BRUCE MINES

SUPPLY SYSTEM

ANNUAL SUMMARY REPORT

2014

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, 2014 to December 31, 2014. 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, 2015.

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 2014 was 421.0 m3 on March 11 and represents 49% of the capacity.

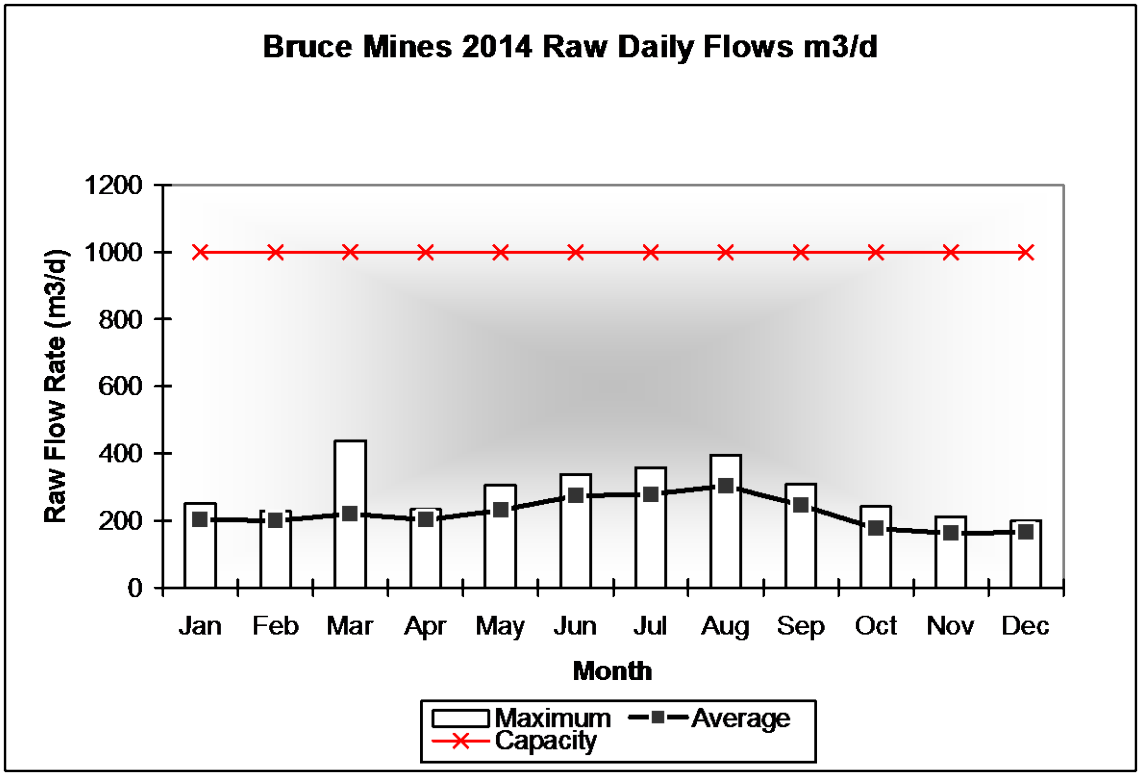
In accordance with the PTTW, the allowable rate of water taking is 11.57 L/s with a maximum daily volume of 1000.0 m^3/d. The maximum rate in 2014 was 10.0 L/sec which represents 86.4% of the instantaneous limit. The monthly average raw water flow for this reporting period was 222.6 m^3/d and the maximum daily flow for 2014 was 438.0 m^3/d.

