

# *Espanola Water Treatment*

Large Municipal Residential Drinking Water System

*January 1, 2023 – December 31, 2023*

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

Prepared by the Ontario Clean Water Agency  
For The Corporation of the Town of Espanola



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



*Drinking-Water System Number:* 210000746  
*Drinking-Water System Name:* ESPANOLA DRINKING WATER SYSTEM  
*Drinking-Water System Owner:* The Corporation of the Town of Espanola  
*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, [2024](#).

## **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 Espanola WTP shall not be operated to exceed a maximum flow of 10,500 m<sup>3</sup>/d to the distribution system.

The daily treated water maximum flow was 4,534 m<sup>3</sup> in June and represents 43% of capacity. In 2023, the total volume of water sent to the distribution system was 930,214m<sup>3</sup>

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

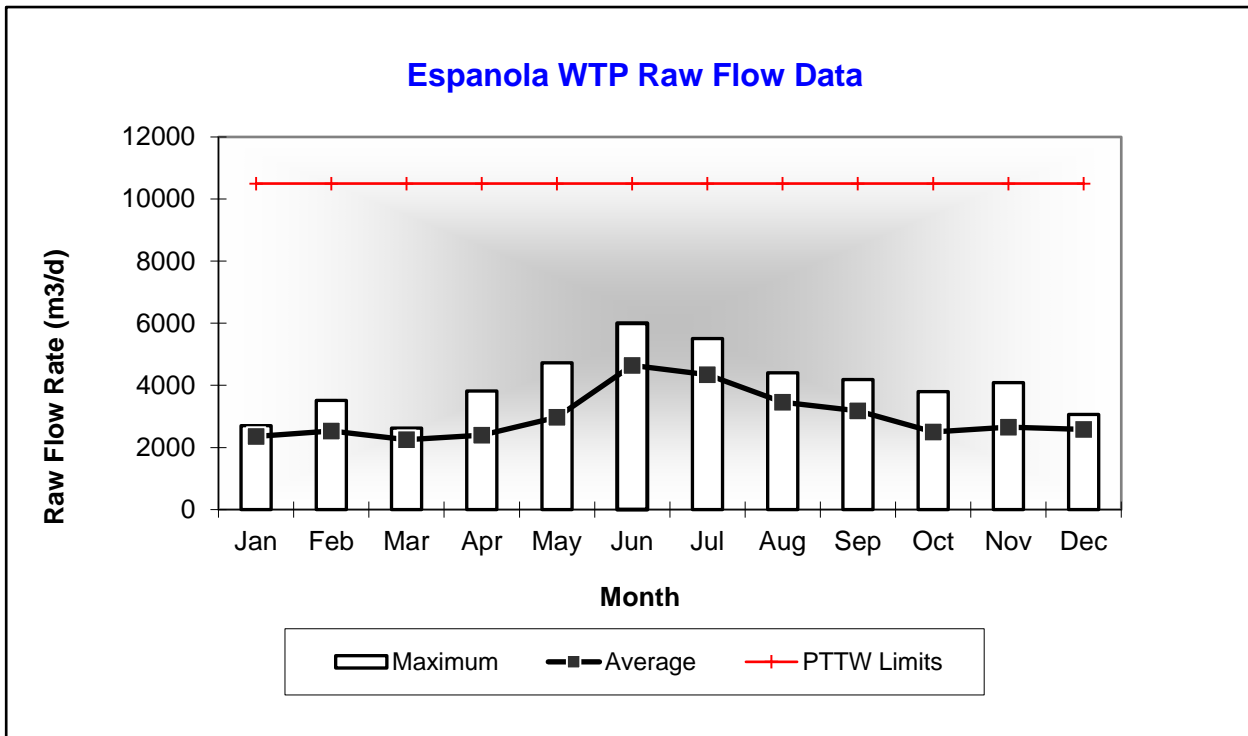
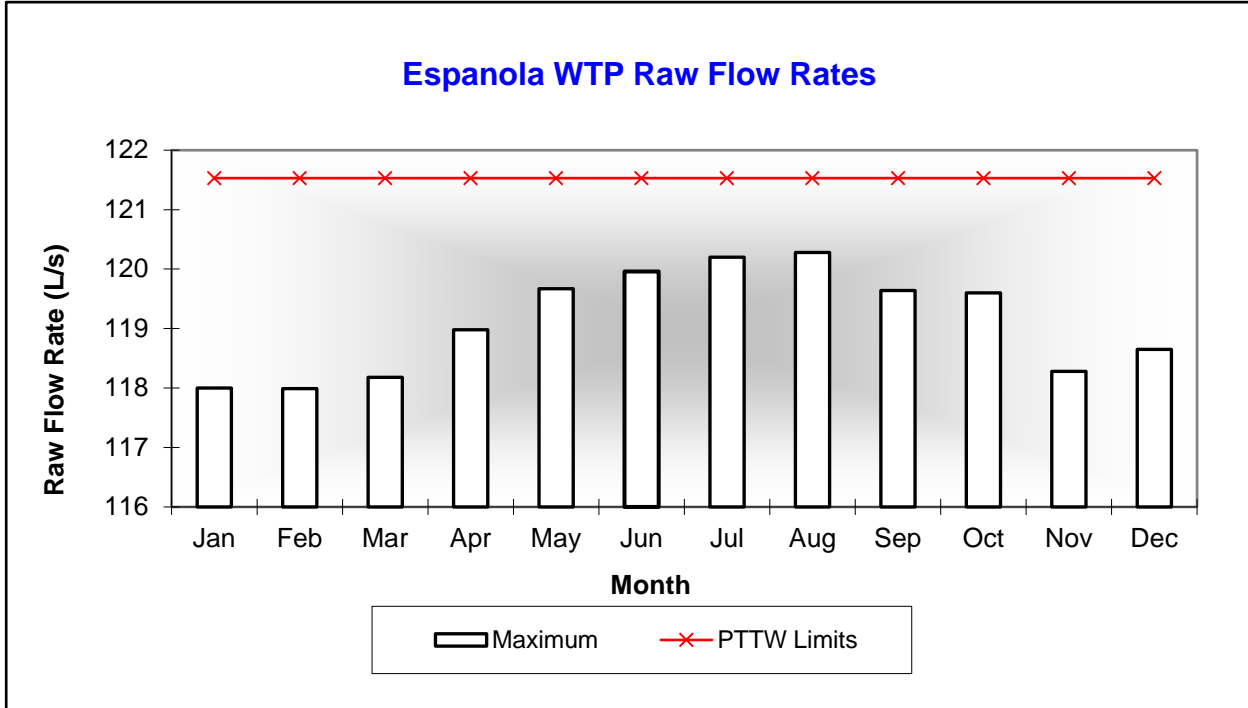
### Flows - Raw

