

BRUCE MINES

SUPPLY SYSTEM

ANNUAL SUMMARY REPORT

2013



**Ontario Clean Water Agency
Agence Ontarienne Des Eaux**

SECTION 1: INTRODUCTION

This report is a summary of water quality information for the Bruce Mines Water Treatment Facility, published in accordance with Schedule 22 of Ontario's Drinking-Water Systems Regulation for the reporting period of [January 1, 2013 to December 31, 2013](#). The Bruce Mines Water Treatment Facility is categorized as a Large Municipal Residential Drinking Water System.

This report is prepared by The Ontario Clean Water Agency on behalf of The Corporation of the Town of Bruce Mines. A copy of the Summary Report must be provided to the members of the municipal council by [March 31, 2014](#).

SECTION 2: WHAT DOES THE REPORT CONTAIN

The report must list the requirements of the Act, the regulations, the system's approval and any order that the system **failed to meet** at any time during the period covered by the report. The report must also specify the duration of the failure, and for each failure referred to, describe the measures that were taken to correct the failure.

For the purpose of enabling the owner of the system to assess the rated capability of their system to meet existing and future planned water uses, the following information is required to be included in this report:

- A summary of the quantities and flow rates of the water supplied during the period covered by the report, including monthly average and maximum daily flows.
- A comparison of the summary to the rated capacity and flow rates approved in the systems approval.

SECTION 3: DAILY FLOW RATES

In accordance with the Municipal Drinking Water License # 270-101, the rated capacity of the plant is 864m³/d. The maximum daily volume of treated water in 2013 was 381.0 m³ on July 15 and represents 44% of the capacity.

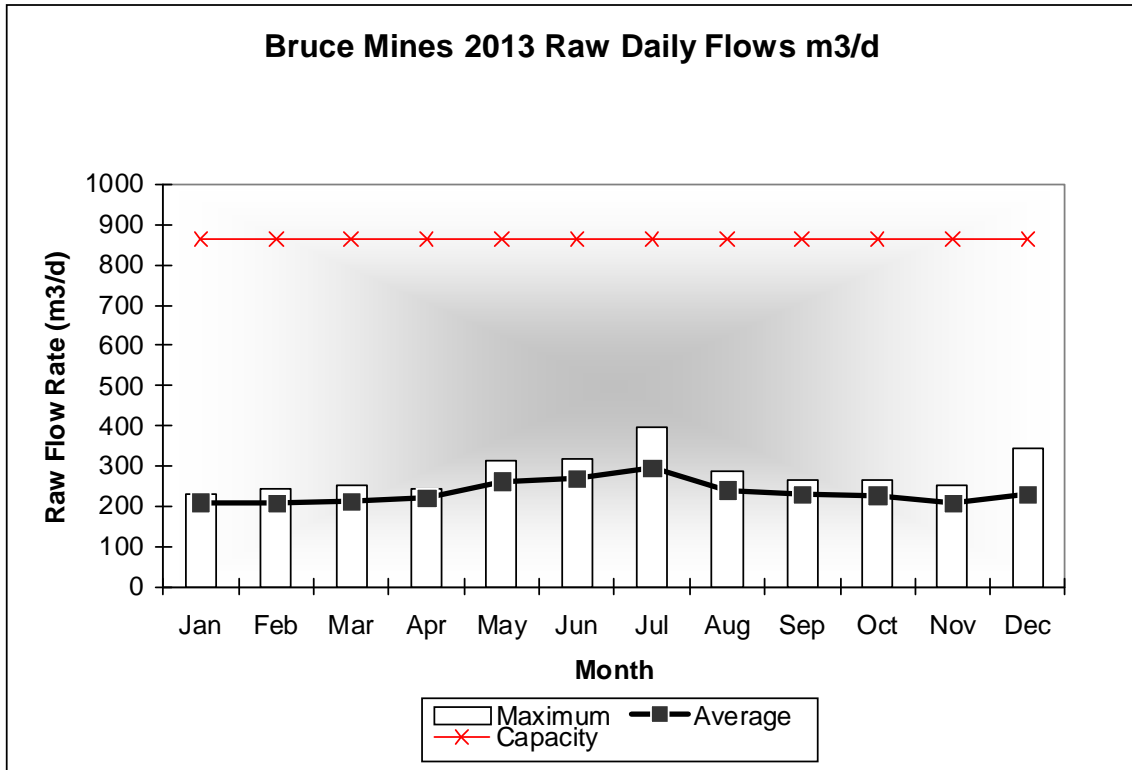
In accordance with the PTTW, the allowable rate of water taking is 11.57 L/s with a maximum daily volume of 1000.0 m³/d. The maximum rate in 2013 was 9.7 L/sec which represents 83.8% of the instantaneous limit. The monthly average raw water flow for this reporting period was 235.4 m³/d and the maximum daily flow for 2013 was 398.0 m³/d.

