

Espanola Water Treatment

Large Municipal Residential Drinking Water System

January 1, 2017 – December 31, 2017

***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, 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 Espanola WTP shall not be operated to exceed a maximum flow of 10,500 m³/d to the distribution system.

The daily treated water maximum flow was 4,249 m³ in July and represents 40.5% of capacity.

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

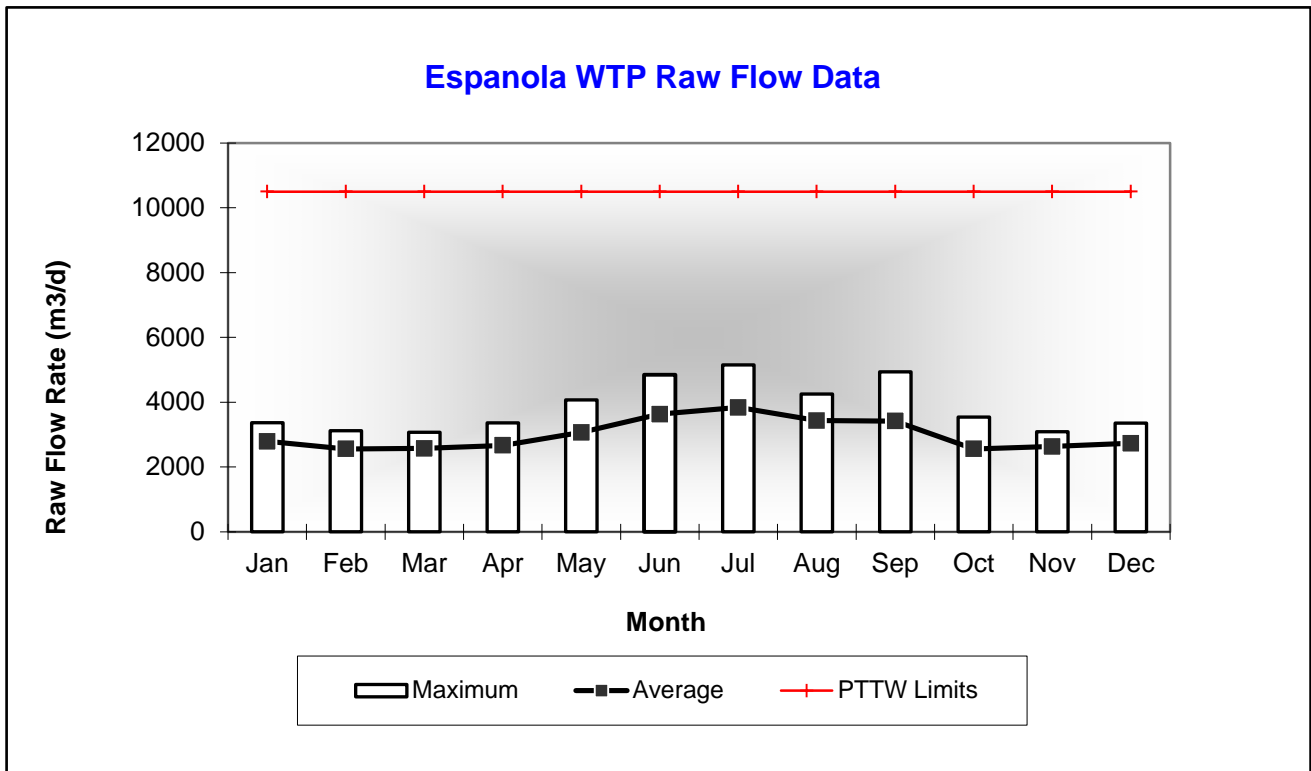
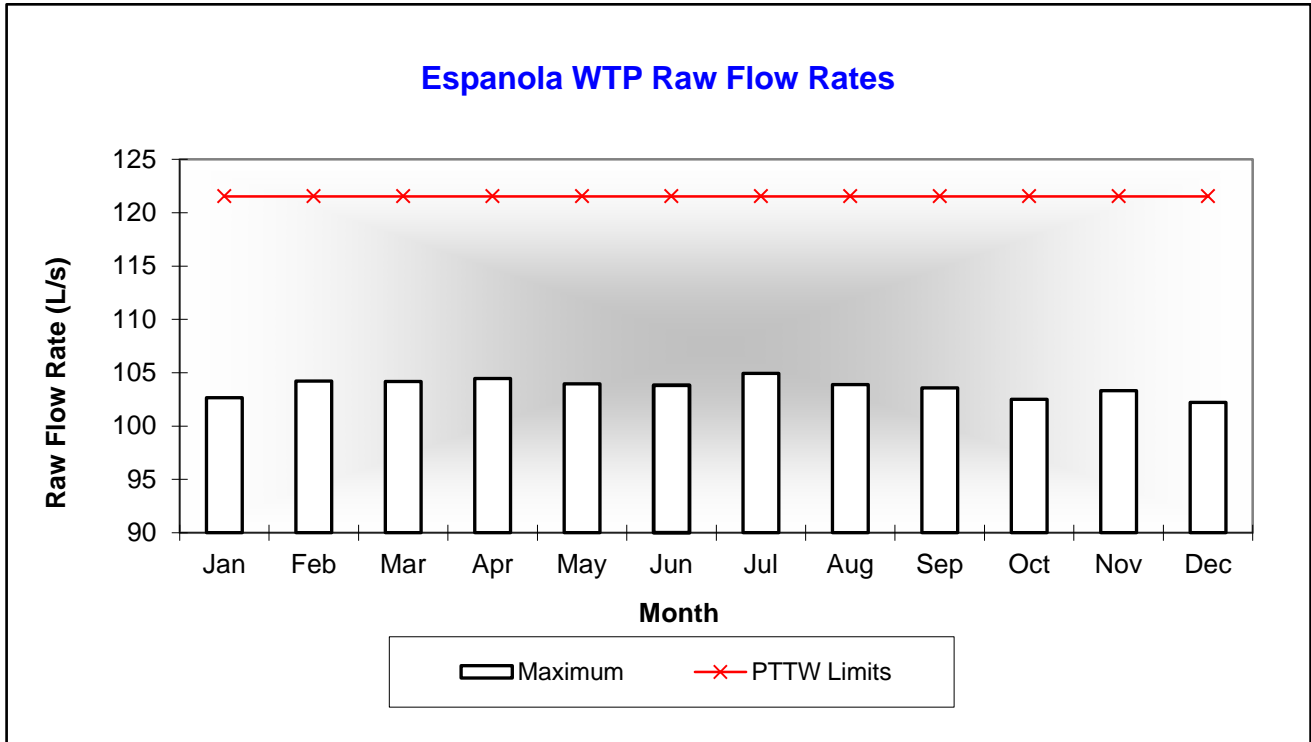
Flows - Raw

