

# *Nairn Centre Water Treatment*

Large Municipal Residential Drinking Water System

*January 1, 2020 – December 31, 2020*

***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



*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, 2021.

## **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 290.4m<sup>3</sup> in July and represents 36% of capacity. In 2020, the total volume of water sent to the distribution system was 47,677.5 m<sup>3</sup>

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

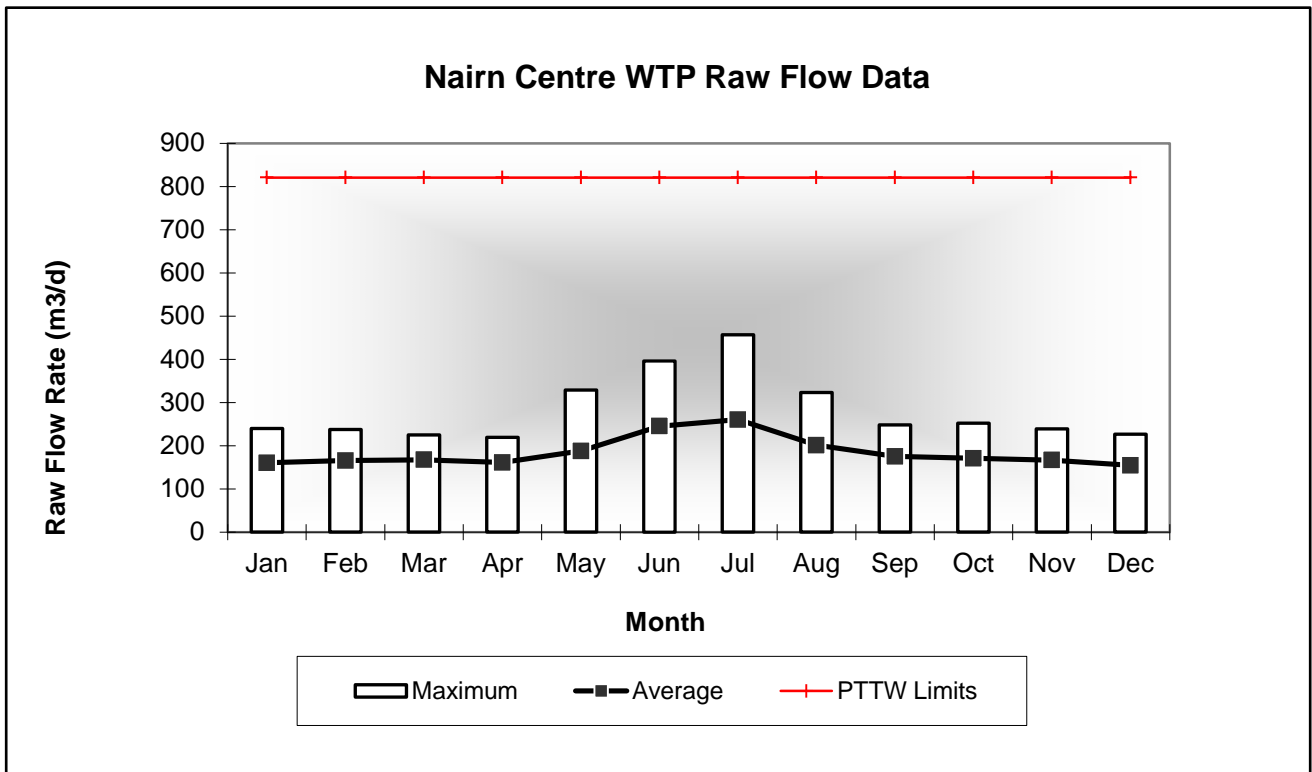
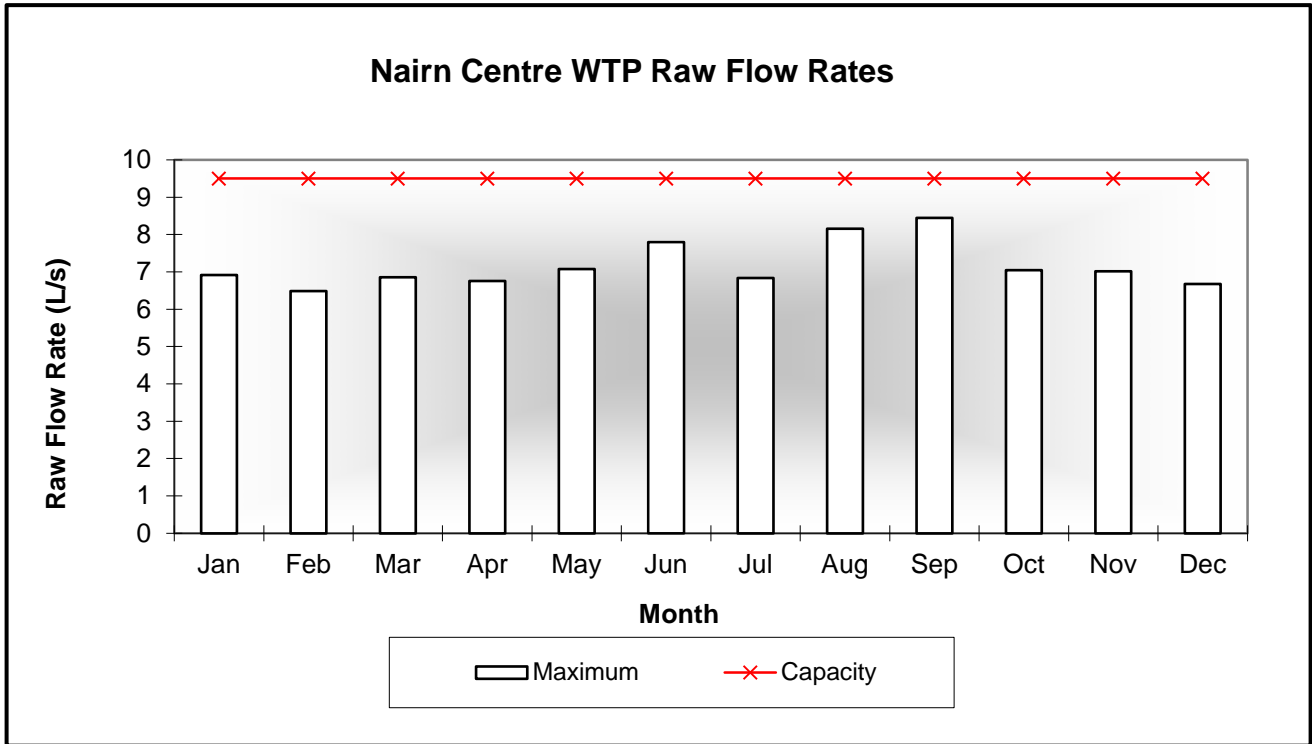
### Flows - Raw