Flow totals and comparison of flow rates to the rated capacity are included in the table and graphs below.

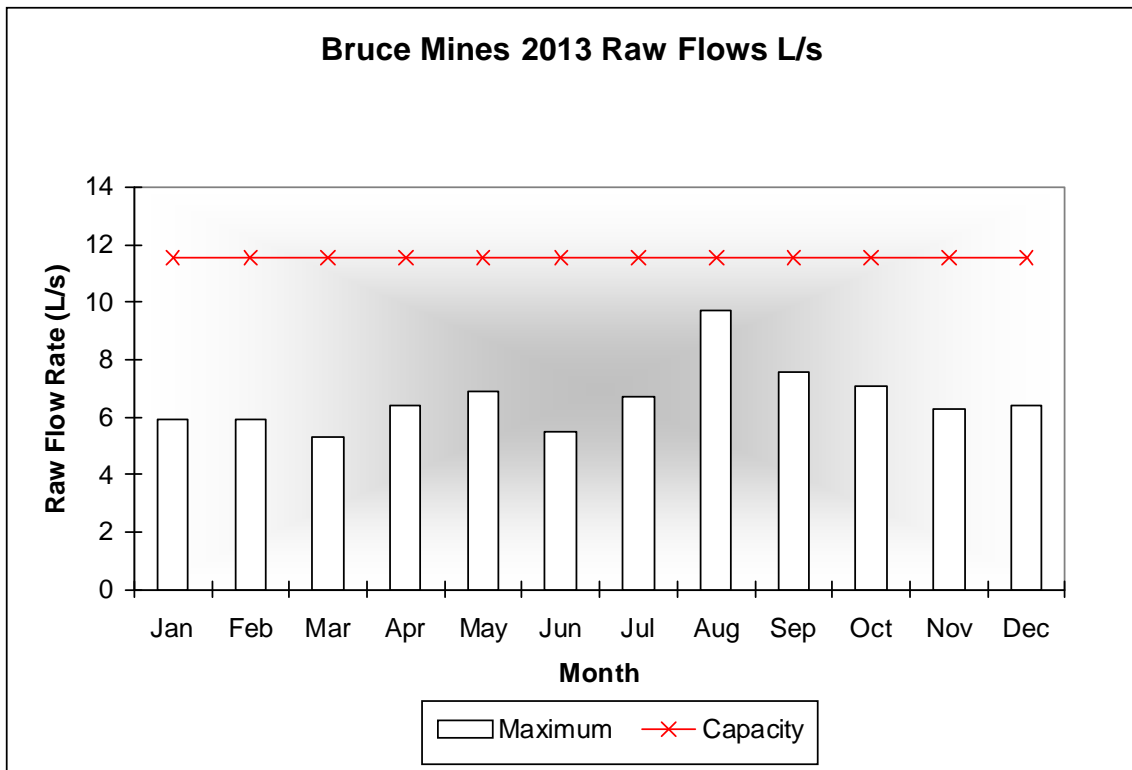
The quantity of water supplied during the reporting period **did not** exceed the rated maximum capacity.

RAW WATER FLOW DATA - TOTAL ALL SOURCES							
Month	Total Monthly Raw Flow (m ³)	Average Raw Flow (m ³ /d)	Maximum Raw Flow (m ³ /d)	Maximum Raw Flow Rate (L/s)	Maximum Rated Capacity		
					(PTTW) L/s	(MDWL) m ³ /d	(PTTW) m ³ /d
January	6,543	211.07	229.0	5.9	11.57	864.0	1000
February	5,856	209.14	244.0	5.9	11.57	864.0	1000
March	6,639	214.16	253.0	5.3	11.57	864.0	1000
April	6,609	220.30	243.0	6.4	11.57	864.0	1000
May	8,159	263.19	312.0	6.9	11.57	864.0	1000
June	8,074	269.13	317.0	5.5	11.57	864.0	1000
July	9,204	296.90	398.0	6.7	11.57	864.0	1000
August	7,493	241.71	285.0	9.7	11.57	864.0	1000
September	6,945	231.5	266.0	7.6	11.57	864.0	1000
October	7,058	227.68	267.0	7.1	11.57	864.0	1000
November	6,218	207.27	252.0	6.3	11.57	864.0	1000
December	7,134	230.13	345.0	6.4	11.57	864.0	1000
Total	85,932						
Average		235.43					
Maximum			398.0	9.7			

