Arran-Elderslie Water Works
13-028

2020 Operation and Maintenance Annual Report
January 2021

Prepared for:
Municipality of Arran-Elderslie
P.O. Box 70, 1925 Bruce Road 10
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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 Arran-Elderslie Water Works for review by the Ministry of the Environment and Climate Change (MOECC) in accordance with O. Reg. 170/03. The drinking water system is categorized as a large municipal residential system.

The Arran-Elderslie Water Treatment Plant was operated by Mr. Mark O'Leary, back-up Overall Responsible Operator (ORO), Water/Sewer Foreman, who has a Class II Water Treatment and Class III Water Distribution Certificate; Mr. Chris Legge, who has a Class II Water Distribution Certificate along with his Class I Water Treatment Certificate; Mr. Trevor Sweiger, who holds a Class I Water Distribution and a Class I Water Treatment Certificate, and Mr. Ted Knapp, who has a Class II Water Treatment and Class II Water Distribution Certificate. Rakesh Sharma, P. Eng., who has a Class IV Certificate for Water Treatment and Class IV Certificate for Water Distribution is the Overall Responsible Operator (ORO) and Scott McLeod, who has a Class II Certificate for Water Treatment and Class IV Certificate for Water Distribution is the backup ORO. The Arran-Elderslie WTP is classified as Water Treatment Subsystem Class 1. The Arran-Elderslie distribution system (Chesley distribution system, Chesley to Paisley trunk watermain and the Paisley distribution system) is classified as a Water Distribution subsystem Class 3).

The operating authority for the plant is:

Municipality of Arran-Elderslie
P.O. Box 170, 1925 County Road #10
Chesley, Ontario
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 #	079-202 Issue 5	Issued Jan 08/2021
Water Works License #	079-102 Issue 4	Issued Jan 08/2021
Permit to Take Water	# 3655-A3RPJL	Issued Nov13/2015

2.0 DESCRIPTION OF WATER SYSTEM

The Arran-Elderslie Water Treatment Plant comprises of the following:

Community Park Well (CPW 1)

- 340 mm dia., 20 m deep drilled groundwater well known as the Community Park Well #1, located in Lot 32, Concession 2, (UTM Zone 17, 4906102; 4904691N).

- The well is provided with a new pitless adaptor and

- A submersible well pump rated at 20.82 L/s at a TDH of 80.96 m and raw water piping routed to the treatment plant.

Community Park Well (CPW2)

- A 324 mm dia., 24.38 m deep drilled groundwater Community Park Well CPW2 (UTM Zone 17. 492828 m E., 4904726 m N.) equipped with a submersible well pump rated at 24.61 L/s at a TDH of 80.12m, pitless adaptor, and all necessary raw water piping routed to the treatment plant.

Community Park Well (CPW3)

- A 254 mm dia., 38.1 m deep drilled groundwater Community Park Well CPW3 (UTM Zone 17, 493123 m E., 4904783 m N) equipped with a submersible well pump rated at 34.07 L/s at a TDH of 96.43 m, pitless adaptor and all necessary raw water piping routed to the treatment plant.

Chesley Standpipe

- A 2,725 m^3 capacity concrete water storage tank is located at the north end of Chesley on Tower Road. It has an operating capacity of 1,360 m^3 between the minimum and maximum operating water elevations, designed for peak hour water demand equalization, fire and emergency storage.

Paisley Standpipe

- The Paisley Standpipe has a capacity of 2,430 m^3. Modifications to the Paisley standpipe performed in 2006 allows the water to enter the standpipe at approximately 2/3 of the standpipe height and discharge into the Paisley distribution system form the bottom of the standpipe.

Booster Chlorination at the Paisley Standpipe

- Two (2) (1+1) chlorine feed pumps rated at a minimum of 1.4 L/h and one (1) 200 L sodium hypochlorite solution tank with a secondary containment tank.

Trunk Watermain

- There is approximately 15.7 km of 300 mm watermain connecting the Chesley water distribution system to the Paisley standpipe complete with all associated valving and metering.

Arran-Elderslie Water Treatment Plant in Chesley

- The Arran-Elderslie Water Treatment Plant was commissioned in May 2006. The Plant treats the raw water supply from all three (3) Community Parks Wells. It includes three (3) pressure filtration vessels (2 duty, 1 standby) for iron/manganese removal, an unbaffled two (2) cell, filtered water groundwater storage tank for storage of water for backwashing of the filters, two (2) filter backwash pumps, a sodium hypochlorite feed system and three (3) storage tanks, post chlorination system, one (1) backwash wastewater holding tank and all associated instrumentation and analyzers including a SCADA system.

Refer to **Appendix C** for the Municipal Drinking License and the Drinking Water Works Permit.

3.0 SUMMARY OF WATER QUALITY MONITORING

3.1 WATER TREATMENT EQUIPMENT OPERATION AND MONITORING

3.1.1 POINT OF ENTRY CHLORINE RESIDUAL

In 2020, Point of Entry (POE) treated water samples were collected and analyzed for Free Chlorine Residual by way of on-line analyzer. **Table 1** shows the minimum-maximum monthly range of free chlorine residual values. All free Chlorine residuals from the Arran-Elderslie Water Treatment Plant were greater than 0.33 mg/L and met CT criteria for plant flows.

The alarm set point is 0.64 mg/L, which is for flow contributed by Well 1, 2 and 3. As per CT calculations, the free chlorine residual concentration must be 0.48 mg/L or higher to treat flows matching rated capacity (64.4 L/sec) of the plant. However, if only one or two wells are operating, minimum chlorine that must be maintained is lower.

3.1.2 DISTRIBUTION CHLORINE RESIDUAL

In 2020, a Total of 365 grab samples were collected in the Chesley distribution system. Chlorine residual was monitored on-line at Paisley Water tower. **Table 2** shows that all free chlorine distribution samples were well above 0.05 mg/L threshold in Chesley distribution system as well as at Paisley Water Tower.

3.1.3 TURBIDITY

The Ontario Drinking Water Quality Standards (ODWQS) have set a Maximum Acceptable Concentration of 5.0 NTU for treated water in the distribution system.

The POE treated water turbidity was measured by an on-line turbidity analyzer. The raw water and distribution grab samples were also collected weekly and analyzed for turbidity.

Table 3 provides a summary of POE turbidity results.

3.2 MICROBIOLOGICAL SAMPLING

3.2.1 DISTRIBUTION SYSTEM

Schedule 10 of Ontario Regulation 170/03 requires that at least eleven (11) distribution samples be collected monthly and tested for E. coli, Total Coliform and 25% of samples for Heterotrophic Plate Count (HPC). In 2020, a total of 134 distribution samples were collected and analyzed. Refer to **Appendix A** (**Table 9**) for weekly microbiological results. All results were within compliance except June 1st sample, when TC count of 2 was reported in a sampled collected from

TABLE 1

Summary of Treated Water Quality – Free Chlorine (POE)

Arran-Elderslie Water Treatment Plant

January 1, 2020 to December 31, 2020

Month	# of Samples	Min.	Max.
January	31	0.82	1.48
February	28	0.81	1.04
March	31	0.62	1.52
April	30	0.73	1.52
May	31	0.72	1.12
June	30	0.33	1.67
July	31	0.89	1.21
August	31	0.79	1.26
September	30	0.77	1.06
October	31	0.68	1.05
November	30	0.79	1.25
December	31	0.77	1.10

Note: Analysis results were recorded by on-line analyzer

TABLE 2

Summary of Water Quality – Free Chlorine (Distribution)

Arran-Elderslie Water Treatment Plant

January 1, 2020 to December 31, 2020

Month	Chesley Distribution System (mg/L)			Paisley Water Tower (mg/L)		
	# of Samples	Min.	Max.	# of Samples	Min.	Max.
January	31	0.46	1.05	31	0.52	1.25
February	28	0.44	1.06	28	1.1	2.0
March	31	0.46	1.13	31	1.16	2.0
April	30	0.46	1.30	30	1.18	2.0
May	31	0.46	1.15	31	1.03	2.0
June	30	0.43	1.20	30	1.0	1.3
July	31	0.31	1.40	31	0.91	1.22
August	31	0.33	1.24	31	0.91	1.16
September	30	0.43	1.28	30	0.84	1.08
October	31	0.41	1.10	31	0.79	1.08
November	30	0.35	1.26	30	0.73	1.23
December	31	0.38	1.26	31	1.11	1.3
Total	**365**			**365**		
MIN		**0.31**			**0.32**	
MAX			**1.40**			**2.0**

***** During Cl_2 analyzer maintenance

TABLE 3

Summary of Water Quality – Turbidity (POE)

Arran-Elderslie Water Treatment Plant

January 1, 2020 to December 31, 2020

Month	# of Samples	Max.
January	31	2.00*
February	28	0.20
March	31	0.13
April	30	0.11
May	31	0.57
June	30	1.20
July	31	2.00*
August	31	1.01
September	30	1.11
October	31	0.68
November	30	2.00*
December	31	0.66

***** High reading was due to air containment in the sample lines.

Paisley. MECP and Health Unit were notified in accordance with Protocol for Adverse Water Quality Incidences. None of the samples had high HPC count in distribution samples. The highest HPC count was 40 in Oct. 5th, 2020 sample.

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 and analyzed for Total Coliform and E. coli. In 2020, a total of 154 samples were collected from the wells No. 1, 2 and 3 and analyzed. Refer to **Appendix A** (**Table 9**).

Well #1 tested positive for TC four (4) times on March 16th, March 23rd, April 6th and May 20th, 2020. Well #2 tested positive four (4) times for TC on January 27th, March 16th, April 6th and September 20th, 2020. And well #3 tested positive two (2) times for TC on June 8th and 15th, 2020. These incidences are similar to last year and did raise some suspicion.

In Raw Water Assessment Report for License & Permit renewal, Arran-Elderslie agreed to investigate the issue, review its options including replacement of Well CPW #1 due to iron bacteria problem.

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 and analyzed for Total Coliform, E. coli and HPC. A total of 52 treated water sampled were collected and all were found to be safe. None of the samples had high HPC Count. Refer to **Appendix A** (**Table 9**) for microbiological sampling and analysis results.

3.3 CHEMICAL SAMPLING & TESTING AS PER SCHEDULE 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 36 months, if the system obtains water from a groundwater supply that has been deemed non-GUDI. The samples for the Arran-Elderslie Water Treatment Plant were collected on November 18, 2018 and submitted to the laboratory for analysis of inorganics as listed in Schedule 13. All parameters were found to be within compliance.

No samples were collected in 2020. Inorganics are required to be sampled and analyzed again on or before November 2021.

3.3.2 LEAD

Schedule 15.1 of Ontario Regulation 399/07 requires that samples be taken at various sampling points, twice a year: once between December 15 and April 15 and once between June 15th and October 15th. The water system is on reduced sampling and accordingly two (2) Alkalinity samples were taken in February and September. The lab reports are included in **Appendix B**.

In Chesley, 24 samples were collected from 12 locations and received by lab on April 8, 2019 as well as on October 5, 2018. In Paisley, a total of 24 samples (13 locations) were collected and received by lab on April 12, 2019 and again on October 5, 2019. None of the samples had lead exceedances (MAC 10 µg/L) except 2nd sample collected from 274 Albert St. in March, which had a concentration of 130 µg/L. This location was resampled, and results were 6.21 µg/L and 7.07 µg/L, which was acceptable.

3.3.3 ORGANICS

Schedule 13-4 of Ontario Regulation 170/03 requires that at least one (1) water sample is taken every 36 months if the system obtains water from a groundwater supply that has been deemed non-GUDI. The samples were collected and received by lab on November 19, 2018. All parameters were found to be within compliance. No samples were collected in 2020. Organics are required to be sampled and analyzed again on or before November 2021.

3.3.4 TRIHALOMETHANES AND HALO ACETIC ACID

Schedule 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) and Halo Acetic Acid (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 TTHM and it is expressed as a running annual average. In 2020, the average THM was found to be 21.5 µg/L, in Chesley and 19.9 µg/L in Paisley which is within compliance. Average HAA was 5.3 µg/L in Chesley and 7.53 µg/L in Paisley. Refer to **Table 4** for the Summary of Trihalomethanes and Halo Acetic Acids and **Appendix B** for analytical results. In 2021, samples should be collected in February, May, August and November.