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 184.8 m<sup>3</sup>/d. The maximum daily flow was 456.6 m<sup>3</sup>/d representing 56% of water taking limits. In 2020, the total volume of water taken from the environment was 67,617.5 m<sup>3</sup>

The quantity of raw water taken **did not** exceed the limits stipulated within the PTTW..

<i>RAW WATER FLOW DATA - TOTAL ALL SOURCES</i>						
Month	Total Monthly Flow (m <sup>3</sup> )	Average Flow (m <sup>3</sup> /d)	Maximum Flow (m <sup>3</sup> /d)	Maximum Flow Rate (L/s)	Limits	
					L/s (PTTW)	m <sup>3</sup> /d (PTTW)
January	4,966.9	106.22	239.7	6.92	9.5	820.8
February	4,804.52	165.67	237.4	6.49	9.5	820.8
March	5,187.4	167.34	224.8	6.86	9.5	820.8
April	4,833.2	161.11	219.2	6.76	9.5	820.8
May	5,816.7	187.64	328.7	7.08	9.5	820.8
June	7,359.08	245.3	295.8	7.8	9.5	820.8
July	8,072.76	260.41	456.6	6.84	9.5	820.8
August	6,232.26	201.04	232	8.16	9.5	820.8
September	5,257.8	175.26	248	8.45	9.5	820.8
October	5,295.5	170.82	252	7.05	9.5	820.8
November	5,003.48	166.78	238.8	7.02	9.5	820.8
December	4,787.9	154.45	226.5	6.68	9.5	820.8
<b>Total</b>	67,617.5					
<b>Average</b>		184.75				
<b>Maximum</b>			456.6	8.45		





## 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
2020	67,617.5	184.75	456.6	56%
2019	80,733.4	221.19	481.9	59%
2018	75,355	206.45	474.3	57.8%
2017	72,612	198.94	665.8	81%

## System Failures and Corrective Actions

The latest inspection of the drinking water facility took place on [November 17, 2020](#). The facility scored [24/457](#) providing a rating of [94.75%](#).

There were three non-compliances listed in the inspection report:

**1. All haloacetic acid water quality monitoring requirements prescribed by legislation are not being conducted within the required frequency and at the required location.**

Although the samples were collected 3 months apart, the O.Reg. 170/03 defines the "calendar quarter" to mean, in relation to a year, the three-month period that begins on January 1, April 1, July 1 or October 1:

Quarter Date Range

(1st) January 1st to March 31st

(2nd) April 1st to June 30th

(3rd) July 1st to September 30th

(4th) October 1st to December 31st. A review of water quality data for this period in question confirmed that HAAs samples were not collected in accordance with the monitoring requirements prescribed by legislation.

