

# *Nairn Centre Water Treatment*

Large Municipal Residential Drinking Water System

*January 1, 2017 – December 31, 2017*

***Reg 170/03 Schedule 22 Summary Report  
Reg 170/03 Section 11 Annual Report  
&  
Reg 387/04 Annual Record of Water Taking***

Prepared by the Ontario Clean Water Agency  
For The Corporation of the Township of Nairn and Hyman



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



*Drinking-Water System Number:* 210002138  
*Drinking-Water System Name:* Nairn Centre Drinking Water System  
*Drinking-Water System Owner:* The Corp. of the Township of Nairn and Hyman  
*Drinking-Water System Category:* Large Municipal Residential

## **SECTION 1: INTRODUCTION**

This document is prepared in accordance with Section 11 and Schedule 22 of O.Reg.170/03 under the Safe Drinking Water Act and with Section 9 of O.Reg.387/04 under the Ontario Water Resources Act. The reports are prepared by the Ontario Clean Water Agency. Acronyms and definitions can be found at the end of the report.

A copy of the Summary Report must be provided to the members of the municipal council by March 31, 2018.

## **SECTION 2: REQUIREMENTS OF THE REPORTS**

### **Schedule 22 Report**

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. It 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 11 Report**

The annual report must contain the following:

- A brief description of the drinking water system and a list of chemicals used by the system.
- A description of any major expenses incurred during the period covered by the report to install, repair or replace required equipment.
- A summary of all adverse water quality incidents (AWQI) reported to the Ministry
- A summary of corrective actions taken in response all AWQIs
- A summary of all test results required under the regulation, under an approval, municipal drinking water licence or order, including an OWRA order.
- A statement of where a Schedule 22 report will be available for inspection.

The report must be prepared not later than February 28 of the following year.

### **Regulation 387 Report**

On or before March 31 in every year, every holder of a permit to take water (PTTW) shall submit to a Director the data collected and recorded for the previous year.

A record of annual water taking can be found in [Appendix A](#).



## SECTION 3: SCHEDULE 22 REPORT

### Flows - Treated

In accordance with the Municipal Drinking Water License (MDWL), the Nairn Centre WTP shall not be operated to exceed a maximum flow of 818 m<sup>3</sup>/d to the distribution system.

The daily treated water maximum flow was 517.6 m<sup>3</sup> in October and represents 63.3% of capacity.

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

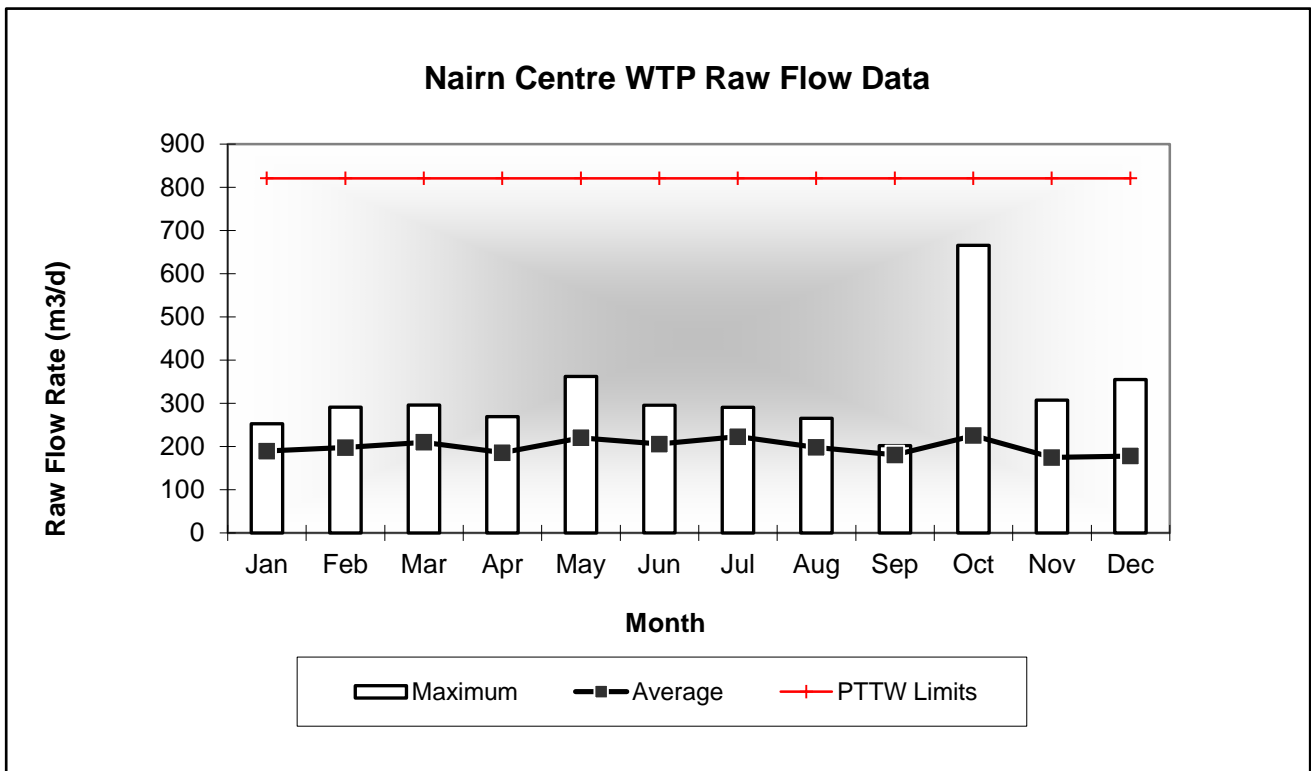
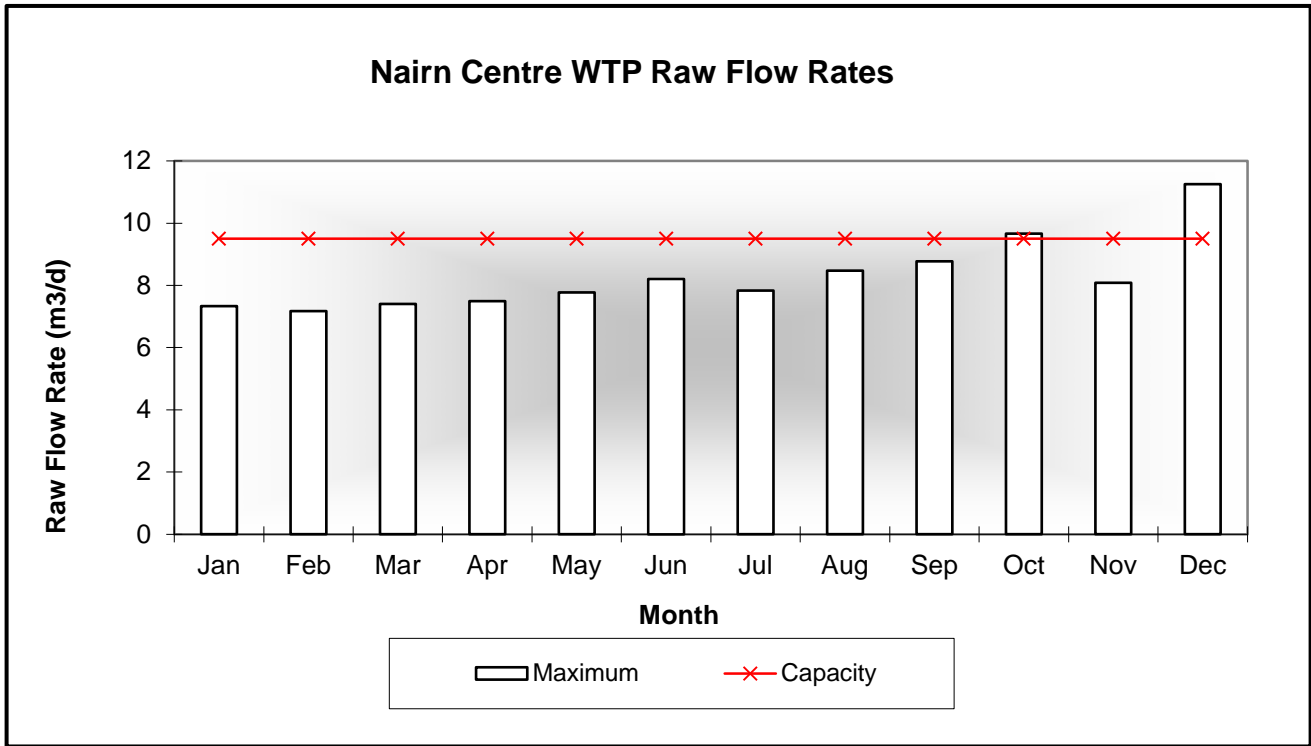
### Flows - Raw