3.3.5 NITRATE & NITRITE

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. Samples were collected during the

Table 4

Summary of Trihalomethanes (THMs) and

Halo Acetic Acid (HAA)

Arran-Elderslie Water Treatment Plant

January 1, 2020 – December 31, 2020

Sample Date	Chesley (µg/L)		Paisley (µg/L)	
	(THM)	(HAA)	(THM)	(HAA)
February 2020	20	5.3	17	5.3
May 2020	15	5.3	17	5.3
August 2020	26	5.3	26	13.9
November 2020	25	13.9	19	5.6
Average	21.5	5.3	19.8	7.53
MAC (µg/L)	100	80 (µg/L)	100	80 (µg/L)

months of February, May, August and November. The analytical results were found to be within compliance. Refer to **Appendix B**. In 2021, samples should be collected in 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 Standards (ODWQS) have set a Maximum Acceptable Concentration (MAC) of 200 mg/L for Sodium and requires the Medical Office of Health be notified if the concentration exceeds 20 mg/L. These samples were collected on November 3, 2019 and were found to be 16.1 mg/L at CP Well #1 & 2 and 12.5 mg/L at CP Well #3, which are below 20 mg/L. The water sample for Sodium needs to be collected and analyzed on or before November 3, 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 3, 2019, samples were collected for this analysis. The samples were found to have a concentration of 0.41 mg/L at CP Well #1 & 2 and 0.72 mg/L at CP Well #3, which is within compliance. The water sample for Fluoride needs to be collected and analyzed on or before November 3, 2024.

3.4 FILTER BACKWASH TREATED EFFLUENT

The license requires a backwash effluent sample to be collected monthly and analyzed for Total Suspended Solids (TSS) when decant effluent is discharged to the Saugeen River. The criteria limit is 25 mg/L. The samples were collected monthly from January to December. The monthly TSS results were 4, 4, 2, 3, 4, 4, 2, 5, 7, 2, 6 and 5 to an average of 4.0 mg/L which is well within the limits.

Dechlorination of decant was undertaken by employing Formula 2156. An annual average dosage of 2.28 mg/L was utilized. The dechlorination chemical annual usage was 25.6 L

4.0 WATER USAGE

The treated water quantity supplied to the distribution system in 2020 is summarized in **Table 5.** The Table provides a breakdown of the monthly flow provided to the distribution system. Refer to **Table 5.** In 2020, the water works operated at 32.7% of Rated Capacity of the plant. Refer to **Table 6** for comparison with previous years. Capacity utilization is consistent with previous years, except for Year 2017, when it was much lower at 25.8%.

From January 1, 2019 to December 31, 2020, 5,318.3 litres of sodium hypochlorite (NaOCl) was used to treat the water that was provided to the distribution system with an average dosage of 1.91 mg/L. Refer to **Table 7.**

Table 7 also provides a summary of monthly water usage from each of the municipal wells.

Flow meters were calibrated in April 2020 by Flowmetrix Technical Services Inc. and were found to be acceptable. Refer to **Appendix D** for the calibration reports summary sheet.

The full calibration report is available in municipal records. The water meters should be calibrated again by April 2021.

4.1 WATER SUPPLY TO THE PAISLEY STANDPIPE

During 2020, a total of 110,147 m^3 of treated water was provided to the Paisley distribution system by way of the gravity trunk watermain. The flows were recorded by a flow meter installed on the trunk watermain. Refer to **Table 8.**

The average day demand to the Paisley distribution system was 301 m^3/day (279 m^3/day in 2019, 298 m^3/day in 2018 and 274 m^3/day in 2017) and the maximum day demand was 693 m^3/day (703 m^3/day in 2019, 498 m^3/day in 2018 and 693 m^3/day in 2017). The maximum day demand occurred on May 12, 2020.

Table 8 provides a summary of disinfectant chemical used for the booster chlorination of water supplied to Paisley water system from the Paisley water tower. The average chemical dosage is also indicated in the table.

Table 5
Summary of Treated Water Flow
Municipality of Arran-Elderslie
Arran-Elderslie Water Treatment Plant
January 1, 2020 to December 31, 2020

Month	Treated Flow (m^3)		
	Total	Average Daily	Daily Maximum
January	22,963	741	880
February	21,506	742	862
March	24,113	777	945
April	28,272	942	1,496
May	31,449	1,039	1,601
June	32,940	1,098	1,511
July	35,481	1,145	1,566
August	29,535	953	1,820
September	27,068	902	1,030
October	27,383	883	1,110
November	24,211	807	932
December	23,505	758	858
Annual	**328,426**	**899**	**1,820**

Table 6
Rated Capacity Utilization
Arran-Elderslie Water Works
Municipality of Arran-Elderslie

Year	Max Day (m^3/day)	% Rated Capacity
2020	1,820	32.7%
2019	1,765	31.7%
2018	1,778	32.0%
2017	1,436	25.8%
2016	1,905	34.2%
2015	1,851	33.3%
2014	1,862	33.5%
2013	1,720	30.9%
2012	1,939	34.8%
Rated Capacity of Water Works		**5,564 m^3/day**

TABLE 7
Summary of Disinfectant Chemical Used and Raw Water Supply From Each Well
Arran-Elderslie Water Treatment Plant
January 1, 2020 to December 31, 2020

Month	Volume of Sodium Hypochlorite Used (L)	Average Chlorine Dosage (mg/L)	Raw Water Supply from Wells			
			CPW1	CPW2	CPW3	Total (m^3)
January	345.7	1.78	8,155	8,496	6,788	23,439
February	319.3	1.75	6,443	8,205	7,305	21,953
March	370.1	1.82	7,665	9,414	7,575	24,654
April	432.1	1.80	8,883	11,599	8,462	28,944
May	492.4	1.91	10,885	11,509	9,829	32,223
June	552.8	1.97	11,814	12,749	9,196	33,759
July	614.2	2.03	13,063	11,695	11,600	36,358
August	455.0	1.81	6,967	11,475	11,895	30,336
September	468.7	2.04	11,862	8,845	7,006	27,713
October	454.1	1.95	8,272	11,298	8,540	28,110
November	416.6	2.02	7,977	8,911	7,974	24,862
December	397.3	2.00	7,082	9,776	7,233	24,091
Total	**5,318.30**	**1.91**	**109,068**	**123,972**	**103,403**	**336,442**

TABLE 8

Summary of Disinfectant Chemical Used
At Booster Chlorination Station, Paisley
Municipality of Arran-Elderslie
January 1, 2020 to December 31, 2020

Month	Sodium Hypochlorite	Flow to Paisley Water Tower
	Average Dosage (mg/L)	(m^3)
January	0.49	7,587
February	0.51	6,929
March	0.58	7,343
April	0.44	8,397
May	0.37	10,594
June	0.52	10,024
July	0.49	10,811
August	0.52	10,095
September	0.57	9,789
October	0.57	10,594
November	0.59	9,286
December	0.61	8,698
Total		**110,147**
Average	**0.52**	**9179**

5.0 IMPROVEMENTS TO THE SYSTEM AND ROUTINE AND PREVENTATIVE MAINTENANCE

5.1 January:

- Fuel tank was inspected
- Replaced water service utilizing series 200 pipe from house at 40 1st Ave SE to property line
- Valard ran new BMTS lines to the water treatment plant

5.2 February:

- Randy Nicol calibrated handhelds analyzing instruments
- Replaced 0-100 psi gauges on both backwash pumps 1 & 2
- Replaced 0-200 psi gauges on CPW 1 and CPW 2 raw water influent pipes located in basement area
- Painted filter #2 and #3
- Replaced 0-200 psi gauge on CPW 3 raw water line on “Flowet” pipe in basement
- Changed broken 1/2” pipe on chlorine pump #5
- Replaced sample lines and red gasket on TMS561 turbidity meter

5.3 March:

- Caldecott welded 300 mm flange and repaired pin hole on raw water inlet pipe near floor of filter room
- Cleaned injection points CIP #3, #4, #5 and #6

5.4 May:

- Dewar changed out radios for PLC-01, PLC-02, PLC-3 and PLC-04

5.5 June

- Curb boxes throughout the town were replaced by Foster Services
- New antennae and cable was installed at water treatment plant

5.6 July:

- AT 54 3rd St SE, service pipe, new saddle and main stop were installed
- Replaced lead service at 190 1st Ave N and also replaced new 19 mm main stop and service line pipe
- Greatario conducted underwater inspection of Chesley Water Tower
- Replaced 25 mm air reliefs valves located at top of filters
- Backflow piping and truck fill line was tested by Troy’s Plumbing and Heating

5.7 August:

- IWS replaced drive motor on Well #1 pump
- IWS rehabilitated Well #2 to attempt to restore well yield
- Moorfield Construction replaced 200 mm watermain with 300 mm watermain, from Elliott Park to 4th St NE-NW

5.8 September:

- New water service to house #166 6th Ave SW was provided by tapping 150 mm ductile main
- Replaced lead service line to house #120 1st Ave N. 1" Pex (duplex)
- Cleaned and tested IP #6

5.9 October:

- 50 mm water connection was made at Bev Nicolls to 300 mm pipeline
- Cleaned and tested IP #3, IP #4 and IP #5
- Replaced desiccant pack for TMS turbidimeter
- Soft starter for Well Pump #3 was replaced
- Retorque technician performed maintenance check on V-27, V-4 and V-62

5.10 November:

- Water Service connection was constructed at 40 Concession 2A

5.11 December:

- Replaced hydrant #95 (2nd Ave NE) with a rebuilt hydrant
- Cleaned and tested IP #'s 3, 4, 5 and 6
- At 25 Sideroad, portable generator's transfer breaker was installed
- Inspected flat roof
- Replaced PRV valve at pump #2 post and suction line to pump #3

6.0 MINISTRY OF THE ENVIRONMENT, CONSERVATION AND PARKS (MECP) INSPECTIONS AND REGULATORY ISSUES

The Ministry of Environment inspection occurred on July 21, 2020 and provided an inspection report. There were no items in “Non-compliance with Regulatory Requirements” section of the report.

MECP awarded a Final Inspection Rating of 98.43% and 1.57% Inspection Risk Rating for Arran-Elderslie Water System.

Refer to **Appendix E** for the Inspection Report.

An Adverse Water Quality Incident occurred when sample from June 1, 2020 had a TC count of 2. AWQI protocol was utilized and issue was resolved by way of Sch 16 Report, dated June 3, 2020.

7.0 SUMMARY OF 2021 REQUIREMENTS AND OTHER CONSIDERATIONS

1. During 2021, eleven (11) distribution samples should be collected every month from the distribution system and analyzed for Total Coliform, E. Coli.

2. During 2021, one (1) raw water sample should be collected from each production well every week and analyzed for Total Coliform and E. coli.

3. During 2021, a microbiological sample should be collected from the Point of Entry every week and analyzed for Total Coliform, E. Coli and HPC.

4. Inorganics as listed in Schedule 23 are required to be sampled and analyzed on or before November 2021.

5. Lead sampling is not required in 2020 due to no lead issues in water supply. Alkalinity test is to be completed in the Fall.

6. Organics, as listed in Schedule 24, are required to be sampled and analyzed on or before November 2021.

7. During 2021, Trihalomethanes and Halo Acetic Acid (HAA) samples should be collected from the Arran-Elderslie and Paisley distribution systems every three (3) months, starting in February.

8. During 2021, Nitrite and Nitrate samples are to be collected from the Arran-Elderslie Water Treatment Plant Point of Entry every three (3) months, starting in February.

9. Sodium and Fluoride must be sampled and analyzed on or before November, 2024.

10. A composite sample of treated backwash water must be collected once a month and analyzed for Total Suspended Solids.

11. The Operation and Maintenance Manual should be reviewed with all staff who will be working in the subsystem and updated when required.

12. Renewal of the Permit to Take Water is required prior to September 22, 2025.

13. All water meters are to be calibrated by April 2021.

14. The diesel generator should be test run under full load on a monthly basis and the test results documented.

15. All alarms are to be tested on a yearly basis and the test results documented.

16. By March 31, 2021 Arran-Elderslie need to electronically submit the 2020 "Volume of Water Taking Daily" to the MOE.

Respectfully submitted:

GSS Engineering Consultants Ltd.

