzer.

There is one flow meter installed at the entry point to the contact water main. The 150mm diameter x 360 meter watermain along River Street provides chlorine contact time necessary for well water discharged from PH No. 2, complete with treated water sample line located within PH No. 3.

**Site (Name):** Well 3 Treated  
**Type:** Treated Water POE **Sub Type:** Pumphouse

**Comments:**

Raw water enters the pumphouse and is directed through a cartridge filter with one micron size filter cartridges (14 in total) complete with a differential pressure monitoring system and flow restrictor.

A primary disinfection system contains an Ultra Violet (UV) disinfection system consisting of two disinfection reactors (duty and standby), each unit rated at 11.37 L/s and capable of providing a minimum dose of 40 mJ/cm<sup>2</sup> at the end of the lamp life together with an automatic cleaning system, on-line UV intensity monitor with alarm, complete with a portable UV transmittance monitor.

After UV treatment water is chlorinated via a chlorination system comprised of a sodium hypochlorite solution tank complete with secondary containment, 2 chemical metering pumps (one duty and one standby), with automatic switchover, and continuous on-line analyzers for turbidity and chlorine. The chemical metering pumps utilized at Well #3 pumphouse are rated at 1.26 liters per hour. PH No. 3 is equipped with a 600 mm diameter by 16.5 meter long oversized chlorine contact main which provides the minimum required contact time for the water entering the distribution system.

One 60 kW natural gas generator set capable of providing power to both pump houses No. 2 and No. 3 when power failure occurs. There is one flow meter installed at the entry point to the distribution system. A Supervisory Control and Data Acquisition (SCADA) system for automation of both pump houses No. 2 and No. 3, complete with associated Program Logic Controllers (PLC) and alarm dialers has been installed.

**Site (Name):** Well 4 Treated  
**Type:** Treated Water POE **Sub Type:** Pumphouse

**Comments:**  
The pumphouse for Well 4 consists of a cartridge filter, used during well startup to reduce initial turbidity spikes, a sodium hypochlorite disinfection system, consisting of two chemical metering pumps and a 200 L sodium hypochlorite solution tank, and a chlorine contact chamber (12 meters of 600 mm diameter watermain buried outside). Instrumentation includes one magnetic flow meter, one online free chlorine residual analyzer sampling after the chlorine contact chamber, one raw water online turbidity analyzer and associated SCADA.

**Site (Name):** Standpipe  
**Type:** Other **Sub Type:** Reservoir

**Comments:**  
An elevated water storage tank (standpipe) was constructed in 2010 and is located at Pumphouse #4 site on the northern outskirts of Tara. It has an operating capacity of 851 m<sup>3</sup> and a total capacity of 3,952 m<sup>3</sup>. The standpipe is 12.8m in diameter and is 30.7 m high.

**Site (Name):** DISTRIBUTION (WATER INSPECTIONS)  
**Type:** Other **Sub Type:** Other

**Comments:**  
A Tara Watermain Inventory (Sept 2011) indicates the distribution system is comprised of approximately one third (1/3) cast iron and ductile iron watermains that are approximately 40 to 50 years old. Approximately two thirds (2/3) of the distribution is comprised of newer watermains that have been constructed with PVC. The watermains range in size from 20 mm diameter to 300 mm diameter.

System pressure is provided by a standpipe which was constructed in 2010.

As of 2017, there are 483 homes, businesses and institutions connected to the Tara distribution system, serving a population of approximately 1000 plus.

The distribution system also contains approximately 49 fire hydrants, 139 valves and 8 blow offs located at the end of Heather Lynn Boulevard, Park Road, Young Street and Hamilton Street to allow for dead-end flushing. The distribution system is also equipped with nine sampling stations. The sampling stations are located at the south end of Heather Lynn Boulevard, at the south end of Young Street, two mid Young Street, dead end at Whites Street, and one on the south end of Park Road, plus 3 other locations.

## INSPECTION SUMMARY:

### Introduction

- **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 related 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 report is based on a "focused" inspection of the system. Although the inspection involved fewer activities than those normally undertaken in a detailed inspection, it contained critical elements required to assess key compliance issues. This system was chosen for a focused inspection because the system's performance met the ministry's criteria, most importantly that there were no deficiencies as identified in O.Reg. 172/03 over the past 3 years. The undertaking of a focused inspection at this drinking water system does not ensure that a similar type of inspection will be conducted at any point in the future.**

**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 April 30, 2020 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 June 1, 2019 to April 30, 2020 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.