Daily raw maximum instantaneous flow is stated in the PTTW at a maximum rate of flow of 121.53 L/s and a maximum daily volume of 10,500.0 m<sup>3</sup>/d.

The average monthly raw water flow for this reporting period was 2,992.63m<sup>3</sup>/d. The maximum daily flow was 6,001m<sup>3</sup>/d representing 57% of water taking limits. In 2023, the total volume of water sent to the distribution system was 1,092,311 m<sup>3</sup>

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

<i>RAW WATER FLOW DATA – Apsey Lake</i>						
Month	Total Monthly Flow ( m3)	Average Flow (m3/d)	Maximum Flow (m3/d)	Maximum Flow Rate (L/s)	Limits	
					L/s (PTTW)	m3/d (PTTW)
January	73,041	2,356.16	2,703	118	121.53	10,500.0
February	70,931	2,533.25	3,516	117.99	121.53	10,500.0
March	69,769	2,250.61	2,624	117.18	121.53	10,500.0
April	71,996	2,399.87	3,819	118.98	121.53	10,500.0
May	92,316	2,977.94	4,727	119.67	121.53	10,500.0
June	139,329	4,644.3	6,001	119.96	121.53	10,500.0
July	134,820	4,349.03	5,508	120.2	121.53	10,500.0
August	107,353	3,463	4,405	120.28	121.53	10,500.0
September	95,332	3,177.73	4,188	119.64	121.53	10,500.0
October	77,512	2,500.39	3,799	119.6	121.53	10,500.0
November	79,751	2,658.37	4,089	118.28	121.53	10,500.0
December	80,161	2,585.84	3,064	118.65	121.53	10,500.0
<b>Total</b>	1,092,311					
<b>Average</b>		2,992.63				
<b>Maximum</b>			6,001	120.28	121.53	10,500.0





## Annual Raw Water Review

Raw Water Taking	Total Taking (m3/d)	Average Day (m3/d)	Max Day (m3/d)	Max Day % of PTTW allowable 10,500 (m3/d)
2023	1,092,311	2,992.63	6,001	57%
2022	1,168,714	3,201.9	6,239	59%
2021	1,092,449	2,993	6,039	58%
2020	1,114,464	3,044.98	6,057	58%
2019	1,097,380	3,006.52	6,203	59%

## System Failures and Corrective Actions

The latest inspection of the drinking water facility took place on [February 23, 2023](#). The facility scored [0/497](#) providing a rating of [100%](#).

The following non-compliance was identified in the inspection report. The question was listed under “other” therefore now risk rating was awarded.

**Question ID MRDW1115001. Were the inspection questions sufficient to address other non-compliance items identified during the inspection period?**

**The following instance(s) of non-compliance were also noted during the inspection:**

DWI notes the MDWL required submission of a study confirming the baffling factor used in CT calculations and an updated copy of CT calculation confirming the water treatment plant consistently meets required CT under all operating conditions. Submission was required by October 12, 2022 (revised from January 28, 2022).

The Review dated November 15, 2022, provides an engineering assessment of CT under varying conditions including bypassing clearwells in direct filtration mode. Operators have indicated the need for more guidance given the new and complicated limitations cited by the engineer. Note the MDWL for the Espanola plant approves only the conventional filtration mode of operation.

Item #1. In accordance with Section 31 of the Safe Drinking Water Act, by April 28, 2023, provide further direction to operators regarding objective maximum flow and minimum chlorine levels and associated alarm set points in order to adhere to CT requirements. Provide written confirmation of such actions to the undersigned.

Item #2. By May 31, 2023, provide to the undersigned provincial officer a copy of consultant's simplified CT guidance document for use by operators.

Item #3. By May 31, 2023, provide to the undersigned provincial officer written assurances that the online CT analyzer in use at the Espanola plant has been checked/modified to reflect accurate CT parameters.

Item #4. By May 31, 2023, provide to the undersigned provincial officer written assurances that operators at the Espanola plant have been trained on accurate CT requirements. Consultant's Baffle Factor and CT Review was provided on November 15, 2022.