Daily raw maximum instantaneous flow is stated in the PTTW at a maximum rate of flow of 9.5 L/s and a maximum daily volume of 820.8 m<sup>3</sup>/d.

The average monthly raw water flow for this reporting period was 198.94 m<sup>3</sup>/d. The maximum daily flow was 665.8 m<sup>3</sup>/d representing 81.1% of water taking limits.

The quantity of raw water taken **did not** exceed the m<sup>3</sup>/d limits stipulated within the PTTW. The l/sec flow rates **did** exceed the limit however; the PTTW limit of 570L/min was not exceeded. This was due to multiple backwashes being performed after the filter media had been replaced.

<i>RAW WATER FLOW DATA - TOTAL ALL SOURCES</i>						
Month	Total Monthly Flow (m3)	Average Flow (m3/d)	Maximum Flow (m3/d)	Maximum Flow Rate (L/s)	Limits	
					L/s (PTTW)	m <sup>3</sup> /d (PTTW)
January	5,860.2	189.04	252.8	7.33	9.5	820.8
February	5,526	197.36	291.2	7.17	9.5	820.8
March	6,498.2	209.62	296.1	7.4	9.5	820.8
April	5,569.3	185.64	269.3	7.49	9.5	820.8
May	6,821.4	220.05	362.3	7.77	9.5	820.8
June	6,167.6	205.59	295	8.21	9.5	820.8
July	6,901.5	222.63	290.9	7.83	9.5	820.8
August	6,133.7	197.86	265.4	8.47	9.5	820.8
September	5,408	180.27	202.2	8.77	9.5	820.8
October	6,984.5	225.31	665.8	9.66	9.5	820.8
November	5,236.6	174.55	307.5	8.08	9.5	820.8
December	5,505	177.58	355.2	11.25	9.5	820.8
<b>Total</b>	72,612					
<b>Average</b>		198.94				
<b>Maximum</b>			665.8	11.25		





## Annual Raw Water Review

Raw Water Taking	Total Taking m3/d	Average Day m3/d	Max Day m3/d	Max Day % of PTTW allowable 820.8 m3/d
2017	72,612	198.94	665.8	81%
2016	80,787	221	484	59%
2015	72,001	198	486	59%
2014	65,906	161	514	63%

## System Failures and Corrective Actions

The latest inspection of the drinking water facility took place on [October 19, 2017](#). The facility scored [0/485](#) providing a rating of [100%](#).