Due to COVID restrictions the physical inspection was conducted on July 21, 2020 with Mark O'Leary, Water and Wastewater Foreman for the system and included a tour of all three (3) wells and the Tara standpipe.

### Source

- **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 in the last 5 years has shown minimal total coliform results in Well #2 and Well #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

**Source**

monitor trending in Well #3 to ensure the integrity of the source water.

- **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. They were last reviewed in March 2020.

**Capacity Assessment**

- **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.

- **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 m<sup>3</sup>/day for Well #2, 458 m<sup>3</sup>/day for Well #3 and 852 m<sup>3</sup>/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 2020 with a combined flow of 811 cubic metres of water used, which represents approximately 47% of the total combined rated capacity allowed in the Licence.

**Treatment Processes**

- **The owner had ensured that all equipment was installed in accordance with Schedule A and Schedule C of the Drinking Water Works Permit.**

- **The owner/operating authority was in compliance with the requirement to prepare Form 1 documents as required by their Drinking Water Works Permit during the inspection period.**

One (1) Form 1 was reported during this inspection time period for a new watermain along Derby Street, between River Street to Parkhead Road.

- **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.**

**Treatment Processes**

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.

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/cm<sup>2</sup> 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.

- **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.

- **Where an activity has occurred that could introduce contamination, all parts of the drinking water system were disinfected in accordance with Schedule B, Condition 2.3 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.

- **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 is 30 mj; an intensity of 24 mj is required to meet the equivalent of 40 mj/cm<sup>2</sup>.

**Treatment Process Monitoring**

- **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.**

- **Continuous monitoring of each filter effluent line was being performed for turbidity.**

- **The secondary disinfectant residual was measured as required for the distribution system.**

Free chlorine residuals remain to be measured daily from a number of different locations within the distribution system.

- **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.

### Treatment Process Monitoring

- **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 - 0.40 mg/L (low) and 3.0 mg/L (high)
- Well #3 – 0.50 mg/L (low) and 3.0 mg/L (high)
- Well #4 – 0.65 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.

- **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.**

The online chlorine analyzers and UV units are reported to be recording residual and intensity information at 30 second intervals.

- **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/cm<sup>2</sup>.

- **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 15, 2020 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 20, 2020. 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 20, 2020.

- **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.

### Operations Manuals

- **The operations and maintenance manuals contained plans, drawings and process descriptions sufficient for the safe and efficient operation of the system.**

The Operations Manual appears to be current and comprehensive. It is recommended that the policies and procedures in this manual continue to be reviewed on a regular basis to ensure continued accuracy.

- **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.**

## Operations Manuals

### Logbooks

- **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.

### Security

- **The owner had provided security measures to protect components of the drinking water system.**

### Certification and Training

- **The overall responsible operator had been designated for each subsystem.**  
ORO services are provided by GSS Engineering Consultants Ltd.
- **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.
- **All operators possessed the required certification.**  
The Owner is reminded that at least one (1) licence expires in 2020.
- **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.

### Water Quality Monitoring

- **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 11 samples taken during each month of the time period reviewed. Based on population there are 9 distribution samples required monthly to meet the requirements outlined in O.Reg. 170/03.  
  
All samples were analyzed for the required total coliforms, E.coli and at least 25% of samples analyzed for heterotrophic plate count.
- **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.
- **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 18, 2019 from Well #2 and #3 and November 19, 2018 from Well #4. All sample results were within the prescribed limits.



### Water Quality Monitoring

The next sample event required will be November 2020 from Well #2 and #3 and November 2021 from Well #4.

- **All organic 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 18, 2019 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 2020 from Well #2 and #3 and November 2021 from Well #4.

- **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.

- August 12, 2019 (5.3 ug/L),
- November 18, 2019 (5.3 ug/L), and
- February 3, 2020 (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 below the ODWQS of 80 ug/L.

- **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:

- August 12, 2019 (15 ug/L),
- November 18, 2019 (13 ug/L), and
- February 3, 2020 (9.6 ug/L).

The current rolling average is 11.9 ug/L, which is below the ODWQS of 100 ug/L.