Rakesh Sharma, P. Eng., M.A.Sc.
Operator, 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

MICROBIOLOGICAL SAMPLING AND ANALYSIS

Table # 9
SUMMARY OF WATER QUALITY - MICROBIOLOGICAL
MUNICIPALITY OF ARRAN-ELDERSLIE
ARRAN-ELDERSLIE 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 #1	0	0	0	0	<10	0	0	<10
	Well #2	0	0				0	0	<10
	Well #3	0	0				0	0	<10
							0	0	<10
JAN 13	Well #1	0	0	0	0	10	0	0	10
	Well #2	0	0				0	0	10
	Well #3	0	0						10
JAN 21	Well #1	0	0	0	0	<10	0	0	<10
	Well #2	0	0				0	0	<10
	Well #3	0	0				0	0	<10
JAN 27	Well #1	0	0						
	Well #2	0	1	0	0	<10	0	0	
	Well #3	0	0				0	0	
FEB 03	Well #1	0	0	0	0	10	0	0	<10
	Well #2	0	0				0	0	<10
	Well #3	0	0				0	0	<10
FEB 10	Well #1	0	0	0	0	<10	0	0	<10
	Well #2	0	0				0	0	<10
	Well #3	0	0				0	0	<10
							0	0	<10
FEB 19	Well #1	0	0	0	0	<10			
	Well #2	0	0				0	0	10
	Well #3	0	0				0	0	<10
FEB 27	Well #1	0	0	0	0	<10	0	0	
	Well #2	0	0				0	0	
	Well #3	0	0						
MAR 02	Well #1	0	0	0	0	<10	0	0	<10
	Well #2	0	0				0	0	<10
	Well #3	0	0				0	0	<10
MAR 09	Well #1	0	0	0	0	20			
	Well #2	0	0				0	0	<10
	Well #3	0	0				0	0	<10
MAR 16	Well #1	0	2	0	0	<10			
	Well #2	0	2				0	0	<10
	Well #3	0	0				0	0	
MAR 23	Well #1	0	1						
	Well #2	0	0	0	0	<10	0	0	
	Well #3	0	0				0	0	
MAR 30	Well #1	0	0	0	0	<10			
	Well #2	0	0				0	0	
	Well #3	0	0				0	0	
APR 06	Well #1	0	1	0	0	<10	0	0	<10
	Well #2	0	1				0	0	<10
	Well #3	0	0				0	0	<10
							0	0	<10
APR 15	Well #1	0	0	0	0	<10	0	0	<10
	Well #2	0	0				0	0	<10
	Well #3	0	0				0	0	<10

Table # 9
SUMMARY OF WATER QUALITY - MICROBIOLOGICAL
MUNICIPALITY OF ARRAN-ELDERSLIE
ARRAN-ELDERSLIE 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
APR 20	Well #1	0	0						
	Well #2	0	0	0	0	<10	0	0	
	Well #3	0	0				0	0	
APR 27	Well #1	0	0	0	0	<10			
	Well #2	0	0				0	0	
	Well #3	0	0				0	0	
MAY 04	Well #1	0	0	0	0	<10	0	0	<10
	Well #2	0	0				0	0	<10
	Well #3	0	0				0	0	<10
MAY 11	Well #1	0	0	0	0	<10	0	0	<10
	Well #2	0	0				0	0	<10
	Well #3	0	0				0	0	<10
							0	0	<10
MAY 20	Well #1	0	1	0	0	<10			
	Well #2	0	0				0	0	<10
	Well #3	0	0				0	0	<10
MAY 25	Well #1	0	2	0	0	<10			
	Well #2	0	0				0	0	
	Well #3	0	0				0	0	
JUN 01	Well #1	0	0	0	0	<10	0	0	<10
	Well #2	0	0				0	2 MAC	<10
	Well #3	0	0				0	0	<10
JUN 08	Well #1	0	0	0	0	<10			
	Well #2	0	0				0	0	<10
	Well #3	0	8				0	0	10
JUN 15	Well #1	0	0	0	0	<10			
	Well #2	0	0				0	0	<10
	Well #3	0	6				0	0	<10
JUN 22	Well #1	0	0	0	0	<10			
	Well #2	0	0				0	0	
	Well #3	0	0				0	0	
JUN 29	Well #1	0	0	0	0	<10			
	Well #2	0	0				0	0	
	Well #3	0	0				0	0	
JUL 06	Well #1	0	0	0	0	<10	0	0	<10
	Well #2	0	0				0	0	<10
	Well #3	0	0				0	0	<10
							0	0	<10
JUL 13	Well #1	0	0	0	0	<10	0	0	20
	Well #2	0	0				0	0	<10
	Well #3	0	0				0	0	<10
JUL 20	Well #1	0	0	0	0	<10			
	Well #2	0	0				0	0	<10
	Well #3	0	0				0	0	<10
JUL 27	Well #1	0	0	0	0	<10			
	Well #2	0	0				0	0	
	Well #3	0	0				0	0	

Table # 9
SUMMARY OF WATER QUALITY - MICROBIOLOGICAL
MUNICIPALITY OF ARRAN-ELDERSLIE
ARRAN-ELDERSLIE 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 5	Well #1	0	0	0	0	<10	0	0	<10
	Well #2	0	0				0	0	10
	Well #3	0	0				0	0	<10
AUG 10				0	0	<10	0	0	<10
	Well #2	0	0				0	0	<10
	Well #3	0	0				0	0	<10
AUG 17				0	0	<10	0	0	
	Well #2	0	0				0	0	
	Well #3	0	0						
AUG 24	Well #1	0	0	0	0	<10			
	Well #2	0	0				0	0	
	Well #3	0	0				0	0	
AUG 31	Well #1	0	0	0	0	<10			
							0	0	
	Well #3	0	0				0	0	
SEPT 03									
	Well #2	0	0						
SEPT 9	Well #1	0	0	0	0	<10	0	0	<10
	Well #2	0	0				0	0	<10
	Well #3	0	0				0	0	10
							0	0	<10
SEPT 14	Well #1	0	0	0	0	<10	0	0	10
	Well #2	0	0				0	0	<10
	Well #3	0	0				0	0	<10
SEPT 21	Well #1	0	0	0	0	10			
	Well #2	0	0				0	0	
	Well #3	0	0				0	0	
SEPT 28	Well #1	0	0	0	0	<10			
	Well #2	0	1				0	0	
	Well #3	0	0				0	0	
OCT 05	Well #1	0	0	0	0	<10	0	0	<10
	Well #2	0	0				0	0	10
	Well #3	0	0				0	0	<10
							0	0	40
OCT 14	Well #1	0	0	0	0	<10			
	Well #2	0	0				0	0	
	Well #3	0	0				0	0	
OCT 19	Well #1	0	0	0	0	<10	0	0	
	Well #2	0	0				0	0	
	Well #3	0	0				0	0	
OCT 26	Well #1	0	0	0	0	<10			
	Well #2	0	0				0	0	<10
	Well #3	0	0				0	0	<10
NOV 02	Well #1	0	0	0	0	<10	0	0	<10
	Well #2	0	0				0	0	<10
	Well #3	0	0				0	0	<10
							0	0	<10
NOV 09	Well #1	0	0	0	0	<10			
	Well #2	0	0				0	0	<10
	Well #3	0	0				0	0	<10

Table # 9
SUMMARY OF WATER QUALITY - MICROBIOLOGICAL
MUNICIPALITY OF ARRAN-ELDERSLIE
ARRAN-ELDERSLIE 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
NOV 16	Well #1	0	0	0	0	<10			
	Well #2	0	0				0	0	
	Well #3	0	0				0	0	
NOV 23	Well #1	0	0	0	0	<10			
	Well #2	0	0				0	0	
	Well #3	0	0				0	0	
NOV 30	Well #1	0	0	0	0	<10			
	Well #2	0	0				0	0	
	Well #3	0	0				0	0	
DEC 07	Well #1	0	0	0	0	<10	0	0	10
	Well #2	0	0				0	0	<10
	Well #3	0	0				0	0	<10
							0	0	<10
DEC 14	Well #1	0	0	0	0	10	0	0	<10
	Well #2	0	0				0	0	<10
	Well #3	0	0				0	0	<10
DEC 21	Well #1	0	0	0	0	<10	0	0	
	Well #2	0	0				0	0	
	Well #3	0	0						
DEC 30	Well #1	0	0	0	0	<10	0	0	
	Well #2	0	0				0	0	
	Well #3	0	0						
Total of Samples		154	154	52	52	52	134	134	89

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

APPENDIX B

MONTHLY, QUARTERLY, AND ANNUAL SAMPLING

AND ANALYSIS

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

Works #: 220002725

18-February-2020

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

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

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

Date Rec. : 10 February 2020
LR Report: **CA30088-FEB20**

Copy: #1

Alkalinity

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		---	---	12-Feb-20
2: Analysis Start Time		---	---	13:44
3: Analysis Completed Date		---	---	18-Feb-20
4: Analysis Completed Time		---	---	14:36
6: AO/OG		---	---	30-500
7: MDL		---	---	2
8: DW Riverside Pump	10-Feb-20 11:30	9.5	7.53	263
9: DW Paisley Firehall	10-Feb-20 09:30	9.5	7.07	271

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

Method Descriptions

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

Carrie Greenlaw
Carrie Greenlaw
Project Specialist,
Environment, Health & Safety

OnLine LIMS

0002041342

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

Works #: 220002725

19-February-2020

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

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

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

Date Rec. : 10 February 2020
LR Report: **CA30090-FEB20**

Copy: #1

NO_2, NO_3, TTHM

1st Qtr.

CERTIFICATE OF ANALYSIS

Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: MAC	6: Half MAC	7: AO/OG	8: MDL	9: TW Community Park Well #1 & 2 Aquifer	10: TW Community Park Well #3 Aquifer	11: DW Distribution Admin Office	12: DW Distribution Paisley Sewage Plant
Sample Date & Time									10-Feb-20 08:35	10-Feb-20 09:55	10-Feb-20 11:55	10-Feb-20 08:15
Temperature Upon Receipt [°C]	---	---	---	---	---	---	---	---	11.0	11.0	11.0	11.0
Field Total Chlorine [mg/L]	---	---	---	---	---	---	---	---	1.25	1.14	0.74	1.03
Field Free Chlorine [mg/L]	---	---	---	---	---	---	---	---	1.09	1.07	0.64	0.99
Nitrite (as N) [mg/L]	13-Feb-20	04:00	14-Feb-20	15:52	1.0	---	---	0.003	0.003 <MDL	0.003 <MDL	---	---
Nitrate (as N) [mg/L]	13-Feb-20	04:00	14-Feb-20	15:52	10	---	---	0.006	0.858	1.58	---	---
Nitrate + Nitrite (as N) [mg/L]	13-Feb-20	04:00	14-Feb-20	15:52	---	---	---	0.006	0.858	1.58	---	---
Trihalomethanes (total) [ug/L]	13-Feb-20	12:12	14-Feb-20	12:38	100 (RAA)	---	---	0.37	---	---	20	17
Bromodichloromethane [ug/L]	13-Feb-20	12:12	14-Feb-20	12:38	–	---	---	0.26	---	---	6.1	5.5
Bromoform [ug/L]	13-Feb-20	12:12	14-Feb-20	12:38	–	---	---	0.34	---	---	0.34 <MDL	0.34 <MDL
Chloroform [ug/L]	13-Feb-20	12:12	14-Feb-20	12:38	–	---	---	0.29	---	---	11	9.2
Dibromochloromethane [ug/L]	13-Feb-20	12:12	14-Feb-20	12:38	–	---	---	0.37	---	---	2.8	2.7

MAC - Maximum Acceptable Concentration
MDL - SGS Method Detection Limit

OnLine LIMS

0002042080

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

Works #: 220002725

19-February-2020

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

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

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

Date Rec. : 10 February 2020
LR Report: **CA30090-FEB20**

Copy: #1

1st Qtr. HAA

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	13: DW Distribution Riverside	14: DW Distribution Paisley Firehall
Sample Date & Time							10-Feb-20 11:30	10-Feb-20 09:30
Temperature Upon Receipt [°C]	---	---	---	---	---	---	11.0	11.0
Field Total Chlorine [mg/L]	---	---	---	---	---	---	1.05	1.27
Field Free Chlorine [mg/L]	---	---	---	---	---	---	0.97	1.24
Total Haloacetic Acids (HAA5) [ug/L]	14-Feb-20	09:13	19-Feb-20	09:25	80 (RAA)	5.3	5.3 <MDL	5.3 <MDL
Chloroacetic Acid [ug/L]	14-Feb-20	09:13	19-Feb-20	09:25	---	4.7	4.7 <MDL	4.7 <MDL
Bromoacetic Acid [ug/L]	14-Feb-20	09:13	19-Feb-20	09:25	---	2.9	2.9 <MDL	2.9 <MDL
Dichloroacetic Acid [ug/L]	14-Feb-20	09:13	19-Feb-20	09:25	---	2.6	2.6 <MDL	3.7
Dibromoacetic Acid [ug/L]	14-Feb-20	09:13	19-Feb-20	09:25	---	2.0	2.0 <MDL	2.0 <MDL
Trichloroacetic Acid [ug/L]	14-Feb-20	09:13	19-Feb-20	09:25	---	5.3	5.3 <MDL	5.3 <MDL