Comparison of Monthly Average and Maximum Rates of Flow



Comparison of Monthly Maximum Flow Rates



Raw Water Taking	Total Taking m3/d	Average Day m3/d	Max Day m3/d	Max Day % of MDWL allowable 864 m3/d
2013	85,932	235.4	398	46.1%
2012	94,361	257.8	504	58.3%
2011	94,063	258.0	424	49.1%
2010	106,574	291.9	625	72.3%
2009	115,792	317.2	620	71.8%

Attached as *Appendix A* is the Annual Record of Water taking.

SECTION 4: SYSTEM FAILURES AND CORRECTIONS

There was a Ministry of the Environment Drinking Water Inspection conducted on August 27, 2013 #1-AOYVV. The facility received a rating of 100%. There were 0 instances of non compliance within the inspection report.

SECTION 5: CONCLUSION

The Bruce Mines WTP delivers water that, in all its treated and distribution samples, indicates the water to be free of bacteriological contamination.

For the 2013 operating year, the Bruce Mines WTP was able to meet the demand of water use within the town without exceeding the Permit to Take Water or Municipal Drinking Water License.

Attached as *Appendix B*, find the 2013 Annual Report as required by Drinking-Water System Regulation O. Reg. 170/03.

APPENDIX A

Annual Record of Water Taking

Personal information contained on this form is collected under the authority of the Ontario Water Resources Act, Section 20. The Purpose of the form is to record details and information about the taking of water annually. Questions should be directed to the respective hub office in your area.

Les renseignements personnels qui figurent dans le présent formulaire sont recueillis en vertu de l'article 20 de la Loi sur les ressources en eau de l'Ontario. Ce formulaire sert à dossiers les détails et les renseignements concernant la prise d'eau annuelle. Prière d'adresser toutes questions au personnel du bureau régional de votre secteur.

Year(Année): 2013 Permit No.(N° de permis): Source: Lake Huron, St. Joseph Channel
 Location: RW - Raw Water

Name of Permittee: Mailing Address:
Nom du titulaire du permis Adresse postale

Location Of Taking: Twp. or Municipality: Concession: Lot:
Lieu de la prise d'eau Canton ou municipalité

	Jan/2013	Feb/2013	Mar/2013	Apr/2013	May/2013	Jun/2013	Jul/2013	Aug/2013	Sep/2013	Oct/2013	Nov/2013	Dec/2013	<-- Total -->	<-- Avg. -->	<-- Max. -->	<-- Criteria-->
Avg Daily Taking(m3)	211.06	209.14	214.16	220.3	263.19	269.13	296.9	241.71	231.5	227.68	207.27	230.13		235.18		1,000.0
Total Amt of Taking(m3)	6,543.0	5,856.0	6,639.0	6,609.0	8,159.0	8,074.0	9,204.0	7,493.0	6,945.0	7,058.0	6,218.0	7,134.0	85,932.0			
Max Daily Flow(m3)	229.0	244.0	253.0	243.0	312.0	317.0	398.0	285.0	266.0	267.0	252.0	345.0			398.0	1,000.0
Peak Daily Rate of Taking(L/sec)	5.9	5.9	5.3	6.4	6.9	5.5	6.7	9.7	7.6	7.1	6.3	6.4			9.7	11.57

APPENDIX B

Annual Report:
2013 Operating Year

**Part III Form 2
Section 11. ANNUAL REPORT.**

Drinking-Water System Number:	210000933
Drinking-Water System Name:	Bruce Mines Water Treatment Facility
Drinking-Water System Owner:	The Corporation of the Town of Bruce Mines
Drinking-Water System Category:	Large Municipal Residential
Period being reported:	January 1, 2013 – December 31, 2013

<p><u>Complete if your Category is Large Municipal Residential or Small Municipal Residential</u></p> <p>Does your Drinking-Water System serve more than 10,000 people? Yes [] No [X]</p> <p>Is your annual report available to the public at no charge on a web site on the Internet? Yes [X] No []</p> <p>Location where Summary Report required under O. Reg. 170/03 Schedule 22 will be available for inspection.</p> <div style="border: 1px solid black; padding: 5px;"> Town of Bruce Mines, Municipal Office 9180 HWY 17 East Bruce Mines, Ontario P0R 1C0 </div>	<p><u>Complete for all other Categories.</u></p> <p>Number of Designated Facilities served: <input style="width: 100px; height: 20px;" type="text"/></p> <p>Did you provide a copy of your annual report to all Designated Facilities you serve? Yes [] No []</p> <p>Number of Interested Authorities you report to: <input style="width: 100px; height: 20px;" type="text"/></p> <p>Did you provide a copy of your annual report to all Interested Authorities you report to for each Designated Facility? Yes [] No []</p>
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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 [**X**] 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