AWQIs reported to the Ministry

Incident Date	Parameter	Result	Unit of Measure	Corrective Action/Comment	Corrective Action Date
01-Feb-23	Primary Coagulant	Improper dosage	n/a	AWQI#161262 - On Feb 1, the Operator discovered that the PAC draw-down beaker/tube inlet valve was not closed all the way and very little if any PAC was delivered to process, eventually causing a process upset. The valve had not properly closed because of the solidified PAC in valves, piping and drawdown tube. First operator cleaned PAC drain valve, drawdown tube inlet valve and drawdown tube/beaker. Regained process by running process to waste to avoid buildup of material in filter media. After sludge blanket in clarifier was established and there was good clarity on top of clarifier, filters were put back online and filter effluent turbidities stayed consistently below .2ntu and were dropping slowly. Regained good chlorine residual in the clearwells and reservoir at 1.25mg/L and climbing before starting HLP up. Operator did perform a stand still CT calculation and we did have the necessary log removal for Giardia. Also operator wasted 364m3 of water from clearwells and reservoir at first to try and remove any improperly disinfected water and to keep flow going through storage facilities while they were being dosed with chlorine. At the end of the process run filter turbidities were consistently below .08ntu and by the end of the HLP run the TW Cl2 residual was 1.7mg/L. A health advisory was issued by the MOH as a result of this incident.	02-Feb-23

**SECTION 4: SECTION 11 REPORT**

**Information**

Population Served <b>4,996</b> (Stats Canada 2016)	
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.	<b>Town of Espanola, Municipal Office 100 Tudhope Street, Suite 2 Espanola, Ontario P5E 1S6</b>
Number of Designated Facilities served: <b>0</b>	
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.	<b>Public access/notice via a Public Library</b>
Indicate if you notified system users that your annual report is available and is free of charge using an alternate method	<b>Yes</b>

### Facility Description

The source of raw water for the Espanola Drinking Water System is Lake Apsey where the intake is located 135 m from shore at a depth of 12m.

The facility includes two solids contact clarifiers, three dual media filters, a clearwell, a pumping station with low lift pumps, three high lift pumps, two backwash pumps, backwash water holding tank with pumps discharging to the sanitary sewer system.

As raw water enters the facility, potassium permanganate is added to improve oxidation of iron and manganese. Alkalinity is boosted and pH is adjusted prior to coagulation and flocculation. After the water is through the reactivator clarifiers and 3 dual media filters, sodium hypochlorite is added for disinfection and hydrofluosilicic acid (fluoride) is added to the water. The water is then pushed through into the facility's reservoir. PH levels are again adjusted and then fed to the 2 clearwells. Prior to entering the distribution, polyphosphates (corrosion control) and sodium hypochlorite is added. The system is equipped with a 275KW diesel generator on site for emergency power.

The distribution includes an elevated storage tank, 5 bleeders with backflow prevention (air gap), a continuous chlorine analyzer and approximately 150 hydrants.

### Chemicals Used

Poly Aluminum Chloride (PAC)	Coagulation
Magnafloc LT 27 AG (Polymer)	Coagulation aide
Sodium Hypochlorite 12%	Disinfection
Hydrofluosilicic Acid (25% HFS)	Fluoride
Soda Ash	Alkalinity and pH control
Poly Ortho Phosphate	Corrosion control
Potassium Permanganate	Oxidizing Agent
Sodium Hydroxide	Alkalinity and pH control



## Significant Expenses

Significant expenses incurred to

Install required equipment

Repair required equipment

Replace required equipment

Work Order	Completion Date	Comment
2726873	31-Jan-23	Purchased spare filter valve actuator – \$19,037.47
3245771	31-Dec-23	Replacement of faulty sludge flow meter – \$6,957.24
3246879	30-Apr-23	Coagulant pump #1 flow monitor replacement – \$2,113.83
3291624	31-May-23	Contracted divers to clean concrete out of low lift well – \$6,217.56
3524768	30-Sep-23	Coagulant chemical panel rebuild – \$2,522.01
3664052	31-Dec-23	Clarifier #1 mixer repair – \$3,175.19
3703912	31-Dec-23	Coagulant board hot water flush line installation – \$4,414.09
	30-Sep-23	Purchased lab equipment and spare chemical pump head tubes – \$3,431.73
	15-Sep-23	Purchased various plant equipment parts – \$4,708.56

## 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/Comment	Corrective Action Date
01-Feb-23	Primary Coagulant	Improper dosage	n/a	AWQI#161262 - On Feb 1, the Operator discovered that the PAC draw-down beaker/tube inlet valve was not closed all the way and very little if any PAC was delivered to process, eventually causing a process upset. The valve had not properly closed because of the solidified PAC in valves, piping and drawdown tube. First operator cleaned PAC drain valve, drawdown tube inlet valve and drawdown tube/beaker. Regained process by running process to waste to avoid buildup of material in filter media. After sludge blanket in clarifier was established and there was good clarity on top of clarifier, filters were put back online and filter effluent turbidities stayed consistently below .2ntu and were dropping slowly. Regained good chlorine residual in the clearwells and reservoir at 1.25mg/L and climbing before starting HLP up. Operator did perform a stand still CT calculation and we did have the	02-Feb-23





				necessary log removal for Giardia. Also operator wasted 364m3 of water from clearwells and reservoir at first to try and remove any improperly disinfected water and to keep flow going through storage facilities while they were being dosed with chlorine. At the end of the process run filter turbidities were consistently below .08ntu and by the end of the HLP run the TW Cl2 residual was 1.7mg/L. A health advisory was issued by the MOH as a result of this incident.	
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**Microbiological testing done under the Schedule 10, 11 or 12 of Regulation 170/03.**

	No. of Samples Collected	Range of E.Coli		Range of Total Coliform Results		Number of HPC Samples	Range of HPC Results	
		Min #	Max #	Min #	Max #		Min #	Max #
Raw Water	52	0	4	0	118	N/A	N/A	N/A
Treated Water	53	0	0	0	0	53	0	2
Distribution	208	0	0	0	0	52	0	840