Daily raw maximum instantaneous flow is stated in the PTTW at a maximum rate of flow of 121.53 L/s and a maximum daily volume of 10,500.0 m³/d.

The average monthly raw water flow for this reporting period was 2,993.3 m³/d. The maximum daily flow was 5,150 m³/d representing 49% of water taking limits.

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	86,456	2,788.9	3,366	102.65	121.53	10,500.0
February	71,677	2,559.89	3,119	104.21	121.53	10,500.0
March	79,796	2,574.06	3,071	104.17	121.53	10,500.0
April	79,997	2,666.57	3,361	104.45	121.53	10,500.0
May	95,074	3,066.9	4,070	103.95	121.53	10,500.0
June	108,933	3,631.1	4,842	103.83	121.53	10,500.0
July	118,897	3,835.39	5,150	104.93	121.53	10,500.0
August	106,381	3,431.65	4,251	103.88	121.53	10,500.0
September	102,435	3,414.5	4,936	103.57	121.53	10,500.0
October	79,346	2,559.55	3,540	102.5	121.53	10,500.0
November	78,949	2,631.63	3,088	103.31	121.53	10,500.0
December	84,618	2,729.61	3,354	102.21	121.53	10,500.0
Total	1,092,559					
Average		2,993.31				
Maximum			5,150	104.93	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)
2017	1,092,559	2,993.31	5,150	49%
2016	1,214,480	3,318.3	6,784	64.9
2015	1,251,029	3,427.5	7,187	68.4
2014	1,154,739	3,198.7	7,111	67.7
2013	1,208,770	3,311.7	7,370	70.0

System Failures and Corrective Actions

The latest inspection of the drinking water facility took place on **January 4, 2018**. Another inspection took place on **January 26, 2017**. The facility scored **42/479** providing a rating of **91.23%**

There were three non-compliances listed in the inspection report

- Records did not confirm that the water treatment equipment which provides chlorination or chloramination for secondary disinfection purposes was operated so that at all times and all locations in the distribution system the chlorine residual was never less than 0.05 mg/l free or 0.25 mg/l combined.**

Problems with the continuous analyzer in the distribution system resulted in values less than 0.05 mg/L being recorded in SCADA from September 20 to September 26, 2016, on December 27, 2016, on January 9, 2017 and on January 14 and 15, 2017. The low residuals were attributed to ongoing flow problems with the analyzer and not true low chlorine residuals. However, no other residuals were provided to support this explanation or to confirm that the residuals in the area were actually greater than 0.05 mg/L.

Action(s) Required:

In accordance with subsection 1-2(2) of Schedule 1 of O. Reg. 170/03, a drinking water system shall ensure secondary disinfection is at all times and at all locations within the distribution system, never less than 0.05 mg/L, if the drinking water system provides chlorination. During the inspection it was indicated that because the online analyzer has been unreliable, the operating authority will be switching to monitoring the chlorine residual in the distribution system twice a week at four locations on one day and three locations on the second day. It was further indicated that the analyzer would remain online as an additional means of monitoring distribution chlorine residual. Please note that should the on-line analyzer record readings less than 0.05 mg/L, these must be reported as adverse water quality incidents.
- All required notifications of adverse water quality incidents were not immediately provided as per O. Reg. 170/03 16-6**

Problems with the continuous analyzer in the distribution system resulted in values <0.05 mg/L being recorded in SCADA. The low residuals were attributed to flow problems with the analyzer and not true low chlorine residuals. However, no other residuals were provided to support this explanation and no detailed information regarding the recorded events was documented in the logbook.

