

***NAIRN CENTRE WTP***

***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 Nairn Centre 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 Nairn Centre 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 Township of Nairn & Hyman. A copy of the Summary Report is to 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

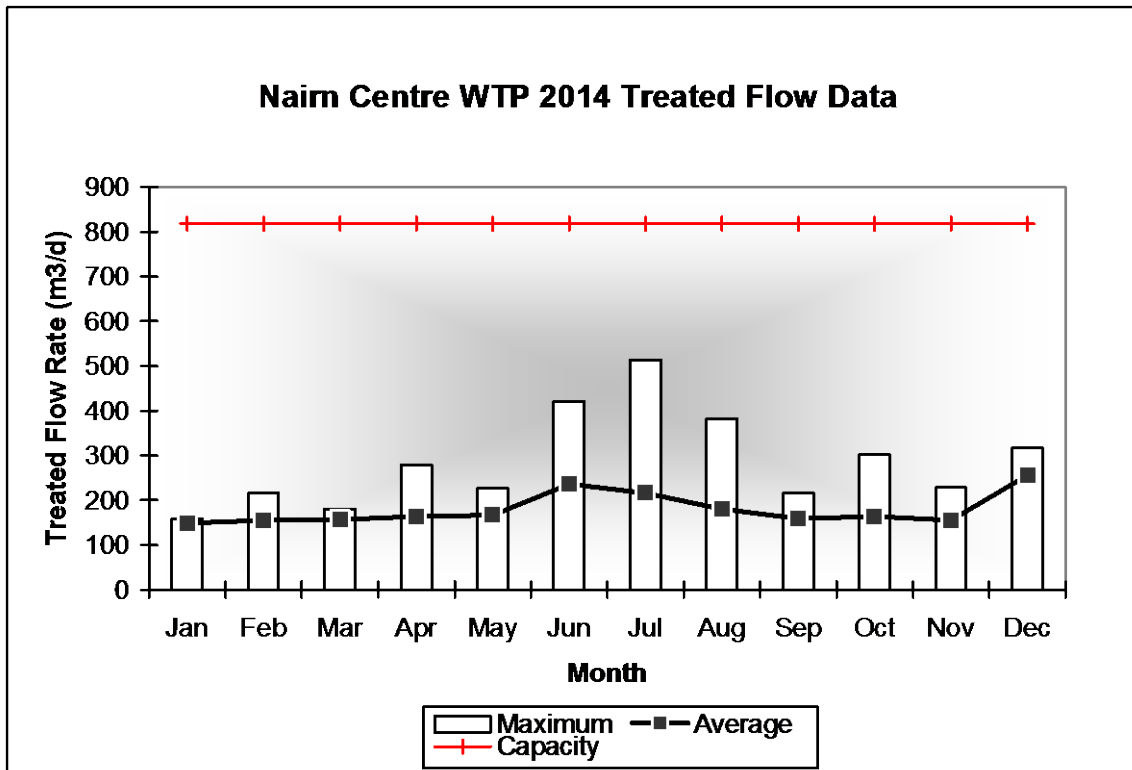
In accordance with the Municipal Drinking Water License, Schedule C, Section 1.1, the Nairn Centre water system shall not be operated to exceed a maximum flow of 818 m<sup>3</sup>/d into the distribution system. The maximum treated water flow in 2014 was 261 m<sup>3</sup> which represents 64% of capacity.

In accordance with the PTTW, the allowable rate of water taking is 9.5 L/s with a maximum daily volume of 820.8 m<sup>3</sup>/d. The monthly average raw water flow for this reporting period was 160.7 m<sup>3</sup>/d and the maximum daily flow for 2014 was 514 m<sup>3</sup>/d.