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

Parameter	No. of Samples Collected*	Range of Results		Units of Measure
		Minimum	Maximum	
Turbidity - Filt1	8760	0	1.71	NTU
Turbidity - Filt2	8760	0.01	1.97	NTU
Turbidity - Filt3	8760	0.01	1.02	NTU
Free Chlorine Residual - TW	8760	0.93	3.50	mg/L
Fluoride Residual - TW	8760	0	1.08	mg/L
Fluoride Residual - TW	52	0.34	0.95	mg/L
Free Chlorine Residual – DW	8760	0	1.81	mg/L
Free Chlorine Residual – DW 1	102	0.61	1.61	mg/L
Free Chlorine Residual – DW 2	102	0.35	1.52	mg/L
Free Chlorine Residual – DW 3	102	0.30	1.94	mg/L
Free Chlorine Residual – DW 4	51	0.85	1.48	mg/L

\*8760 is used as number of samples for online data.



**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 and limits	Month Sampled	Day Sampled	Result	Unit of Measure
N/A	N/A	N/A	N/A	N/A	N/A
Annual Average					mg/L

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

TREATED WATER	Sample Date (yyyy/mm/dd)	Sample Result	MAC	No. of Exceedances	
				MAC	1/2 MAC
Antimony: Sb (ug/L) - TW	2023/01/09	< MDL 0.6	6	No	No
Arsenic: As (ug/L) - TW	2023/01/09	0.2	10	No	No
Barium: Ba (ug/L) - TW	2023/01/09	5.46	1000	No	No
Boron: B (ug/L) - TW	2023/01/09	9	5000	No	No
Cadmium: Cd (ug/L) - TW	2023/01/09	0.008	5	No	No
Chromium: Cr (ug/L) - TW	2023/01/09	0.12	50	No	No
Mercury: Hg (ug/L) - TW	2023/01/09	< MDL 0.01	1	No	No
Selenium: Se (ug/L) - TW	2023/01/09	0.04	50	No	No
Uranium: U (ug/L) - TW	2023/01/09	0.002	20	No	No

TREATED WATER	Sample Date (yyyy/mm/dd)	Sample Result	MAC	No. of Exceedances	
				MAC	1/2 MAC
Fluoride (mg/L) - TW	2022/01/10	0.46	1.5	No	No
Nitrate : (mg/L) - TW	2023/01/09	0.031	10	No	No
Nitrate : (mg/L) - TW	2023/04/11	0.121	10	No	No
Nitrate : (mg/L) - TW	2023/07/17	< MDL 0.006	10	No	No
Nitrate : (mg/L) - TW	2023/10/03	0.03	10	No	No
Nitrite : (mg/L) - TW	2023/01/09	< MDL 0.003	1	No	No
Nitrite : (mg/L) - TW	2023/04/11	< MDL 0.003	1	No	No
Nitrite : (mg/L) - TW	2023/07/17	< MDL 0.003	1	No	No
Nitrite : (mg/L) - TW	2023/10/03	< MDL 0.003	1	No	No
Sodium / Na (mg/L) - TW	2022/01/17	21.5	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 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	No. of Samples	Range of Results		MAC (ug/L)	Number of Exceedances
		Minimum	Maximum		
Distribution - Lead Results (ug/L)	0	n/a	n/a	N/A	N/A
Distribution - Alkalinity (mg/L)	6	26	36	N/A	N/A
Distribution - pH In-House	6	7.10	7.28	N/A	N/A



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

TREATED WATER	Sample Date (yyyy/mm/dd)	Sample Result	MAC	Number of Exceedances	
				MAC	1/2 MAC
1,1-Dichloroethylene (ug/L)-TW	2023/01/09	< MDL 0.33	14	No	No
1,2-Dichlorobenzene (ug/L)-TW	2023/01/09	< MDL 0.41	200	No	No
1,2-Dichloroethane (ug/L)-TW	2023/01/09	< MDL 0.35	5	No	No
1,4-Dichlorobenzene (ug/L)-TW	2023/01/09	< MDL 0.36	5	No	No
2,3,4,6-Tetrachlorophenol (ug/L)-TW	2023/01/09	< MDL 0.2	100	No	No
2,4,6-Trichlorophenol (ug/L)-TW	2023/01/09	< MDL 0.25	5	No	No
2,4-Dichlorophenol (ug/L)-TW	2023/01/09	< MDL 0.15	900	No	No
2,4-Dichlorophenoxy acetic acid (2,4-D) (ug/L)-TW	2023/01/09	< MDL 0.19	100	No	No
2-methyl-4-chlorophenoxyacetic acid (MCPA) (ug/L)-TW	2023/01/09	< MDL 0.12	100	No	No
Alachlor (ug/L) -TW	2023/01/09	< MDL 0.02	5	No	No
Atrazine + N-dealkylated metabolites (ug/L)-TW	2023/01/09	< MDL 0.01	5	No	No
Azinphos-methyl (ug/L)-TW	2023/01/09	< MDL 0.05	20	No	No
Benzene (ug/L)-TW	2023/01/09	< MDL 0.32	1	No	No
Benzo(a)pyrene (ug/L)-TW	2023/01/09	< MDL 0.004	0.01	No	No
Bromoxynil (ug/L)-TW	2023/01/09	< MDL 0.33	5	No	No
Carbaryl (ug/L)-TW	2023/01/09	< MDL 0.05	90	No	No
Carbofuran (ug/L) -TW	2023/01/09	< MDL 0.01	90	No	No
Carbon Tetrachloride (ug/L) -TW	2023/01/09	< MDL 0.17	2	No	No
Chlorpyrifos (ug/L) -TW	2023/01/09	< MDL 0.02	90	No	No
Diazinon (ug/L)-TW	2023/01/09	< MDL 0.02	20	No	No
Dicamba (ug/L)-TW	2023/01/09	< MDL 0.2	120	No	No
Dichloromethane (Methylene Chloride) (ug/L)-TW	2023/01/09	< MDL 0.35	50	No	No
Diclofop-methyl (ug/L)-TW	2023/01/09	< MDL 0.4	9	No	No
Dimethoate (ug/L)-TW	2023/01/09	< MDL 0.06	20	No	No
Diquat (ug/L)-TW	2023/01/09	< MDL 1	70	No	No
Diuron (ug/L)-TW	2023/01/09	< MDL 0.03	150	No	No
Glyphosate (ug/L)-TW	2023/01/09	< MDL 1	280	No	No
Malathion (ug/L)-TW	2023/01/09	< MDL 0.02	190	No	No
Metolachlor (ug/L)-TW	2023/01/09	< MDL 0.01	50	No	No
Metribuzin (ug/L)-TW	2023/01/09	< MDL 0.02	80	No	No
Monochlorobenzene (Chlorobenzene) (ug/L)-TW	2023/01/09	< MDL 0.3	80	No	No
Paraquat (ug/L)-TW	2023/01/09	< MDL 1	10	No	No
PCB (ug/L)-TW	2023/01/09	< MDL 0.04	3	No	No
Pentachlorophenol (ug/L)-TW	2023/01/09	< MDL 0.15	60	No	No
Phorate (ug/L)-TW	2023/01/09	< MDL 0.01	2	No	No
Picloram (ug/L)-TW	2023/01/09	< MDL 1	190	No	No
Prometryne (ug/L)-TW	2023/01/09	< MDL 0.03	1	No	No
Simazine (ug/L)-TW	2023/01/09	< MDL 0.01	10	No	No