Action(s) Required:

As it is required by subsection 1-2(2) of Schedule 1 of O. Reg. 170/03, that a drinking water system shall ensure secondary disinfection is at all times and at all locations within the distribution system, never less than 0.05 mg/L, recording values less than 0.05 mg/L denotes non-compliance with the regulation. Further, subsection 16-3 of Schedule 16 of the regulation prescribes a distribution chlorine residual of less than 0.05 mg/L as an adverse result that requires immediate reporting. Therefore, the Town of Espanola and their operating authority must ensure that all distribution chlorine residual results that are less than 0.05 mg/L are reported as per the requirements of Schedule 16 of O. Reg. 170/03. Further, OCWA shall provide a written documentation to the undersigned Provincial Officer outlining a procedure to ensure low chlorine residuals recorded by the continuous analyzer in the distribution system are promptly identified and addressed accordingly. This documentation shall be received no later than April 28, 2017
- The following instance(s) of non-compliance were also noted during the inspection:**



- Logbooks are important tools for documenting and recording important information pertaining to the operation of the drinking water system. During a review of the logbook, the following issues were identified:
 - Operators are not always noting when equipment is out of service, including when the equipment was taken out of service and when it was brought back into service;
 - On November 7, 2016, a Class 2 operator was identified as the ORO for the plant. Since the plant is a Class 4 plant, a Class 2 operator cannot act as the ORO for the facility;
 - On December 26, 2016, the logbook indicates that an OIT is on-site conducting regular operational duties and reporting to an OIC; however, the OIC is not identified in the logbook.

Action(s) Required:

1. OCWA is encouraged to remind all operators, especially operators-in -training (OITs) of the importance of logbooks and the information that is required to be documented. OCWA is further encouraged to review the requirements of Section 27 of O. Reg. 128/04 (Record-keeping) with all operators.

Action(s) Taken:

Additional training was provided to all Operators in regards to the non-compliances. An SOP was created to aid operators in dealing with low distribution chlorine residuals.

AWQIs reported to the Ministry

Incident Date	Parameter	Result	Unit of Measure	Corrective Action/Comment	Corrective Action Date
n/a	n/a	n/a	n/a	n/a	n/a

SECTION 4: SECTION 11 REPORT

Information

Population Served	4,996 (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.	Town of Espanola, Municipal Office 100 Tudhope Street, Suite 2 Espanola, Ontario P5E 1S6
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 a Public Library
Indicate if you notified system users that your annual report is available and is free of charge using an alternate method	Yes



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
Hydrofluorosilicic Acid (25% HFS)	Fluoride
Soda Ash	Alkalinity and pH control
Poly Ortho Phosphate	Corrosion control
Carbon Dioxide	Alkalinity and pH 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
264134	08/01/2017	Lighting Upgrades Resealed and repaired outside lighting. Replaced all lights with LED
288151		Clarifier #2 The clarifier drain valve is leaking and requires replacement
316505	11/17/2017	Generator Coolant System Repairs



		Drained cooling system to install 2 valves and repaired leak block heater leak
346752	08/17/2017	<i>Sodium Hypochlorite</i> Repaired leaks on the sodium hypo lines.
346869	09/07-2017	<i>Generator</i> Repaired transfer switch
409224	09/27/2017	<i>Turbidity Analyzer</i> Ordered new ICE-PIC for calibrating turbidity analyzers
471139		<i>PLC UPS</i> Defective UPS needed replacement, borrowed UPS from Gore Bay until the new UPS came in
472021		<i>UPS Repairs</i> Two UPSs onsite were defective, parts were ordered for repairs
473290	9/28/2017	<i>Surveillance Camera System</i> Outside cameras were not working, contractor came onsite and repaired the system
473356	09/27/2017	<i>Clarifier #1</i> Replaced belt for the clarifier scraper
505644		<i>Generator</i> Bad connector causing an oil pressure sending unit error. Temporarily fixed until new part arrives
509871	11/22/2017	<i>Diesel Generator Fuel Tank</i> Fuel level indicators for both fuel tanks were replaced
541595	12/7/2017	<i>Potassium Permanganate Scale Replacement</i> Ordered and received new scale to weigh dry pot perm.
542501	11/22/2017	<i>Polymer Pump</i> Polymer pump had no flow. Cleaned inlet and outlet check valves of blockage. Returned pump to operation
571482	12/12/2017	<i>Fluoride Analyzer</i> Issue with fluoride analyzer PRV, operator was able to repair and put back into operation. A spare needs to be ordered
577554	12/12/2017	<i>Soda Ash Mixing</i> Automatic mixing system was not working correctly and required repairs to the PLC system. The pressure gauge also required replacement
5780293	12/21/2017	<i>Chlorine Analyzer</i> Replaced Cl2 membrane cap and pH probe

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
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 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	6	0	51	N/A	N/A	N/A
Treated Water	52	0	0	0	0	52	0	38
Distribution	208	0	0	0	0	52	0	2

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	0.028	0.54	NTU
Turbidity - Filt2	8760	0	0.37	NTU
Turbidity - Filt3	8760	0	0.43	NTU
Free Chlorine Residual - TW	8760	0.36	4.83	mg/L
Fluoride Residual - TW	8760	0.1	2	mg/L
Fluoride Residual - TW	110	0.21	0.90	mg/L
Free Chlorine Residual – DW	8760	0	1.84	mg/L
Free Chlorine Residual – DW 1	92	0.44	1.57	mg/L
Free Chlorine Residual – DW 2	94	0.33	1.29	mg/L
Free Chlorine Residual – DW 3	93	0.71	1.52	mg/L
Free Chlorine Residual – DW 4	50	0.49	1.40	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	2017/02/15	0.08	6.0	No	No
Arsenic: As (ug/L) - TW	2017/02/15	0.3	25.0	No	No
Barium: Ba (ug/L) - TW	2017/02/15	4.33	1000.0	No	No
Boron: B (ug/L) - TW	2017/02/15	5.0	5000.0	No	No
Cadmium: Cd (ug/L) - TW	2017/02/15	<MDL 0.003	5.0	No	No