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

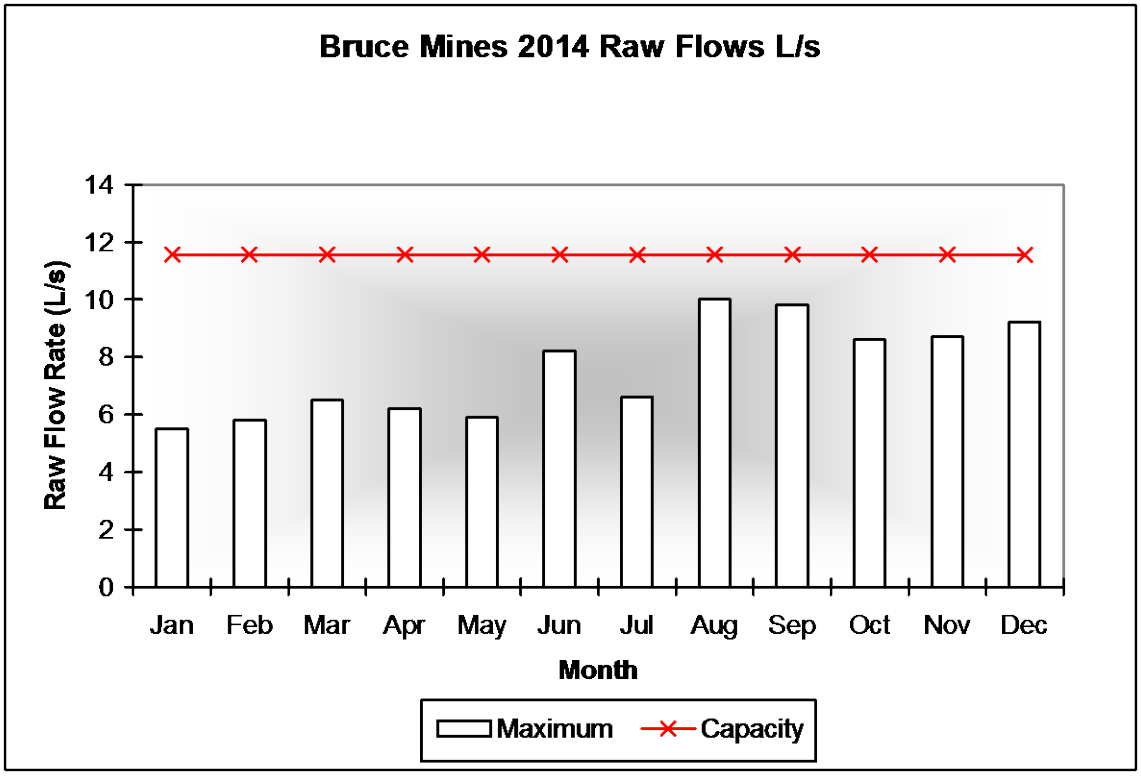
The quantity of water supplied during the reporting period **did not** exceed the rated maximum capacity.

2014	**RAW WATER FLOW DATA - TOTAL ALL SOURCES**					
Month	**Total Monthly Raw Flow (m3)**	**Average Raw Flow (m3/d)**	**Maximum Raw Flow (m3/d)**	**Maximum Raw Flow Rate (L/s)**	**PTTW Limits**	
					L/s	**m^3/d**
January	6353	204.9	251	5.5	11.57	1000
February	5594	199.8	227	5.8	11.57	1000
March	6827	220.2	438	6.5	11.57	1000
April	6069	202.3	233	6.2	11.57	1000
May	7190	231.9	304	5.9	11.57	1000
June	8232	274.4	337	8.2	11.57	1000
July	8670	279.7	358	6.6	11.57	1000
August	9406	303.4	396	10.0	11.57	1000
September	7406	246.9	308	9.8	11.57	1000
October	5460	176.1	241	8.6	11.57	1000
November	4861	162.0	212	8.7	11.57	1000
December	4954	165.1	199	9.2	11.57	1000
Total	**81022**					
Average		**222.6**	**438**			
Maximum				**10.0**		

Comparison of Monthly Average and Maximum Rates of Flow



Comparison of Monthly Maximum Flow Rates



2014	TREATED WATER FLOW DATA		
Month	Total Monthly Treated Flow (m3)	Maximum Treated Flow (m3/d)	(MDWL) m^3/d
			864.0
January	5812	221	864.0
February	4997	207	864.0
March	6295	421	864.0
April	5575	215	864.0
May	6561	285	864.0
June	7797	317	864.0
July	8246	328	864.0
August	9016	379	864.0
September	7049	291	864.0
October	4798	218	864.0
November	4179	177	864.0
December	4453	174	864.0
Total	**74778**		
Maximum		**421**	

Raw Water Taking	Total Taking m3/d	Average Day m3/d	Max Day m3/d	Max Day % of PTTW allowable 1000 m3/d
2014	81,022	222.6	438	43.8%
2013	85,932	235.4	398	39.8%
2012	94,361	257.8	504	50.4%
2011	94,063	258.0	424	42.4&
2010	106,574	291.9	625	62.5%
2009	115,792	317.2	620	62%

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 September 29, 2014 #1-BDU2G. The facility received a rating of 99.47%. There was 1 instances of non compliance within the inspection report.