MAC - Maximum Acceptable Concentration
MDL - SGS Method Detection Limit

Method Descriptions

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

OnLine LIMS

0002042084

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

Works #: 220002725

21-May-2020

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

2nd Extr
HAA

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

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

Date Rec. : 11 May 2020
LR Report: **CA30121-MAY20**

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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	13: DW Distribution-Paisley Water Plant	14: DW Distribution-Blower Room
Sample Date & Time							11-May-20 10:00	11-May-20 10:50
Temperature Upon Receipt [°C]	---	---	---	---	---	---	5.0	5.0
Field Total Chlorine [mg/L]	---	---	---	---	---	---	1.31	0.51
Field Free Chlorine [mg/L]	---	---	---	---	---	---	1.19	0.46
Total Haloacetic Acids (HAA5) [ug/L]	13-May-20	10:15	14-May-20	12:31	80 (RAA)	5.3	5.3 <MDL	5.3 <MDL
Chloroacetic Acid [ug/L]	13-May-20	10:15	14-May-20	12:31	---	4.7	4.7 <MDL	4.7 <MDL
Bromoacetic Acid [ug/L]	13-May-20	10:15	14-May-20	12:31	---	2.9	2.9 <MDL	2.9 <MDL
Dichloroacetic Acid [ug/L]	13-May-20	10:15	14-May-20	12:31	---	2.6	4.3	4.3
Dibromoacetic Acid [ug/L]	13-May-20	10:15	14-May-20	12:31	---	2.0	2.0 <MDL	2.0 <MDL
Trichloroacetic Acid [ug/L]	13-May-20	10:15	14-May-20	12:31	---	5.3	5.3 <MDL	5.3 <MDL

MAC - Maximum Acceptable Concentration
MDL - SGS Method Detection Limit

Method Descriptions

Parameter	Description	SGS Method Code
Bromoacetic Acid	HAA wtr - DW	ME-CA-[ENV]GC-LAK-AN-013
Bromodichloromethane	VOC wtr - THM	ME-CA-[ENV]GC-LAK-AN-004
Bromoform	VOC wtr - THM	ME-CA-[ENV]GC-LAK-AN-004
Chloroacetic Acid	HAA wtr - DW	ME-CA-[ENV]GC-LAK-AN-013
Chloroform	VOC wtr - THM	ME-CA-[ENV]GC-LAK-AN-004
Dibromoacetic Acid	HAA wtr - DW	ME-CA-[ENV]GC-LAK-AN-013
Dibromochloromethane	VOC wtr - THM	ME-CA-[ENV]GC-LAK-AN-004
Dichloroacetic Acid	HAA wtr - DW	ME-CA-[ENV]GC-LAK-AN-013
Nitrate (as N)	Nitrate by Ion Chromatography	ME-CA-[ENV]IC-LAK-AN-001
Nitrate + Nitrite (as N)	Total Nitrate/Nitrite by Ion Chromatography	ME-CA-[ENV]IC-LAK-AN-001
Nitrite (as N)	Nitrite by Ion Chromatography	ME-CA-[ENV]IC-LAK-AN-001
Total Haloacetic Acids (HAA5)	HAA wtr - DW	ME-CA-[ENV]GC-LAK-AN-013
Trichloroacetic Acid	HAA wtr - DW	ME-CA-[ENV]GC-LAK-AN-013
Trihalomethanes (total)	VOC wtr - THM	ME-CA-[ENV]GC-LAK-AN-004

OnLine LIMS

0002123043

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

Works #: 220002725

21-May-2020

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

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

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

Date Rec. : 11 May 2020
LR Report: **CA30121-MAY20**

Copy: #1

2nd Qtr

NO_2 NO_3, TTHM

CERTIFICATE OF ANALYSIS

Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: MAC	6: Half MAC	7: AO/OG	8: MDL	9: TW Community Park Well #1 & 2 Acquifer	10: TW Community Park Well #3 Acquifer	11: DW Distribution-Paisley Sewage Plant	12: DW Distribution-North End
Sample Date & Time									11-May-20 09:10	11-May-20 09:20	11-May-20 08:30	11-May-20 11:35
Temperature Upon Receipt [°C]	—	—	—	—	—	—	—	—	5.0	5.0	5.0	5.0
Field Total Chlorine [mg/L]	—	—	—	—	—	—	—	—	—	—	1.18	0.81
Field Free Chlorine [mg/L]	—	—	—	—	—	—	—	—	—	—	1.06	0.76
Nitrite (as N) [mg/L]	13-May-20	17:51	14-May-20	10:25	1.0	—	—	0.003	0.003 <MDL	0.003 <MDL	—	—
Nitrate (as N) [mg/L]	13-May-20	17:51	14-May-20	10:25	10	—	—	0.006	0.730	1.82	—	—
Nitrate + Nitrite (as N) [mg/L]	13-May-20	17:51	14-May-20	10:25	—	—	—	0.006	0.730	1.82	—	—
Trihalomethanes (total) [ug/L]	19-May-20	19:31	20-May-20	16:11	100 (RAA)	—	—	0.37	—	—	15	17
Bromodichloromethane [ug/L]	19-May-20	19:31	20-May-20	16:11	–	—	—	0.26	—	—	5.0	5.2
Bromoform [ug/L]	19-May-20	19:31	20-May-20	16:11	–	—	—	0.34	—	—	0.34 <MDL	0.34 <MDL
Chloroform [ug/L]	19-May-20	19:31	20-May-20	16:11	–	—	—	0.29	—	—	7.9	9.0
Dibromochloromethane [ug/L]	19-May-20	19:31	20-May-20	16:11	–	—	—	0.37	—	—	2.4	2.3

MAC - Maximum Acceptable Concentration
MDL - SGS Method Detection Limit

Method Descriptions

Parameter	Description	SGS Method Code
Bromoacetic Acid	HAA wtr - DW	ME-CA-[ENV]GC-LAK-AN-013
Bromodichloromethane	VOC wtr - THM	ME-CA-[ENV]GC-LAK-AN-004
Bromoform	VOC wtr - THM	ME-CA-[ENV]GC-LAK-AN-004

OnLine LIMS

0002123034

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

Works #: 220002725

19-August-2020

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

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

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

Date Rec. : 10 August 2020
LR Report: **CA30134-AUG20**

Copy: #2

3rd Qtr

As HAA

CERTIFICATE OF ANALYSIS

Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: MAC	6: Half MAC	8: MDL	13: DW Distribution Water Plant Domestic	14: DW Distribution Paisley Water Tower	15: RW Community Park Well #3
Sample Date & Time								10-Aug-20 09:10	10-Aug-20 09:00	10-Aug-20 08:35
Temperature Upon Receipt [°C]	---	---	---	---	---	---	---	3.0	3.0	3.0
Field Total Chlorine [mg/L]	---	---	---	---	---	---	---	1.28	0.97	---
Field Free Chlorine [mg/L]	---	---	---	---	---	---	---	1.2	0.92	---
Arsenic [ug/L]	13-Aug-20	14:28	18-Aug-20	08:58	10	5	0.2	---	---	0.2 <MDL
Total Haloacetic Acids (HAA5) [ug/L]	17-Aug-20	09:31	19-Aug-20	10:43	80 (RAA)	---	5.3	5.3 <MDL	13.9	---
Chloroacetic Acid [ug/L]	17-Aug-20	09:31	19-Aug-20	10:43	---	---	4.7	4.7 <MDL	4.7 <MDL	---
Bromoacetic Acid [ug/L]	17-Aug-20	09:31	19-Aug-20	10:43	---	---	2.9	2.9 <MDL	2.9 <MDL	---
Dichloroacetic Acid [ug/L]	17-Aug-20	09:31	19-Aug-20	10:43	---	---	2.6	2.7	7.7	---
Dibromoacetic Acid [ug/L]	17-Aug-20	09:31	19-Aug-20	10:43	---	---	2.0	2.0 <MDL	2.0 <MDL	---
Trichloroacetic Acid [ug/L]	17-Aug-20	09:31	19-Aug-20	10:43	---	---	5.3	5.3 <MDL	6.1	---

MAC - Maximum Acceptable Concentration
Half MAC - Half of the Maximum Acceptable Concentration
MDL - SGS Method Detection Limit

OnLine LIMS

0002224034

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

Works #: 220002725

19-August-2020

Mun of Arran Elderslie (Arran-Elderslie Supply)
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Fax:519-363-9337

Date Rec. : 10 August 2020
LR Report: **CA30134-AUG20**

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3rd Qtr
~~NA~~ NO_2, NO_3, TTHM.

CERTIFICATE OF ANALYSIS

Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: MAC	6: Half MAC	8: MDL	9: TW Community Park Well #1 & 2 Acquifer	10: TW Community Park Well #3 Acquifer	11: DW Distribution North End Lift St	12: DW Distribution Paisley North End
Sample Date & Time								10-Aug-20 08:00	10-Aug-20 09:05	10-Aug-20 11:25	10-Aug-20 09:30
Temperature Upon Receipt [°C]	---	---	---	---	---	---	---	3.0	3.0	3.0	3.0
Field Total Chlorine [mg/L]	---	---	---	---	---	---	---	1.44	1.45	0.72	0.72
Field Free Chlorine [mg/L]	---	---	---	---	---	---	---	1.32	1.31	0.68	0.7
Arsenic [ug/L]	13-Aug-20	14:28	18-Aug-20	08:58	10	5	0.2	---	---	---	---
Nitrite (as N) [mg/L]	13-Aug-20	12:01	17-Aug-20	10:50	1.0	---	0.003	0.003 <MDL	0.003 <MDL	---	---
Nitrate (as N) [mg/L]	13-Aug-20	12:01	17-Aug-20	10:50	10	---	0.006	0.865	1.69	---	---
Nitrate + Nitrite (as N) [mg/L]	13-Aug-20	12:01	17-Aug-20	10:50	---	---	0.006	0.865	1.69	---	---
Trihalomethanes (total) [ug/L]	12-Aug-20	16:31	13-Aug-20	17:35	100 (RAA)	---	0.37	---	---	26	26
Bromodichloromethane [ug/L]	12-Aug-20	16:31	13-Aug-20	17:35	--	---	0.26	---	---	7.5	8.0
Bromoform [ug/L]	12-Aug-20	16:31	13-Aug-20	17:35	--	---	0.34	---	---	0.34 <MDL	0.34 <MDL
Chloroform [ug/L]	12-Aug-20	16:31	13-Aug-20	17:35	--	---	0.29	---	---	16	15
Dibromochloromethane [ug/L]	12-Aug-20	16:31	13-Aug-20	17:35	--	---	0.4	---	---	3.1	3.2

MAC - Maximum Acceptable Concentration
Half MAC - Half of the Maximum Acceptable Concentration
MDL - SGS Method Detection Limit

OnLine LIMS

0002224030

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

Works #: 220002725

25-September-2020

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

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

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

Date Rec. : 21 September 2020
LR Report: **CA30331-SEP20**

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Alk

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		---	---	23-Sep-20
2: Analysis Start Time		---	---	16:01
3: Analysis Completed Date		---	---	24-Sep-20
4: Analysis Completed Time		---	---	16:59
6: AO/OG		---	---	30-500
7: MDL		---	---	2
8: DW Sample Tap South End Sample Tap Chesley	21-Sep-20 09:45	9.8	7.61	289
9: DW Sample Tap Ross St Sample Tap Paisley	21-Sep-20 09:45	9.8	7.22	275

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

Method Descriptions

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

Carrie Greenlaw
Carrie Greenlaw
Project Specialist,
Environment, Health & Safety

OnLine LIMS

0002267271

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

Works #: 220002725

19-November-2020

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

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

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

Date Rec. : 09 November 2020
LR Report: **CA30091-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	6: Half MAC	8: MDL	12: DW Distribution-Paisley North End S.S.	13: DW Distribution-Chesley Community Center	14: DW Distribution-Paisley Albert L.S.
Sample Date & Time								09-Nov-20 11:05	09-Nov-20 09:35	09-Nov-20 10:10
Temperature Upon Receipt [°C]	---	---	---	---	---	---	---	9.0	9.0	9.0
Field Total Chlorine [mg/L]	---	---	---	---	---	---	---	1.01	1.00	1.02
Field Free Chlorine [mg/L]	---	---	---	---	---	---	---	0.98	0.93	0.98
Trihalomethanes (total) [ug/L]	13-Nov-20	14:05	16-Nov-20	16:53	100 (RAA)	---	0.37	19	---	---
Bromodichloromethane [ug/L]	13-Nov-20	14:05	16-Nov-20	16:53	--	---	0.26	5.8	---	---
Bromoform [ug/L]	13-Nov-20	14:05	16-Nov-20	16:53	--	---	0.34	0.34 <MDL	---	---
Chloroform [ug/L]	13-Nov-20	14:05	16-Nov-20	16:53	--	---	0.29	11	---	---
Dibromochloromethane [ug/L]	13-Nov-20	14:05	16-Nov-20	16:53	--	---	0.37	2.6	---	---
Total Haloacetic Acids (HAA5) [ug/L]	13-Nov-20	17:14	19-Nov-20	12:42	80 (RAA)	---	5.3	---	5.3 <MDL	5.6
Chloroacetic Acid [ug/L]	13-Nov-20	17:14	19-Nov-20	12:42	---	---	4.7	---	4.7 <MDL	4.7 <MDL
Bromoacetic Acid [ug/L]	13-Nov-20	17:14	19-Nov-20	12:42	---	---	2.9	---	2.9 <MDL	2.9 <MDL
Dichloroacetic Acid [ug/L]	13-Nov-20	17:14	19-Nov-20	12:42	---	---	2.6	---	2.6 <MDL	5.6
Dibromoacetic Acid [ug/L]	13-Nov-20	17:14	19-Nov-20	12:42	---	---	2.0	---	2.0 <MDL	2.0 <MDL
Trichloroacetic Acid [ug/L]	13-Nov-20	17:14	19-Nov-20	12:42	---	---	5.3	---	5.3 <MDL	5.3 <MDL