Terbufos (ug/L)-TW	2023/01/09	< MDL 0.01	1	No	No
Tetrachloroethylene (ug/L)-TW	2023/01/09	< MDL 0.35	10	No	No
Triallate (ug/L) -TW	2023/01/09	< MDL 0.01	230	No	No
Trichloroethylene (ug/L)-TW	2023/01/09	< MDL 0.44	5	No	No
Trifluralin (ug/L)-TW	2023/01/09	< MDL 0.02	45	No	No
Vinyl Chloride (ug/L)-TW	2023/01/09	< MDL 0.17	1	No	No
<b>DISTRIBUTION WATER</b>					
Trihalomethane: Total (ug/L) Annual Average - DW	2023/12/31	39.5	100.00	No	No
HAA Total (ug/L) Annual Average – DW	2023/12/31	35.4	80.0	No	No

## SECTION 5: RAW WATER SUBMISSIONS

Raw water flows were submitted to the MECP on [January 25, 2024](#).



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: 8723-AVXQ59

Permit Holder: THE CORPORATION OF THE MUNICIPALITY OF ESPANOLA.

Received on: Jan 25, 2024 2:52 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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TOWN2 ESPANOLA2 | 2024/01/25  
version: v4.5.0.21 (build#: 22)  
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## SECTION 6: CONCLUSION

The Espanola 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 [2023](#) operating year, the Espanola 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
mg/L	Miligrams per Litre
Ministry	Ministry of the Environment, Conservation and Parks
MECP	Ministry of the Environment, Conservation and Parks
NDOGN	No Data: Overgrown with Non Target Bacteria
NDOGT	No Data: Overgrown with Target Bacteria
O.Reg	Ontario Regulation
PTTW water	Permit to Take Water – Permit which allows water taking from groundwater or surface
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 01/01/2023 To 12/31/2023

Facility: ESPANOLA DRINKING WATER SYSTEM-5758  
Tag: Raw Flow: Sum (m3/d)  
Tag Group: Raw Water

Permit#: 8723-AVXQ59  
Source Name: Lake Apsey  
Source: Lake  
Type:  
Purpose: Municipal

Coordinate Zone: 17  
Easting: 439966  
Northing: 5119623  
Method deter: Metered

<u>Date Measured</u>	<u>Value (m³/d)</u>	<u>Value (Litres)</u>
01/01/2023	2091.0000	2091000.0000
02/01/2023	2010.0000	2010000.0000
03/01/2023	2527.0000	2527000.0000
04/01/2023	2494.0000	2494000.0000
05/01/2023	2059.0000	2059000.0000
06/01/2023	2595.0000	2595000.0000
07/01/2023	2101.0000	2101000.0000
08/01/2023	2332.0000	2332000.0000
09/01/2023	2458.0000	2458000.0000
10/01/2023	1866.0000	1866000.0000
11/01/2023	2563.0000	2563000.0000
12/01/2023	1994.0000	1994000.0000
13/01/2023	2703.0000	2703000.0000
14/01/2023	2117.0000	2117000.0000
15/01/2023	2518.0000	2518000.0000
16/01/2023	2326.0000	2326000.0000
17/01/2023	2582.0000	2582000.0000
18/01/2023	2010.0000	2010000.0000
19/01/2023	2607.0000	2607000.0000
20/01/2023	2358.0000	2358000.0000
21/01/2023	2298.0000	2298000.0000
22/01/2023	2670.0000	2670000.0000
23/01/2023	2077.0000	2077000.0000
24/01/2023	2334.0000	2334000.0000
25/01/2023	2636.0000	2636000.0000
26/01/2023	2488.0000	2488000.0000
27/01/2023	2411.0000	2411000.0000
28/01/2023	2150.0000	2150000.0000
29/01/2023	2362.0000	2362000.0000
30/01/2023	2629.0000	2629000.0000
31/01/2023	2675.0000	2675000.0000
01/02/2023	2328.0000	2328000.0000
02/02/2023	2761.0000	2761000.0000
03/02/2023	2351.0000	2351000.0000
04/02/2023	2104.0000	2104000.0000
05/02/2023	2459.0000	2459000.0000
06/02/2023	2542.0000	2542000.0000
07/02/2023	2509.0000	2509000.0000
08/02/2023	3516.0000	3516000.0000
09/02/2023	3078.0000	3078000.0000
10/02/2023	2714.0000	2714000.0000
11/02/2023	2611.0000	2611000.0000