Although there were no compliance issues noted in the inspection, the backwash TSS annual average exceeded the limit stipulated within the MDWL. A sample collected on September 18 had a result of 76mg/L. Due to staffing issues, an operator from a different part of the region was filling in. It is believed that this operator did not sample correctly which resulted in this abnormally high value. In addition, it was discovered that the sludge holding tank had not been cleaned in over a year. This caused a large amount of sludge to build up in the tank and eventually it carried over into the discharge. The sludge tank was fully cleaned out in December and it is expected that the TSS results will improve. It is expected that the 2018 annual average should be within the limit.

AWQIs reported to the Ministry					
Incident Date	Parameter	Result	Unit of Measure	Corrective Action	Corrective Action Date
N/A	N/A	N/A	N/A	N/A	N/A

## SECTION 4: SECTION 11 REPORT

### Information to be provided

Population Served	477 (Stats Canada – 2011)
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.	Township of Nairn and Hyman, Municipal Office 64 McIntyre Street Nairn Centre, Ontario P0M 2L0
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:	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?	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 available and is free of charge using an alternate method	YES

## Facility Description

A prefabricated package water treatment plant, comprising chemical addition, pre-chlorination, coagulation/flocculation, sedimentation, and dual media filtration, followed by pH adjustment, fluoridation and post chlorination, designed for conventional operating parameters at a rated capacity of 818 m<sup>3</sup>/day, with duty low lift pump starting and stopping the operation of the water treatment plant. Treated water storage consisting of two clear wells each having a capacity of 345 m<sup>3</sup>. High lift pumps comprising two vertical multistage pumps, each rated at 6.6 L/s and a fire pump with a capacity of 40.1 L/s. The discharge header fitted with pressure relief valve, a pressure gauge, a chlorine injection point, a magnetic flow meter, and sampling point for a chlorine residual analyzer with the discharge header having a system of three hydro-pneumatic tanks, each with 1.6m<sup>3</sup> capacity. A 26m<sup>3</sup> surge tank receives sludge from the clarifier and backwash waste from the dual media filters, equipped with two centrifugal submersible pumps each rated at 1.0 L/s with clarified supernatant from the 65 m<sup>3</sup> settling chamber overflowing to an outfall chamber, and from there to the adjacent creek and from there to the Spanish River. Stand-by power is available from a 160 kW (200 kVa) diesel generator.

## Chemicals Used

Poly Aluminum Chloride (PAC)	Coagulation
Magnafloc LT 27 AG (Polymer)	Coagulation aide
Sodium Hypochlorite 12%	Disinfection
Hydrofluorosilicic Acid (25% HFS)	Fluoride
Soda Ash (dense)	Alkalinity and pH control

## Significant Expenses

Significant expenses incurred to

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



Work Order	Completion Date	Comment
242920	24-Mar-17	<i>ESA Deficiencies</i> New heater installed, receptacle repaired and replaced switch covers
265220	1-Mar-17	<i>Chlorine Analyzer</i> Purchased spare membrane caps and electrolyte
265221	29-Aug-17	<i>Filter Blowdown</i> Two faulty blowdown valves were removed and replaced with new valves
265272	12-Apr-17	<i>Polymer Pump</i> The Wallace and Tiernan Kempulse diaphragm pump failed and is no longer supported by the manufacturer. A Marlow Watson Qdos-30 peristaltic pump was ordered to replace the current pump
265636	27-Feb-17	<i>Chlorine System</i> Purchased and installed new hypo feed line tubing
315040	7-Apr-17	<i>Purchased replacement UPS</i>
315448	17-Aug-17	<i>Vacuum Priming System</i> Replaced all plumbing, pressure gauges, PRV, service fluid solenoid/valve, no flow pressure switch and check valve. All scaling was removed from pump, it was then sanded and painted.
316504	15-Jun-17	<i>Diesel Generator</i> Drained cooling system to install new radiator and block heater hoses
311914	30-May-17	<i>Replaced failing UPS on Chlorine Analyzer</i>
375571		<i>Soda Ash System</i> Replacement of the soda ash tank scheduled deferred to 2018. A new hopper will be installed along with pipe improvements
375575	8-Dec-17	<i>Filter Media and Valve Replacement</i> Both filters were fully drained and all media was removed. Under drains were replaced, all new filter media was put into the filters. Faulty control valves were also replaced
376166	20-Jun-17	<i>Chlorine Analyzer</i> Purchased and installed new pH probes on both chlorine analyzers
378435	19-Jul-17	<i>Lab pH Analyzer</i> Purchased and installed a new pH probe
407921 & 440909	13-Jul-17 & 30-Aug-17	<i>Chlorine Storage tank</i> Issues with the chlorine tank leaking. After multiple repairs, the tank still ends up leaking. A new tank will be required
543469	7-Dec-17	<i>Sludge Settling Chamber</i> Chamber was drained and sprayed down to remove built up sludge

### Adverse Water Quality Incidents

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
N/A	N/A	N/A	N/A	N/A	N/A



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

	No. of Samples	Range of E.Coli		Range of Total Coliform Results		Number of HPC Samples	Range of HPC Results	
	Collected	Min #	Max #	Min #	Max #		Min #	Max #
Raw Water	52	0	35	0	181	0		
Treated Water	52	0	0	0	0	52	0	1
Distribution	105	0	0	0	0	53	0	8

**Operational testing done under Schedule 7, 8 or 9 of Regulation 170/03**

	No. of Samples	Range of Results	
	Collected	Minimum	Maximum
Turbidity, On-Line (NTU) - Filt1	8760	0	5
Free Chlorine Residual, Treated (mg/L)	8760	0.49	2.87
Free Chlorine Residual, Distribution Location 1	103	0.58	1.58
Free Chlorine Residual, Distribution Location 2	102	0.55	1.40
Free Chlorine Residual, Distribution Location 3	103	0.53	1.41
Free Chlorine Residual, Distribution Location 4	51	0.41	1.22