- **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:

- August 12, 2019,
- November 18, 2019 and
- February 3, 2020.

- **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.

**Water Quality Monitoring**

- **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.

- **All water quality monitoring requirements imposed by the MDWL or DWWP issued under Part V of the SDWA were being met.**
- **Records confirmed that chlorine residual tests were being conducted at the same time and at the same location that microbiological samples were obtained.**

**Water Quality Assessment**

- **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).**

**Reporting & Corrective Actions**

- **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.

- **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.

**NON-COMPLIANCE WITH REGULATORY REQUIREMENTS AND ACTIONS REQUIRED**

This section provides a summary of all non-compliance with regulatory requirements identified during the inspection period, as well as actions required to address these issues. Further details pertaining to these items can be found in the body of the inspection report.

**Not Applicable**

## **SUMMARY OF RECOMMENDATIONS AND BEST PRACTICE ISSUES**

**This section provides a summary of all recommendations and best practice issues identified during the inspection period. Details pertaining to these items can be found in the body of the inspection report. In the interest of continuous improvement in the interim, it is recommended that owners and operators develop an awareness of the following issues and consider measures to address them.**

**Not Applicable**

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**SIGNATURES**

Inspected By:  
Rhonda Shannon

Signature: (Provincial Officer)



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Reviewed & Approved By:  
Mark Smith

Signature: (Supervisor)



Review & Approval Date:

August 7, 2020

Note: This inspection does not in any way suggest that there is or has been compliance with applicable legislation and regulations as they apply or may apply to this facility. It is, and remains, the responsibility of the owner and/or operating authority to ensure compliance with all applicable legislative and regulatory requirements.



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

**APPENDIX A**

**INSPECTION SUMMARY RATING RECORD**

**Ministry of the Environment - Inspection Summary Rating Record (Reporting Year - 2020-2021)**

<b>DWS Name:</b> TARA DRINKING WATER SYSTEM
<b>DWS Number:</b> 220002627
<b>DWS Owner:</b> Arran-Elderslie, The Corporation Of The Municipality Of
<b>Municipal Location:</b> Arran-Elderslie

**Regulation:** O.REG 170/03  
**Category:** Large Municipal Residential System  
**Type Of Inspection:** Focused  
**Inspection Date:** April 30, 2020  
**Ministry Office:** Owen Sound District Office

**Maximum Question Rating: 535**

Inspection Module	Non-Compliance Rating
Source	0 / 14
Capacity Assessment	0 / 30
Treatment Processes	0 / 102
Operations Manuals	0 / 28
Logbooks	0 / 14
Certification and Training	0 / 42
Water Quality Monitoring	0 / 112
Reporting & Corrective Actions	0 / 42
Treatment Process Monitoring	0 / 151
<b>TOTAL</b>	<b>0 / 535</b>

<b>Inspection Risk Rating</b>	<b>0.00%</b>
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<b>FINAL INSPECTION RATING:</b>	<b>100.00%</b>
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Ministry of the Environment - Detailed Inspection Rating Record (Reporting Year - 2020-2021)

**DWS Name:** TARA DRINKING WATER SYSTEM  
**DWS Number:** 220002627  
**DWS Owner:** Arran-Elderslie, The Corporation Of The Municipality Of  
**Municipal Location:** Arran-Elderslie

**Regulation:** O.REG 170/03  
**Category:** Large Municipal Residential System  
**Type Of Inspection:** Focused  
**Inspection Date:** April 30, 2020  
**Ministry Office:** Owen Sound District Office

**Maximum Question Rating:** 535

**Inspection Risk Rating** | 0.00%

**FINAL INSPECTION RATING:** | 100.00%





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

**APPENDIX B**

**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](mailto:waterforms@ontario.ca).

For more information on Ontario's drinking water visit [www.ontario.ca/drinkingwater](http://www.ontario.ca/drinkingwater)



PUBLICATION TITLE	PUBLICATION NUMBER
<b>FORMS:</b> 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

# 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](mailto: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](http://www.ontario.ca/eaupotable)

TITRE DE LA PUBLICATION	NUMÉRO DE PUBLICATION
Renseignements sur le profil du réseau d'eau potable	012-2149F
Avis de demande de services de laboratoire	012-2148F
Avis de résultats d'analyse insatisfaisants et de règlement des problèmes	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 potable 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

**APPENDIX E**

MUNICIPAL DRINKING WATER LICENSE AND DRINKING WATER WORKS PERMITS

## 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:

<b>Schedule</b>	<b>Description</b>
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.