**Action(s) Required:**

By January 31, 2021 a copy of the sampling protocol shall be provided by OCWA to the undersigned and to the operators of this facility to ensure that all sampling is being conducted within the required frequency.

**2. All trihalomethane water quality monitoring requirements prescribed by legislation were not conducted within the required frequency and at the required location.**

Although the samples were collected 3 months apart, the O.Reg. 170/03 defines the "calendar quarter" to mean, in relation to a year, the three-month period that begins on January 1, April 1, July 1 or October 1:

Quarter Date Range

(1st) January 1st to March 31st

(2nd) April 1st to June 30th

(3rd) July 1st to September 30th

(4th) October 1st to December 31st. A review of water quality data for this period in question confirmed that THMs samples were not collected in accordance with the monitoring requirements prescribed by legislation.

**Action(s) Required:**

By January 31, 2021 a copy of the sampling protocol shall be provided by OCWA to the undersigned and to the operators of this facility to ensure that all sampling is being conducted within the required frequency.

**3. All nitrate/nitrite water quality monitoring requirements prescribed by legislation were not conducted within the required frequency for the DWS.**

Although the samples were collected 3 months apart, the O.Reg. 170/03 defines the "calendar quarter" to mean, in relation to a year, the three-month period that begins on January 1, April 1, July 1 or October 1:

Quarter Date Range

(1st) January 1st to March 31st

(2nd) April 1st to June 30th



(3rd) July 1st to September 30th  
(4th) October 1st to December 31st.

A review of water quality data for this period in question confirmed that Nitrites/Nitrates samples were not collected in accordance with the monitoring requirements prescribed by legislation.

**Action(s) Required:**

By January 31, 2021 a copy of the sampling protocol shall be provided by OCWA to the undersigned and to the operators of this facility to ensure that all sampling is being conducted within the required frequency.

AWQIs reported to the Ministry					
Incident Date	Parameter	Result	Unit of Measure	Corrective Action	Corrective Action Date
12-Dec-20	TC	87	cfu	AWQI#153229 – Treated water total coliform result of 87cfu/. A BWO was issued by the SPHU. Two sets of bacti samples were collected, all samples were non-detect for TS and EC.	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
1624177	15-Oct-20	Purchased chlorine pump parts and chlorine analyzer probe
1917615	13-Jan-21	Purchased parts for chlorine analyzer

## 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
12-Dec-20	TC	87	cfu	AWQI#153229 – Treated water total coliform result of 87cfu/. A BWO was issued by the SPHU. Two sets of bacti samples were collected, all samples were non-detect for TS and EC.	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	Range of HPC Results	
	Collected	Min #	Max #	Min #	Max #	HPC Samples	Min #	Max #
Raw Water	52	0	40	0	340	0		
Treated Water	52	0	0	0	87	52	0	135
Distribution	106	0	0	0	0	53	0	2000

**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	1.45
Free Chlorine Residual, Treated (mg/L)	8760	0.67	2.87
Free Chlorine Residual, Distribution Location 1	104	0.91	1.71
Free Chlorine Residual, Distribution Location 2	104	0.86	1.64
Free Chlorine Residual, Distribution Location 3	104	0.85	1.63
Free Chlorine Residual, Distribution Location 4	52	0.56	1.48

**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	20	118	mg/L
		Feb	18	2	mg/L
		Mar	23	21	mg/L
		Apr	27	73	mg/L
		May	25	3	mg/L
		Jun	29	<2	mg/L
		Jul	27	36	mg/L
		Aug	31	6	mg/L
		Sep	21	5	mg/L
		Oct	26	3	mg/L
		Nov	26	2	mg/L
		Dec	21	2	mg/L
		Annual Average			22.75

\*The May TSS sample was collected by the operator and sent to the lab. However, the sample was not analyzed for TSS. The lab is creating a non-conformity record and is currently investigating the issue.