Describe your Drinking-Water System

The Bruce Mines Water Treatment Plant provides water to 600 residents of Bruce Mines, and 250 people in the Township of Plumber Additional. The Bruce Mines Water Treatment Plant obtains its water from the North Shore of Lake Huron at St. Joseph's Channel. The Municipal Drinking Water License sets a maximum capacity of 864.0 m³/d to the distribution system. The Bruce Mines plant treats water using a PALL membrane filtration system, which was completed and operational in the Spring of 2004. The plant consists of various chemical feed systems and utilizes sodium hypochlorite for disinfection. The Ontario Clean Water Agency is the Operating Authority for the Bruce Mines facility.

List all water treatment chemicals used over this reporting period

Sodium Hypochlorite 12% - Disinfection
 Sodium Meta –bisulphate – De-chlorination of wastewater
 Citric Acid – Cleaner for membranes
 Sodium Hydroxide – Neutralize the citric acid before disposal

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

Check valves were installed for skids	1,658\$
DWQMS third party audit conducted by SAI-Global	1,670\$
pH probe, chlorine analyser and membrane/electrolyte kit was purchased	1,430\$
Cashco air pressure and control valves & repair kits were purchased	1,438\$

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
Mar 27, 2013	Treated Cl ₂ monitoring data	N/A	N/A	Unit was reset	March 27, 2013

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 /Background Samples	Range of HPC Results (min #)-(max #)
Raw	52	0-31	0-980		
Treated	53	0-0	0-0	53	0-2
Distribution	159	0-0	0-0	106	0-25

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 (Filter A)	8760	0.015 - 0.09NTU
Turbidity (Filter B)	8760	0.019 - 0.28 NTU
Chlorine (Plant-TW)	8760	0.84 - 1.76
Chlorine (Distribution)	8760	0.76 - 1.39

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

Location	Parameter	Date Sampled	Result 2013 Average	Unit of Measure
Backwash Effluent	Suspended Solids	Monthly	8.67	mg/L

Summary of lead testing under Schedule 15.1 during this reporting period

(applicable to the following drinking water systems; large municipal residential systems, small municipal residential systems, and non-municipal year-round residential systems)

Location Type	Number of Samples	Range of Lead Results (min#) – (max #)	Unit of Measure	Number of Exceedances
Plumbing	0	N/A	ug/L	0
Distribution	2	0.13 – 0.55	ug/L	0

MAC for Lead: 10 ug/L

Location Type	Number of Samples	Range of pH Results (min#) – (max #)	Range of Alkalinity Results mg/L as CaCO3 (min#) – (max#)
Plumbing	0	NA	N/A
Distribution	4	7.67-7.97	43 - 59

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

Parameter	Sample Date (mm/dd/yyyy)	Result Value	Unit of Measure	Exceedance
Antimony	01/23/2013	0.07	ug/L	No
Arsenic	01/23/2013	0.4	ug/L	No
Barium	01/23/2013	11.1	ug/L	No
Boron	01/23/2013	9.9	ug/L	No
Cadmium	01/23/2013	0.007	ug/L	No
Chromium	01/23/2013	<0.5	ug/L	No
Mercury	01/23/2013	<0.01	ug/L	No
Selenium	01/23/2013	<1	ug/L	No
Sodium	01/11/2011	4.46	mg/L	No
Uranium	01/23/2013	0.108	ug/L	No
Fluoride	01/11/2011	<0.06	mg/L	No
Nitrite	01/23/2013	<0.005	mg/L	No
	04/09/2013	<0.003	mg/L	No
	07/09/2013	<0.003	mg/L	No
	10/31/2013	<0.003	mg/L	No
Nitrate	01/23/2013	0.314	mg/L	No
	04/09/2013	0.344	mg/L	No
	07/09/2013	0.230	mg/L	No
	10/31/2013	0.298	mg/L	No

Summary of Organic parameters sampled during this reporting period or the most recent sample results