<b>Table 1: Rated Capacity</b>	
Column 1 Treatment Subsystem Name	Column 2 Rated Capacity (m <sup>3</sup> /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.

<b>Table 2: Maximum Flow Rates</b>		
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.

<b>Table 3: Residuals Management</b>			
<b>Column 1 Treatment Subsystem or Treatment Subsystem Component Name</b>	<b>Column 2 Test Parameter</b>	<b>Column 3 Annual Average Concentration (mg/L)</b>	<b>Column 4 Maximum Concentration (mg/L)</b>
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;



<b>Table 4: UV Disinfection Equipment</b>			
<b>Column 1 Treatment Subsystem or Treatment Subsystem Component Name</b>	<b>Column 2 Minimum Continuous Pass-Through UV Dose (mJ/cm<sup>2</sup>)</b>	<b>Column 3 Control Strategy</b>	<b>Column 4 Test Parameter</b>
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<sup>3</sup>/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<sup>3</sup>/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", 23<sup>rd</sup> Edition, 2017, or as amended from time to time by more recently published editions.

<b>Table 7: Environmental Discharge Parameters</b>				
<b>Column 1 Treatment Subsystem or Treatment Subsystem Component Name</b>	<b>Column 2 Test Parameter</b>	<b>Column 3 Sample Type</b>	<b>Column 4 Sampling Frequency</b>	<b>Column 5 Monitoring Location</b>
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	<b>The Corporation of the Municipality of Arran-Elderslie</b>
Licence Number	<b>079-101</b>
Drinking Water System Name	<b>Tara Drinking Water System</b>
Licence Effective Date	<b>January 8th, 2021</b>

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 <sup>a</sup>	Cryptosporidium Oocysts	Giardia Cysts	Viruses
Chlorination [CT: Chlorine Contact Pipe]	-	-	2+

<sup>a</sup> 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	<ol style="list-style-type: none"> <li>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</li> <li>2. At all times, CT provided shall be greater than or equal to the CT required to achieve the log removal credits assigned.</li> </ol>
<b>Primary Disinfection Notes</b>	

**Well No. 3 Pumphouse**

Well No. 3 [GUDI]

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

<sup>a</sup> At least 0.5 log inactivation of Giardia shall be achieved by the disinfection portion of the overall water treatment process.

<sup>b</sup> At least 2 log inactivation of viruses shall be achieved by disinfection.

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

<sup>c</sup> 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	<p>Duty UV Sensor Checks and Calibration</p> <ol style="list-style-type: none"> <li>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;</li> <li>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;</li> <li>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;</li> <li>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;</li> </ol> <p>Operational Requirements</p> <ol style="list-style-type: none"> <li>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;</li> <li>Water shall not flow through a UV reactor when the reactor's UV lights are off or not fully energized;</li> <li>UV lamp status shall indicate whether each UV lamp is on or off;</li> <li>All UV sensors shall operate within their calibration range or corrective measures shall be taken; and</li> <li>Installed or replaced UV equipment components shall be equal or better than the components used during validation testing unless the UV equipment was revalidated.</li> </ol>
Chlorination	<ol style="list-style-type: none"> <li>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</li> <li>At all times, CT provided shall be greater than or equal to the CT required to achieve the log removal credits assigned.</li> </ol>
<b>Primary Disinfection Notes</b>	

**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 <sup>a</sup>	Cryptosporidium Oocysts	Giardia Cysts	Viruses
Chlorination [CT: Chlorine Contact Pipe]	-	-	2+

<sup>a</sup> 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	<ol style="list-style-type: none"> <li>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</li> <li>2. At all times, CT provided shall be greater than or equal to the CT required to achieve the log removal credits assigned.</li> </ol>
<b>Primary Disinfection Notes</b>	



## 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:

<b>Schedule</b>	<b>Description</b>
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.

### 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 <sup>2</sup> 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 <sup>3</sup>
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.