**Summary of additional testing and sampling carried out in accordance with the requirement of an approval, order or other legal instrument. (Use monitoring BW TSS sheet to Paste and Copy)**

Date of legal instrument issued	Parameter and limits	Month Sampled	Day Sampled	Result	Unit of Measure
MDWL 281-101  November 25, 2015	Backwash (BW) Total Suspended Solids (TSS)  25 mg/L annual average	Jan	26	4	mg/L
		Feb	27	7	mg/L
		Mar	23	4	mg/L
		Apr	20	34	mg/L
		May	31	24	mg/L
		Jun	22	30	mg/L
		Jul	24	11	mg/L
		Aug	21	28	mg/L
		Sep	18	76	mg/L
		Oct	24	28	mg/L
		Nov	21	33	mg/L
		Dec	19	29	mg/L
		Annual Average			25.7

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





	Sample Date (yyyy/mm/dd)	Sample Result	MAC	No. of Exceedances	
				MAC	1/2 MAC
<b>TREATED WATER</b>					
Antimony: Sb (ug/L) - TW	2017/01/26	0.04	6.0	No	No
Arsenic: As (ug/L) - TW	2017/01/26	<MDL 0.2	25.0	No	No
Barium: Ba (ug/L) - TW	2017/01/26	5.11	1000.0	No	No
Boron: B (ug/L) - TW	2017/01/26	8.0	5000.0	No	No
Cadmium: Cd (ug/L) - TW	2017/01/26	0.003	5.0	No	No
Chromium: Cr (ug/L) - TW	2017/01/26	0.57	50.0	No	No
Mercury: Hg (ug/L) - TW	2017/01/26	<MDL 0.01	1.0	No	No
Selenium: Se (ug/L) - TW	2017/01/26	0.07	10.0	No	No
Uranium: U (ug/L) - TW	2017/01/26	0.024	20.0	No	No

	Sample Date (yyyy/mm/dd)	Sample Result	MAC	No. of Exceedances	
				MAC	1/2 MAC
<b>TREATED WATER</b>					
Fluoride (mg/L) - TW	2017/01/26	<MDL 0.06	1.5	No	No
Nitrite (mg/L) - TW	2017/01/26	<MDL 0.003	1.0	No	No
Nitrite (mg/L) - TW	2017/04/20	<MDL 0.003	1.0	No	No
Nitrite (mg/L) - TW	2017/06/28	<MDL 0.003	1.0	No	No
Nitrite (mg/L) - TW	2017/10/05	<MDL 0.003	1.0	No	No
Nitrate (mg/L) - TW	2017/01/26	0.034	10.0	No	No
Nitrate (mg/L) - TW	2017/04/20	0.141	10.0	No	No
Nitrate (mg/L) - TW	2017/06/28	0.062	10.0	No	No
Nitrate (mg/L) - TW	2017/10/05	0.059	10.0	No	No
Sodium: Na (mg/L) - TW	2017/01/26	10.4	20*	No	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 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.

### 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 - Lead Results (ug/L)	0	n/a	n/a	10	0
Distribution - Alkalinity (mg/L)	2	15	16	n/a	n/a
Distribution - pH In-House	2	7.0	7.1	n/a	n/a
Distribution - pH Lab	0			n/a	n/a



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

	Sample Date (yyyy/mm/dd)	Sample Result	MAC	Number of Exceedances	
				MAC	1/2 MAC
<b>TREATED WATER</b>				MAC	1/2 MAC
Alachlor (ug/L) - TW	2017/01/26	<MDL 0.02	5.00	No	No
Atrazine + N-dealkylated metabolites (ug/L) - TW	2017/01/26	<MDL 0.01	5.00	No	No
Azinphos-methyl (ug/L) - TW	2017/01/26	<MDL 0.05	20.00	No	No
Benzene (ug/L) - TW	2017/01/26	<MDL 0.32	5.00	No	No
Benzo(a)pyrene (ug/L) - TW	2017/01/26	<MDL 0.004	0.01	No	No
Bromoxynil (ug/L) - TW	2017/01/26	<MDL 0.33	5.00	No	No
Carbaryl (ug/L) - TW	2017/01/26	<MDL 0.05	90.00	No	No
Carbofuran (ug/L) - TW	2017/01/26	<MDL 0.01	90.00	No	No
Carbon Tetrachloride (ug/L) - TW	2017/01/26	<MDL 0.16	5.00	No	No
Chlorpyrifos (ug/L) - TW	2017/01/26	<MDL 0.02	90.00	No	No
Diazinon (ug/L) - TW	2017/01/26	<MDL 0.02	20.00	No	No
Dicamba (ug/L) - TW	2017/01/26	<MDL 0.2	120.00	No	No
1,2-Dichlorobenzene (ug/L) - TW	2017/01/26	<MDL 0.41	200.00	No	No
1,4-Dichlorobenzene (ug/L) - TW	2017/01/26	<MDL 0.36	5.00	No	No
1,2-Dichloroethane (ug/L) - TW	2017/01/26	<MDL 0.35	5.00	No	No
1,1-Dichloroethylene (ug/L) - TW	2017/01/26	<MDL 0.33	14.00	No	No
Dichloromethane (Methylene Chloride) (ug/L) - TW	2017/01/26	<MDL 0.35	50.00	No	No
2,4-Dichlorophenol (ug/L) - TW	2017/01/26	<MDL 0.15	900.00	No	No
2,4-Dichlorophenoxy acetic acid (2,4-D) (ug/L) - TW	2017/01/26	<MDL 0.19	100.00	No	No
Diclofop-methyl (ug/L) - TW	2017/01/26	<MDL 0.4	9.00	No	No
Dimethoate (ug/L) - TW	2017/01/26	<MDL 0.03	20.00	No	No
Diquat (ug/L) - TW	2017/01/26	<MDL 1.0	70.00	No	No
Diuron (ug/L) - TW	2017/01/26	<MDL 0.03	150.00	No	No
Glyphosate (ug/L) - TW	2017/01/26	<MDL 1.0	280.00	No	No
Malathion (ug/L) - TW	2017/01/26	<MDL 0.02	190.00	No	No
2-methyl-4-chlorophenoxyacetic acid (MCPA) (mg/L) - TW	2017/01/26	<MDL 0.01	N/A	N/A	N/A
Metolachlor (ug/L) - TW	2017/01/26	<MDL 0.02	50.00	No	No
Metribuzin (ug/L) - TW	2017/01/26	<MDL 0.3	80.00	No	No
Monochlorobenzene (Chlorobenzene) (ug/L) - TW	2017/01/26	<MDL 1.0	80.00	No	No
Paraquat (ug/L) - TW	2017/01/26	<MDL 0.04	10.00	No	No
PCB (ug/L) - TW	2017/01/26	<MDL 0.15	3.00	No	No
Pentachlorophenol (ug/L) - TW	2017/01/26	<MDL 0.01	60.00	No	No
Phorate (ug/L) - TW	2017/01/26	<MDL 1.0	2.00	No	No
Picloram (ug/L) - TW	2017/01/26	<MDL 0.03	190.00	No	No
Prometryne (ug/L) - TW	2017/01/26	<MDL 0.01	1.00	No	No
Simazine (ug/L) - TW	2017/01/26	<MDL 0.01	10.00	No	No
Terbufos (ug/L) - TW	2017/01/26	<MDL 0.35	1.00	No	No
Tetrachloroethylene (ug/L) - TW	2017/01/26	<MDL 0.2	30.00	No	No
2,3,4,6-Tetrachlorophenol (ug/L) - TW	2017/01/26	<MDL 0.01	100.00	No	No
Triallate (ug/L) - TW	2017/01/26	<MDL 0.44	230.00	No	No