Chromium: Cr (ug/L) - TW	2017/02/15	0.56	50.0	No	No
Mercury: Hg (ug/L) - TW	2017/02/15	<MDL 0.01	1.0	No	No
Selenium: Se (ug/L) - TW	2017/02/15	0.07	10.0	No	No
Uranium: U (ug/L) - TW	2017/02/15	<MDL 0.002	20.0	No	No

TREATED WATER	Sample Date (yyyy/mm/dd)	Sample Result	MAC	No. of Exceedances	
				MAC	1/2 MAC
Fluoride (mg/L) - TW	2017/02/15	0.37	1.5	No	No
Nitrite (mg/L) - TW	2017/01/16	<MDL 0.003	1.0	No	No
Nitrite (mg/L) - TW	2017/05/01	<MDL 0.003	1.0	No	No
Nitrite (mg/L) - TW	2017/07/10	<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	2017/01/16	0.009	10.0	No	No
Nitrate (mg/L) - TW	2017/05/01	0.092	10.0	No	No
Nitrate (mg/L) - TW	2017/07/10	0.151	10.0	No	No
Nitrate (mg/L) - TW	2017/10/05	0.153	10.0	No	No
Sodium: Na (mg/L) - TW	2017/02/15	19.6	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	No. of Samples	Range of Results		MAC (ug/L)	Number of Exceedances
		Minimum	Maximum		
Distribution - Lead Results (ug/L)	6	0.02	0.73	N/A	N/A
Distribution - Alkalinity (mg/L)	6	31	40	N/A	N/A
Distribution - pH In-House	6	7.10	7.24	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
Alachlor (ug/L) - TW	2017/02/15	<MDL 0.02	5.00	No	No
Atrazine + N-dealkylated metabolites (ug/L) - TW	2017/02/15	<MDL 0.01	5.00	No	No
Azinphos-methyl (ug/L) - TW	2017/02/15	<MDL 0.05	20.00	No	No
Benzene (ug/L) - TW	2017/02/15	<MDL 0.32	5.00	No	No
Benzo(a)pyrene (ug/L) - TW	2017/02/15	<MDL 0.004	0.01	No	No
Bromoxynil (ug/L) - TW	2017/02/15	<MDL 0.33	5.00	No	No
Carbaryl (ug/L) - TW	2017/02/15	<MDL 0.05	90.00	No	No
Carbofuran (ug/L) - TW	2017/02/15	<MDL 0.01	90.00	No	No
Carbon Tetrachloride (ug/L) - TW	2017/02/15	<MDL 0.16	5.00	No	No
Chlorpyrifos (ug/L) - TW	2017/02/15	<MDL 0.02	90.00	No	No
Diazinon (ug/L) - TW	2017/02/15	<MDL 0.02	20.00	No	No
Dicamba (ug/L) - TW	2017/02/15	<MDL 0.2	120.00	No	No
1,2-Dichlorobenzene (ug/L) - TW	2017/02/15	<MDL 0.41	200.00	No	No



1,4-Dichlorobenzene (ug/L) - TW	2017/02/15	<MDL 0.36	5.00	No	No
1,2-Dichloroethane (ug/L) - TW	2017/02/15	<MDL 0.35	5.00	No	No
1,1-Dichloroethylene (ug/L) - TW	2017/02/15	<MDL 0.33	14.00	No	No
Dichloromethane (Methylene Chloride) (ug/L) - TW	2017/02/15	<MDL 0.35	50.00	No	No
2,4-Dichlorophenol (ug/L) - TW	2017/02/15	<MDL 0.15	900.00	No	No
2,4-Dichlorophenoxy acetic acid (2,4-D) (ug/L) - TW	2017/02/15	<MDL 0.19	100.00	No	No
Diclofop-methyl (ug/L) - TW	2017/02/15	<MDL 0.4	9.00	No	No
Dimethoate (ug/L) - TW	2017/02/15	<MDL 0.03	20.00	No	No
Diquat (ug/L) - TW	2017/02/15	<MDL 1.0	70.00	No	No
Diuron (ug/L) - TW	2017/02/15	<MDL 0.03	150.00	No	No
Glyphosate (ug/L) - TW	2017/02/15	<MDL 1.0	280.00	No	No
Malathion (ug/L) - TW	2017/02/15	<MDL 0.02	190.00	No	No
2-methyl-4-chlorophenoxyacetic acid (MCPA)(mg/L) - TW	2017/02/15	<MDL 0.01	N/A	N/A	N/A
Metolachlor (ug/L) - TW	2017/02/15	<MDL 0.02	50.00	No	No
Metribuzin (ug/L) - TW	2017/02/15	<MDL 0.3	80.00	No	No
Monochlorobenzene (Chlorobenzene) (ug/L) - TW	2017/02/15	<MDL 1.0	80.00	No	No
Paraquat (ug/L) - TW	2017/02/15	<MDL 0.04	10.00	No	No
PCB (ug/L) - TW	2017/02/15	<MDL 0.15	3.00	No	No
Pentachlorophenol (ug/L) - TW	2017/02/15	<MDL 0.01	60.00	No	No
Phorate (ug/L) - TW	2017/02/15	<MDL 1.0	2.00	No	No
Picloram (ug/L) - TW	2017/02/15	<MDL 0.03	190.00	No	No
Prometryne (ug/L) - TW	2017/02/15	<MDL 0.01	1.00	No	No
Simazine (ug/L) - TW	2017/02/15	<MDL 0.01	10.00	No	No
Terbufos (ug/L) - TW	2017/02/15	<MDL 0.35	1.00	No	No
Tetrachloroethylene (ug/L) - TW	2017/02/15	<MDL 0.2	30.00	No	No
2,3,4,6-Tetrachlorophenol (ug/L) - TW	2017/02/15	<MDL 0.01	100.00	No	No
Triallate (ug/L) - TW	2017/02/15	<MDL 0.44	230.00	No	No
Trichloroethylene (ug/L) - TW	2017/02/15	<MDL 0.25	50.00	No	No
2,4,6-Trichlorophenol (ug/L) - TW	2017/02/15	<MDL 0.12	5.00	No	No
Trifluralin (ug/L) - TW	2017/02/15	<MDL 0.02	45.00	No	No
Vinyl Chloride (ug/L) - TW	2017/02/15	<MDL 0.17	2.00	No	No
DISTRIBUTION WATER					
Trihalomethane: Total (ug/L) Annual Average - DW	2017/12/31	32.25	100.00	No	No
HAA Total (ug/L) Annual Average – DW	2017/12/31	25.725		N/A	N/A