<b>Table 1: Watermains</b>	
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	<b>The Corporation of the Municipality of Arran-Elderslie</b>
Permit Number	<b>079-201</b>
Drinking Water System Name	<b>Tara Drinking Water System</b>
Permit Effective Date	<b>January 8th, 2021</b>

### 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<sup>3</sup> 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	<b>The Corporation of the Municipality of Arran-Elderslie</b>
Permit Number	<b>079-201</b>
Drinking Water System Name	<b>Tara Drinking Water System</b>
Permit Effective Date	<b>January 8th, 2021</b>

### 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.

<b>Table 2: Schedule C Documents</b>				
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

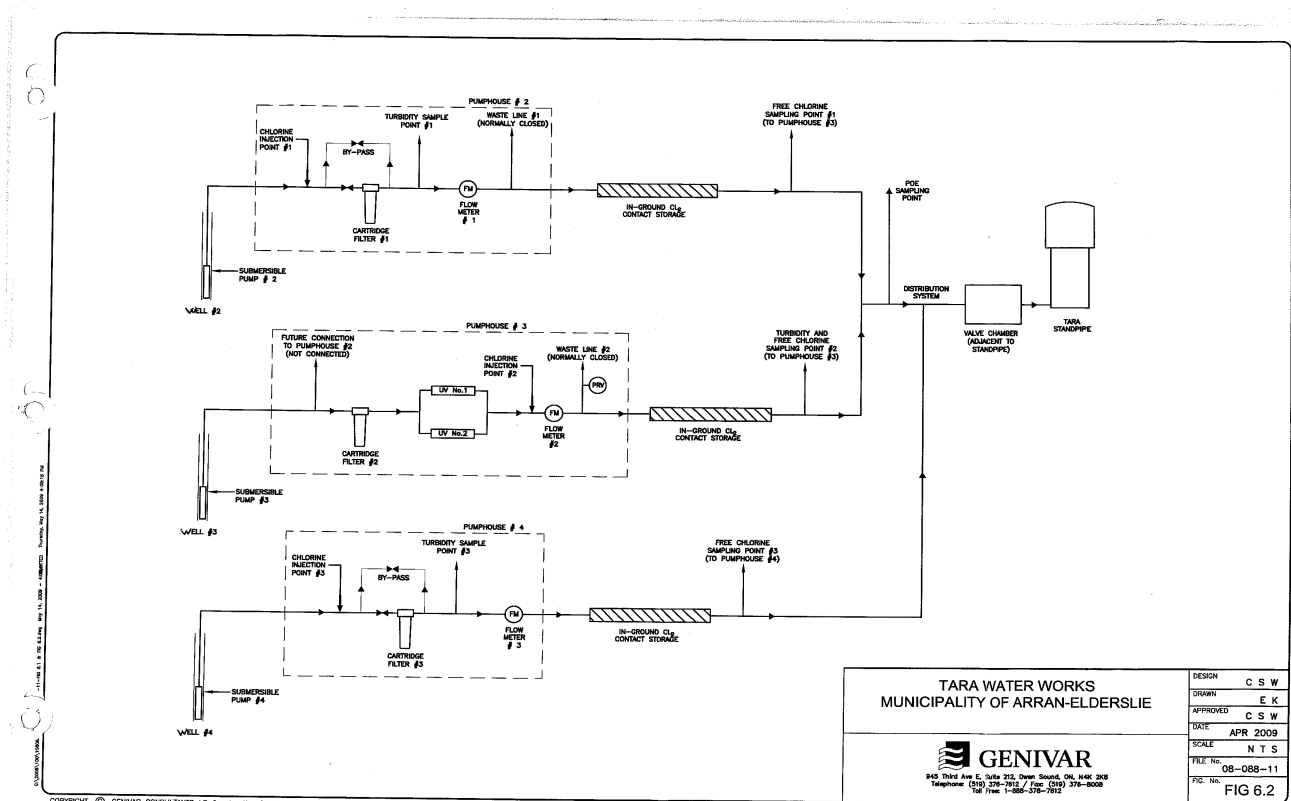
1.2 For each document described in columns 1, 2 and 3 of Table 2, the status of the document is indicated in column 4. Where this status is listed as 'Archived', the approved alterations have been completed and relevant portions of this permit have been updated to reflect the altered works. These 'Archived' 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
						<b>Total Taking:</b>	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 device.
- 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  
(416) 212-6349  
Toll Free 1(866) 448-2248

by Fax at  
(416) 326-5370  
Toll Free 1(844) 213-3474

by e-mail at  
www.ert.gov.on.ca

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 Calibration Certificate

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**Customer:**

Municipality of Arran-Elderslie  
 Mark O'leary  
 Water Foreman  
[Water@arran-elderslie.ca](mailto:Water@arran-elderslie.ca)