Trichloroethylene (ug/L) - TW	2017/01/26	<MDL 0.25	50.00	No	No
2,4,6-Trichlorophenol (ug/L) - TW	2017/01/26	<MDL 0.12	5.00	No	No
Trifluralin (ug/L) - TW	2017/01/26	<MDL 0.02	45.00	No	No
Vinyl Chloride (ug/L) - TW	2017/01/26	<MDL 0.17	2.00	No	No
<b>DISTRIBUTION WATER</b>					
Trihalomethane: Total (ug/L) Annual Average - DW	2017/12/31	54.5	100.00	No	No
HAA Total (ug/L) Annual Average – DW	2017/12/31	49.3		N/A	N/A

## SECTION 5: RAW WATER SUBMISSIONS

Raw water flows were submitted to the MOECC on [Jan 24, 2018](#).



Location: [WTRS](#) / [WT DATA](#) / [Input WT Record](#)

WTRS-WT-008

**Water Taking Data submitted successfully.**

**Confirmation:**

Thank you for submitting your water taking data online.

Permit Number: 2003-7TDPEP  
Permit Holder: THE CORPORATION OF THE TOWNSHIP OF NAIRN AND HYMAN.  
Received on: Jan 24, 2018 11:02 AM

This confirmation indicates that your data has been received by the Ministry, but should not be construed as acceptance of this data if it differs from that specified on the Permit Number, assigned to the Permit Holder stated above.

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NAIRN2 HYMAN2 | 2018/01/24  
version: v4.5.0.8 (build#: 18)  
Last modified: 2018/01/11

## SECTION 6: CONCLUSION

The [Nairn Centre WTP](#) delivers water that, in all its treated and distribution samples, indicates the water to be free of bacteriological contamination.

For the [2017](#) operating year, the [Nairn Centre WTP](#) did not exceed daily regulatory water taking limits but did exceed PTTW flow rates. This was due to air entrapment during startup of the pumps. The flow has been throttled and the issue is considered to be resolved. The l/sec flow rates did exceed the limit however; the PTTW limit of 570L/min was not exceeded. This was due to multiple backwashes being performed after the filter media had been replaced. Since this was due to maintenance, the issue is considered resolved.



## List of Acronyms and Definitions

Alkalinity	The capacity of water for neutralizing an acid solution
AWQI	Adverse Water Quality Incident- when a water sample test result exceeds the Ontario Drinking Water Quality Standards
Backwash	Water pumped backwards to clean filters
BWA	Boil Water Advisory; Issued when risk of contamination is possible in drinking water
CFU	Colony Forming Units
Chlorine Residual	A low level of chlorine remaining in water after disinfection occurs
DW	Distribution Water
DWA	Drinking Water Advisory; Issued when water cannot be consumed by any means
DWWP	Drinking Water Works Permit - provides a description of the overall system
E.Coli	Bacteria used as indicators to measure the degree of pollution and sanitary quality of water
GUDI 170/03	Groundwater Under Direct Influence – Considered to be surface water under O.Reg
HPC	Heterotrophic Plant Count
L/s	Litres per Second
m <sup>3</sup> /d	Cubic Metres per Day
MAC	Maximum Acceptable Concentration
MDL	Minimum Detection Level
MDWL requirements	Municipal Drinking Water Licence - relates to the operation and performance requirements
mg/L	Miligrams per Litre
Ministry	Ministry of the Environment and Climate Change
MOECC	Ministry of the Environment and Climate Change
O.Reg	Ontario Regulation
PTTW water	Permit to Take Water – Permit which allows water taking from groundwater or surface water
RW	Raw Water
TC	Total Coliforms
TSS	Total Suspended Solids
Turbidity	Cloudiness or haziness of water
TW	Treated Water