Non-Compliance

1. The owner replaced the stand-by diesel generator with a natural gas generator. The Form 3 document and associated DWW Permit 5.7 requirements were not completed at the time of the inspection.

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 2014 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 2014 Annual Report as required by Drinking-Water System Regulation O. Reg. 170/03.

APPENDIX A

Annual Record of Water Taking

Ontario Clean Water Agency
Time Series Info Report

Report extracted 02/19/2015 15:25

From: 01/01/2014 to 31/12/2014

Facility Org Number: 5948
Facility Works Number: 210000933
Facility Name: BRUCE MINES DRINKING WATER SYSTEM
Facility Owner: Municipality: The Corporation of the Town of Bruce Mines
Facility Classification: Class 2 Water Treatment
Receiver:
Service Population: 566
Total Design Capacity: 864.0 m3/day

	01/2014	02/2014	03/2014	04/2014	05/2014	06/2014	07/2014	08/2014	09/2014	10/2014	11/2014	12/2014	Total	Avg	Max	Min
Raw - St Joseph's Channel / Flow - m³/d																
Max IH	251.000	227.000	438.000	233.000	304.000	337.000	358.000	396.000	308.000	241.000	212.000	199.000			438.000	
Mean IH	204.935	199.786	220.226	202.300	231.935	274.400	279.677	303.419	246.867	176.129	162.033	165.133		222.588		
Total IH	6353.000	5594.000	6827.000	6069.000	7190.000	8232.000	8670.000	9406.000	7406.000	5460.000	4861.000	4954.000	81022.000			
Raw - St Joseph's Channel / Flow Rate - l/s																
Max OL	5.500	5.800	6.500	6.200	5.900	8.200	6.600	10.000	9.800	8.600	8.700	9.200			10.000	
Mean OL	5.200	5.382	5.690	5.510	5.468	5.447	6.271	3.571	2.960	2.111	1.916	1.976		2.493		
Min OL	5.000	5.000	5.200	5.200	5.200	5.000	6.000	0.000	0.000	0.000	0.000	0.000				0.000

APPENDIX B

Annual Report:

2014 Operating Year

Section 1

Drinking-Water System Number:	*210000933*
Drinking-Water System Name:	*BRUCE MINES DRINKING WATER SYSTEM*
Drinking-Water System Owner:	*Title Holder: Municipality*
Drinking-Water System Category:	*Large Municipal Residential*
Period being reported:	*01/2014* *12/2014*

Section 2

Population Served	***566***
Does your Drinking-Water System serve more than 10,000 people?	***No***
Is your annual report available to the public at no charge on a web site on the Internet?	***Yes***
Location where Summary Report required under O. Reg. 170/03 Schedule 22 will be available for inspection.	***Town of Bruce Mines, Municipal Office*** ***9180 HWY 17 East*** ***Bruce Mines, Ontario*** ***P0R 1C0***
Number of Designated Facilities served:	***0***
Did you provide a copy of your annual report to all Designated Facilities you serve?	***NA***
Number of Interested Authorities you report to:	***0***
Did you provide a copy of your annual report to all Interested Authorities you report to for each Designated Facility?	***NA***
List all Drinking-Water Systems (if any), and their DWS Number which receive all of their drinking water from your system:	***NA***
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?	***NA***
Indicate how you notified system users that your annual report is available, and is free of charge.	***Public access/notice via the web***
Indicate if you notified system users that your annual report is avaliable and is free of charge using an alternate method	***YES***

Section 3 Facility Description

The Bruce Mines Water Treatment Plant provides water to 600 residents of Bruce Mines, and 250 people in the Township of Plummer 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.

Section 4 Water Treatment Chemicals:

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

Section 5 Significant Expenses

Were any significant expenses incurred to?