12/02/2023	2980.0000	2980000.0000
13/02/2023	2923.0000	2923000.0000
14/02/2023	2833.0000	2833000.0000
15/02/2023	2761.0000	2761000.0000
16/02/2023	2708.0000	2708000.0000
17/02/2023	2373.0000	2373000.0000
18/02/2023	1960.0000	1960000.0000
19/02/2023	2517.0000	2517000.0000
20/02/2023	2256.0000	2256000.0000
21/02/2023	2342.0000	2342000.0000
22/02/2023	2440.0000	2440000.0000
23/02/2023	2193.0000	2193000.0000
24/02/2023	2370.0000	2370000.0000
25/02/2023	2290.0000	2290000.0000
26/02/2023	2164.0000	2164000.0000
27/02/2023	2517.0000	2517000.0000
28/02/2023	2331.0000	2331000.0000
01/03/2023	1955.0000	1955000.0000
02/03/2023	2300.0000	2300000.0000
03/03/2023	2460.0000	2460000.0000
04/03/2023	1915.0000	1915000.0000
05/03/2023	2424.0000	2424000.0000
06/03/2023	2521.0000	2521000.0000
07/03/2023	1836.0000	1836000.0000
08/03/2023	2476.0000	2476000.0000
09/03/2023	2202.0000	2202000.0000
10/03/2023	2147.0000	2147000.0000
11/03/2023	2624.0000	2624000.0000
12/03/2023	1916.0000	1916000.0000
13/03/2023	2566.0000	2566000.0000
14/03/2023	1816.0000	1816000.0000
15/03/2023	2588.0000	2588000.0000
16/03/2023	2308.0000	2308000.0000
17/03/2023	2343.0000	2343000.0000
18/03/2023	1854.0000	1854000.0000
19/03/2023	2616.0000	2616000.0000
20/03/2023	2191.0000	2191000.0000
21/03/2023	2371.0000	2371000.0000
22/03/2023	2221.0000	2221000.0000
23/03/2023	2248.0000	2248000.0000
24/03/2023	2417.0000	2417000.0000
25/03/2023	1934.0000	1934000.0000
26/03/2023	2505.0000	2505000.0000
27/03/2023	1995.0000	1995000.0000
28/03/2023	2262.0000	2262000.0000
29/03/2023	2449.0000	2449000.0000
30/03/2023	2262.0000	2262000.0000
31/03/2023	2047.0000	2047000.0000
01/04/2023	2534.0000	2534000.0000
02/04/2023	2097.0000	2097000.0000
03/04/2023	2417.0000	2417000.0000
04/04/2023	1854.0000	1854000.0000
05/04/2023	2570.0000	2570000.0000
06/04/2023	2245.0000	2245000.0000
07/04/2023	2149.0000	2149000.0000
08/04/2023	2003.0000	2003000.0000
09/04/2023	2316.0000	2316000.0000
10/04/2023	2091.0000	2091000.0000
11/04/2023	2453.0000	2453000.0000
12/04/2023	2090.0000	2090000.0000
13/04/2023	2384.0000	2384000.0000



14/04/2023	2351.0000	2351000.0000
15/04/2023	2137.0000	2137000.0000
16/04/2023	2504.0000	2504000.0000
17/04/2023	2070.0000	2070000.0000
18/04/2023	3819.0000	3819000.0000
19/04/2023	2665.0000	2665000.0000
20/04/2023	2734.0000	2734000.0000
21/04/2023	3046.0000	3046000.0000
22/04/2023	1980.0000	1980000.0000
23/04/2023	2331.0000	2331000.0000
24/04/2023	3202.0000	3202000.0000
25/04/2023	2767.0000	2767000.0000
26/04/2023	2213.0000	2213000.0000
27/04/2023	2499.0000	2499000.0000
28/04/2023	2281.0000	2281000.0000
29/04/2023	2079.0000	2079000.0000
30/04/2023	2115.0000	2115000.0000
01/05/2023	2248.0000	2248000.0000
02/05/2023	2363.0000	2363000.0000
03/05/2023	1827.0000	1827000.0000
04/05/2023	2274.0000	2274000.0000
05/05/2023	2420.0000	2420000.0000
06/05/2023	2515.0000	2515000.0000
07/05/2023	2294.0000	2294000.0000
08/05/2023	2085.0000	2085000.0000
09/05/2023	2501.0000	2501000.0000
10/05/2023	2732.0000	2732000.0000
11/05/2023	2706.0000	2706000.0000
12/05/2023	2840.0000	2840000.0000
13/05/2023	2818.0000	2818000.0000
14/05/2023	3061.0000	3061000.0000
15/05/2023	3007.0000	3007000.0000
16/05/2023	2724.0000	2724000.0000
17/05/2023	2995.0000	2995000.0000
18/05/2023	2887.0000	2887000.0000
19/05/2023	3132.0000	3132000.0000
20/05/2023	2315.0000	2315000.0000
21/05/2023	2577.0000	2577000.0000
22/05/2023	3178.0000	3178000.0000
23/05/2023	3044.0000	3044000.0000
24/05/2023	3062.0000	3062000.0000
25/05/2023	3572.0000	3572000.0000
26/05/2023	3543.0000	3543000.0000
27/05/2023	3481.0000	3481000.0000
28/05/2023	4331.0000	4331000.0000
29/05/2023	4433.0000	4433000.0000
30/05/2023	4624.0000	4624000.0000
31/05/2023	4727.0000	4727000.0000
01/06/2023	5089.0000	5089000.0000
02/06/2023	4997.0000	4997000.0000
03/06/2023	4594.0000	4594000.0000
04/06/2023	5077.0000	5077000.0000
05/06/2023	5428.0000	5428000.0000
06/06/2023	4852.0000	4852000.0000
07/06/2023	5048.0000	5048000.0000
08/06/2023	4852.0000	4852000.0000
09/06/2023	5213.0000	5213000.0000
10/06/2023	4294.0000	4294000.0000
11/06/2023	3534.0000	3534000.0000
12/06/2023	2531.0000	2531000.0000
13/06/2023	4485.0000	4485000.0000