MAC - Maximum Acceptable Concentration
Half MAC - Half of the Maximum Acceptable Concentration

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

Works #: 220002725

19-November-2020

Mun of Arran Elderslie (Arran-Elderslie Supply)
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Chesley, ON
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4th Qtr

As, NO_2, NO_3 TTHM

Date Rec. : 09 November 2020
LR Report: **CA30091-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	6: Half MAC	8: MDL	9: TW Community Park Well #1 & 2 Acquifer	10: TW Community Park Well #3 Acquifer	11: DW Distribution-North End Lift Station
Sample Date & Time								09-Nov-20 08:00	09-Nov-20 10:45	09-Nov-20 08:35
Temperature Upon Receipt [°C]	---	---	---	---	---	---	---	9.0	9.0	9.0
Field Total Chlorine [mg/L]	---	---	---	---	---	---	---	1.21	1.14	0.50
Field Free Chlorine [mg/L]	---	---	---	---	---	---	---	1.16	1.08	0.46
Arsenic [ug/L]	13-Nov-20	17:48	17-Nov-20	11:18	10	5	0.2	---	1.3	---
Nitrite (as N) [mg/L]	12-Nov-20	08:31	13-Nov-20	16:10	1.0	---	0.003	0.003 <MDL	0.003 <MDL	---
Nitrate (as N) [mg/L]	12-Nov-20	08:31	13-Nov-20	16:10	10	---	0.006	0.679	1.54	---
Nitrate + Nitrite (as N) [mg/L]	12-Nov-20	08:31	13-Nov-20	16:10	---	---	0.006	0.679	1.54	---
Trihalomethanes (total) [ug/L]	13-Nov-20	14:05	16-Nov-20	16:53	100 (RAA)	---	0.37	---	---	25
Bromodichloromethane [ug/L]	13-Nov-20	14:05	16-Nov-20	16:53	--	---	0.26	---	---	7.0
Bromoform [ug/L]	13-Nov-20	14:05	16-Nov-20	16:53	--	---	0.34	---	---	0.34 <MDL
Chloroform [ug/L]	13-Nov-20	14:05	16-Nov-20	16:53	--	---	0.29	---	---	15
Dibromochloromethane [ug/L]	13-Nov-20	14:05	16-Nov-20	16:53	--	---	0.37	---	---	3.1

MAC - Maximum Acceptable Concentration
Half MAC - Half of the Maximum Acceptable Concentration
MDL - SGS Method Detection Limit

OnLine LIMS

0002326188

APPENDIX C

MUNICIPAL DRINKING WATER LICENSE AND DRINKING WATER WORKS PERMITS

Ontario

MUNICIPAL DRINKING WATER LICENCE

Licence Number: 079-102
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:

Arran-Elderslie Drinking Water System

This municipal drinking water licence includes the following:

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

Upon the effective date of this drinking water licence # 079-102, all previously issued versions of licence # 079-102 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	**079-102**
Drinking Water System Name	**Arran-Elderslie 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
Arran-Elderslie Drinking Water System	079-202	January 8th, 2021

2.2 Permits to Take Water

Water Taking Location	Permit Number	Issue Date
CPW1, CPW2 and CPW3	3655-A3RPJL	November 13, 2015

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:	079-302
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.
Arran-Elderslie Drinking Water System	The Corporation of the Municipality of Arran-Elderslie	079-402	079-OA1

Schedule B: General Conditions

System Owner	**The Corporation of the Municipality of Arran-Elderslie**
Licence Number	**079-102**
Drinking Water System Name	**Arran-Elderslie 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	**079-102**
Drinking Water System Name	**Arran-Elderslie Drinking Water System**
Licence Effective Date	**January 8th, 2021**

1.0 System Performance

Rated Capacity

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

Table 1: Rated Capacity

Column 1 Treatment Subsystem Name	Column 2 Rated Capacity (m^3/day)
Arran-Elderslie Water Treatment Plant	5,564

Maximum Flow Rates

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

Table 2: Maximum Flow Rates

Column 1 Treatment Subsystem Name	Column 2 Treatment Subsystem Component	Column 3 Maximum Flow Rate (L/s)
CPW1, CPW2 and CPW3	Arran-Elderslie Water Treatment Plant	64.4

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

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

Residuals Management

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

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

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

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

Table 3: Residuals Management

Column 1 Treatment Subsystem or Treatment Subsystem Component Name	Column 2 Test Parameter	Column 3 Annual Average Concentration (mg/L)	Column 4 Maximum Concentration (mg/L)
Filter Backwash Tank	Total Suspended Solids	25	Not Applicable
Dechlorination System	Free Chlorine Residual	N/A	0.02

UV Disinfection Equipment Performance

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

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

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

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

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

Table 4: UV Disinfection Equipment

Column 1 Treatment Subsystem or Treatment Subsystem Component Name	Column 2 Minimum Continuous Pass-Through UV Dose (mJ/cm^2)	Column 3 Control Strategy	Column 4 Test Parameter
Not Applicable	Not Applicable	Not Applicable	Not Applicable

2.0 Flow Measurement and Recording Requirements

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

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

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

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

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

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

2.3.2 The time and date of the measurement;

2.3.3 The reason for the exceedance; and

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

3.0 Calibration of Flow Measuring Devices

3.1 All flow measuring devices that are required by regulation, by a condition in the drinking water works permit 079-202, or by a condition otherwise imposed by the Ministry, shall be checked and where necessary calibrated in accordance with the manufacturer's instructions.

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

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

4.0 Calibration of CT Monitoring System

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

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

5.0 Additional Sampling, Testing and Monitoring

Drinking Water Health and Non-Health Related Parameters

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

Table 5: Drinking Water Health Related Parameters

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

Table 6: Drinking Water Non-Health Related Parameters

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

Environmental Discharge Parameters

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

5.3 For the purposes of Table 7:

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

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

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

Table 7: Environmental Discharge Parameters

Column 1 Treatment Subsystem or Treatment Subsystem Component Name	Column 2 Test Parameter	Column 3 Sample Type	Column 4 Sampling Frequency	Column 5 Monitoring Location
Filter Backwash Tank	Total Suspended Solids	Composite	Monthly	Point of Discharge
Dechlorination System	Free Chlorine Residual	Composite	Monthly	Point of Discharge

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

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

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

5.5.2.1 To a road or storm sewer; or

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

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

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

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

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

6.0 Studies Required

6.1 Not Applicable

7.0 Source Protection

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

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

7.3 The notification required in condition 7.2 shall include:

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

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

Schedule D: Conditions for Relief from Regulatory Requirements

System Owner	**The Corporation of the Municipality of Arran-Elderslie**
Licence Number	**079-102**
Drinking Water System Name	**Arran-Elderslie Drinking Water System**
Licence Effective Date	**January 8th, 2021**

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

Schedule E: Pathogen Log Removal/Inactivation Credits

System Owner	**The Corporation of the Municipality of Arran-Elderslie**
Licence Number	**079-102**
Drinking Water System Name	**Arran-Elderslie Drinking Water System**
Licence Effective Date	**January 8th, 2021**

1.0 Primary Disinfection Pathogen Log Removal/Inactivation Credits

Arran-Elderslie Water Treatment Plant

CPW1, CPW2 and CPW3 [GROUNDWATER]

Minimum Log Removal/ Inactivation Required	Cryptosporidium Oocysts	Giardia Cysts	Viruses
Arran-Elderslie Water Treatment Plant	0	0	2

Log Removal/Inactivation Credits Assigned [a]	Cryptosporidium Oocysts	Giardia Cysts	Viruses
Chlorination [CT: chlorine contact pipe]	-	-	2+

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

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

Ontario

DRINKING WATER WORKS PERMIT

Permit Number: 079-202
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:

Arran-Elderslie Drinking Water System

This drinking water works permit includes the following:

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

Upon the effective date of this drinking water works permit # 079-202, all previously issued versions of permit # 079-202 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	**079-202**
Drinking Water System Name	**Arran-Elderslie 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 **Arran-Elderslie Drinking Water System** consists of three (3) ground water wells, one (1) drinking water treatment plant, two (2) standpipes, one (1) rechlorination facility, a 300 mm diameter trunk watermain approximately 15.7 km long connecting the Chesley water distribution system to the Paisley system and approximately 34 kilometers of distribution watermains.

Ground Water Supplies

CPW1

Location	129, 4th Ave SE, Chesley, Ontario
UTM Coordinates	NAD 83 UTM Zone 17, 492856 m E, 4904691 m N
WWR No.	1401010
Source	Groundwater (Non-GUDI)
Description	340 mm diameter x approximately 20 m deep drilled groundwater well complete with a pitless adapter
Equipment	A submersible well pump rated at 20.8 L/s at 80.96 m TDH
Notes	

CPW2

Location	129, 4th Ave SE, Chesley, Ontario
UTM Coordinates	NAD 83 UTM Zone 17, 492848 m E, 4904726 m N
WWR No.	1407956
Source	Groundwater (Non-GUDI)
Description	324 mm diameter x 24.4 m deep drilled well complete with a pitless adapter
Equipment	A submersible well pump rated at 24.6 L/s at 80.12 m TDH
Notes	

CPW3

Location	129, 4th Ave SE, Chesley, Ontario
UTM Coordinates	NAD 83 UTM Zone 17, 493123 m E, 4904783 m N
WWR No.	1407957
Source	Groundwater (Non-GUDI)
Description	254 mm diameter x 38.1 m deep drilled well
Equipment	A submersible well pump rated at 34.1 L/s at 96.43 m TDH complete with a pitless adapter
Notes	

Treatment Facility

Arran-Elderslie Water Treatment Plant

Location	129 4th Ave. S.E., Chesley, Ontario
UTM Coordinates	NAD 83 UTM Zone 17, 492836 m E, 4904641 m N
Description	A water treatment plant building housing treatment equipment and all necessary instrumentation, controls and appurtenances
Pressure Filtration System	Three (3) pressure filtration vessels (2 duty, 1 standby) for iron and manganese removal containing approximately 300 mm of Anthracite and 500 mm of catalytic media, each vessel 2,745 mm in diameter by 1,700 mm high, providing a filtration rate of 19.6 m/h, at a rated capacity of 2,781 m^3/day per filter and discharging to the clearwell
	Two (2) filter backwash pumps (1 pump per clearwell cell) each rated at 74.5 L/s at 15.55 m TDH complete with all necessary electrical and controls
Residuals Management System	One (1) backwash wastewater holding tank approximately 7 m x 13 m x 3 m in size discharging supernatant by gravity to the storm sewer or to the Saugeen River. Settled sludge is discharged to the Chesley Lagoon System
Dechlorination System	Two calcium thiosulphate (2) chemical feed pumps, (1 duty, 1 standby) to dechlorinate filter backwash wastewater prior to disposal to the Saugeen River
	One (1) calcium thiosulphate chemical storage tank
Chlorination System	Three (3) sodium hypochlorite chemical feed pumps (1 duty, 2 standby). Feed point for iron and manganese oxidation is the common header from CPW1, CPW2, and CPW3 upstream of the filters. Feed point for primary disinfection is upstream of the chlorine contact chamber
	A post chlorination system consisting of two (2) positive displacement diaphragm type sodium hypochlorite chemical feed pumps (1 duty, 1 standby)
	Three (3) sodium hypochlorite chemical storage tanks complete with all necessary controls, piping and spill containment
Chlorine Contact Pipe	An 86 m long x 600 mm diameter watermain providing chlorine contact time located on the plant site prior to entering the distribution system
Clearwell	An unbaffled two (2) cell, filtered water underground storage tank, each cell approximately 6 m x 8.2 m x 1.8 m water depth (total storage volume of 177 m^3)
Standby Power	One (1) 230 kW diesel generator set complete with all necessary piping and controls
Notes	

Off-Site Storage and Rechlorination

Chesley Standpipe

Location	84 Tower Road, Chesley, Ontario
UTM Coordinates	NAD 83 UTM 17: 492422 m E, 4906152 m N
Total Volume	2725 m^3
Notes	

Paisley Standpipe and Rechlorination Facility

Location	281 Alma Street, Paisley, Ontario
UTM Coordinates	NAD 83 UTM 17: 478438 m E, 4905401 m N
Total Volume	2430 m^3
Re-chlorination Equipment	Two (2) sodium hypochlorite chemical feed pumps (1 duty and 1 standby)
	One (1) sodium hypochlorite solution tank with secondary containment
Notes	

Instrumentation and Control

SCADA System

Arran-Elderslie Water Treatment Plant	One (1) free chlorine residual analyzer measuring the free residual at the contact chamber effluent complete with alarm
	One (1) turbidity analyzer measuring the turbidity at the contact chamber effluent complete with alarm
	Three (3) flow meters measuring the raw water flow from each well, one (1) flow meter to measure the volume and rate of backwash, one (1) flow meter measure the volume and rate of treated water leaving the plant
Notes	

Fuel Oil Systems

Arran-Elderslie Water Treatment Plant

Location	129 4th Ave. S.E., Chesley, Ontario
UTM Coordinates	NAD 83 UTM Zone 17, 492836 m E, 4904641 m N
Description	One (1) 2,000 L double walled above ground sub-base fuel tank for 230 kW generator set
Fuel Type	Diesel
Source Protection Area	Saugeen, Grey Sauble, Northern Bruce Peninsula Source Protection Region
Notes	

Watermains

1.2 Watermains within the distribution system comprise:

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

Table 1: Watermains

Column 1 Document or File Name	Column 2 Date
Chesley_Water_Distribution_Updated_April2016.pdf	April 2016
Paisley_Water_Distribution_Updated_April2016.pdf	April 2016

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

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

Schedule B: General

System Owner	**The Corporation of the Municipality of Arran-Elderslie**
Permit Number	**079-202**
Drinking Water System Name	**Arran-Elderslie Drinking Water System**
Permit Effective Date	**January 8th, 2021**

1.0 Applicability

1.1 In addition to any other applicable legal requirements, the drinking water system identified above shall be altered and operated in accordance with the conditions of this drinking water works permit and the licence #079-102.