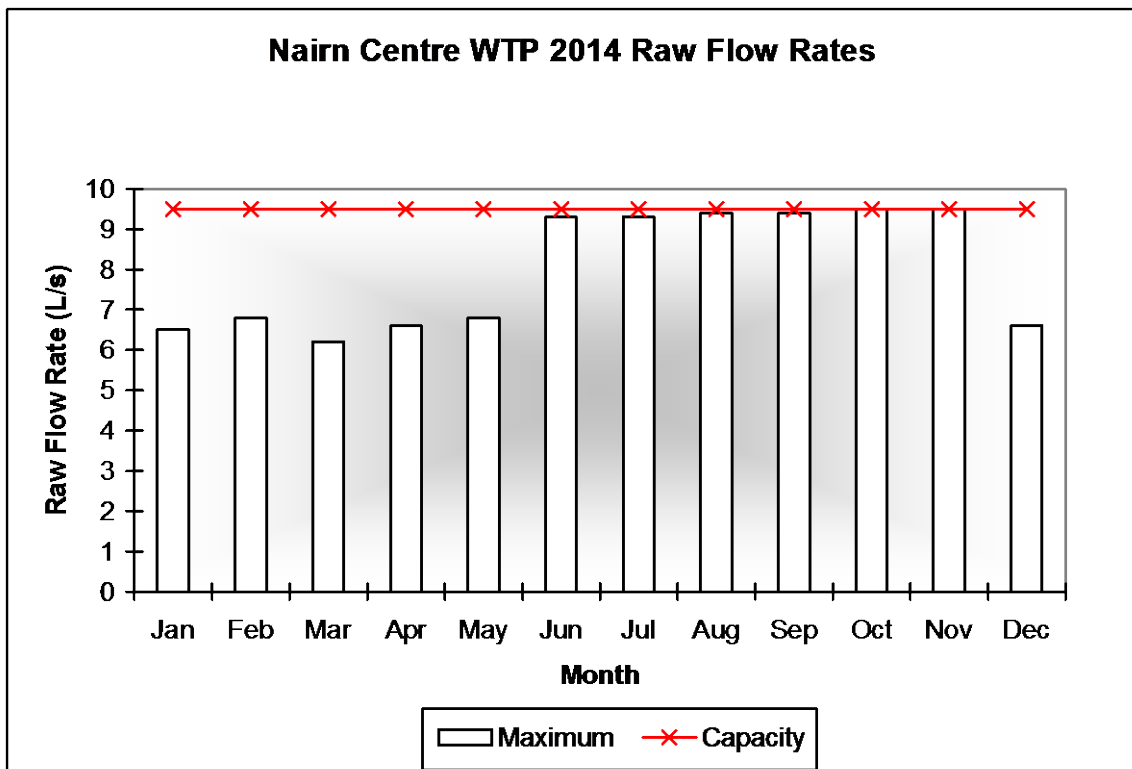
The quantity of water supplied during the reporting period **did not** exceed the rated maximum capacity of the Municipal Drinking Water License although it **did** exceed the Permit to Take Water's L/s limits on numerous occasions. More details can be found in section 4 below.

2014	RAW WATER FLOW DATA - TOTAL ALL SOURCES					
Month	Total Monthly Raw Flow (m3)	Maximum Treated Water Flow (m3/d)	Maximum Raw Flow (m3/d)	Maximum Raw Flow Rate (L/s)	PTTW Rate Limit	Maximum Rated Capacity
					L/s	m <sup>3</sup> /d
January	4625	159	149	6.5	9.5	818
February	4364	216	155	6.8	9.5	818
March	4878	180	157	6.2	9.5	818
April	4942	280	164	6.6	9.5	818
May	5188	226	167	6.8	9.5	818
June	7109	421	236	9.3	9.5	818
July	6700	514	216	9.3	9.5	818
August	5603	382	180	9.4	9.5	818
September	4782	215	159	9.4	9.5	818
October	5110	302	164	9.5	9.5	818
November	4675	228	155	9.5	9.5	818
December	7930	317	256	6.6	9.5	818
Total						
Summary		382	181	9.5	9.5	818

Comparison of Monthly Average and Maximum Rates of Flow



Comparison of Monthly Maximum Flow Rates



Attached as *Appendix A*, find a summary of water taking, including average and maximum flows.