### 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>				<b>MAC</b>	<b>1/2 MAC</b>
Antimony: Sb (ug/L) - TW	2020/01/14	<MDL 0.09	6.0	No	No
Arsenic: As (ug/L) - TW	2020/01/14	<MDL 0.2	10.0	No	No
Barium: Ba (ug/L) - TW	2020/01/14	5.24	1000.0	No	No
Boron: B (ug/L) - TW	2020/01/14	7.0	5000.0	No	No
Cadmium: Cd (ug/L) - TW	2020/01/14	0.004	5.0	No	No
Chromium: Cr (ug/L) - TW	2020/01/14	0.22	50.0	No	No
Mercury: Hg (ug/L) - TW	2020/01/14	<MDL 0.01	1.0	No	No
Selenium: Se (ug/L) - TW	2020/01/14	<MDL 0.04	50.0	No	No
Uranium: U (ug/L) - TW	2020/01/14	0.005	20.0	No	No

	Sample Date (yyyy/mm/dd)	Sample Result	MAC	No. of Exceedances	
				MAC	1/2 MAC
<b>TREATED WATER</b>				<b>MAC</b>	<b>1/2 MAC</b>
Fluoride (mg/L) - TW	2017/01/26	<MDL 0.06	1.5	No	No
Nitrite (mg/L) - TW	2020/01/14	<MDL 0.003	1.0	No	No
Nitrite (mg/L) - TW	2020/06/29	<MDL 0.003	1.0	No	No
Nitrite (mg/L) - TW	2020/09/21	<MDL 0.003	1.0	No	No
Nitrite (mg/L) - TW	2020/12/09	<MDL 0.003	1.0	No	No
Nitrate (mg/L) - TW	2020/01/14	0.068	10.0	No	No
Nitrate (mg/L) - TW	2020/06/29	0.052	10.0	No	No
Nitrate (mg/L) - TW	2020/09/21	0.065	10.0	No	No
Nitrate (mg/L) - TW	2020/12/09	0.057	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)	n/a	n/a	n/a	10	0
Distribution - Alkalinity (mg/L)	2	21	22	n/a	n/a
Distribution - pH In-House	2	7.09	7.23	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	2020/01/14	<MDL 0.02	5.0	No	No
Atrazine + N-dealkylated metabolites (ug/L) - TW	2020/01/14	<MDL 0.01	5.0	No	No
Azinphos-methyl (ug/L) - TW	2020/01/14	<MDL 0.05	20.0	No	No
Benzene (ug/L) - TW	2020/01/14	<MDL 0.32	1.0	No	No
Benzo(a)pyrene (ug/L) - TW	2020/01/14	<MDL 0.004	0.01	No	No
Bromoxynil (ug/L) - TW	2020/01/14	<MDL 0.33	5.0	No	No
Carbaryl (ug/L) - TW	2020/01/14	<MDL 0.05	90.0	No	No
Carbofuran (ug/L) - TW	2020/01/14	<MDL 0.01	90.0	No	No
Carbon Tetrachloride (ug/L) - TW	2020/01/14	<MDL 0.17	2.0	No	No
Chlorpyrifos (ug/L) - TW	2020/01/14	<MDL 0.02	90.0	No	No
Diazinon (ug/L) - TW	2020/01/14	<MDL 0.02	20.0	No	No
Dicamba (ug/L) - TW	2020/01/14	<MDL 0.2	120.0	No	No
1,2-Dichlorobenzene (ug/L) - TW	2020/01/14	<MDL 0.41	200.0	No	No
1,4-Dichlorobenzene (ug/L) - TW	2020/01/14	<MDL 0.36	5.0	No	No
1,2-Dichloroethane (ug/L) - TW	2020/01/14	<MDL 0.35	5.0	No	No
1,1-Dichloroethylene (ug/L) - TW	2020/01/14	<MDL 0.33	14.0	No	No
Dichloromethane (Methylene Chloride) (ug/L) - TW	2020/01/14	<MDL 0.35	50.0	No	No
2,4-Dichlorophenol (ug/L) - TW	2020/01/14	<MDL 0.15	900.0	No	No
2,4-Dichlorophenoxy acetic acid (2,4-D) (ug/L) - TW	2020/01/14	<MDL 0.19	100.0	No	No
Diclofop-methyl (ug/L) - TW	2020/01/14	<MDL 0.4	9.0	No	No
Dimethoate (ug/L) - TW	2020/01/14	<MDL 0.06	20.0	No	No
Diquat (ug/L) - TW	2020/01/14	<MDL 1.0	70.0	No	No
Diuron (ug/L) - TW	2020/01/14	<MDL 0.03	150.0	No	No
Glyphosate (ug/L) - TW	2020/01/14	<MDL 1.0	280.0	No	No
Malathion (ug/L) - TW	2020/01/14	<MDL 0.02	190.0	No	No
2-methyl-4-chlorophenoxyacetic acid (MCPA) (mg/L) - TW	2020/01/14	<MDL 0.01	50.0	N/A	N/A
Metolachlor (ug/L) - TW	2020/01/14	<MDL 0.02	80.0	No	No
Metribuzin (ug/L) - TW	2020/01/14	<MDL 0.3	80.0	No	No
Monochlorobenzene (Chlorobenzene) (ug/L) - TW	2020/01/14	<MDL 1.0	10.0	No	No
Paraquat (ug/L) - TW	2020/01/14	<MDL 0.04	3.0	No	No
PCB (ug/L) - TW	2020/01/14	<MDL 0.15	60.0	No	No
Pentachlorophenol (ug/L) - TW	2020/01/14	<MDL 0.01	2.0	No	No
Phorate (ug/L) - TW	2020/01/14	<MDL 1.0	190.0	No	No
Picloram (ug/L) - TW	2020/01/14	<MDL 0.03	1.0	No	No
Prometryne (ug/L) - TW	2020/01/14	<MDL 0.01	10.0	No	No
Simazine (ug/L) - TW	2020/01/14	<MDL 0.01	1.0	No	No
Terbufos (ug/L) - TW	2020/01/14	<MDL 0.35	10.0	No	No
Tetrachloroethylene (ug/L) - TW	2020/01/14	<MDL 0.2	100.0	No	No
2,3,4,6-Tetrachlorophenol (ug/L) - TW	2020/01/14	<MDL 0.01	230.0	No	No