14/06/2023	3759.0000	3759000.0000
15/06/2023	4174.0000	4174000.0000
16/06/2023	4105.0000	4105000.0000
17/06/2023	4278.0000	4278000.0000
18/06/2023	5226.0000	5226000.0000
19/06/2023	5216.0000	5216000.0000
20/06/2023	5309.0000	5309000.0000
21/06/2023	5579.0000	5579000.0000
22/06/2023	5507.0000	5507000.0000
23/06/2023	6001.0000	6001000.0000
24/06/2023	4886.0000	4886000.0000
25/06/2023	4418.0000	4418000.0000
26/06/2023	3902.0000	3902000.0000
27/06/2023	3728.0000	3728000.0000
28/06/2023	4364.0000	4364000.0000
29/06/2023	4356.0000	4356000.0000
30/06/2023	4527.0000	4527000.0000
01/07/2023	4815.0000	4815000.0000
02/07/2023	4813.0000	4813000.0000
03/07/2023	5372.0000	5372000.0000
04/07/2023	5508.0000	5508000.0000
05/07/2023	4950.0000	4950000.0000
06/07/2023	3617.0000	3617000.0000
07/07/2023	3857.0000	3857000.0000
08/07/2023	3754.0000	3754000.0000
09/07/2023	4510.0000	4510000.0000
10/07/2023	4758.0000	4758000.0000
11/07/2023	4718.0000	4718000.0000
12/07/2023	4824.0000	4824000.0000
13/07/2023	4256.0000	4256000.0000
14/07/2023	4601.0000	4601000.0000
15/07/2023	3950.0000	3950000.0000
16/07/2023	3681.0000	3681000.0000
17/07/2023	4478.0000	4478000.0000
18/07/2023	4343.0000	4343000.0000
19/07/2023	4104.0000	4104000.0000
20/07/2023	3699.0000	3699000.0000
21/07/2023	3703.0000	3703000.0000
22/07/2023	3959.0000	3959000.0000
23/07/2023	4130.0000	4130000.0000
24/07/2023	4411.0000	4411000.0000
25/07/2023	4051.0000	4051000.0000
26/07/2023	4212.0000	4212000.0000
27/07/2023	4726.0000	4726000.0000
28/07/2023	4468.0000	4468000.0000
29/07/2023	4330.0000	4330000.0000
30/07/2023	3754.0000	3754000.0000
31/07/2023	4468.0000	4468000.0000
01/08/2023	4405.0000	4405000.0000
02/08/2023	4313.0000	4313000.0000
03/08/2023	3640.0000	3640000.0000
04/08/2023	3275.0000	3275000.0000
05/08/2023	3946.0000	3946000.0000
06/08/2023	3619.0000	3619000.0000
07/08/2023	3418.0000	3418000.0000
08/08/2023	3753.0000	3753000.0000
09/08/2023	4058.0000	4058000.0000
10/08/2023	3460.0000	3460000.0000
11/08/2023	2997.0000	2997000.0000
12/08/2023	3563.0000	3563000.0000
13/08/2023	3137.0000	3137000.0000

