



**Blyth Groundwater Supply**  
**2015 Annual Report**



## Corporation of the Township of North Huron

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Date: February 25 2016

### **Compliance with the Safe Drinking Water Act and Regulation 170/03**

This report is a summary of water quality information for the North Huron Blyth Well Supply (Large Municipal Residential Drinking Water System) and published in accordance with section 11 and schedule 22 of Ontario's Safe Drinking Water Act, O. Reg 170/03 for the reporting period of January 1, 2015 to December 31, 2015.

### **Requirements**

The Blyth Well Supply is required to be operated within the criteria specified in, but not limited to:

Permit to Take Water: 7383-7BLM5Q

Drinking water works permit 090-201

Municipal Drinking water license 090-101

Safe Drinking Water Act (O. Reg 128, 169, 170)

The annual inspection was conducted by the Ministry of the Environment and Climate Change starting on December 16<sup>th</sup> 2015, the inspection was completed with one non-compliance identified. A secondary disinfection residual was not recorded during the 2015 year, actions have been taken to rectify the non-compliance and to prevent it from happening in the future.

There was an adverse water quality report from samples collected on February 10, 2015 with 1MAC of Total coliform, the resulting resamples were clear and no further action were required. One precautionary boil water notification was issued due to a January 28, 2015 Water main break, 14 users were notified of the boil water notification, the lift notice was issued as a result of good samples received on January 30, 2015.

Permit to Take Water 7383-7BLM5Q Compliance Report					
3.2 -Maximum Amount of Taking Permitted					
	Max/Day on Permit	Peak Flow	%of Limit		
Well #1 (in m3)	653	m3	455	69.7	%
Well #2 (in m3)	1123	m3	810	72.1	%
3.2 - Average Annual Amount of Taking Permitted					
	m3/year		m3/year		
Well #1 (in m3)	238345		85177	35.7	%
Well #2 (in m3)	409968		67493	16.5	%
Capacity Report					
Total Peak Flow					
	Maximum		Actual	%of Cap	
Capacity (m3/d)	1149		810	70.5	%
Total Average Flow					
Capacity (m3/d)	1149		420.0	36.6	%

The above summary table was taken from the attached supporting documentation indicated that at the maximum peak demand for 2015, we reached 69.7% of the water taking limit for Well #1 and 72.1% of the limit for well #2.

The above summary table as taken from the attached supporting documentation indicates that at the maximum peak demand for 2015, we were at 70.5% of the rated capacity. As an annual average, we were at 36.6% of the rated capacity of the plant which indicates we have adequate capacity to supply average and peak demands.

Quarterly samples were taken and tested for nitrites and nitrates from the raw well water and are all well under the limits as specified in O.Reg 169 which is largely unchanged from previous years.

The annual samples were taken from each raw-water well and tested for Sodium and Fluoride. The results indicate we continue to have elevated naturally occurring sodium and fluoride levels that are slightly at or above O.Reg 169 limits.

Microbiological sampling was done weekly with a total of 104 samples being taken from the raw well water, 52 samples being taken from the treated water pumped to the distribution

and 167 samples being taken from the distribution system. One distribution sample was adverse with a total coliform count of 1. This was resampled and came back clear.

Well #5 Environmental Assessment has been posted and completed, design is in final stages with the tender documents to be prepared to construct treatment portion and to be operational by the end of 2016.

Report Prepared By:

Kyllie McDonagh,

A handwritten signature in black ink, appearing to read 'K. McDonagh' followed by a stylized flourish.

Utilities Department

Compliance coordinator/ QMS Rep Administrative Assistant

[kmcdonagh@northhuron.ca](mailto:kmcdonagh@northhuron.ca)





OPTIONAL ANNUAL REPORT TEMPLATE

Drinking-Water System Number:	220001496
Drinking-Water System Name:	Blyth Groundwater Supply
Drinking-Water System Owner:	The Corporation of The Township of North Huron
Drinking-Water System Category:	Large Residential
Period being reported:	January 1, 2015 to December 31, 2015

**Complete if your Category is Large Municipal Residential or Small Municipal Residential**

Does your Drinking-Water System serve more than 10,000 people? Yes [ ] No [ X ]

Is your annual report available to the public at no charge on a web site on the Internet? Yes [ X ] No [ ]

Location where Summary Report required under O. Reg. 170/03 Schedule 22 will be available for inspection.