SECTION 5: RAW WATER SUBMISSIONS

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

The screenshot shows a web page from the Government of Ontario. At the top left is the Ontario logo. Below it, the text reads "Location: WTRS / WT DATA / Input WT Record" and "WTRS-WT-008". A green-bordered box contains the message "Water Taking Data submitted successfully." Below this is a "Confirmation:" section with the following text: "Thank you for submitting your water taking data online. Permit Number: 3154-7E7N9V Permit Holder: THE CORPORATION OF THE TOWN OF ESPANOLA. Received on: Jan 24, 2018 8:20 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." A button labeled "Return to Main Page" is centered below the text. In the bottom right corner of the page, it says "TOWN2 ESPANOLA2 | 2018/01/24 version: v4.5.0.8 (build#: 18) Last modified: 2018/01/11". At the very bottom, there is a footer with the Ontario logo, "This site maintained by the Government of Ontario", and "©2018 Queen's Printer for Ontario".

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.

For the [2017](#) 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 ³ /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	Milligrams 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
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: ESPANOLA DRINKING WATER SYSTEM-5758
 Tag: Raw Flow: Sum (m3/d)
 Tag Group: Raw Water

Permit#: 3154-7E7N9V
 Source Name: Lake Apesy
 Source: Lake
 Type:
 Purpose: Municipal

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

Date Measured	Value (m³/d)	Value (Litres)
01/01/2017	3000.0000	3000000.0000
02/01/2017	2280.0000	2280000.0000
03/01/2017	3070.0000	3070000.0000
04/01/2017	2137.0000	2137000.0000
05/01/2017	3048.0000	3048000.0000
06/01/2017	2232.0000	2232000.0000
07/01/2017	3204.0000	3204000.0000
08/01/2017	2389.0000	2389000.0000
09/01/2017	2913.0000	2913000.0000
10/01/2017	2437.0000	2437000.0000
11/01/2017	3073.0000	3073000.0000
12/01/2017	2520.0000	2520000.0000
13/01/2017	2589.0000	2589000.0000
14/01/2017	3299.0000	3299000.0000
15/01/2017	2247.0000	2247000.0000
16/01/2017	3302.0000	3302000.0000
17/01/2017	2306.0000	2306000.0000
18/01/2017	3330.0000	3330000.0000
19/01/2017	2996.0000	2996000.0000
20/01/2017	3259.0000	3259000.0000
21/01/2017	2501.0000	2501000.0000
22/01/2017	3254.0000	3254000.0000
23/01/2017	2508.0000	2508000.0000
24/01/2017	3294.0000	3294000.0000
25/01/2017	2496.0000	2496000.0000
26/01/2017	3366.0000	3366000.0000
27/01/2017	2588.0000	2588000.0000
28/01/2017	2826.0000	2826000.0000
29/01/2017	2544.0000	2544000.0000
30/01/2017	2881.0000	2881000.0000
31/01/2017	2567.0000	2567000.0000
01/02/2017	2895.0000	2895000.0000
02/02/2017	2621.0000	2621000.0000
03/02/2017	2982.0000	2982000.0000
04/02/2017	2294.0000	2294000.0000
05/02/2017	2762.0000	2762000.0000
06/02/2017	2688.0000	2688000.0000
07/02/2017	2666.0000	2666000.0000
08/02/2017	2758.0000	2758000.0000
09/02/2017	2741.0000	2741000.0000
10/02/2017	2943.0000	2943000.0000
11/02/2017	1939.0000	1939000.0000