Triallate (ug/L) - TW	2020/01/14	<MDL 0.44	5.0	No	No
Trichloroethylene (ug/L) - TW	2020/01/14	<MDL 0.25	5.0	No	No
2,4,6-Trichlorophenol (ug/L) - TW	2020/01/14	<MDL 0.12	100.0	No	No
Trifluralin (ug/L) - TW	2020/01/14	<MDL 0.02	45.0	No	No
Vinyl Chloride (ug/L) - TW	2020/01/14	<MDL 0.17	1.0	No	No
<b>DISTRIBUTION WATER</b>					
Trihalomethane: Total (ug/L) Annual Average - DW	2020/12/31	59.2	100.00	No	Yes
HAA Total (ug/L) Annual Average – DW	2020/12/31	56.38	80.0	No	Yes

## SECTION 5: RAW WATER SUBMISSIONS

Raw water flows were submitted to the MECP on [January 25, 2021](#).

**Ontario**

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: 6410-BAPR97  
Permit Holder: THE CORPORATION OF THE TOWNSHIP OF NAIRN AND HYMAN.  
Received on: Jan 25, 2021 3:20 PM

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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## 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.

Based on information available for the [2020](#) operating year, the [Nairn Centre WTP](#) was able to meet the demand of water use without exceeding the PTTW or the MDWL.



## 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 01/01/2020 To 12/31/2020

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

Permit#: 6410-BAPR97  
 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)
01/01/2020	130.9000	130899.9939
02/01/2020	135.0000	135000.0000
03/01/2020	177.3000	177300.0031
04/01/2020	223.6000	223600.0061
05/01/2020	123.5000	123500.0000
06/01/2020	134.0000	134000.0000
07/01/2020	239.7000	239699.9969
08/01/2020	91.2000	91199.9969
09/01/2020	158.5000	158500.0000
10/01/2020	166.3000	166300.0031
11/01/2020	208.5000	208500.0000
12/01/2020	172.2000	172199.9969
13/01/2020	107.3000	107300.0031
14/01/2020	187.1000	187100.0061
15/01/2020	129.4000	129399.9939
16/01/2020	172.2000	172199.9969
17/01/2020	135.2000	135199.9969
18/01/2020	224.1000	224100.0061
19/01/2020	166.2000	166199.9969
20/01/2020	106.0000	106000.0000
21/01/2020	179.9000	179899.9939
22/01/2020	122.1000	122099.9985
23/01/2020	217.8000	217800.0031
24/01/2020	108.2000	108199.9969
25/01/2020	212.4000	212399.9939
26/01/2020	142.6000	142600.0061
27/01/2020	146.1000	146100.0061
28/01/2020	183.6000	183600.0061
29/01/2020	126.0000	126000.0000
30/01/2020	148.2000	148199.9969
31/01/2020	191.8000	191800.0031
01/02/2020	119.8000	119800.0031
02/02/2020	237.0000	237000.0000
03/02/2020	129.6000	129600.0061
04/02/2020	171.6000	171600.0061
05/02/2020	103.5000	103500.0000
06/02/2020	231.2000	231199.9969
07/02/2020	117.5000	117500.0000
08/02/2020	139.5000	139500.0000
09/02/2020	232.0000	232000.0000
10/02/2020	148.6000	148600.0061
11/02/2020	130.1000	130100.0061