The Township of North Huron  
Municipal Office  
274 Josephine St.,  
Wingham, Ontario

**Complete for all other Categories.**

Number of Designated Facilities served:

n/a

Did you provide a copy of your annual report to all Designated Facilities you serve?

Yes [ ] No [ ]

Number of Interested Authorities you report to:

n/a

Did you provide a copy of your annual report to all Interested Authorities you report to for each Designated Facility?

Yes [ ] No [ ]

**Note: For the following tables below, additional rows or columns may be added or an appendix may be attached to the report**

List all Drinking-Water Systems (if any), which receive all of their drinking water from your system:

Drinking Water System Name	Drinking Water System Number
n/a	

Did you provide a copy of your annual report to all Drinking-Water System owners that are connected to you and to whom you provide all of its drinking water?

Yes [ ] No [ ]



Indicate how you notified system users that your annual report is available, and is free of charge.

- ☐ Public access/notice via the web
- ☐ Public access/notice via Government Office
- ☐ Public access/notice via a newspaper
- ☐ Public access/notice via Public Request
- ☐ Public access/notice via a Public Library
- ☒ Public access/notice via other method Billing Insert

## Describe your Drinking-Water System

The Blyth water supply system is a stand alone system consisting of two drilled wells fitted with pumps capable of pumping the volume specified in the MOE Permit to Take Water. The raw water consistently has substantial naturally occurring hardness and relatively high iron content that requires sequestering to prevent discoloration in the distribution system which is typical of all drilled wells in the area. The raw water also has fluoride concentrations that hover at or just above the maximum allowable concentration in O.Reg 169/03 which is typical of the drilled wells in the area. Chlorine, (a critical process) and an iron sequestering agent are added to the raw water prior to entry into a baffled contact tank that satisfies the chlorine contact time required with adequate chlorine residual to disinfect.

From the contact tank/reservoir the water flows to the high lift building that houses two electrically driven high lift pumps, as well as a diesel engine driven fire pump, that are capable of maintaining adequate system pressure. The water level in the reservoir is maintained by a level controller that starts and stops the well pumps. Also housed in the building is a standby emergency generator that allows operation of the equipment during extended power interruptions. The building contains cushion tanks that absorb hydraulic shocks and maintain pressure during brief power interruptions. The treated drinking water is monitored for chlorine residual and turbidity by on-line equipment connected to an auto dialer. The monitoring system will alert the on-call operator to respond if the set points are breached. The chlorine and turbidity analysis data levels are stored on a data logger.

The distribution system has no elevated storage and relies on the pumps and cushion tanks to maintain pressure. Critical processes to ensure safe water are adequate chlorination and maintenance of system pressure. The monitors activate an alarm through the autodialer if the setpoints are breached.

The raw water has abnormally high chlorine demand, coupled with sequestering agent and high background sodium levels that result in elevated sodium in the treated water just above the maximum allowable concentrations in O.Reg 169/03.





**List all water treatment chemicals used over this reporting period**

**Sodium Hypochlorite 12%**  
**Sodium Silicate N**

**Were any significant expenses incurred to?**

- ☐ Install required equipment
- ☐ Repair required equipment
- ☐ Replace required equipment

**Please provide a brief description and a breakdown of monetary expenses incurred**

**There were no significant expenses incurred in 2015**

**Provide details on the notices submitted in accordance with subsection 18(1) of the Safe Drinking-Water Act or section 16-4 of Schedule 16 of O.Reg.170/03 and reported to Spills Action Centre**

Incident Date	Parameter	Result	Unit of Measure	Corrective Action	Corrective Action Date
Feb 10-15	TC	1	Cfu/100 ml	resample	Feb 12-15

**Microbiological testing done under the Schedule 10, 11 or 12 of Regulation 170/03, during this reporting period.**

	Number of Samples	Range of E.Coli Or Fecal Results (min #)-(max #)	Range of Total Coliform Results (min #)-(max #)	Number of HPC Samples	Range of HPC Results (min #)-(max #)
Raw	104	0	0	0	
Treated	52	0	0	52	0-80
Distribution	167	0	0-1	52	0-2000



# Ontario Drinking-Water Systems Regulation O. Reg. 170/03

Operational testing done under Schedule 7, 8 or 9 of Regulation 170/03 during the period covered by this Annual Report.