12/02/2017	1006.0000	1006000.0000
13/02/2017	2344.0000	2344000.0000
14/02/2017	2839.0000	2839000.0000
15/02/2017	2368.0000	2368000.0000
16/02/2017	3026.0000	3026000.0000
17/02/2017	2210.0000	2210000.0000
18/02/2017	2726.0000	2726000.0000
19/02/2017	2497.0000	2497000.0000
20/02/2017	2634.0000	2634000.0000
21/02/2017	2593.0000	2593000.0000
22/02/2017	2528.0000	2528000.0000
23/02/2017	2289.0000	2289000.0000
24/02/2017	3081.0000	3081000.0000
25/02/2017	2045.0000	2045000.0000
26/02/2017	3119.0000	3119000.0000
27/02/2017	2361.0000	2361000.0000
28/02/2017	2722.0000	2722000.0000
01/03/2017	2446.0000	2446000.0000
02/03/2017	2828.0000	2828000.0000
03/03/2017	2363.0000	2363000.0000
04/03/2017	2899.0000	2899000.0000
05/03/2017	2499.0000	2499000.0000
06/03/2017	2703.0000	2703000.0000
07/03/2017	2384.0000	2384000.0000
08/03/2017	2851.0000	2851000.0000
09/03/2017	2394.0000	2394000.0000
10/03/2017	2354.0000	2354000.0000
11/03/2017	2955.0000	2955000.0000
12/03/2017	2386.0000	2386000.0000
13/03/2017	2795.0000	2795000.0000
14/03/2017	2393.0000	2393000.0000
15/03/2017	2789.0000	2789000.0000
16/03/2017	2345.0000	2345000.0000
17/03/2017	2831.0000	2831000.0000
18/03/2017	2665.0000	2665000.0000
19/03/2017	2435.0000	2435000.0000
20/03/2017	2874.0000	2874000.0000
21/03/2017	2231.0000	2231000.0000
22/03/2017	2686.0000	2686000.0000
23/03/2017	2564.0000	2564000.0000
24/03/2017	2517.0000	2517000.0000
25/03/2017	2566.0000	2566000.0000
26/03/2017	2232.0000	2232000.0000
27/03/2017	2444.0000	2444000.0000
28/03/2017	2506.0000	2506000.0000
29/03/2017	3071.0000	3071000.0000
30/03/2017	2937.0000	2937000.0000
31/03/2017	1853.0000	1853000.0000
01/04/2017	2958.0000	2958000.0000
02/04/2017	2424.0000	2424000.0000
03/04/2017	2935.0000	2935000.0000
04/04/2017	2127.0000	2127000.0000
05/04/2017	2591.0000	2591000.0000
06/04/2017	2532.0000	2532000.0000
07/04/2017	3036.0000	3036000.0000
08/04/2017	2107.0000	2107000.0000
09/04/2017	3109.0000	3109000.0000
10/04/2017	2490.0000	2490000.0000
11/04/2017	2450.0000	2450000.0000
12/04/2017	2426.0000	2426000.0000
13/04/2017	2676.0000	2676000.0000

14/04/2017	2767.0000	2767000.0000
15/04/2017	2027.0000	2027000.0000
16/04/2017	2550.0000	2550000.0000
17/04/2017	2615.0000	2615000.0000
18/04/2017	3292.0000	3292000.0000
19/04/2017	2910.0000	2910000.0000
20/04/2017	3085.0000	3085000.0000
21/04/2017	3325.0000	3325000.0000
22/04/2017	2361.0000	2361000.0000
23/04/2017	2389.0000	2389000.0000
24/04/2017	3361.0000	3361000.0000
25/04/2017	2116.0000	2116000.0000
26/04/2017	2661.0000	2661000.0000
27/04/2017	2720.0000	2720000.0000
28/04/2017	2464.0000	2464000.0000
29/04/2017	2922.0000	2922000.0000
30/04/2017	2571.0000	2571000.0000
01/05/2017	2753.0000	2753000.0000
02/05/2017	2562.0000	2562000.0000
03/05/2017	2975.0000	2975000.0000
04/05/2017	2686.0000	2686000.0000
05/05/2017	2950.0000	2950000.0000
06/05/2017	2177.0000	2177000.0000
07/05/2017	3248.0000	3248000.0000
08/05/2017	2739.0000	2739000.0000
09/05/2017	2733.0000	2733000.0000
10/05/2017	3308.0000	3308000.0000
11/05/2017	2433.0000	2433000.0000
12/05/2017	3952.0000	3952000.0000
13/05/2017	2826.0000	2826000.0000
14/05/2017	2957.0000	2957000.0000
15/05/2017	3823.0000	3823000.0000
16/05/2017	3087.0000	3087000.0000
17/05/2017	4070.0000	4070000.0000
18/05/2017	3250.0000	3250000.0000
19/05/2017	3081.0000	3081000.0000
20/05/2017	2846.0000	2846000.0000
21/05/2017	3170.0000	3170000.0000
22/05/2017	2939.0000	2939000.0000
23/05/2017	3350.0000	3350000.0000
24/05/2017	2839.0000	2839000.0000
25/05/2017	3027.0000	3027000.0000
26/05/2017	2886.0000	2886000.0000
27/05/2017	3118.0000	3118000.0000
28/05/2017	2995.0000	2995000.0000
29/05/2017	4008.0000	4008000.0000
30/05/2017	3120.0000	3120000.0000
31/05/2017	3166.0000	3166000.0000
01/06/2017	3563.0000	3563000.0000
02/06/2017	3611.0000	3611000.0000
03/06/2017	3452.0000	3452000.0000
04/06/2017	3205.0000	3205000.0000
05/06/2017	3468.0000	3468000.0000
06/06/2017	3361.0000	3361000.0000
07/06/2017	3956.0000	3956000.0000
08/06/2017	4055.0000	4055000.0000
09/06/2017	4146.0000	4146000.0000
10/06/2017	3719.0000	3719000.0000
11/06/2017	4251.0000	4251000.0000
12/06/2017	4011.0000	4011000.0000
13/06/2017	4131.0000	4131000.0000