**SECTION 4: SYSTEM FAILURES AND CORRECTIONS**

There was a Ministry of the Environment inspection conducted on Sep 10, 2014; Inspection # 1-BDWVT. The facility received a **95.38% rating** with 4 instances of Non Compliance.

**Non compliances found within the inspection report**

1. Filter Effluent Turbidity Data was reviewed for the period between August 1, 2013 to July 31, 2014 and generally found to be in order. In December 2013 however, these criteria were not met.  
 On January 2, 2014, it was reported by OCWA (under AWQI # 115594), that the performance criterion for filtered water turbidity of less than or equal to 0.3 NTU in 95% of the measurements, had not been met for the month of December 2013; the filtered water turbidity had been calculated at 92.61%.  
 The problem was attributed to a faulty turbidity analyzer. A new analyzer was subsequently installed, and the filter efficiency was restored. The overall targets for the month of December 2013 however, could not be met.

- 2, 3 & 4. OPERATOR IN CHARGE NOT IDENTIFIED:  
 OPERATOR IN TRAINING IDENTIFIED AS AN OPERATOR IN CHARGE:  
 OVERALL RESPONSIBLE OPERATOR NOT IDENTIFIED:

Operators were trained on how to properly enter information in a logbook. Also, logbook training courses were provided through e-learning courses to all operators working with OCWA.

**Adverse Incidents**

Incident Date	Parameter	Result	Unit of Measure	Corrective Action	Corrective Action Date
02-Jan-14	Filter Efficiency	< 95	%	Analyzer failure - replaced analyzer	08-Jan-14
05-Jun-14	Pressure	0	PSI	Flushed and restored chlorine residual. Took 2 sets of bacteriological samples 24 hours apart.	15-Jun-14
28-Aug-14	Loss of data	0	0	AWQI called in at request of MOE: Turbidity analyzer failed to record data due to unplugged wire during SCADA upgrades.	15-Aug-14

<b>18-Dec-14</b>	<b>Pressure</b>	<b>0</b>	<b>PSI</b>	<b>Cleaned out blockage in pressure clayvalve, flushed system and took chlorien residuals. Bacteriological samples taken 24 hours apart.</b>	<b>21-Dec-14</b>
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Non compliances reported to the MOECC

N/A

**SECTION 5: CONCLUSION**

The Nairn Centre WTP delivers water that, in all its treated and distribution samples, indicates the water to be free of bacteriological contamination. Both the AWQI reports generated in 2013 were related to equipment and not to contamination.

For the 2014 operating year, the Nairn Centre WTP was able to meet the demand of water use without exceeding the daily maximum allowable by MDWL or PTTW

Attached as Appendix C, 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 02/25/2015 16:33

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

Facility Org Number: 5042  
 Facility Works Number:  
 Facility Name: NAIRN CENTRE DRINKING WATER SYSTEM  
 Municipality: The Corporation of the Township of Nairn and Hyman  
 Facility Owner:  
 Facility Classification: Class 3 Water Treatment  
 Receiver:  
 Service Population:  
 Total Design Capacity: 818.0 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 Water / Flow - m <sup>3</sup> /d																
Max OL	159.000	216.000	180.000	280.000	226.000	421.000	514.000	382.000	215.458	302.000	228.000	317.000			514.000	
Mean OL	149.194	155.857	157.355	164.733	167.355	236.967	216.129	180.755	159.406	164.839	155.833	255.806		180.566		
Min OL	139.000	139.000	134.000	0.000	112.000	144.000	131.000	105.535	83.472	105.000	1.000	161.000				0.000
Total OL	4625.000	4364.000	4878.000	4942.000	5188.000	7109.000	6700.000	5603.417	4782.181	5110.000	4675.000	7930.000	65906.597			
Raw Water / Flow Rate - l/s																
Max OL	6.538	6.886	6.200	6.559	6.826	9.308	9.252	9.359	9.394	9.495	9.479	6.630			9.495	
Treated Water / Flow - m <sup>3</sup> /d																
Max OL	125.000	154.000	141.000	151.000	157.000	261.000	195.000	175.819	129.924	224.000	126.000	106.000			261.000	
Mean OL	114.871	119.643	128.129	134.000	136.871	42.067	137.774	131.744	114.834	115.774	106.833	12.419		107.910		
Min OL	110.000	110.000	103.000	111.000	118.000	0.000	118.000	117.319	108.000	101.000	100.000	1.000				0.000
Total OL	3561.000	3350.000	3972.000	4020.000	4243.000	1262.000	4271.000	4084.056	3445.028	3589.000	3205.000	385.000	39387.083			