	Number of Grab Samples	Range of Results (min #)-(max #)
Turbidity	8760	0.01-9.95
Chlorine	8760	0.23-1.74
Fluoride (If the DWS provides fluoridation)	0	

*NOTE: For continuous monitors use 8760 as the number of samples.*

*NOTE: Record the unit of measure if it is **not** milligrams per litre.*

Summary of additional testing and sampling carried out in accordance with the requirement of an approval, order or other legal instrument.

Date of legal instrument issued	Parameter	Date Sampled	Result	Unit of Measure
July 13-10	Fluoride (W1 RW)	Sept 2-15	1.18	Mg/L
July 13-10	Fluoride(W2 RW)	Sept 2-15	1.83	Mg/L
July 13-10	Sodium (W1 RW)	Sept 2-15	14.9	Mg/L
July 13-10	Sodium (W1 RW)	Sept 2-15	18.8	Mg/L

Summary of Inorganic parameters tested during this reporting period or the most recent sample results – see attached



**Township of North Huron - Blyth Well Supply - 2014 Summary**

Month	Well #1 Flow (m3)	Chl'n used (Kg)	Cl Dose	Si (L)	Si Dose	Pump Hrs	RWW Turb
January	6811	33.9	4.98	33.42	1.5	266.30	0.22
February	6571	32.1	4.89	39.57	2.3	254.10	0.18
March	8126	42.5	5.24	55.76	2.7	315.70	0.20
April	6759	36.6	5.42	44.69	2.6	262.70	0.21
May	7154	40.0	5.60	49.82	2.7	278.50	0.22
June	6810	38.5	5.65	53.30	3.0	270.10	0.22
July	7757	44.3	5.72	63.35	3.2	308.40	0.21
August	7353	40.1	5.43	60.33	3.2	291.90	0.22
September	7098	38.5	5.41	55.76	3.1	282.40	0.22
October	6688	36.0	5.39	47.15	2.7	266.40	0.19
November	6710	34.1	5.09	52.27	3.0	266.30	0.21
December	7340	37.1	5.05	60.27	5.1	293.40	0.21
Total	85177	453.8	63.85	615.67	35.0	3356.20	2.5
Min	6571	32.1	4.89	33.42	1.5	254.10	0.2
Max	8126	44.3	5.72	63.35	5.1	315.70	0.2
Avg	7098	37.8	5.32	51.31	2.9	279.68	0.2

**Township of North Huron - Blyth Well Supply - 2014 Summary**

Month	Well #2 Flow (m3)	Chl'n used (Kg)	Cl Dose	Si (L)	Si Dose	Pump Hrs	RWW Turb	Well 2 Static
January	5652	29.8	5.23	72.35	1.9	223.80	0.18	8.23
February	5097	26.9	5.24	62.50	1.7	203.50	0.20	7.14
March	5752	28.3	4.90	70.34	1.8	226.80	0.20	8.01
April	5349	27.9	5.17	62.94	1.8	212.40	0.18	7.23
May	6524	35.2	5.33	39.34	1.7	259.10	0.23	7.65
June	5786	30.6	5.23	75.67	1.8	229.30	0.20	7.58
July	5764	30.9	5.31	79.30	2.0	228.20	0.24	7.61
August	5485	30.0	5.44	77.28	2.0	211.40	0.21	8.01
September	5833	32.7	5.57	78.62	1.9	229.60	0.17	8.10
October	5618	31.0	5.47	72.13	1.8	219.60	0.18	8.24
November	5744	30.7	5.35	79.97	2.0	228.60	0.18	8.05
December	4889	26.4	5.35	78.18	2.2	191.10	0.24	7.31
Total	67493	360.4	63.59	848.61	22.6	2663.40	2.39	93.16
Min	4889	26.4	4.90	39.34	1.7	191.10	0.17	7.14
Max	6524	35.2	5.57	79.97	2.2	259.10	0.24	8.24
Avg	5624	30.0	5.30	70.72	1.9	221.95	0.20	7.76