12/02/2020	172.8000	172800.0031
13/02/2020	194.8000	194800.0031
14/02/2020	140.4000	140399.9939
15/02/2020	184.1000	184100.0061
16/02/2020	182.8000	182800.0031
17/02/2020	170.6000	170600.0061
18/02/2020	147.2000	147199.9969
19/02/2020	196.0000	196000.0000
20/02/2020	138.2000	138199.9969
21/02/2020	132.4000	132399.9939
22/02/2020	237.4000	237399.9939
23/02/2020	172.4000	172399.9939
24/02/2020	120.4000	120400.0015
25/02/2020	170.6000	170600.0061
26/02/2020	148.7000	148699.9969
27/02/2020	143.9180	143918.0000
28/02/2020	172.2000	172199.9969
29/02/2020	219.2000	219199.9969
01/03/2020	190.4000	190399.9939
02/03/2020	150.7000	150699.9969
03/03/2020	144.1000	144100.0061
04/03/2020	176.0000	176000.0000
05/03/2020	162.4000	162399.9939
06/03/2020	148.7000	148699.9969
07/03/2020	223.6000	223600.0061
08/03/2020	185.6000	185600.0061
09/03/2020	103.5000	103500.0000
10/03/2020	181.1000	181100.0061
11/03/2020	175.5000	175500.0000
12/03/2020	123.1000	123099.9985
13/03/2020	191.2000	191199.9969
14/03/2020	164.5000	164500.0000
15/03/2020	215.4000	215399.9939
16/03/2020	164.3000	164300.0031
17/03/2020	128.8000	128800.0031
18/03/2020	192.1000	192100.0061
19/03/2020	194.8000	194800.0031
20/03/2020	127.2000	127199.9969
21/03/2020	164.3000	164300.0031
22/03/2020	211.4000	211399.9939
23/03/2020	114.0000	114000.0000
24/03/2020	224.8000	224800.0031
25/03/2020	146.4000	146399.9939
26/03/2020	114.0000	114000.0000
27/03/2020	222.2000	222199.9969
28/03/2020	143.4000	143399.9939
29/03/2020	130.2000	130199.9969
30/03/2020	220.8000	220800.0031
31/03/2020	152.9000	152899.9939
01/04/2020	103.9000	103900.0015
02/04/2020	201.2000	201199.9969
03/04/2020	139.2000	139199.9969
04/04/2020	156.0000	156000.0000
05/04/2020	180.6000	180600.0061
06/04/2020	136.5000	136500.0000
07/04/2020	151.7000	151699.9969
08/04/2020	183.2000	183199.9969
09/04/2020	132.5000	132500.0000
10/04/2020	127.6000	127599.9985
11/04/2020	217.4000	217399.9939
12/04/2020	152.9000	152899.9939

13/04/2020	113.7000	113699.9969
14/04/2020	218.9000	218899.9939
15/04/2020	143.4000	143399.9939
16/04/2020	107.0000	107000.0000
17/04/2020	163.1000	163100.0061
18/04/2020	205.5000	205500.0000
19/04/2020	114.5000	114500.0000
20/04/2020	167.5000	167500.0000
21/04/2020	208.4000	208399.9939
22/04/2020	174.9000	174899.9939
23/04/2020	126.7000	126699.9969
24/04/2020	173.1000	173100.0061
25/04/2020	208.9000	208899.9939
26/04/2020	149.7000	149699.9969
27/04/2020	127.9000	127900.0015
28/04/2020	219.2000	219199.9969
29/04/2020	121.1000	121099.9985
30/04/2020	207.0000	207000.0000
01/05/2020	140.5000	140500.0000
02/05/2020	151.4000	151399.9939
03/05/2020	228.3000	228300.0031
04/05/2020	119.8000	119800.0031
05/05/2020	233.8000	233800.0031
06/05/2020	121.5000	121500.0000
07/05/2020	133.4000	133399.9939
08/05/2020	169.3000	169300.0031
09/05/2020	229.6000	229600.0061
10/05/2020	136.8000	136800.0031
11/05/2020	129.1000	129100.0061
12/05/2020	155.3000	155300.0031
13/05/2020	188.9000	188899.9939
14/05/2020	138.2000	138199.9969
15/05/2020	239.6000	239600.0061
16/05/2020	142.5000	142500.0000
17/05/2020	139.0000	139000.0000
18/05/2020	162.7000	162699.9969
19/05/2020	191.6000	191600.0061
20/05/2020	241.8000	241800.0031
21/05/2020	181.9000	181899.9939
22/05/2020	209.3000	209300.0031
23/05/2020	328.7000	328700.0122
24/05/2020	236.5000	236500.0000
25/05/2020	238.5000	238500.0000
26/05/2020	181.2000	181199.9969
27/05/2020	303.3000	303299.9878
28/05/2020	184.7000	184699.9969
29/05/2020	149.3000	149300.0031
30/05/2020	211.4000	211399.9939
31/05/2020	198.8000	198800.0031
01/06/2020	161.1000	161100.0061
02/06/2020	250.3000	250300.0031
03/06/2020	205.9000	205899.9939
04/06/2020	223.9000	223899.9939
05/06/2020	136.6000	136600.0061
06/06/2020	286.9000	286899.9939
07/06/2020	282.0000	282000.0000
08/06/2020	191.9000	191899.9939
09/06/2020	291.5000	291500.0000
10/06/2020	136.7000	136699.9969
11/06/2020	233.2000	233199.9969
12/06/2020	126.2000	126199.9969