# Appendix A

## Raw Water Flows

**Ontario Clean Water Agency**  
**Annual Water Taking and Transfer Report**  
 From 01/01/2017 To 12/31/2017

Facility: NAIRN CENTRE DRINKING WATER SYSTEM-5042  
 Tag: Raw Flow: Sum (m3/d)  
 Tag Group: Raw Water

Permit#: 2003-7TDPEP  
 Source Name: Spanish River  
 Source: River  
 Type:  
 Purpose: Municipal

Coordinate Zone: 17  
 Easting: 455049  
 Northing: 5131662  
 Method deter: Metered

Date Measured	Value (m³/d)	Value (Litres)
01/01/2017	172.0000	172000.0000
02/01/2017	247.1000	247100.0000
03/01/2017	120.1000	120100.0000
04/01/2017	237.4000	237400.0000
05/01/2017	155.0000	155000.0000
06/01/2017	246.8000	246800.0000
07/01/2017	138.2000	138200.0000
08/01/2017	252.8000	252800.0000
09/01/2017	150.7000	150700.0000
10/01/2017	226.0000	226000.0000
11/01/2017	126.8000	126800.0000
12/01/2017	196.0000	196000.0000
13/01/2017	174.5000	174500.0000
14/01/2017	207.2000	207200.0000
15/01/2017	196.5000	196500.0000
16/01/2017	180.0000	180000.0000
17/01/2017	225.6000	225600.0000
18/01/2017	137.3000	137300.0000
19/01/2017	193.6000	193600.0000
20/01/2017	140.9000	140900.0000
21/01/2017	250.1000	250100.0000
22/01/2017	138.7000	138700.0000
23/01/2017	208.4000	208400.0000
24/01/2017	194.1000	194100.0000
25/01/2017	185.2000	185200.0000
26/01/2017	148.8000	148800.0000
27/01/2017	206.9000	206900.0000
28/01/2017	251.6000	251600.0000
29/01/2017	207.5000	207500.0000
30/01/2017	148.4000	148400.0000
31/01/2017	196.0000	196000.0000
01/02/2017	158.0000	158000.0000
02/02/2017	206.0000	206000.0000
03/02/2017	178.8000	178800.0000
04/02/2017	181.9000	181900.0000
05/02/2017	195.7000	195700.0000
06/02/2017	197.8000	197800.0000
07/02/2017	205.0000	205000.0000
08/02/2017	184.2000	184200.0000
09/02/2017	256.3000	256300.0000
10/02/2017	159.0000	159000.0000
11/02/2017	187.5000	187500.0000

12/02/2017	291.2000	291200.0000
13/02/2017	152.7000	152700.0000
14/02/2017	225.9000	225900.0000
15/02/2017	240.3000	240300.0000
16/02/2017	161.4000	161400.0000
17/02/2017	205.4000	205400.0000
18/02/2017	240.4000	240400.0000
19/02/2017	167.9000	167900.0000
20/02/2017	203.9000	203900.0000
21/02/2017	173.9000	173900.0000
22/02/2017	234.2000	234200.0000
23/02/2017	210.2000	210200.0000
24/02/2017	192.0000	192000.0000
25/02/2017	175.4000	175400.0000
26/02/2017	171.7000	171700.0000
27/02/2017	162.6000	162600.0000
28/02/2017	206.7000	206700.0000
01/03/2017	141.5000	141500.0000
02/03/2017	296.1000	296100.0000
03/03/2017	138.3000	138300.0000
04/03/2017	210.5000	210500.0000
05/03/2017	247.3000	247300.0000
06/03/2017	153.4000	153400.0000
07/03/2017	235.3000	235300.0000
08/03/2017	225.9000	225900.0000
09/03/2017	193.7000	193700.0000
10/03/2017	256.2000	256200.0000
11/03/2017	252.2000	252200.0000
12/03/2017	196.8000	196800.0000
13/03/2017	209.8000	209800.0000
14/03/2017	241.1000	241100.0000
15/03/2017	173.4000	173400.0000
16/03/2017	242.8000	242800.0000
17/03/2017	195.8000	195800.0000
18/03/2017	250.9000	250900.0000
19/03/2017	207.2000	207200.0000
20/03/2017	208.0000	208000.0000
21/03/2017	177.1000	177100.0000
22/03/2017	236.5000	236500.0000
23/03/2017	143.5000	143500.0000
24/03/2017	215.4000	215400.0000
25/03/2017	176.4000	176400.0000
26/03/2017	268.5000	268500.0000
27/03/2017	167.5000	167500.0000
28/03/2017	253.3000	253300.0000
29/03/2017	138.8000	138800.0000
30/03/2017	197.8000	197800.0000
31/03/2017	247.2000	247200.0000
01/04/2017	168.4000	168400.0000
02/04/2017	255.9000	255900.0000
03/04/2017	100.9000	100900.0000
04/04/2017	244.8000	244800.0000
05/04/2017	119.0000	119000.0000
06/04/2017	188.8000	188800.0000
07/04/2017	147.0000	147000.0000
08/04/2017	203.9000	203900.0000
09/04/2017	156.0000	156000.0000
10/04/2017	208.0000	208000.0000
11/04/2017	194.0000	194000.0000
12/04/2017	184.6000	184600.0000
13/04/2017	162.8000	162800.0000