14/06/2017	4842.0000	4842000.0000
15/06/2017	3541.0000	3541000.0000
16/06/2017	4068.0000	4068000.0000
17/06/2017	3530.0000	3530000.0000
18/06/2017	3661.0000	3661000.0000
19/06/2017	3448.0000	3448000.0000
20/06/2017	3578.0000	3578000.0000
21/06/2017	3648.0000	3648000.0000
22/06/2017	3639.0000	3639000.0000
23/06/2017	3315.0000	3315000.0000
24/06/2017	3459.0000	3459000.0000
25/06/2017	3102.0000	3102000.0000
26/06/2017	3440.0000	3440000.0000
27/06/2017	3269.0000	3269000.0000
28/06/2017	3178.0000	3178000.0000
29/06/2017	2964.0000	2964000.0000
30/06/2017	3322.0000	3322000.0000
01/07/2017	2620.0000	2620000.0000
02/07/2017	3204.0000	3204000.0000
03/07/2017	3474.0000	3474000.0000
04/07/2017	3284.0000	3284000.0000
05/07/2017	3580.0000	3580000.0000
06/07/2017	3986.0000	3986000.0000
07/07/2017	3233.0000	3233000.0000
08/07/2017	4005.0000	4005000.0000
09/07/2017	3520.0000	3520000.0000
10/07/2017	4374.0000	4374000.0000
11/07/2017	3915.0000	3915000.0000
12/07/2017	3621.0000	3621000.0000
13/07/2017	3222.0000	3222000.0000
14/07/2017	3557.0000	3557000.0000
15/07/2017	3423.0000	3423000.0000
16/07/2017	3828.0000	3828000.0000
17/07/2017	4133.0000	4133000.0000
18/07/2017	4120.0000	4120000.0000
19/07/2017	5150.0000	5150000.0000
20/07/2017	4473.0000	4473000.0000
21/07/2017	4921.0000	4921000.0000
22/07/2017	4067.0000	4067000.0000
23/07/2017	3425.0000	3425000.0000
24/07/2017	3550.0000	3550000.0000
25/07/2017	4230.0000	4230000.0000
26/07/2017	3838.0000	3838000.0000
27/07/2017	3297.0000	3297000.0000
28/07/2017	4111.0000	4111000.0000
29/07/2017	3503.0000	3503000.0000
30/07/2017	4460.0000	4460000.0000
31/07/2017	4773.0000	4773000.0000
01/08/2017	4219.0000	4219000.0000
02/08/2017	4251.0000	4251000.0000
03/08/2017	4182.0000	4182000.0000
04/08/2017	3570.0000	3570000.0000
05/08/2017	3523.0000	3523000.0000
06/08/2017	3123.0000	3123000.0000
07/08/2017	3643.0000	3643000.0000
08/08/2017	3619.0000	3619000.0000
09/08/2017	3458.0000	3458000.0000
10/08/2017	3081.0000	3081000.0000
11/08/2017	3968.0000	3968000.0000
12/08/2017	3006.0000	3006000.0000
13/08/2017	3123.0000	3123000.0000

14/08/2017	3470.0000	3470000.0000
15/08/2017	3545.0000	3545000.0000
16/08/2017	4048.0000	4048000.0000
17/08/2017	3378.0000	3378000.0000
18/08/2017	3334.0000	3334000.0000
19/08/2017	3024.0000	3024000.0000
20/08/2017	3226.0000	3226000.0000
21/08/2017	3221.0000	3221000.0000
22/08/2017	3023.0000	3023000.0000
23/08/2017	3699.0000	3699000.0000
24/08/2017	2937.0000	2937000.0000
25/08/2017	3412.0000	3412000.0000
26/08/2017	3123.0000	3123000.0000
27/08/2017	3111.0000	3111000.0000
28/08/2017	3157.0000	3157000.0000
29/08/2017	3746.0000	3746000.0000
30/08/2017	3412.0000	3412000.0000
31/08/2017	2749.0000	2749000.0000
01/09/2017	4061.0000	4061000.0000
02/09/2017	3222.0000	3222000.0000
03/09/2017	3115.0000	3115000.0000
04/09/2017	3323.0000	3323000.0000
05/09/2017	3451.0000	3451000.0000
06/09/2017	3249.0000	3249000.0000
07/09/2017	3064.0000	3064000.0000
08/09/2017	2792.0000	2792000.0000
09/09/2017	2901.0000	2901000.0000
10/09/2017	3270.0000	3270000.0000
11/09/2017	2900.0000	2900000.0000
12/09/2017	3617.0000	3617000.0000
13/09/2017	3450.0000	3450000.0000
14/09/2017	3040.0000	3040000.0000
15/09/2017	3026.0000	3026000.0000
16/09/2017	3737.0000	3737000.0000
17/09/2017	3181.0000	3181000.0000
18/09/2017	3432.0000	3432000.0000
19/09/2017	3657.0000	3657000.0000
20/09/2017	4136.0000	4136000.0000
21/09/2017	3725.0000	3725000.0000
22/09/2017	4062.0000	4062000.0000
23/09/2017	3221.0000	3221000.0000
24/09/2017	3064.0000	3064000.0000
25/09/2017	3273.0000	3273000.0000
26/09/2017	4936.0000	4936000.0000
27/09/2017	3873.0000	3873000.0000
28/09/2017	3476.0000	3476000.0000
29/09/2017	3398.0000	3398000.0000
30/09/2017	2783.0000	2783000.0000
01/10/2017	2810.0000	2810000.0000
02/10/2017	3482.0000	3482000.0000
03/10/2017	2268.0000	2268000.0000
04/10/2017	3540.0000	3540000.0000
05/10/2017	2564.0000	2564000.0000
06/10/2017	2359.0000	2359000.0000
07/10/2017	2642.0000	2642000.0000
08/10/2017	2534.0000	2534000.0000
09/10/2017	2311.0000	2311000.0000
10/10/2017	2963.0000	2963000.0000
11/10/2017	2342.0000	2342000.0000
12/10/2017	2916.0000	2916000.0000
13/10/2017	2327.0000	2327000.0000