13/06/2020	289.5000	289500.0000
14/06/2020	268.3000	268299.9878
15/06/2020	252.1000	252100.0061
16/06/2020	395.8000	395799.9878
17/06/2020	296.1000	296100.0061
18/06/2020	363.5000	363500.0000
19/06/2020	325.5000	325500.0000
20/06/2020	395.8000	395799.9878
21/06/2020	267.4000	267399.9939
22/06/2020	294.9000	294899.9939
23/06/2020	110.1000	110099.9985
24/06/2020	110.0260	110026.0000
25/06/2020	202.2000	202199.9969
26/06/2020	171.7000	171699.9969
27/06/2020	235.7000	235699.9969
28/06/2020	217.7000	217699.9969
29/06/2020	289.4520	289452.0000
30/06/2020	347.1000	347100.0061
01/07/2020	362.3000	362299.9878
02/07/2020	456.6000	456600.0061
03/07/2020	227.4000	227399.9939
04/07/2020	383.0000	383000.0000
05/07/2020	305.8000	305799.9878
06/07/2020	277.9000	277899.9939
07/07/2020	265.5000	265500.0000
08/07/2020	411.7000	411700.0122
09/07/2020	403.8000	403799.9878
10/07/2020	199.4000	199399.9939
11/07/2020	281.3000	281299.9878
12/07/2020	147.8000	147800.0031
13/07/2020	393.8000	393799.9878
14/07/2020	349.8000	349799.9878
15/07/2020	250.3000	250300.0031
16/07/2020	249.5000	249500.0000
17/07/2020	159.9000	159899.9939
18/07/2020	194.4000	194399.9939
19/07/2020	195.0000	195000.0000
20/07/2020	153.8000	153800.0031
21/07/2020	140.7620	140762.0000
22/07/2020	154.8000	154800.0031
23/07/2020	250.9000	250899.9939
24/07/2020	171.2000	171199.9969
25/07/2020	251.0000	251000.0000
26/07/2020	278.6000	278600.0061
27/07/2020	179.5000	179500.0000
28/07/2020	205.5000	205500.0000
29/07/2020	273.0000	273000.0000
30/07/2020	210.5000	210500.0000
31/07/2020	288.0000	288000.0000
01/08/2020	196.7000	196699.9969
02/08/2020	253.0000	253000.0000
03/08/2020	129.3000	129300.0031
04/08/2020	194.7360	194736.0000
05/08/2020	165.5280	165528.0000
06/08/2020	323.0000	323000.0000
07/08/2020	167.2000	167199.9969
08/08/2020	234.5000	234500.0000
09/08/2020	187.8000	187800.0031
10/08/2020	209.8000	209800.0031
11/08/2020	249.4000	249399.9939
12/08/2020	179.9000	179899.9939

13/08/2020	187.3000	187300.0031
14/08/2020	291.9000	291899.9939
15/08/2020	227.6000	227600.0061
16/08/2020	190.6000	190600.0061
17/08/2020	177.1000	177100.0061
18/08/2020	201.4000	201399.9939
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20/08/2020	222.3000	222300.0031
21/08/2020	170.1000	170100.0061
22/08/2020	215.9000	215899.9939
23/08/2020	153.6000	153600.0061
24/08/2020	177.3000	177300.0031
25/08/2020	235.0000	235000.0000
26/08/2020	167.6000	167600.0061
27/08/2020	174.0000	174000.0000
28/08/2020	191.1000	191100.0061
29/08/2020	181.8000	181800.0031
30/08/2020	163.6000	163600.0061
31/08/2020	246.9000	246899.9939
01/09/2020	154.9000	154899.9939
02/09/2020	201.5000	201500.0000
03/09/2020	138.5000	138500.0000
04/09/2020	196.7000	196699.9969
05/09/2020	186.4000	186399.9939
06/09/2020	147.2000	147199.9969
07/09/2020	248.0000	248000.0000
08/09/2020	108.2000	108199.9969
09/09/2020	219.1000	219100.0061
10/09/2020	147.6000	147600.0061
11/09/2020	234.0000	234000.0000
12/09/2020	129.5000	129500.0000
13/09/2020	224.1000	224100.0061
14/09/2020	146.9000	146899.9939
15/09/2020	225.5000	225500.0000
16/09/2020	150.4000	150399.9939
17/09/2020	177.1000	177100.0061
18/09/2020	157.4000	157399.9939
19/09/2020	204.3000	204300.0031
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21/09/2020	179.1000	179100.0061
22/09/2020	133.7000	133699.9969
23/09/2020	235.3000	235300.0031
24/09/2020	104.2000	104199.9969
25/09/2020	224.2000	224199.9969
26/09/2020	131.1000	131100.0061
27/09/2020	160.6000	160600.0061
28/09/2020	175.5000	175500.0000
29/09/2020	242.4000	242399.9939
30/09/2020	110.4000	110400.0015
01/10/2020	225.0000	225000.0000
02/10/2020	111.0000	111000.0000
03/10/2020	227.6000	227600.0061
04/10/2020	154.7000	154699.9969
05/10/2020	115.4000	115400.0015
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07/10/2020	165.9000	165899.9939
08/10/2020	163.6000	163600.0061
09/10/2020	156.5000	156500.0000
10/10/2020	236.3000	236300.0031
11/10/2020	150.7000	150699.9969
12/10/2020	123.2000	123199.9969