# ***APPENDIX B***

**Annual Report:  
2014 Operating Year**



Section 4	Water Treatment Chemicals	Aluminum Sulphate Magnafloc LT 27 AG Sodium Hypochlorite (12%)
Section 5	Significant Expenses	Soda Ash (dense) Hydrofluorosilic Acid (HFS)

**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**

AUTO WASH PLUS	DRINKING WATER HAULED FROM ESP. TO NAIRN	\$4,113.20
METCON SALES - CONCORD	CHLORINE ANALYZERS as per MOE directions	\$8,000.40
NOR-TECH POWER AND CONTROLS INC.	UPGRADE PLC & SCADA SYSTEM WO#2447152 "FUNDING APPLICABLE"	\$3,672.50
NOR-TECH POWER AND CONTROLS INC.	WIRING, PROGRAMMING & TYING IN ANALYZERS TO SCADA	\$3,295.03
XYLEM CANADA - TORONTO	LOW LIFT PUMP REP.	\$3,281.01
METCON SALES - CONCORD	CHEMICAL BOARD UPGRADE WO	\$25,293.92
NOR-TECH POWER AND CONTROLS INC.	WIRING, PROGRAMMING & TYING IN CHEMICAL BOARDS TO SCADA	\$3,390.00
NOR-TECH POWER AND CONTROLS INC.	VERBATIM PURCHASE & INSTALLATION "FUNDING APPLICABLE"	\$7,090.75
NOR-TECH POWER AND CONTROLS INC.	2 10 HP DRIVES	\$7,209.40

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
02-Jan-14	Filter Efficiency	< 95	%	Analyzer failure - replaced analyzer	08-Jan-14
05-Jun-14	Pressure	0	PSI	Flushed and restored chlorine residual. Took 2 sets of bacteriological samples 24 hours apart.	15-Jun-14
28-Aug-14	Loss of data	0	0	AWQI called in at request of MOE: Turbidity analyzer failed to record data due to unplugged wire during SCADA upgrades.	15-Aug-14
18-Dec-14	Pressure	0	PSI	Cleaned out blockage in pressure clayvalve, flushed system and took chlorien residuals. Bacteriological samples taken 24 hours apart.	21-Dec-14

Drinking-Water System Number: 210002138  
 Drinking-Water System Name: NAIRN CENTRE 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 Water	57	0	25	1	440			
Treated Water	57	0	0	0	0	52	0	13
Distribution Water	98	0	0	0	0	49	1	53

Drinking-Water System Number: 210002138  
 Drinking-Water System Name: NAIRN CENTRE 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 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) - Filt	8760	0	4.99
Free Chlorine Residual, On-Line (mg/L) - TW	8760	0.2	2
Free Chlorine Residual, In-House (mg/L) - DW	8760	0.4	4.4
Fluoride, On-Line (mg/L) - TW	8760	0	1.316

Drinking-Water System Number: 210002138  
Drinking-Water System Name: NAIRN CENTRE 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 3**

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

<b>Date of legal instrument issued</b>	<b>Parameter</b>	<b>Date Sampled</b>	<b>Result</b>	<b>Unit of Measure</b>
20-Dec-10	Backwash Total Suspended Solids	Monthly	8.50 Avg	mg/L