14/04/2017	213.6000	213600.0000
15/04/2017	173.3000	173300.0000
16/04/2017	227.7000	227700.0000
17/04/2017	159.4000	159400.0000
18/04/2017	269.3000	269300.0000
19/04/2017	142.4000	142400.0000
20/04/2017	192.2000	192200.0000
21/04/2017	265.6000	265600.0000
22/04/2017	176.5000	176500.0000
23/04/2017	172.0000	172000.0000
24/04/2017	176.2000	176200.0000
25/04/2017	221.8000	221800.0000
26/04/2017	133.5000	133500.0000
27/04/2017	212.0000	212000.0000
28/04/2017	112.2000	112200.0000
29/04/2017	246.9000	246900.0000
30/04/2017	140.6000	140600.0000
01/05/2017	225.9000	225900.0000
02/05/2017	154.7000	154700.0000
03/05/2017	164.8000	164800.0000
04/05/2017	256.4000	256400.0000
05/05/2017	106.9000	106900.0000
06/05/2017	252.0000	252000.0000
07/05/2017	145.9000	145900.0000
08/05/2017	183.9000	183900.0000
09/05/2017	245.2000	245200.0000
10/05/2017	178.5000	178500.0000
11/05/2017	170.1000	170100.0000
12/05/2017	195.1000	195100.0000
13/05/2017	202.6000	202600.0000
14/05/2017	265.5000	265500.0000
15/05/2017	205.6000	205600.0000
16/05/2017	272.6000	272600.0000
17/05/2017	221.2000	221200.0000
18/05/2017	268.9000	268900.0000
19/05/2017	213.3000	213300.0000
20/05/2017	211.6000	211600.0000
21/05/2017	253.9000	253900.0000
22/05/2017	262.1000	262100.0000
23/05/2017	142.3000	142300.0000
24/05/2017	260.1000	260100.0000
25/05/2017	195.1000	195100.0000
26/05/2017	144.7000	144700.0000
27/05/2017	272.4000	272400.0000
28/05/2017	281.7000	281700.0000
29/05/2017	242.1000	242100.0000
30/05/2017	362.3000	362300.0000
31/05/2017	264.0000	264000.0000
01/06/2017	162.3000	162300.0000
02/06/2017	243.4000	243400.0000
03/06/2017	229.4000	229400.0000
04/06/2017	163.2000	163200.0000
05/06/2017	160.4000	160400.0000
06/06/2017	195.5000	195500.0000
07/06/2017	288.8000	288800.0000
08/06/2017	246.0000	246000.0000
09/06/2017	144.3000	144300.0000
10/06/2017	201.9000	201900.0000
11/06/2017	295.0000	295000.0000
12/06/2017	211.0000	211000.0000
13/06/2017	254.3000	254300.0000



14/06/2017	175.1000	175100.0000
15/06/2017	225.8000	225800.0000
16/06/2017	248.4000	248400.0000
17/06/2017	165.6000	165600.0000
18/06/2017	216.7000	216700.0000
19/06/2017	134.3000	134300.0000
20/06/2017	212.4000	212400.0000
21/06/2017	261.7000	261700.0000
22/06/2017	149.6000	149600.0000
23/06/2017	184.4000	184400.0000
24/06/2017	262.7000	262700.0000
25/06/2017	147.7000	147700.0000
26/06/2017	229.8000	229800.0000
27/06/2017	133.0000	133000.0000
28/06/2017	193.7000	193700.0000
29/06/2017	225.8000	225800.0000
30/06/2017	205.4000	205400.0000
01/07/2017	176.8000	176800.0000
02/07/2017	231.8000	231800.0000
03/07/2017	164.3000	164300.0000
04/07/2017	253.4000	253400.0000
05/07/2017	247.3000	247300.0000
06/07/2017	229.7000	229700.0000
07/07/2017	155.0000	155000.0000
08/07/2017	269.8000	269800.0000
09/07/2017	234.5000	234500.0000
10/07/2017	198.9000	198900.0000
11/07/2017	241.4000	241400.0000
12/07/2017	174.1000	174100.0000
13/07/2017	168.1000	168100.0000
14/07/2017	223.7000	223700.0000
15/07/2017	178.0000	178000.0000
16/07/2017	174.5000	174500.0000
17/07/2017	221.9000	221900.0000
18/07/2017	240.4000	240400.0000
19/07/2017	284.1000	284100.0000
20/07/2017	246.5000	246500.0000
21/07/2017	244.9000	244900.0000
22/07/2017	240.7000	240700.0000
23/07/2017	237.0000	237000.0000
24/07/2017	197.4000	197400.0000
25/07/2017	258.4000	258400.0000
26/07/2017	207.3000	207300.0000
27/07/2017	166.6000	166600.0000
28/07/2017	290.9000	290900.0000
29/07/2017	216.7000	216700.0000
30/07/2017	265.3000	265300.0000
31/07/2017	262.1000	262100.0000
01/08/2017	197.1000	197100.0000
02/08/2017	227.1000	227100.0000
03/08/2017	201.5000	201500.0000
04/08/2017	111.3000	111300.0000
05/08/2017	223.1000	223100.0000
06/08/2017	136.8000	136800.0000
07/08/2017	216.9000	216900.0000
08/08/2017	168.6000	168600.0000
09/08/2017	210.4000	210400.0000
10/08/2017	215.4000	215400.0000
11/08/2017	151.3000	151300.0000
12/08/2017	247.5000	247500.0000
13/08/2017	265.4000	265400.0000