1.2 The definitions and conditions of licence #079-102 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 #079-102.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

3.0 Watermain Additions, Modifications, Replacements and Extensions

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

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

a) Has been prepared by a licensed engineering practitioner;

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

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

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

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

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

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

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

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

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

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

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

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

3.2.2 Has a nominal diameter greater than 750 mm;

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

3.2.4 Connects to another drinking water system, unless:

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

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

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

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

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

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

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

3.4.2 Constitutes maintenance or repair of the drinking water system.

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

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

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

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

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

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

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

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

4.0 Minor Modifications to the Drinking Water System

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

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

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

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

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

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

4.1.3 SCADA system software or programming that:

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

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

4.1.5 Spill containment works; or,

4.1.6 Coarse screens and fine screens

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

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

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

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

4.2.4 Re-circulation devices within distribution system storage facilities;

4.2.5 In-line mixing equipment;

4.2.6 Chemical metering pumps and chemical handling pumps;

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

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

4.2.9 Chemical injection points.

4.2.10 Valves;

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

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

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

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

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

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

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

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

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

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

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

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

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

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

4.4.7 An adverse effect on the environment.

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

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

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

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

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

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

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

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

5.0 Equipment with Emissions to the Air

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

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

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

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

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

5.1.5 Maintenance welding stations;

5.1.6 Minor painting operations used for maintenance purposes;

5.1.7 Parts washers for maintenance shops;

5.1.8 Emergency chlorine and ammonia gas scrubbers and absorbers;

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

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

5.1.11 Venting for an ozone treatment unit;

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

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

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

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

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

Performance Limits

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

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

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

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

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

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

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

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

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

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

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

5.9.2 Constitutes maintenance or repair of the drinking water system.

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

6.0 Previously Approved Works

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

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

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

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

7.0 System-Specific Conditions

7.1 The owner of the system shall notify the Director in writing by October 31st, 2021 of a plan to address raw water total coliform exceedances in Wells CPW1 and CPW2.

8.0 Source Protection

8.1 Not Applicable.

Schedule C: Authorization to Alter the Drinking Water System

System Owner	**The Corporation of the Municipality of Arran-Elderslie**
Permit Number	**079-202**
Drinking Water System Name	**Arran-Elderslie Drinking Water System**
Permit Effective Date	**January 8th, 2021**

1.0 General

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

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

Table 2: Schedule C Documents

Column 1 Issue #	Column 2 Issued Date	Column 3 Description	Column 4 Status	Column 5 DN #
Sch. C Issue 1	May 2, 2013	Backwash Dechlorination System	Archived	DN #2

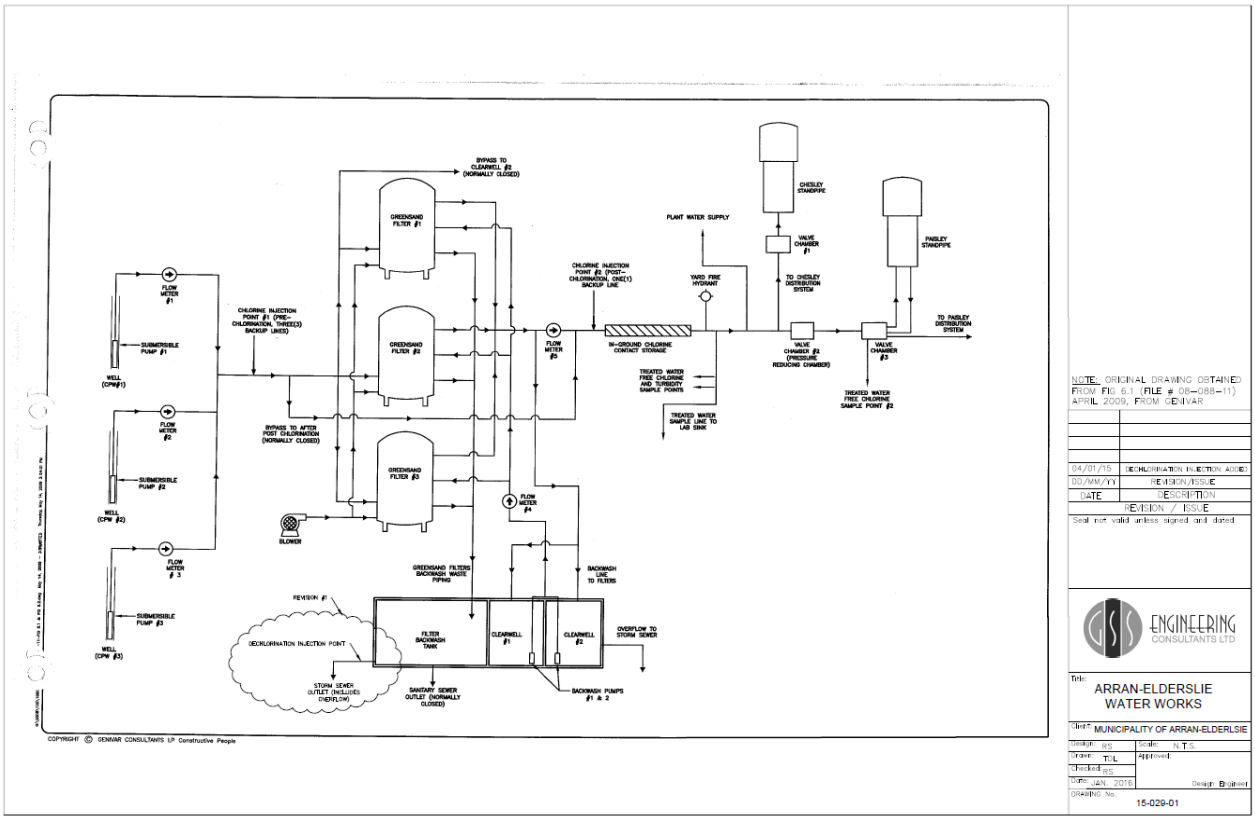
1.2 For each document described in columns 1, 2 and 3 of Table 2, the status of the document is indicated in column 4. Where this status is listed as 'Archived', the approved alterations have been completed and relevant portions of this permit have been updated to reflect the altered works. These 'Archived' 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	**079-202**
Drinking Water System Name	**Arran-Elderslie Drinking Water System**
Permit Effective Date	**January 8th, 2021**

1.0 Process Flow Diagrams

Arran-Elderslie Water Treatment Plant



[Source: 'AE Schematic Flow Diagram.pdf' dated January 2016 and received December 2020]

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

APPENDIX D

WATER METER CALIBRATION

Tower Electronics Canada Calibration Certificate

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

Calibration by:
Dan Matchett

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

Instrument Type
Magnetic Flow Meter

Meter Information

Date of Test:	4/15/2020
Location:	Chesley WTP
Meter Under Test	Distribution Flow
Client Tag:	F-5
Manufacturer:	Endress Hauser
Model:	Promag 50W
Serial Number:	79051D16000
Totalizer As Found:	5194906M3
Totalizer As Left:	5194944M3

Programming Parameters:

DN Size:	DN200
Cal Factor:	1.0550
Zero:	0
Calibration Due:	Apr-21

Method of verification
EnH Field Check Verification/Calibration

Units: LPS
Zero: 0.00
Span: 100.00
Totalizer: M3

Flow Test

Sim Setting	Sim Flow LPS	Meter Display	Current Output	Disp Error%	mA Error %
0.000	0.000	0.000	4.005	0.000	0.125
25.000	25.000	25.011	8.005	0.011	0.063
50.000	50.000	49.967	11.995	0.033	0.042
75.000	75.000	74.956	16.013	0.044	0.081
100.000	100.000	99.975	20.020	0.025	0.100
			Average Error%	0.02	0.08
			Result:	PASS	PASS

Totalizer Test

Sim Flow Rate	100.000	LPS
Start Totalizer	5194933.000	M3
End Totalizer	5194943.000	M3
Volume Simulated	10.000	M3
Time(Seconds)	102.020	
Calculated Totalizer(MUT)	10.202	
Error%	-1.980	
Result:	PASS	

Comments:
Unit passes verification.

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

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

Tower Electronics Canada Calibration Certificate

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

Calibration by:
Dan Matchett

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

Instrument Type
Magnetic Flow Meter

Meter Information

Date of Test:	4/15/2020
Location:	Chesley WTP
Meter Under Test	Well 1 Raw
Client Tag:	F1
Manufacturer:	Endress Hauser
Model:	Promag 50W
Serial Number:	7903D616000
Totalizer As Found:	1626834M3
Totalizer As Left:	1626843M3

Programming Parameters:

DN Size:	DN150
Cal Factor:	1.0064
Zero:	0
Calibration Due:	Apr-21

Method of verification
EnH Field Check Verification/Calibration

Units: LPS
Zero: 0.00
Span: 50.00
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
12.500	12.500	12.500	7.999	0.000	0.013
25.000	25.000	25.000	11.998	0.000	0.017
37.500	37.500	37.500	16.004	0.000	0.025
50.000	50.000	50.000	20.019	0.000	0.095
			Average Error%	0.00	0.04
			Result:	PASS	PASS

Totalizer Test

Sim Flow Rate	50.000	LPS
Start Totalizer	1626839.000	M3
End Totalizer	1626843.000	M3
Volume Simulated	4.000	M3
Time(Seconds)	79.440	
Calculated Totalizer(MUT)	3.972	
Error%	0.705	
Result:	PASS	

Comments:
Unit passes verification.

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

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

Tower Electronics Canada Calibration Certificate

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

Calibration by:
Dan Matchett

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

Instrument Type
Magnetic Flow Meter

Meter Information

Date of Test:	4/15/2020
Location:	Chesley WTP
Meter Under Test	Well 2 Raw
Client Tag:	F2
Manufacturer:	Endress Hauser
Model:	Promag 50W
Serial Number:	79051A16000
Totalizer As Found:	1823112M3
Totalizer As Left:	1823133M3

Programming Parameters:

DN Size:	DN200
Cal Factor:	1.0453
Zero:	0
Calibration Due:	Apr-21

Method of verification
EnH Field Check Verification/Calibration

Units: LPS
Zero: 0.00
Span: 100.00
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
25.000	25.000	25.000	7.997	0.000	0.038
50.000	50.000	50.000	11.998	0.000	0.017
75.000	75.000	75.000	16.013	0.000	0.081
100.000	100.000	100.000	20.024	0.000	0.120
			Average Error%	0.00	0.06
			Result:	PASS	PASS

Totalizer Test

Sim Flow Rate	100.000	LPS
Start Totalizer	1823123.000	M3
End Totalizer	1823132.000	M3
Volume Simulated	9.000	M3
Time(Seconds)	89.370	
Calculated Totalizer(MUT)	8.937	
Error%	0.705	
Result:	PASS	

Comments:
Unit passes verification.