[ ] Install required equipmen
[X] Repair required equipmen
[ ] Replace required equipmen

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

VAL'S EQUIPMENT SERVICE	TROUBLESHOOT GENERATOR ISSUE	$1,485.95
METCON SALES - CONCORD	CHLORINE PUMP REP. KITS	$1,280.06
METCON SALES - CONCORD	BACK PRES.&PRES.RELIEF VALVES FOR ZEBRA MUSSEL & FILTRATE CHLOR. SYSTEMS	$1,091.58
Espanola Hub	FORM 3 COMPLETION FOR WATER METER STUDY	$3,000.00
ALGOMA POWER INC	START UP FEE FOR WATER METER	$2,620.24
MCQUEEN'S FURNITURE	STACKABLE WASHER/DRYER	$1,570.58

Section 6 AWQI's

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
21-Jan-14	Chlorine analyzer failure	N/A	N/A	This was a non reportable incident. Distribution analyzer failed and grab samples were taken at the Municipal Office.	22-Jan-14
12-Mar-14	Water Pressure	0	PSI	2 sets of bactis taken 24 hours apart	17-Mar-14
26-Aug-14	Water Pressure	0	PSI	Area flushed and 2 sets of bactis taken 24 hours apart	02-Sep-14

Drinking-Water System Number: *210000933*
Drinking-Water System Name: *BRUCE MINES DRINKING WATER SYSTEM*
Drinking-Water System Owner: *Title Holder: Municipality*
Drinking-Water System Category: *Large Municipal Residential*
Period being reported: *01/2014* *12/2014*

Table 1

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

	No. of Samples Collected for period being reported	Range of E.Coli Or Fecal Results		Range of Total Coliform Results		Number of HPC Samples	Range of HPC Results	
		Minimum #	Maximum #	Minimum #	Maximum #		Minimum #	Maximum #
Raw - St Joseph's Channel	60	0	262	0	1000	0		
Treated Water	60	0	0	0	0	60	0	3
DW	162	0	0	0	0	104	0	102

Drinking-Water System Number:	*210000933*	
Drinking-Water System Name:	*BRUCE MINES DRINKING WATER SYSTEM*	
Drinking-Water System Owner:	*Title Holder: Municipality*	
Drinking-Water System Category:	*Large Municipal Residentia*	
Period being reported:	*01/2014*	*12/2014*

Table 2

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

	No. of Samples Collected for period being reported	Range of Results	
		Minimum	Maximum
Turbidity, On-Line (NTU) - RW	8760	0.11875	92.6375
Turbidity, On-Line (NTU) - Filt1	8760	0	2.9947
Turbidity, On-Line (NTU) - Filt2	8760	0	3
Free Chlorine Residual, On-Line (mg/L) - TW	8760	0.7641	2.6425
Free Chlorine Residual, IH (mg/L) - DW	365	0.63	1.53

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Drinking-Water System Owner: *Title Holder: Municipality*
Drinking-Water System Category: *Large Municipal Residential*
Period being reported: *01/2014* *12/2014*

Table 3

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
11-Mar-11	BW TSS	28-Jan-14	13	mg/L
		24-Feb-14	3	mg/L
		31-Mar-14	4	mg/L
		22-Apr-14	7	mg/L
		26-May-14	18	mg/L
		25-Jun-14	9	mg/L
		28-Jul-14	7	mg/L
		19-Aug-14	12	mg/L
		30-Sep-14	8	mg/L
		30-Oct-14	12	mg/L
		24-Nov-14	9	mg/L
		22-Dec-14	8	mg/L

Drinking-Water System Number: *210000933*
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Drinking-Water System Owner: *Title Holder: Municipality*
Drinking-Water System Category: *Large Municipal Residentia*
Period being reported: *01/2014* *12/2014*