**Township of North Huron - Blyth Water - 2014 Summary**

Month	Total Flow m3	Max Daily Flow	Total Cl Kg Used	Avg Free Cl Res	Total Si Used L	Avg Turbidity
January	12515	540	63.7	1.08	105.8	0.05
February	11762	544	59.0	1.05	102.1	0.04
March	13917	635	70.9	1.04	126.1	0.05
April	12151	810	64.5	1.06	107.6	0.06
May	13726	595	75.2	1.13	89.2	0.04
June	12669	575	69.1	1.03	129.0	0.06
July	13580	667	75.3	1.04	142.6	0.11
August	12890	581	70.1	1.05	137.6	0.07
September	13004	551	71.2	1.01	134.4	0.06
October	12390	574	67.0	1.07	119.3	0.05
November	12531	638	64.9	1.18	132.2	0.05
December	12338	572	63.5	1.06	138.4	0.04
Total	153473		814.2		1464.3	
Min	11762		59.0	1.01	89.2	0.04
Max	13917	810	75.3	1.18	142.6	0.11
Avg	12789	420	67.8	1.07	122.0	0.06

**Permit to Take Water 7383-7BLM5Q Compliance Report**
**3.2 - Maximum Amount of Taking Permitted**

	Max/Day on Permit	Peak Flow	%of Limit
Well #1 (in m3)	653 m3	455	69.7 %
Well #2 (in m3)	1123 m3	810	72.1 %

**3.2 - Average Annual Amount of Taking Permitted**

	m3/year	m3/year	%
Well #1 (in m3)	238345	85177	35.7 %
Well #2 (in m3)	409968	67493	16.5 %

**Capacity Report**
**Total Peak Flow**

	Maximum	Actual	%of Cap
Capacity (m3/d)	1149	810	70.5 %

**Total Average Flow**

	Capacity (m3/d)		%
Capacity (m3/d)	1149	420.0	36.6 %

North Huron - Blyth 2015 Microbiological Summary											
Well #1				Well #2				TW POE		Distribution Summary	
	Raw Water		Treated Water		Raw Water		Treated Water		Treated water POE		
	TC	EC	TC	EC	TC	EC	TC	EC	HPC	TC	EC
Total Samples	52	52	52	52	52	52	52	52	52	167	167
Safe	52	52	52	52	52	52	52	52	52	166	167
Deteriorating (>100)									0	1	
Adverse	0	0	0	0	0	0	0	0	0	1	0

  

Distribution Chlorine Residual Summary	
Total Samples	467
Min Cl Residual	0.09
Max Cl Residual	1.24
Average Cl Res	0.85

**Water Works Name:**  
**Well No. (if applicable):**  
**Year:**

Blyth Well Supply  
 Well #1 & #2  
 2015

**Serviced Population**

1005

**Laboratories Which Performer Analyses:**

SGS Lakefield Research

**Water Works #**

220001496

<b>Parameter</b>	<b>Analysis</b>			
	<b>Date (MM/DD/YY)</b>	<b>(ug/L)</b>	<b>(ug/L)</b>	<b>Allowable Level (ug/L)</b>
<b>Schedule 23</b>		Mar 12-15	Jun 10-15	
Antimony		0.02	0.02	6
Arsenic		0.9	1.1	25
Barium		135	118	1000
Boron		75.1	60	5000
Cadmium		0.033	0.004	5
Chromium		0.03	0.03	50
Mercury		0.01	0.01	1
Selenium		1<	0.04	10
Uranium		0.093	0.73	20