14/10/2017	2621.0000	2621000.0000
15/10/2017	2403.0000	2403000.0000
16/10/2017	2567.0000	2567000.0000
17/10/2017	2568.0000	2568000.0000
18/10/2017	2299.0000	2299000.0000
19/10/2017	2724.0000	2724000.0000
20/10/2017	2417.0000	2417000.0000
21/10/2017	2574.0000	2574000.0000
22/10/2017	2459.0000	2459000.0000
23/10/2017	2485.0000	2485000.0000
24/10/2017	2518.0000	2518000.0000
25/10/2017	2169.0000	2169000.0000
26/10/2017	2709.0000	2709000.0000
27/10/2017	1904.0000	1904000.0000
28/10/2017	2573.0000	2573000.0000
29/10/2017	2326.0000	2326000.0000
30/10/2017	3172.0000	3172000.0000
31/10/2017	1800.0000	1800000.0000
01/11/2017	2605.0000	2605000.0000
02/11/2017	2765.0000	2765000.0000
03/11/2017	2363.0000	2363000.0000
04/11/2017	2879.0000	2879000.0000
05/11/2017	2579.0000	2579000.0000
06/11/2017	2818.0000	2818000.0000
07/11/2017	2564.0000	2564000.0000
08/11/2017	2569.0000	2569000.0000
09/11/2017	2117.0000	2117000.0000
10/11/2017	2722.0000	2722000.0000
11/11/2017	2846.0000	2846000.0000
12/11/2017	2621.0000	2621000.0000
13/11/2017	2609.0000	2609000.0000
14/11/2017	2599.0000	2599000.0000
15/11/2017	2985.0000	2985000.0000
16/11/2017	2114.0000	2114000.0000
17/11/2017	2747.0000	2747000.0000
18/11/2017	2764.0000	2764000.0000
19/11/2017	2307.0000	2307000.0000
20/11/2017	3088.0000	3088000.0000
21/11/2017	2404.0000	2404000.0000
22/11/2017	2638.0000	2638000.0000
23/11/2017	2399.0000	2399000.0000
24/11/2017	2890.0000	2890000.0000
25/11/2017	2225.0000	2225000.0000
26/11/2017	3011.0000	3011000.0000
27/11/2017	2745.0000	2745000.0000
28/11/2017	2469.0000	2469000.0000
29/11/2017	2908.0000	2908000.0000
30/11/2017	2599.0000	2599000.0000
01/12/2017	2264.0000	2264000.0000
02/12/2017	2765.0000	2765000.0000
03/12/2017	2775.0000	2775000.0000
04/12/2017	2372.0000	2372000.0000
05/12/2017	2568.0000	2568000.0000
06/12/2017	2852.0000	2852000.0000
07/12/2017	2630.0000	2630000.0000
08/12/2017	2147.0000	2147000.0000
09/12/2017	3219.0000	3219000.0000
10/12/2017	2952.0000	2952000.0000
11/12/2017	2795.0000	2795000.0000
12/12/2017	2303.0000	2303000.0000
13/12/2017	2836.0000	2836000.0000

14/12/2017	2941.0000	2941000.0000
15/12/2017	2976.0000	2976000.0000
16/12/2017	2840.0000	2840000.0000
17/12/2017	2719.0000	2719000.0000
18/12/2017	2952.0000	2952000.0000
19/12/2017	2145.0000	2145000.0000
20/12/2017	2906.0000	2906000.0000
21/12/2017	2561.0000	2561000.0000
22/12/2017	3354.0000	3354000.0000
23/12/2017	2820.0000	2820000.0000
24/12/2017	2643.0000	2643000.0000
25/12/2017	2292.0000	2292000.0000
26/12/2017	2928.0000	2928000.0000
27/12/2017	2847.0000	2847000.0000
28/12/2017	2835.0000	2835000.0000
29/12/2017	2688.0000	2688000.0000
30/12/2017	2629.0000	2629000.0000
31/12/2017	3064.0000	3064000.0000