Table 4

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

TREATED WATER	Sample Date (mm/dd/yyyy)	Sample Result	MAC	No. of Exceedances	
				MAC	1/2 MAC
Antimony: Sb (ug/L) - TW	28/01/2014	< 0.02	6.0	No	No
Arsenic: As (ug/L) - TW	28/01/2014	0.4	25.0	No	No
Barium: Ba (ug/L) - TW	28/01/2014	9.48	1000.0	No	No
Boron: B (ug/L) - TW	28/01/2014	7.3	5000.0	No	No
Cadmium: Cd (ug/L) - TW	28/01/2014	0.004	5.0	No	No
Chromium: Cr (ug/L) - TW	28/01/2014	< 0.5	50.0	No	No
Mercury: Hg (ug/L) - TW	28/01/2014	< 0.01	1.0	No	No
Selenium: Se (ug/L) - TW	28/01/2014	< 1.0	10.0	No	No
Uranium: U (ug/L) - TW	28/01/2014	0.054	20.0	No	No
Additional Inorganics					
Fluoride (mg/L) - TW					
Nitrite (mg/L) - TW	28/01/2014	< 0.003	1.0	No	No
Nitrite (mg/L) - TW	23/04/2014	< 0.003	1.0	No	No
Nitrite (mg/L) - TW	02/07/2014	< 0.003	1.0	No	No
Nitrite (mg/L) - TW	08/10/2014	< 0.003	1.0	No	No
Nitrate (mg/L) - TW	28/01/2014	0.361	10.0	No	No
Nitrate (mg/L) - TW	23/04/2014	0.385	10.0	No	No
Nitrate (mg/L) - TW	02/07/2014	0.235	10.0	No	No
Nitrate (mg/L) - TW	08/10/2014	0.272	10.0	No	No
Sodium: Na (mg/L) - TW	11/01/2011	4.46	20*	No	No

*There is no "MAC" for Sodium. The aesthetic objective for sodium in drinking water is 200 mg/L. The local Medical Officer of Health should be notified when the sodium concentration exceeds 20 mg/L so that this information may be communicated to local physicians for their use with patients on sodium restricted diets.

Drinking-Water System Number: *210000933*
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Drinking-Water System Owner: *Title Holder: Municipality*
Drinking-Water System Category: *Large Municipal Residential*
Period being reported: *01/2014* *12/2014*

Table 5: Summary of Lead testing under Schedule 15.1 during this reporting period

Location Type	Number of Samples	Range of Results		MAC (ug/L)	Number of Exceedances
		Minimum	Maximum		
DW - Lead Results (ug/L)	2	0.07	0.15	10	0
DW - Alkalinity (mg/L)	4	46	58	n/a	n/a
DW - pH In-House	4	7.47	7.84	n/a	n/a

Drinking-Water System Number: *210000933*
Drinking-Water System Name: *BRUCE MINES DRINKING WATER SYSTEM*
Drinking-Water System Owner: *Title Holder: Municipality*
Drinking-Water System Category: *Large Municipal Residential*
Period being reported: *01/2014* *12/2014*