14/08/2023	3748.0000	3748000.0000
15/08/2023	4161.0000	4161000.0000
16/08/2023	3832.0000	3832000.0000
17/08/2023	3255.0000	3255000.0000
18/08/2023	3360.0000	3360000.0000
19/08/2023	3733.0000	3733000.0000
20/08/2023	2780.0000	2780000.0000
21/08/2023	3993.0000	3993000.0000
22/08/2023	3324.0000	3324000.0000
23/08/2023	3110.0000	3110000.0000
24/08/2023	3179.0000	3179000.0000
25/08/2023	3174.0000	3174000.0000
26/08/2023	2951.0000	2951000.0000
27/08/2023	2883.0000	2883000.0000
28/08/2023	3176.0000	3176000.0000
29/08/2023	2928.0000	2928000.0000
30/08/2023	3246.0000	3246000.0000
31/08/2023	2936.0000	2936000.0000
01/09/2023	3175.0000	3175000.0000
02/09/2023	3040.0000	3040000.0000
03/09/2023	3617.0000	3617000.0000
04/09/2023	3347.0000	3347000.0000
05/09/2023	3757.0000	3757000.0000
06/09/2023	3615.0000	3615000.0000
07/09/2023	2676.0000	2676000.0000
08/09/2023	4188.0000	4188000.0000
09/09/2023	3113.0000	3113000.0000
10/09/2023	3127.0000	3127000.0000
11/09/2023	2891.0000	2891000.0000
12/09/2023	3013.0000	3013000.0000
13/09/2023	2822.0000	2822000.0000
14/09/2023	2860.0000	2860000.0000
15/09/2023	2720.0000	2720000.0000
16/09/2023	2795.0000	2795000.0000
17/09/2023	3227.0000	3227000.0000
18/09/2023	3408.0000	3408000.0000
19/09/2023	2940.0000	2940000.0000
20/09/2023	3302.0000	3302000.0000
21/09/2023	2922.0000	2922000.0000
22/09/2023	2993.0000	2993000.0000
23/09/2023	3231.0000	3231000.0000
24/09/2023	3056.0000	3056000.0000
25/09/2023	3091.0000	3091000.0000
26/09/2023	4137.0000	4137000.0000
27/09/2023	3311.0000	3311000.0000
28/09/2023	3326.0000	3326000.0000
29/09/2023	2890.0000	2890000.0000
30/09/2023	2742.0000	2742000.0000
01/10/2023	2523.0000	2523000.0000
02/10/2023	3264.0000	3264000.0000
03/10/2023	3799.0000	3799000.0000
04/10/2023	3575.0000	3575000.0000
05/10/2023	2210.0000	2210000.0000
06/10/2023	2798.0000	2798000.0000
07/10/2023	2697.0000	2697000.0000
08/10/2023	2201.0000	2201000.0000
09/10/2023	2440.0000	2440000.0000
10/10/2023	2681.0000	2681000.0000
11/10/2023	2318.0000	2318000.0000
12/10/2023	2705.0000	2705000.0000
13/10/2023	2634.0000	2634000.0000

14/10/2023	2366.0000	2366000.0000
15/10/2023	2003.0000	2003000.0000
16/10/2023	2624.0000	2624000.0000
17/10/2023	2482.0000	2482000.0000
18/10/2023	2276.0000	2276000.0000
19/10/2023	1846.0000	1846000.0000
20/10/2023	2399.0000	2399000.0000
21/10/2023	2626.0000	2626000.0000
22/10/2023	2299.0000	2299000.0000
23/10/2023	2189.0000	2189000.0000
24/10/2023	2580.0000	2580000.0000
25/10/2023	2433.0000	2433000.0000
26/10/2023	2382.0000	2382000.0000
27/10/2023	2373.0000	2373000.0000
28/10/2023	2230.0000	2230000.0000
29/10/2023	2201.0000	2201000.0000
30/10/2023	2470.0000	2470000.0000
31/10/2023	1888.0000	1888000.0000
01/11/2023	2951.0000	2951000.0000
02/11/2023	1970.0000	1970000.0000
03/11/2023	2689.0000	2689000.0000
04/11/2023	2444.0000	2444000.0000
05/11/2023	2401.0000	2401000.0000
06/11/2023	2021.0000	2021000.0000
07/11/2023	2440.0000	2440000.0000
08/11/2023	2446.0000	2446000.0000
09/11/2023	1922.0000	1922000.0000
10/11/2023	2342.0000	2342000.0000
11/11/2023	2711.0000	2711000.0000
12/11/2023	2975.0000	2975000.0000
13/11/2023	2768.0000	2768000.0000
14/11/2023	2610.0000	2610000.0000
15/11/2023	2749.0000	2749000.0000
16/11/2023	2818.0000	2818000.0000
17/11/2023	2717.0000	2717000.0000
18/11/2023	2586.0000	2586000.0000
19/11/2023	2601.0000	2601000.0000
20/11/2023	2682.0000	2682000.0000
21/11/2023	3091.0000	3091000.0000
22/11/2023	2670.0000	2670000.0000
23/11/2023	2734.0000	2734000.0000
24/11/2023	3025.0000	3025000.0000
25/11/2023	2935.0000	2935000.0000
26/11/2023	2878.0000	2878000.0000
27/11/2023	2732.0000	2732000.0000
28/11/2023	2467.0000	2467000.0000
29/11/2023	2287.0000	2287000.0000
30/11/2023	4089.0000	4089000.0000
01/12/2023	2762.0000	2762000.0000
02/12/2023	3057.0000	3057000.0000
03/12/2023	2933.0000	2933000.0000
04/12/2023	2871.0000	2871000.0000
05/12/2023	2371.0000	2371000.0000
06/12/2023	3041.0000	3041000.0000
07/12/2023	2342.0000	2342000.0000
08/12/2023	2722.0000	2722000.0000
09/12/2023	2859.0000	2859000.0000
10/12/2023	2598.0000	2598000.0000
11/12/2023	2584.0000	2584000.0000
12/12/2023	2784.0000	2784000.0000
13/12/2023	2603.0000	2603000.0000

14/12/2023	2717.0000	2717000.0000
15/12/2023	3064.0000	3064000.0000
16/12/2023	2650.0000	2650000.0000
17/12/2023	2578.0000	2578000.0000
18/12/2023	2231.0000	2231000.0000
19/12/2023	2173.0000	2173000.0000
20/12/2023	2278.0000	2278000.0000
21/12/2023	2155.0000	2155000.0000
22/12/2023	2135.0000	2135000.0000
23/12/2023	2579.0000	2579000.0000
24/12/2023	2503.0000	2503000.0000
25/12/2023	2520.0000	2520000.0000
26/12/2023	2535.0000	2535000.0000
27/12/2023	2228.0000	2228000.0000
28/12/2023	2179.0000	2179000.0000
29/12/2023	2406.0000	2406000.0000
30/12/2023	2764.0000	2764000.0000
31/12/2023	2939.0000	2939000.0000