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

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Website: www.tecanada.ca

Tower Electronics Canada Calibration Certificate

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

Calibration by:
Dan Matchett

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

Instrument Type
Magnetic Flow Meter

Meter Information

Date of Test:	4/15/2020
Location:	Chesley WTP
Meter Under Test	Well 3 Raw
Client Tag:	F2
Manufacturer:	Endress Hauser
Model:	Promag 50W
Serial Number:	79051B16000
Totalizer As Found:	1913005M3
Totalizer As Left:	1913027M3

Programming Parameters:

DN Size:	DN200
Cal Factor:	1.0501
Zero:	0
Calibration Due:	Apr-21

Method of verification
EnH Field Check Verification/Calibration

Units: LPS
Zero: 0.00
Span: 100.00
Totalizer: M3

Flow Test

Sim Setting	Sim Flow LPS	Meter Display	Current Output	Disp Error%	mA Error %
0.000	0.000	0.000	4.000	0.000	0.000
25.000	25.000	25.000	7.997	0.000	0.038
50.000	50.000	50.000	11.995	0.000	0.042
75.000	75.000	75.000	16.011	0.000	0.069
100.000	100.000	99.900	20.020	0.100	0.100
			Average Error%	0.02	0.05
			Result:	PASS	PASS

Totalizer Test

Sim Flow Rate	100.000	LPS
Start Totalizer	1913020.000	M3
End Totalizer	1913026.000	M3
Volume Simulated	6.000	M3
Time(Seconds)	59.910	
Calculated Totalizer(MUT)	5.991	
Error%	0.150	
Result:	PASS	

Comments:
Unit passes verification.

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

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

Tower Electronics Canada Calibration Certificate

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

Calibration by:
Dan Matchett

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

Instrument Type
Magnetic Flow Meter

Meter Information

Date of Test:	4/15/2020
Location:	25 Side Road
Meter Under Tes	Boundary Distribtuion Meter
Client Tag:	n/a
Manufacturer:	Endress Hauser
Model:	Promag 50W
Serial Number:	7A045816000
Totalizer As Found:	1645498M3
Totalizer As Left:	1645516M3

Programming Parameters:

DN Size:	DN200
Cal Factor:	1.046
Zero:	0
Calibration Due:	Apr-21

Method of verification
EnH Field Check Verification/Calibration

Units: LPS
Zero: 0.00
Span: 100.00
Totalizer: M3

Flow Test

Sim Setting	Sim Flow LPS	Meter Display	Current Output	Disp Error%	mA Error %
0.000	0.000	0.000	4.000	0.000	0.000
25.000	25.000	24.909	7.995	0.091	0.062
50.000	50.000	49.872	11.982	0.128	0.150
75.000	75.000	74.794	15.991	0.206	0.056
100.000	100.000	99.780	19.998	0.220	0.010
			Average Error%	0.13	0.06
			Result:	PASS	PASS

Totalizer Test

Sim Flow Rate	100.000	LPS
Start Totalizer	1645508.000	M3
End Totalizer	1645516.000	M3
Volume Simulated	8.000	M3
Time(Seconds)	80.670	
Calculated Totalizer(MUT)	8.067	
Error%	-0.831	
Result:	PASS	

Comments:
Unit passes verification.

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

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

APPENDIX E

MECP INSPECTION REPORT

Ministry of the Environment, Conservation and Parks

Drinking Water and Environmental Compliance Division

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

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

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

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

September 1, 2020

Sent by Email: cao@arran-elderslie.ca

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

Attention: Mr. Bill Jones
CAO/Clerk

Re: 2020/2021 Inspection Report 1-O7BU0
Arran-Elderslie Drinking Water System
Drinking Water Works Permit 079-202, 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 drinking water inspection on 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), provides further information about these obligations.

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

Yours truly,

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

Enclosure

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

c: File SI-BR-AE-FO-540 (2020)

Ontario

Ministry of the Environment, Conservation and Parks

ARRAN-ELDERSLIE DRINKING WATER SYSTEM

Inspection Report

Site Number:	220002725
Inspection Number:	1-O7BU0
Date of Inspection:	Jul 21, 2020
Inspected By:	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

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

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

INSPECTION DETAILS:

Site Name: ARRAN-ELDERSLIE DRINKING WATER SYSTEM
Site Address: 129 FORTH Avenue Southeast CHESLY ON N0G 1L0
County/District: ARRAN-ELDERSLIE
MECP District/Area Office: Owen Sound Area Office
Health Unit: GREY BRUCE HEALTH UNIT
Conservation Authority: Saugeen Conservation
MNR Office: Owen Sound Regional Office
Category: Large Municipal Residential
Site Number: 220002725
Inspection Type: Unannounced
Inspection Number: 1-O7BU0
Date of Inspection: Jul 21, 2020
Date of Previous Inspection: May 31, 2020

COMPONENTS DESCRIPTION

Site (Name): MOE DWS Mapping
Type: DWS Mapping Point **Sub Type:**

Site (Name): WELL 1 COMMUNITY PARK (CPW1)
Type: Source **Sub Type:** Ground Water
Comments:
The Community Park Well (CPW1) is located on Lot 32, Concession 2 and the casing extends into the Arran Elderslie water treatment plant. The well is a 340 mm diameter by 20 meter deep drilled ground water well and was completed in 1948. CPW1 was rehabilitated in 2009.

The raw water is attained from the well using a submersible well pump (rated at 20.82 liters per second at a TDH of 80.96 m) and is conveyed through the treatment process via a 150 mm diameter discharge main.

Site (Name): WELL 2 COMMUNITY PARK "BALL DIAMOND" (CPW2)
Type: Source **Sub Type:** Ground Water
Comments:
The Community Park Well (CPW2) was drilled in December of 2001 and draws from the same aquifer as CPW1. CPW2 is a 324 mm diameter by 24.38 m deep drilled single cased, screened gravel walled well. The well is equipped with a submersible pump rated at 24.61 liters per second at a TDH of 80.12 m. The well is equipped with a pitless adaptor. The clay overburden layer existing at the site is 3.66 meters in depth as compared to the 11.3 meter layer at CPW1 which is approximately 17 meters to the south. The Community Park wells are designed to utilize the overburden aquifer in the area as it is a relatively unexploited source as most other wells in the area draw from the underlying dolostone bedrock aquifer. CPW2 was brought on-line with the new water treatment plant in March 2006.

Site (Name): WELL 3 COMMUNITY PARK "RACETRACK" (CPW3)
Type: Source **Sub Type:** Ground Water
Comments:
The Community Park Well (CPW3) was drilled to provide additional system capacity for the Arran-Elderslie water treatment plant project. The well was completed in November of 2002 and is an overburden-bedrock interface with a casing diameter of 254 mm. The well was drilled to a depth of 38.1 meters and utilizes the same aquifer as the existing Victoria Park Well. The well is equipped with a submersible pump rated at 34.07 liters per second at a TDH of 96.43 m and is completed with a pitless adaptor. The overburden material in the vicinity of CPW3 includes a 25 meter thick confining layer comprised of predominantly clay with varying amounts of sand and silt. The well was grouted to a depth of 30 meters to prevent surface water infiltration. CPW3 was brought on-line with the completion of the Arran-Elderslie water treatment plant.

Site (Name): WELL VICTORIA RAW
Type: Other **Sub Type:** Other
Comments:
The Victoria Park well was taken off-line and locked out on May 31, 2006. This well has been converted into a monitoring well. Monthly static water levels are to be measured and recorded. The well is a 200 mm diameter by 38.7 meter deep drilled groundwater well and was drilled and developed in 1937.

Site (Name): TW3/91
Type: Other **Sub Type:** Other
Comments:
TW3/91 is a monitoring well identified in the Permit To Take Water #8003-639PHB and is to be monitored for static water levels on a monthly basis.

Site (Name): ARRAN-ELDERSLIE WTP
Type: Treated Water POE **Sub Type:** Pumphouse
Comments:
The Arran-Elderslie water treatment facility treats source water from three (3) raw water supplies CPW1, CPW2 and CPW3.
The treatment equipment consists of three (3) pressure filtration vessels (2 duty and 1 standby) for iron and manganese removal. These vessels are rated at 2,781 cubic meters per day per filter providing a filtration rate of 19.6 m3/h and discharge into the clearwell below via a common header.
There is an unbaffled two (2) cell, filtered water underground storage tank with a total storage volume of 177 cubic meters.
Two (2) filter backwash pumps (1 per clearwell) rated at 74.5 L/s at 15.55 m TDH pump water for the backwashing of

the pressure filters.
A sodium hypochlorite feed system used for iron and manganese oxidation and primary disinfection consists of three (3) positive displacement diaphragm type chemical feed pumps (2 duty and 1 standby) each pump rated at a minimum of 3 L/h.
A post chlorination system consists of two (2) positive displacement diaphragm type chemical feed pumps (1 duty and 1 standby). Each pump is rated at 1.4 L/h.
Three (3) sodium hypochlorite storage tanks each capable of storing a maximum of 1000 L are present for oxidation and disinfection purposes.
One (1) backwash wastewater holding tank (7 m x 13 m x 3 m) discharges supernatant by gravity to the storm sewer and the settled sludge to the municipal sewer.
A continuous on-line analyzer for turbidity and free chlorine residual monitors plant effluent quality.
All systems are provided with back-up power a 230 kW diesel generator set with a 2,000 L double wall sub-base fuel tank.
Chlorine contact time is achieved via a 86 m long, 600 mm diameter section of watermain located on the water treatment plant site prior to the treated water entering the distribution system.

Site (Name): STANDPIPE (CHESLEY)
Type: Other **Sub Type:** Reservoir
Comments:
A 2,725 cubic meter capacity concrete water storage tank situated in the north end of Chesley. The standpipe provides emergency and fire storage as well. It is designed for peak demand equalization.
An internal video inspection of this standpipe was conducted in August of 2014 with favourable results and no major items of concern identified. Prior to this, the standpipe had a conditional survey completed in May 2009, in which repair work was completed on the concrete interior as a result of the survey.

Site (Name): STANDPIPE (PAISLEY)
Type: Other **Sub Type:** Reservoir
Comments:
The standpipe located in Paisley has a total storage capacity of 2,300 cubic meters and effective volume of 1,137 cubic meters. This tower provides storage for fire fighting, as well as, flow equalization during times of increased demand. Modification to the Paisley standpipe in conjunction with the new water treatment project allows for water to enter the standpipe at approximately 2/3 of the standpipe height and discharge into the Paisley distribution system from the bottom of the standpipe. Cathodic protection was installed in this standpipe in May of 2006.
Paisley's Standpipe was repainted on the interior and exterior in July and August of 2009.

Site (Name): BOOSTER CHLORINATION STATION
Type: Other **Sub Type:** Booster Station
Comments:
The booster chlorination station consists of two (2) chlorine feed pumps rated at a minimum of 1.4 L/h and two (2) double-walled storage tanks. This station is located at the Paisley standpipe maintaining secondary disinfection throughout the distribution system in Paisley.

Site (Name): DISTRIBUTION SYSTEM
Type: Other **Sub Type:** Other
Comments:
The distribution system contains watermains in Chesley and Paisley and associated trunk watermain connecting distribution system piping from Chesley to the Paisley standpipe.
The Chesley distribution system serves approximately 2,187 residents. The watermains within the Chesley distribution system range in size from 25 mm diameter to 300 mm diameter. The total length of watermains in the Town of Chesley is 20,390 meters (~13% are less than 100 mm diameter, ~70% are between 100 and 200 mm diameter, ~18% are greater than 200 mm diameter). System pressure is provided by a standpipe. The Chesley

portion of the distribution system also contains 99 fire hydrants, 319 valves as well as, six (6) blow offs to allow for dead-end flushing. The distribution system is also equipped with five (5) sampling stations.
The Paisley distribution system serves approximately 1,200 residents. The appurtenances on the system include 59 fire hydrants, 208 water valves including nine (9) blow-offs plus twelve (12) sample stations and one (1) standpipe equipped with a booster chlorination system.
The trunk watermain installed connecting the two distribution systems is approximately 15.7 km of 300 mm watermain. This watermain connects the Chesley distribution system to the Paisley standpipe, thus connecting the distribution systems.

Site (Name): VALVE CHAMBER
Type: Other **Sub Type:** Other
Comments:
The valve chamber is designed to lower the pressure in the watermain from 90 psi to 50 psi. The chamber includes a pressure reducing valve and a flow meter.

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 inspection was conducted on July 21, 2020 at the Arran-Eldeslie drinking water facility to assess compliance with Ministry legislation and guidelines.

  The Municipality of Arran-Elderslie owns and operates this facility loated at 129 4th Avenue SE, Chesley Ontario as well as a standpipe in Chesley (84 Tower Road, Chesley) and a standpipe/re-chlorination station in Paisley (281 Alma Street, Paisley). The system currently has approximately 1500 connections with an approximate population of 2,888 served by these facilities.

  This inspection covers the time period of June 1, 2019 to July 15, 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. It is noted that the application for Licence Renewal date was July 13, 2020 as the current Municipal Drinking Water Licence (MDWL) expires on January 12, 2021.

  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 the treatment facility and both standpipes.