**Water Works Name:**  
**Well No. (if applicable):**  
**Year:**

Blyth Well Supply  
 Well #1 & #2

**Serviced Population**

2015  
 1005

**Laboratories Which Performer Analyses:**

SGS Lakefield Research

**Water Works #**

220001496

<b>Parameter</b>			<b>Maximum Allowable Level (ug/L)</b>
	<b>(ug/L)</b>	<b>(ug/L)</b>	
<b>Schedule 23 &amp; 24</b>	Mar 12-15	Jun 10-15	
Benzene	<0.32	<.32	5
Carbon Tetrachloride	<0.16	<.16	5
1,2-Dichlorobenzene	<0.41	<.41	200
1,4-Dichlorobenzene	<0.36	<.36	5
1,1-Dichloroethylene	<0.33	<.33	14
1,2-Dichloroethane	<0.35	<.35	5
Dichloromethane	<0.35	<.35	50
Monochlorobenzene	<0.3	<.3	80
Tetrachloroethylene	<0.35	<.35	30
Trichloroethylene	<0.44	<.44	50
Vinyl Chloride	<0.17	<.17	2
Diquat	<1	<1	70
Paraquat	<1	<1	10
Glyphosate	<1	<1	280
Polychlorinated Biphenyls	<0.04	<.04	3
Benzo(a)pyrene	<0.004	<.004	0.01



2,4-dichlorophenol	<0.15	<.15		900
2,4,6-trichlorophenol	<0.25	<.25		5
2,3,4,6-tetrachlorophenol	<0.20	<.20		100
Pentachlorophenol	<0.15	<.15		60
Alachlor	<0.02	<.02		5
Aldicarb	<0.01	<.01		9
Aldrin+Dieldrin	<0.01	<.01		0.7
Aldrin	<0.01	<.01		
Dieldrin	<0.01	<.01		
Atrazine+N-dealkylated m	<0.01	<.01		5
Atrazine	<0.01	<.01		
De-ethylated atrazine	<0.01	<.01		
Azinphos-methyl	<0.02	<0.05		20
Bendiocarb	<0.01	<.01		40

<u>Parameter</u>	(ug/L)	(ug/L)	Maximum Allowable Level	
			(ug/L)	
Chlordane	<0.01	<0.01		7
a-chlordane	<0.01	<0.01		
g-chlordane	<0.01	<0.01		
Oxychlordane	<0.01	<0.01		
Chlorpyrifos	<0.02	<0.02		90
Cyanazine	<0.03	<0.03		10
Diazinon	<0.02	<0.02		20
(DDT)+Metabolites	<0.01	<0.01		30
op-DDT	<0.01	<0.01		
pp-DDD	<0.01	<0.01		
pp-DDE	<0.01	<0.01		
pp-DDT	<0.01	<0.01		
Dimethoate	<0.03	<0.03		20
Diuron	<0.03	<0.03		150
Heptachlor-Heptachlor Ep	<0.01	<0.01		3
Heptachlor	<0.01	<0.01		
Heptachlor epoxide	<0.01	<0.01		
Lindane	<0.01	<0.01		4
Malathion	<0.02	<0.02		190
Methoxychlor	<0.01	<0.01		900
Metolachlor	<0.01	<0.01		50
Metribuzin	<0.02	<0.02		80
Parathion	<0.02	<0.02		50
Phorate	<0.01	<0.01		2
Prometryne	<0.03	<0.03		1
Simazine	<0.01	<0.01		10
Temephos	<0.01	<0.01		280
Terbufos	<0.01	<0.01		1
Triallate	<0.01	<0.01		230
Trifluralin	<0.02	<0.02		45

2,4-dichlorophenoxyacetic	<0.19	<0.19		100
2,4,5-trichlorophenoxyace	<0.22	<0.22		280
Bromoxynil	<0.33	<0.33		5
Dicamba	<0.20	<0.20		120
Diclofop-methyl	<0.40	<0.40		9
Dinoseb	<0.36	<0.36		10
Picloram	<1	<1		190