Table 6

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

TREATED WATER	Sample Date (mm/dd/yyyy)	Sample Result	MAC	Number of Exceedances	
				MAC	1/2 MAC
Alachlor (ug/L) - TW	28/01/2014	< 0.02	5.00	No	No
Aldicarb (ug/L) - TW	28/01/2014	< 0.01	9.00	No	No
Aldrin+Dieldrin (ug/L) - TW	28/01/2014	< 0.01	0.70	No	No
Atrazine + N-dealkylated metabolites (ug/L) - TW	28/01/2014	< 0.01	5.00	No	No
Azinphos-methyl (ug/L) - TW	28/01/2014	< 0.02	20.00	No	No
Bendiocarb (ug/L) - TW	28/01/2014	< 0.01	40.00	No	No
Benzene (ug/L) - TW	28/01/2014	< 0.32	5.00	No	No
Benzo(a)pyrene (ug/L) - TW	28/01/2014	< 0.004	0.01	No	No
Bromoxynil (ug/L) - TW	28/01/2014	< 0.33	5.00	No	No
Carbaryl (ug/L) - TW	28/01/2014	< 0.01	90.00	No	No
Carbofuran (ug/L) - TW	28/01/2014	< 0.01	90.00	No	No
Carbon Tetrachloride (ug/L) - TW	28/01/2014	< 0.16	5.00	No	No
Chlordane: Total (ug/L) - TW	28/01/2014	< 0.01	7.00	No	No
Chlorpyrifos (ug/L) - TW	28/01/2014	< 0.02	90.00	No	No
Cyanazine (ug/L) - TW	28/01/2014	< 0.03	10.00	No	No
Diazinon (ug/L) - TW	28/01/2014	< 0.02	20.00	No	No
Dicamba (ug/L) - TW	28/01/2014	< 0.2	120.00	No	No
1,2-Dichlorobenzene (ug/L) - TW	28/01/2014	< 0.41	200.00	No	No
1,4-Dichlorobenzene (ug/L) - TW	28/01/2014	< 0.36	5.00	No	No
DDT + metabolites (ug/L) - TW	28/01/2014	< 0.01	30.00	No	No
1,2-Dichloroethane (ug/L) - TW	28/01/2014	< 0.35	5.00	No	No
1,1-Dichloroethylene (ug/L) - TW	28/01/2014	< 0.33	14.00	No	No
Dichloromethane (Methylene Chloride) (ug/L) - TW	28/01/2014	< 0.35	50.00	No	No
2,4-Dichlorophenol (ug/L) - TW	28/01/2014	< 0.15	900.00	No	No
2,4-Dichlorophenoxy acetic acid (2,4-D) (ug/L) - TW	28/01/2014	< 0.19	100.00	No	No
Diclofop-methyl (ug/L) - TW	28/01/2014	< 0.4	9.00	No	No
Dimethoate (ug/L) - TW	28/01/2014	< 0.03	20.00	No	No
Dinoseb (ug/L) - TW	28/01/2014	< 0.36	10.00	No	No
Diquat (ug/L) - TW	28/01/2014	< 1.0	70.00	No	No
Diuron (ug/L) - TW	28/01/2014	< 0.03	150.00	No	No
Glyphosate (ug/L) - TW	28/01/2014	< 1.0	280.00	No	No
Heptachlor+hepachlor epoxide (ug/L) - TW	28/01/2014	< 0.01	3.00	No	No
Lindane (ug/L) - TW	28/01/2014	< 0.01	4.00	No	No
Malathion (ug/L) - TW	28/01/2014	< 0.02	190.00	No	No
Methoxychlor (ug/L) - TW	28/01/2014	< 0.01	900.00	No	No
Metolachlor (ug/L) - TW	28/01/2014	< 0.01	50.00	No	No
Metribuzin (ug/L) - TW	28/01/2014	< 0.02	80.00	No	No
Monochlorobenzene (Chlorobenzene) (ug/L) - TW	28/01/2014	< 0.3	80.00	No	No
Paraquat (ug/L) - TW	28/01/2014	< 1.0	10.00	No	No
Parathion (ug/L) - TW	28/01/2014	< 0.02	50.00	No	No
PCB (ug/L) - TW	28/01/2014	< 0.04	3.00	No	No
Pentachlorophenol (ug/L) - TW	28/01/2014	< 0.15	60.00	No	No
Phorate (ug/L) - TW	28/01/2014	< 0.01	2.00	No	No
Picloram (ug/L) - TW	28/01/2014	< 1.0	190.00	No	No
Prometryne (ug/L) - TW	28/01/2014	< 0.03	1.00	No	No
Simazine (ug/L) - TW	28/01/2014	< 0.01	10.00	No	No
Temephos (ug/L) - TW	28/01/2014	< 0.01	280.00	No	No
Terbufos (ug/L) - TW	28/01/2014	< 0.01	1.00	No	No
Tetrachloroethylene (ug/L) - TW	28/01/2014	< 0.35	30.00	No	No
2,3,4,6-Tetrachlorophenol (ug/L) - TW	28/01/2014	< 0.14	100.00	No	No
Triallate (ug/L) - TW	28/01/2014	< 0.01	230.00	No	No
Trichloroethylene (ug/L) - TW	28/01/2014	< 0.44	50.00	No	No
2,4,6-Trichlorophenol (ug/L) - TW	28/01/2014	< 0.25	5.00	No	No
2,4,5-T (ug/L) - TW	28/01/2014	< 0.22	280.00	No	No
Trifluralin (ug/L) - TW	28/01/2014	< 0.02	45.00	No	No
Vinyl Chloride (ug/L) - TW	28/01/2014	< 0.17	2.00	No	No
DISTRIBUTION WATER					
Trihalomethane: Total (ug/L) Annual Average - DW	01/01/2015	74.25	100.00	No	Yes