Parameter	Sample Date (mm/dd/yyyy)	Result Value	Unit of Measure	Exceedance
Alachlor	01/23/2013	<0.02	ug/L	No
Aldicarb	01/23/2013	<0.01	ug/L	No
Aldrin + Dieldrin	01/23/2013	<0.01	ug/L	No
Atrazine + N-dealkylated metabolites	01/23/2013	<0.01	ug/L	No
Azinphos-methyl	01/23/2013	<0.02	ug/L	No
Bendiocarb	01/23/2013	<0.01	ug/L	No
Benzene	01/23/2013	<0.32	ug/L	No
Benzo(a)pyrene	01/23/2013	<0.004	ug/L	No
Bromoxynil	01/23/2013	<0.33	ug/L	No
Carbaryl	01/23/2013	<0.01	ug/L	No
Carbofuran	01/23/2013	<0.01	ug/L	No
Carbon Tetrachloride	01/23/2013	<0.16	ug/L	No
Chlordane (Total)	01/23/2013	<0.01	ug/L	No
Chlorpyrifos	01/23/2013	<0.02	ug/L	No
Cyanazine	01/23/2013	<0.03	ug/L	No
Diazinon	01/23/2013	<0.02	ug/L	No
Dicamba	01/23/2013	<0.20	ug/L	No
1,2-Dichlorobenzene	01/23/2013	<0.41	ug/L	No
1,4-Dichlorobenzene	01/23/2013	<0.36	ug/L	No
Dichlorodiphenyltrichloroethane (DDT) + metabolites	01/23/2013	<0.01	ug/L	No

1,2-Dichloroethane	01/23/2013	<0.35	ug/L	No
1,1-Dichloroethylene (vinylidene chloride)	01/23/2013	<0.33	ug/L	No
Dichloromethane	01/23/2013	<0.35	ug/L	No
2,4 Dichlorophenol	01/23/2013	<0.15	ug/L	No
2,4-Dichlorophenoxy acetic acid (2,4-D)	01/23/2013	<0.19	ug/L	No
Diclofop-methyl	01/23/2013	<0.40	ug/L	No
Dimethoate	01/23/2013	<0.03	ug/L	No
Dinoseb	01/23/2013	<0.36	ug/L	No
Diquat	01/23/2013	<1.0	ug/L	No
Diuron	01/23/2013	<0.03	ug/L	No
Glyphosate	01/23/2013	<6.0	ug/L	No
Heptachlor + Heptachlor Epoxide	01/23/2013	<0.01	ug/L	No
Lindane (Total)	01/23/2013	<0.01	ug/L	No
Malathion	01/23/2013	<0.02	ug/L	No
Methoxychlor	01/23/2013	<0.01	ug/L	No
Metolachlor	01/23/2013	<0.01	ug/L	No
Metribuzin	01/23/2013	<0.02	ug/L	No
Monochlorobenzene	01/23/2013	<0.30	ug/L	No
Paraquat	01/23/2013	<1.0	ug/L	No
Parathion	01/23/2013	<0.02	ug/L	No
Pentachlorophenol	01/23/2013	<0.15	ug/L	No
Phorate	01/23/2013	<0.01	ug/L	No
Picloram	01/23/2013	<1.0	ug/L	No
Polychlorinated Biphenyls(PCB)	01/23/2013	<0.04	ug/L	No
Prometryne	01/23/2013	<0.03	ug/L	No
Simazine	01/23/2013	<0.01	ug/L	No
THM (Dist)	2013	76.5	ug/L	No
(NOTE: show latest annual average)				
Temephos	01/23/2013	<0.01	ug/L	No
Terbufos	01/23/2013	<0.01	ug/L	No
Tetrachloroethylene	01/23/2013	<0.35	ug/L	No
2,3,4,6-Tetrachlorophenol	01/23/2013	<0.14	ug/L	No
Triallate	01/23/2013	<0.01	ug/L	No
Trichloroethylene	01/23/2013	<0.44	ug/L	No
2,4,6-Trichlorophenol	01/23/2013	<0.25	ug/L	No
2,4,5-Trichlorophenoxy acetic acid (2,4,5-T)	01/23/2013	<0.22	ug/L	No
Trifluralin	01/23/2013	<0.02	ug/L	No
Vinyl Chloride	01/23/2013	<0.17	ug/L	No

List any Inorganic or Organic parameter(s) that exceeded half the standard prescribed in Schedule 2 of Ontario Drinking Water Quality Standards.

Parameter	Result Value	Unit of Measure	Date of Sample
Distribution THM	52	ug/L	Jan 23, 2013
Distribution THM	53	ug/L	Apr 09,2013
Distribution THM	108	ug/L	July 09, 2013
Distribution THM	93	ug/L	Oct 31, 2013

(Only if DWS category is large municipal residential, small municipal residential, large municipal non residential, non municipal year round residential, large non municipal non residential)