Drinking-Water System Number: 210002138  
 Drinking-Water System Name: NAIRN CENTRE 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 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	1/21/2014	< 0.02	6.0	No	No
Arsenic: As (ug/L) - TW	1/21/2014	< 0.2	25.0	No	No
Barium: Ba (ug/L) - TW	1/21/2014	5.23	1000.0	No	No
Boron: B (ug/L) - TW	1/21/2014	3.1	5000.0	No	No
Cadmium: Cd (ug/L) - TW	1/21/2014	0.003	5.0	No	No
Chromium: Cr (ug/L) - TW	1/21/2014	< 0.5	50.0	No	No
Mercury: Hg (ug/L) - TW	1/21/2014	< 0.01	1.0	No	No
Selenium: Se (ug/L) - TW	1/21/2014	< 1.0	10.0	No	No
Uranium: U (ug/L) - TW	1/21/2014	0.117	20.0	No	No
<b>Additional Inorganics</b>					
Fluoride (mg/L) - TW	6/30/2012	0.4	1.5	No	No
Nitrite (mg/L) - TW	1/21/2014	< 0.003	1.0	No	No
Nitrite (mg/L) - TW	4/08/2014	< 0.003	1.0	No	No
Nitrite (mg/L) - TW	7/29/2014	< 0.003	1.0	No	No
Nitrite (mg/L) - TW	10/14/2014	< 0.003	1.0	No	No
Nitrate (mg/L) - TW	1/21/2014	0.068	10.0	No	No
Nitrate (mg/L) - TW	4/08/2014	0.124	10.0	No	No
Nitrate (mg/L) - TW	7/29/2014	0.07	10.0	No	No
Nitrate (mg/L) - TW	10/14/2014	0.054	10.0	No	No
Sodium: Na (mg/L) - TW	1/09/2012	19100	20*	Yes	Yes

\*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 mg/L

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: 210002138  
 Drinking-Water System Name: NAIRN CENTRE 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 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		
Distribution Water - Lead Results (ug/L)	0			10	0
Distribution Water - Alkalinity (mg/L)	2	27	31	n/a	n/a
Distribution Water - pH In-House	2	6.97	7.7	n/a	n/a