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.**

  All three (3) production wells are located in well maintained, pad-locked, concrete well tiles on the site. Well casings are secured inside these tiles with a vermin-proof cap that is also locked. Weekly inspections of all the wells were reported, along with preventative maintenance activities.

  Sampling of raw water in the last 5 years has shown minimal total coliform results of eight (8) or less events per year, all between 1 to 5 cfu/100 mL. The majority of these events were found in Well #1 and #2 (1 to 5 cfu/100 mL). There were no results showing the presence of E.coli in any of the wells during this time period.

Source

- **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.**

  The process map diagrams from January 2016 remains current and is available at the plant, municipal office, 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:
  • Groundwater Preventative Maintenance Duties (Section A of OM)
  • Daily Log Book and Complaints (Section J of OM)
  • Well Inspection and Maintenance Plan (Appendix E, OM)
  • Leak Detection and Zone Flow Techniques (SOP 7)
  • Chemical Spills, Pumphouses (SOP 14)
  • Aquifer Contamination (ERP 1)
  • Clear Well/Standpipe Contamination (ERP 2)
  • Flooding (ERP 4)

  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 water being directed to the distribution system.

- **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 total rated capacity for this system is 5,564 m3/day with a maximum individual flow rate of 64.4 L/s from each well, as authorized under the DWS Licence No. 079-102, Issue 3.

  There were no flow exceedences nor flow monitoring anomalies found in the data reviewed. The maximum flow rated occurred in June 2019 with a combined flow of 1765 cubic metres of water used, which represents approximately 32% of the total combined rated capacity allowed in the Licence.

  Each well pump also has a rated capacity listed in the Drinking Water Works Permit that corresponds to the system's Permit to Take Water. Well #1 is rated at 20.8 L/s, Well #2 at 24.6 L/s and Well #3 at 34.1 L/s. There were numerous times noted during this inspection period that the maximum flow for Well #2 exceeded rated capacity. The Municipality has taken measures to limit these events; pump valve assessments have been planned for 2020, a VFD on Well #2 was installed and a SCADA upgrade has occurred. The Operating Authority is reminded to continue documenting each of these incidents in the logbook along with confirmation that the CT has been met.

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.**

  Three (3) Form 1's were reported during this inspection review period for both replacement watermains and new

Treatment Processes

service connections on September 23, 2019, February 11, 2020 and June 3, 2020.

- **The owner/operating authority was in compliance with the requirement to prepare Form 2 documents as required by their Drinking Water Works Permit during the inspection period.**

  Two (2) Form 2's were reported during this inspection review period for the installation of a new 60 hp motor and check valve on June 2, 2020 and upgraded SCADA-pak hardware in May and June of 2020.

- **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.**

  Primary disinfection is achieved through chlorination to meet a 2-log inactivation of viruses for all three (3) wells, as required in Schedule E of Licence #079-102, Issue No. 3.

  The minimum CT equivalent free chlorine residuals necessary for Well #1, Well #2 and Well #3 are outlined in a chart form according to corresponding flows (L/s). This chart is posted at the treatment plant for reference.

  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 079-202, Issue 4 are followed. All pertinent AWWA Standards are outlined in Appendix F of the OM as well.

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.**

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

  Free chlorine residuals are 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 at the treatment facility.

- **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 0.64 mg/L (low) and 2.0 (high) for all wells. Alarms are directed through a dialer to the on-call pager, followed by a sequential dial out of alternate numbers.

Treatment Process Monitoring

- **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 are reported to be recording residual information at 30 second intervals.

- **All continuous analysers were calibrated, maintained, and operated, in accordance with the manufacturer's instructions or the regulation.**

  Well #1, #2 and #3 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 5, 2020. General 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 5, 2020.

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.**

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.**

  The treatment plant is equipped with a steel entry door with keyed and alarmed access restricted to municipal staff. The wells are all located on-site in concrete, locked well tiles.

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.

Certification and Training

- **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 11 or 12 samples taken during each month of the time period reviewed. Based on population, 10 distribution samples are 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.**

  Microbiological 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. The most current sample event occurred on November 19, 2018 for all three (3) wells. All sample results were within the prescribed limits.

  The next sample event required will be in November 2021.

- **All organic water quality monitoring requirements prescribed by legislation were conducted within the required frequency.**

  Organic sampling for parameters of Schedule 24, O.Reg. 170 is required every thirty-six (36) months for groundwater sources. The most current sample event occurred on November 19, 2018 for all three (3) wells. All sample results were within the prescribed limits.

  The next sample event required will be in November 2021.

- **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 19, 2019 (5.3 – 12.9 ug/L),
  - November 4, 2019 (5.3 – 6.2 ug/L),
  - February 10, 2020 (5.3 ug/L), and
  - May 11, 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 averages for each well are below the ODWQS of 80 ug/L.

Water Quality Monitoring

- **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 19, 2019 (26 – 27 ug/L),
  - November 4, 2019 (27 – 28 ug/L),
  - February 10, 2020 (17 – 20 ug/L), and
  - May 11, 2020 (17 – 15 ug/L).

  The current rolling averages for each well are well 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 19, 2019,
  - November 4, 2019,
  - February 10, 2020, and
  - May 11, 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 4, 2019 with results of 16.1 mg/L at Well #1/#2 and 12.5 mg/L at Well #3. 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.

- **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 4, 2019 with a result of 0.41 mg/L at Well #1/#2 and 0.72 mg/L at Well #3, 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.

- **The owner was required to increase frequency of monitoring as a result of having exceeded half the value of an applicable ODWQS of a Schedule 13-2 or 13-4 parameter(s) and that increased monitoring was not conducted.**

  The regulated arsenic sample from Well #3, taken on November 19, 2018, showed a result of 0.0056 mg/L which is above half standard value of 0.005 mg/L. Thus, arsenic is required to be taken and tested once every three months from this source.

  Increased sampling was found to not be ongoing at the time of this inspection however one (1) sample was taken on August 4, 2020 to start increased sampling.

  The Operating Authority is required to continue to conduct increased monitoring of arsenic in Well #3, as per Schedule 13, O.Reg. 170/03. The Operating Authority shall also create and post at the treatment plant, a 2-year schedule for this increased monitoring. A copy of this schedule shall be forwarded to the undersigned by

Water Quality Monitoring

September 15, 2020 along with written confirmation that all staff have been trained on this requirement.

- **All water quality monitoring requirements imposed by the MDWL or DWWP issued under Part V of the SDWA were being met.**

  Additional water quality monitoring requirements for residue management are outlined in Schedule C of the Municipal Drinking Water Licence. Filter backwash total suspended solids and free chlorine residuals are tested monthly to meet these requirements. The annual average total suspended solids was less than the 25 mg/L limit and the maximum free chlorine residual was less than 0.02 mg/L for the time period reviewed.

- **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 did not show that all water sample results taken during the inspection review period did not exceed the values of tables 1, 2 and 3 of the Ontario Drinking Water Quality Standards (O.Reg. 169/03).**

  There was one (1) microbiological sample taken during the time period reviewed that exceeded the ODWQS for total coliforms with a result of 2 CFU/100 mL. This exceedance was reported as outlined below.

Reporting & Corrective Actions

- **Corrective actions (as per Schedule 17) had been taken to address adverse conditions, including any other steps that were directed by the Medical Officer of Health.**

  AWQI #150127 was reported in June 2020 for a total coliform presence of 2 CFU/100 mL in the distribution system. All appropriate O.Reg. 170/03 corrective actions were taken at that time, including directions from the Medical Officer of Health.

  There were no other AWQI events during the time period reviewed.

- **All required notifications of adverse water quality incidents were immediately provided as per O. Reg. 170/03 16-6.**

  AWQI #150127 was reported in June 2020 for a total coliform presence of 2 CFU/100 mL in the distribution system. All required notifications were made within the legislated time frames.

  There were no other AWQI events during the time period reviewed.

- **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.

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.

1. **The owner was required to increase frequency of monitoring as a result of having exceeded half the value of an applicable ODWQS of a Schedule 13-2 or 13-4 parameter(s) and that increased monitoring was not conducted.**

   The regulated arsenic sample from Well #3, taken on November 19, 2018, showed a result of 0.0056 mg/L which is above half standard value of 0.005 mg/L. Thus, arsenic is required to be taken and tested once every three months from this source.

   Increased sampling was found to not be ongoing at the time of this inspection however one (1) sample was taken on August 4, 2020 to start increased sampling.

   Action(s) Required:

   The Operating Authority is required to continue to conduct increased monitoring of arsenic in Well #3, as per Schedule 13, O.Reg. 170/03. The Operating Authority shall also create and post at the treatment plant, a 2-year schedule for this increased monitoring. A copy of this schedule shall be forwarded to the undersigned by September 15, 2020 along with written confirmation that all staff have been trained on this requirement.

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

SIGNATURES

Inspected By:

Rhonda Shannon

Signature: (Provincial Officer)

Reviewed & Approved By:

Mark Smith

Signature: (Supervisor)

Review & Approval Date:

September 2, 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.

Ontario

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)

DWS Name:	ARRAN-ELDERSLIE DRINKING WATER SYSTEM
DWS Number:	220002725
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:	July 21, 2020
Ministry Office:	Owen Sound District Office

Maximum Question Rating: 511

Inspection Module	Non-Compliance Rating
Source	0 / 14
Capacity Assessment	0 / 30
Treatment Processes	0 / 85
Operations Manuals	0 / 28
Logbooks	0 / 14
Certification and Training	0 / 42
Water Quality Monitoring	8 / 120
Reporting & Corrective Actions	0 / 66
Treatment Process Monitoring	0 / 112
TOTAL	**8 / 511**

Inspection Risk Rating	**1.57%**

FINAL INSPECTION RATING:	**98.43%**

Inspection Rating Record Generated On 01-SEP-20 (Inspection ID: 1-O7BU0).

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

DWS Name:	ARRAN-ELDERSLIE DRINKING WATER SYSTEM
DWS Number:	220002725
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:	July 21, 2020
Ministry Office:	Owen Sound District Office

Non-compliant Question(s)	Question Rating
Water Quality Monitoring	
If the owner is required to conduct sampling under Schedule 13 of O. Reg. 170/03, have they increased the frequency of monitoring for any Schedule 13-2 or 13-4 parameter(s) as a result of having exceeded half the value of an applicable ODWQS?	8
TOTAL QUESTION RATING	8

Maximum Question Rating: 511

Inspection Risk Rating	**1.57%**
FINAL INSPECTION RATING:	**98.43%**

Inspection Rating Record Generated On 01-SEP-20 (Inspection ID: 1-O7BU0).

Ontario

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.

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

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

Ontario

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

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

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

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

Ontario

APPENDIX F

PERMIT TO TAKE WATER

Ontario

Ministry of the Environment and Climate Change
Ministère de l'Environnement et de l'Action en matière de changement climatique

PERMIT TO TAKE WATER
Ground Water
NUMBER 3655-A3RPJL

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 County Road 10
Chesley, Ontario, N0G 1L0
Canada

For the water taking from: CPW#1, CPW#2, CPW#3

Located at: Lot 32, Concession 2, Geographic Township of Elderslie
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 and Climate Change.

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

(e) "Permit" means this Permit to Take Water No. 3655-A3RPJL 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 July 28, 2015 and signed by Scott McLeod, 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 **September 29, 2025**. 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	CPW#1	Well Drilled	Municipal	Water Supply	1,250	24	1,800,216	365	17 492863 4904899
2	CPW#2	Well Drilled	Municipal	Water Supply	1,477	24	2,127,528	365	17 492848 4904912
3	CPW#3	Well Drilled	Municipal	Water Supply	2,046	24	2,948,240	365	17 493043 4904772
						Total Taking:	6,875,984		

3.3 Notwithstanding Table A, this Permit only allows for the combined taking of water from CPW1 and CPW2 @ 2273 L/min or (3273120 L/day) for a period of 120 days. Following this period the combined taking must not exceed 1818 L/min for the balance of the year.

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. 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 flow measuring device.

4.2 The Permit Holder shall measure and record static water levels in all production wells and observation wells (Victoria Park Well and TW3/91) on a monthly basis during the year.

4.3 The record of water takings required as per conditions 4.1 and 4.2 shall be submitted to the Ministry of the Environment Southwest Regional Office no later than 90 days prior to expiry of the permit or proposed amendment to support permit renewal or a permit amendment application.

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:

3. The name of the appellant;
4. The address of the appellant;
5. The Permit to Take Water number;
6. The date of the Permit to Take Water;
7. The name of the Director;
8. 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 and Climate Change
733 Exeter Rd
London ON N6E 1L3
Fax: (519) 873-5020

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

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

This Permit cancels and replaces Permit Number 8003-639PHB, issued on 2005/06/20.

Dated at London this 13th day of November, 2015.

Jason Lehouillier

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 3655-A3RPJL, dated November 13, 2015.