14/08/2017	133.4000	133400.0000
15/08/2017	168.6000	168600.0000
16/08/2017	195.6000	195600.0000
17/08/2017	219.7000	219700.0000
18/08/2017	177.9000	177900.0000
19/08/2017	173.8000	173800.0000
20/08/2017	185.3000	185300.0000
21/08/2017	251.5000	251500.0000
22/08/2017	187.7000	187700.0000
23/08/2017	236.6000	236600.0000
24/08/2017	260.2000	260200.0000
25/08/2017	203.3000	203300.0000
26/08/2017	197.3000	197300.0000
27/08/2017	198.4000	198400.0000
28/08/2017	201.5000	201500.0000
29/08/2017	185.3000	185300.0000
30/08/2017	200.2000	200200.0000
31/08/2017	185.0000	185000.0000
01/09/2017	193.6000	193600.0000
02/09/2017	170.5000	170500.0000
03/09/2017	179.4000	179400.0000
04/09/2017	185.1000	185100.0000
05/09/2017	183.0000	183000.0000
06/09/2017	168.1000	168100.0000
07/09/2017	118.1000	118100.0000
08/09/2017	202.2000	202200.0000
09/09/2017	199.8000	199800.0000
10/09/2017	200.9000	200900.0000
11/09/2017	166.9000	166900.0000
12/09/2017	171.6000	171600.0000
13/09/2017	178.0000	178000.0000
14/09/2017	172.8000	172800.0000
15/09/2017	188.0000	188000.0000
16/09/2017	195.5000	195500.0000
17/09/2017	188.9000	188900.0000
18/09/2017	187.0000	187000.0000
19/09/2017	184.4000	184400.0000
20/09/2017	168.1000	168100.0000
21/09/2017	184.1000	184100.0000
22/09/2017	188.3000	188300.0000
23/09/2017	192.6000	192600.0000
24/09/2017	192.9000	192900.0000
25/09/2017	165.4000	165400.0000
26/09/2017	177.6000	177600.0000
27/09/2017	169.0000	169000.0000
28/09/2017	172.7000	172700.0000
29/09/2017	174.5000	174500.0000
30/09/2017	189.0000	189000.0000
01/10/2017	193.1000	193100.0000
02/10/2017	170.5000	170500.0000
03/10/2017	175.5000	175500.0000
04/10/2017	169.7000	169700.0000
05/10/2017	172.7000	172700.0000
06/10/2017	156.4000	156400.0000
07/10/2017	180.3000	180300.0000
08/10/2017	199.2000	199200.0000
09/10/2017	171.4000	171400.0000
10/10/2017	172.5000	172500.0000
11/10/2017	186.0000	186000.0000
12/10/2017	168.5000	168500.0000
13/10/2017	174.3000	174300.0000

14/10/2017	179.9000	179900.0000
15/10/2017	157.5000	157500.0000
16/10/2017	180.1000	180100.0000
17/10/2017	206.7000	206700.0000
18/10/2017	169.9000	169900.0000
19/10/2017	182.8000	182800.0000
20/10/2017	167.7000	167700.0000
21/10/2017	177.0000	177000.0000
22/10/2017	163.1000	163100.0000
23/10/2017	201.1000	201100.0000
24/10/2017	547.5000	547500.0000
25/10/2017	606.4000	606400.0000
26/10/2017	665.8000	665800.0000
27/10/2017	449.4000	449400.0000
28/10/2017	166.4000	166400.0000
29/10/2017	163.6000	163600.0000
30/10/2017	158.3000	158300.0000
31/10/2017	151.2000	151200.0000
01/11/2017	149.4000	149400.0000
02/11/2017	149.4000	149400.0000
03/11/2017	186.7000	186700.0000
04/11/2017	190.9000	190900.0000
05/11/2017	172.6000	172600.0000
06/11/2017	161.2000	161200.0000
07/11/2017	152.4000	152400.0000
08/11/2017	145.1000	145100.0000
09/11/2017	40.8000	40800.0000
10/11/2017	295.3000	295300.0000
11/11/2017	307.5000	307500.0000
12/11/2017	172.7000	172700.0000
13/11/2017	154.2000	154200.0000
14/11/2017	231.0000	231000.0000
15/11/2017	152.8000	152800.0000
16/11/2017	191.9000	191900.0000
17/11/2017	79.9000	79900.0000
18/11/2017	197.9000	197900.0000
19/11/2017	209.4000	209400.0000
20/11/2017	156.8000	156800.0000
21/11/2017	152.4000	152400.0000
22/11/2017	197.2000	197200.0000
23/11/2017	180.6000	180600.0000
24/11/2017	157.6000	157600.0000
25/11/2017	166.1000	166100.0000
26/11/2017	184.9000	184900.0000
27/11/2017	157.8000	157800.0000
28/11/2017	157.9000	157900.0000
29/11/2017	191.8000	191800.0000
30/11/2017	192.4000	192400.0000
01/12/2017	177.2000	177200.0000
02/12/2017	177.2000	177200.0000
03/12/2017	170.9000	170900.0000
04/12/2017	128.3000	128300.0000
05/12/2017	90.3000	90300.0000
06/12/2017	251.1000	251100.0000
07/12/2017	335.6000	335600.0000
08/12/2017	168.3000	168300.0000
09/12/2017	21.9000	21900.0000
10/12/2017	355.2000	355200.0000
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13/12/2017	148.5000	148500.0000

14/12/2017	176.6000	176600.0000
15/12/2017	122.0000	122000.0000
16/12/2017	181.5000	181500.0000
17/12/2017	178.4000	178400.0000
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20/12/2017	192.6000	192600.0000
21/12/2017	161.0000	161000.0000
22/12/2017	151.3000	151300.0000
23/12/2017	190.5000	190500.0000
24/12/2017	174.4000	174400.0000
25/12/2017	167.2000	167200.0000
26/12/2017	187.8000	187800.0000
27/12/2017	194.3000	194300.0000
28/12/2017	188.0000	188000.0000
29/12/2017	121.4000	121400.0000
30/12/2017	181.8000	181800.0000
31/12/2017	189.7000	189700.0000