**Calibration by:**

Dan Matchett

**Standards:**

Endress and Hauser Field Check S/N:0000551303 Cal Due Dec 2021

**Instrument Type**

Magnetic Flow Meter

**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	3.150	7.993	0.032	0.087	
6.309	6.309	6.299	11.988	0.079	0.100	
9.464	9.464	9.461	16.012	0.017	0.075	
12.618	12.618	12.604	20.000	0.111	0.000	
				Average Error%	0.05	0.06
				Result:	PASS	PASS

**Totalizer Test**

Sim Flow Rate	12.618	LPS
Start Totalizer	586177.100	M3
End Totalizer	586179.400	M3
Volume Simulated	2.300	M3
Time(Seconds)	182.460	
Calculated Totalizer(MUT)	2.302	
Error%	-0.099	
Result:	PASS	

**Comments:**

Unit passes verification.

**Meter Information**

Date of Test: 4/15/2020  
 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: 586174.3M3  
 Totalizer As Left: 586179.8M3

**Programming Parameters:**

DN Size: DN80  
 Cal Factor: 1.0084  
 Zero: 0  
  
 Calibration Due: Apr-21

# Tower Electronics Canada Calibration Certificate

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**Customer:**

Municipality of Arran-Elderslie  
 Mark O'leary  
 Water Foreman  
[Water@arran-elderslie.ca](mailto:Water@arran-elderslie.ca)

**Calibration by:**

Dan Matchett

**Standards:**

Endress and Hauser Field Check S/N:0000551303 Cal Due Dec 2021

**Instrument Type**

Magnetic Flow Meter

**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	2.501	8.003	0.005	0.038	
5.000	5.000	5.003	12.006	0.029	0.050	
7.500	7.500	7.500	16.012	0.000	0.075	
10.000	10.000	10.001	19.993	0.010	0.035	
				Average Error%	0.01	0.05
				Result:	PASS	PASS

**Totalizer Test**

Sim Flow Rate	10.000	LPS
Start Totalizer	243956.400	M3
End Totalizer	243957.900	M3
Volume Simulated	1.500	M3
Time(Seconds)	149.990	
Calculated Totalizer(MUT)	1.500	
Error%	0.007	
Result:	PASS	

**Comments:**

Unit passes verification.

**Meter Information**

Date of Test: 4/15/2020  
 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: 243954.9M3  
 Totalizer As Left: 243958.3M3

**Programming Parameters:**

DN Size: DN80  
 Cal Factor: 1.0391  
 Zero: 4

Calibration Due: Apr-21

# Tower Electronics Canada Calibration Certificate

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**Customer:**

Municipality of Arran-Elderslie  
 Mark O'leary  
 Water Foreman  
[Water@arran-elderslie.ca](mailto:Water@arran-elderslie.ca)

**Calibration by:**

Dan Matchett

**Standards:**

Endress and Hauser Field Check S/N:0000551303 Cal Due Dec 2021

**Instrument Type**

Magnetic Flow Meter

**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	3.998	0.000	0.050	
3.750	3.750	3.746	7.993	0.024	0.087	
7.500	7.500	7.496	11.988	0.025	0.100	
11.250	11.250	11.243	16.012	0.047	0.075	
15.000	15.000	14.994	20.000	0.040	0.000	
				Average Error%	0.03	0.06
				Result:	PASS	PASS

**Totalizer Test**

Sim Flow Rate	15.000	LPS
Start Totalizer	680591.000	M3
End Totalizer	680593.000	M3
Volume Simulated	2.000	M3
Time(Seconds)	132.660	
Calculated Totalizer(MUT)	1.990	
Error%	0.508	
Result:	PASS	

**Comments:**

Unit passes verification.

**Meter Information**

Date of Test: 4/15/2020  
 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: 680588M3  
 Totalizer As Left: 680593M3

**Programming Parameters:**

DN Size: DN80  
 Cal Factor: 1.0541  
 Zero: 7

Calibration Due: Apr-21