Drinking-Water System Number: 210002138  
 Drinking-Water System Name: NAIRN CENTRE 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	1/21/2014	< 0.02	5.00	No	No
Aldicarb (ug/L) - TW	1/21/2014	< 0.01	9.00	No	No
Aldrin+Dieldrin (ug/L) - TW	1/21/2014	< 0.01	0.70	No	No
Atrazine + N-dealkylated metabolites (ug/L) - TW	1/21/2014	< 0.01	5.00	No	No
Azinphos-methyl (ug/L) - TW	1/21/2014	< 0.02	20.00	No	No
Bendiocarb (ug/L) - TW	1/21/2014	< 0.01	40.00	No	No
Benzene (ug/L) - TW	1/21/2014	< 0.32	5.00	No	No
Benzo(a)pyrene (ug/L) - TW	1/21/2014	< 0.004	0.01	No	No
Bromoxynil (ug/L) - TW	1/21/2014	< 0.33	5.00	No	No
Carbaryl (ug/L) - TW	1/21/2014	< 0.01	90.00	No	No
Carbofuran (ug/L) - TW	1/21/2014	< 0.01	90.00	No	No
Carbon Tetrachloride (ug/L) - TW	1/21/2014	< 0.16	5.00	No	No
Chlordane: Total (ug/L) - TW	1/21/2014	< 0.01	7.00	No	No
Chlorpyrifos (ug/L) - TW	1/21/2014	< 0.02	90.00	No	No
Cyanazine (ug/L) - TW	1/21/2014	< 0.03	10.00	No	No
Diazinon (ug/L) - TW	1/21/2014	< 0.02	20.00	No	No
Dicamba (ug/L) - TW	1/21/2014	< 0.2	120.00	No	No
1,2-Dichlorobenzene (ug/L) - TW	1/21/2014	< 0.41	200.00	No	No
1,4-Dichlorobenzene (ug/L) - TW	1/21/2014	< 0.36	5.00	No	No
DDT + metabolites (ug/L) - TW	1/21/2014	< 0.01	30.00	No	No
1,2-Dichloroethane (ug/L) - TW	1/21/2014	< 0.35	5.00	No	No
1,1-Dichloroethylene (ug/L) - TW	1/21/2014	< 0.33	14.00	No	No
Dichloromethane (Methylene Chloride) (ug/L) - TW	1/21/2014	< 0.35	50.00	No	No
2,4-Dichlorophenol (ug/L) - TW	1/21/2014	< 0.15	900.00	No	No
2,4-Dichlorophenoxy acetic acid (2,4-D) (ug/L) - TW	1/21/2014	< 0.19	100.00	No	No
Diclofop-methyl (ug/L) - TW	1/21/2014	< 0.4	9.00	No	No
Dimethoate (ug/L) - TW	1/21/2014	< 0.03	20.00	No	No
Dinoseb (ug/L) - TW	1/21/2014	< 0.36	10.00	No	No
Diquat (ug/L) - TW	1/21/2014	< 1.0	70.00	No	No
Diuron (ug/L) - TW	1/21/2014	< 0.03	150.00	No	No
Glyphosate (ug/L) - TW	1/21/2014	< 1.0	280.00	No	No
Heptachlor+hepachlor epoxide (ug/L) - TW	1/21/2014	< 0.01	3.00	No	No
Lindane (ug/L) - TW	1/21/2014	< 0.01	4.00	No	No
Malathion (ug/L) - TW	1/21/2014	< 0.02	190.00	No	No
Methoxychlor (ug/L) - TW	1/21/2014	< 0.01	900.00	No	No
Metolachlor (ug/L) - TW	1/21/2014	< 0.01	50.00	No	No
Metribuzin (ug/L) - TW	1/21/2014	< 0.02	80.00	No	No
Monochlorobenzene (Chlorobenzene) (ug/L) - TW	1/21/2014	< 0.3	80.00	No	No
Paraquat (ug/L) - TW	1/21/2014	< 1.0	10.00	No	No
Parathion (ug/L) - TW	1/21/2014	< 0.02	50.00	No	No
PCB (ug/L) - TW	1/21/2014	< 0.04	3.00	No	No
Pentachlorophenol (ug/L) - TW	1/21/2014	< 0.15	60.00	No	No
Phorate (ug/L) - TW	1/21/2014	< 0.01	2.00	No	No
Picloram (ug/L) - TW	1/21/2014	< 1.0	190.00	No	No
Prometryne (ug/L) - TW	1/21/2014	< 0.03	1.00	No	No
Simazine (ug/L) - TW	1/21/2014	< 0.01	10.00	No	No
Temephos (ug/L) - TW	1/21/2014	< 0.01	280.00	No	No
Terbufos (ug/L) - TW	1/21/2014	< 0.01	1.00	No	No
Tetrachloroethylene (ug/L) - TW	1/21/2014	< 0.35	30.00	No	No
2,3,4,6-Tetrachlorophenol (ug/L) - TW	1/21/2014	< 0.14	100.00	No	No
Triallate (ug/L) - TW	1/21/2014	< 0.01	230.00	No	No
Trichloroethylene (ug/L) - TW	1/21/2014	< 0.44	50.00	No	No
2,4,6-Trichlorophenol (ug/L) - TW	1/21/2014	< 0.25	5.00	No	No
2,4,5-T (ug/L) - TW	1/21/2014	< 0.22	280.00	No	No
Trifluralin (ug/L) - TW	1/21/2014	< 0.02	45.00	No	No
Vinyl Chloride (ug/L) - TW	1/21/2014	< 0.17	2.00	No	No
DISTRIBUTION WATER					
Trihalomethane: Total (ug/L) Annual Average - DW	1/01/2015	67	100.00	No	Yes