13/10/2020	181.7000	181699.9969
14/10/2020	220.9000	220899.9939
15/10/2020	99.4000	99400.0015
16/10/2020	194.0000	194000.0000
17/10/2020	169.2000	169199.9969
18/10/2020	194.2000	194199.9969
19/10/2020	161.6000	161600.0061
20/10/2020	184.6000	184600.0061
21/10/2020	174.5000	174500.0000
22/10/2020	143.8000	143800.0031
23/10/2020	187.7000	187699.9969
24/10/2020	223.3000	223300.0031
25/10/2020	122.6000	122599.9985
26/10/2020	171.4000	171399.9939
27/10/2020	172.9000	172899.9939
28/10/2020	126.3000	126300.0031
29/10/2020	252.0000	252000.0000
30/10/2020	133.8000	133800.0031
31/10/2020	136.7000	136699.9969
01/11/2020	228.0000	228000.0000
02/11/2020	151.4000	151399.9939
03/11/2020	139.1000	139100.0061
04/11/2020	197.9000	197899.9939
05/11/2020	150.5000	150500.0000
06/11/2020	158.1790	158179.0000
07/11/2020	205.8000	205800.0031
08/11/2020	143.2000	143199.9969
09/11/2020	143.4000	143399.9939
10/11/2020	238.8000	238800.0031
11/11/2020	100.7000	100699.9969
12/11/2020	152.4000	152399.9939
13/11/2020	168.7000	168699.9969
14/11/2020	223.4000	223399.9939
15/11/2020	143.0000	143000.0000
16/11/2020	132.7000	132699.9969
17/11/2020	221.8000	221800.0031
18/11/2020	146.6000	146600.0061
19/11/2020	112.3000	112300.0031
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21/11/2020	203.3000	203300.0031
22/11/2020	120.4000	120400.0015
23/11/2020	154.6000	154600.0061
24/11/2020	220.3000	220300.0031
25/11/2020	97.9000	97900.0015
26/11/2020	211.6000	211600.0061
27/11/2020	151.5000	151500.0000
28/11/2020	126.1000	126099.9985
29/11/2020	238.7000	238699.9969
30/11/2020	134.6000	134600.0061
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02/12/2020	186.1000	186100.0061
03/12/2020	120.2000	120200.0000
04/12/2020	127.6000	127600.0000
05/12/2020	130.1000	130100.0000
06/12/2020	135.4000	135400.0000
07/12/2020	129.6000	129600.0000
08/12/2020	124.2000	124200.0000
09/12/2020	128.2000	128199.9969
10/12/2020	226.5000	226500.0000
11/12/2020	137.7000	137699.9969
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13/12/2020	179.6000	179600.0061
14/12/2020	128.6000	128600.0061
15/12/2020	142.9000	142899.9939
16/12/2020	202.6000	202600.0061
17/12/2020	129.1000	129100.0061
18/12/2020	157.3000	157300.0031
19/12/2020	181.0000	181000.0000
20/12/2020	148.6000	148600.0061
21/12/2020	172.4000	172399.9939
22/12/2020	171.7000	171699.9969
23/12/2020	158.4000	158399.9939
24/12/2020	156.9000	156899.9939
25/12/2020	125.4000	125400.0015
26/12/2020	226.3000	226300.0031
27/12/2020	146.8000	146800.0031
28/12/2020	134.1000	134100.0061
29/12/2020	191.2000	191199.9969
30/12/2020	124.9000	124900.0015
31/12/2020	219.1000	219100.0061