



Ontario Clean Water Agency
Agence Ontarienne Des Eaux

2020 Client Monthly Operations Report

Lambton Area Water Supply System

February 29, 2020

Facility Description

Facility Name:	Lambton Area Water Supply System
Facility Type:	Municipal
Classification:	Class 4 Water Treatment Class 4 Water Distribution
Title Holder:	Municipality
Operation Status:	OCWA
Sr. Operations Manager:	Mark Harris (519) 344-7429 Ext. 251
Business Development Manager:	Susan Budden
Capacity (m3/d):	181844
Service Area:	City of Sarnia, Village of Point Edward, Township of St. Clair, Township of Warwick-Watford, Municipality of Lambton Shores, Town of Plympton-Wyoming
Service Population:	104,162
In service Date:	1975

Operational Description

The Lambton WTP is a direct filtration surface water facility consisting of chemically assisted filtration with disinfection. The facility consists of an intake system (and alternate intake), a low lift pump station, a treatment system and distribution pumping system situated in the City of Sarnia. Water is drawn into the plant (a zebra mussel system is available as needed) and screened at the surge wells (pre-disinfection is utilized). Water flows to the pump wells where a total of 4 vertical turbine pumps are located and used as needed which pump to a discharge header. Coagulant is added, flashed mixed (PAC is also applied at this location when needed) the raw water is then flocculated (Polymer is added at the flocculation trains as needed) and diverted to filtration (10 dual media filters). The gravity fed filter effluents combine into two clear wells where sodium hypochlorite is injected. To maximize the contact time the water is diverted to the two baffled reservoirs (in series). Six vertical turbine pumps are available for supplying the distribution demand as needed. The entire water treatment system is continuously monitored (via SCADA) with continuous on-line analyzers equipped throughout the processes. The utility serves a large part of Lambton County and has over 250 kilometers of pipeline of various sizes and materials. There is also the East Lambton Booster Station with 9,000 cubic meters of storage capacity which is remotely monitored and controlled from the Lambton WTP via SCADA. During the 1997 calendar year the West Lambton Pumping Station, with the largest above ground water storage in the province with a capacity of 90,000m³, was brought on-line. This pumping station is also remotely monitored and controlled from Lambton WTP via SCADA. The LAWSS distribution system has 5 towers/elevated tanks that the utility monitors via SCADA. In 2007 the Residual Management System (RMS) which treats backwash effluent was brought on-line.

Treatment Process

Pre-treatment Chemicals:	Prechlorination (sodium hypochlorite); Zebra mussel control
Coagulation/Flocculation:	Aluminum Sulphate (Clar+Ion A7)
Filtration:	Dual Media; Filter Aid polymer
Disinfection Method:	Sodium hypochlorite
Post Treatment Chemical Addition:	Fluoride
Waste Residue Management:	Filter backwash effluent is treated by an Actiflo system.
Waste effluent/residue Disposal:	Sludge is hauled to Sarnia WPCP on a needed basis.

Inspections

February: MECP inspection starting February 12

Maintenance, Operations & Distribution Works Summary 2020

Maintenance

February:

Date	(P)reventative Capital Major Mtc (C)orrective	Description
Feb 3	Capital	Installed conduit for radio project at West Lambton Pumping Station.
Feb 3	P	Completed monthly inspection of water treatment plant compressors.
Feb 3	P	Pumped out diesel and HFS containments at the water treatment plant.
Feb 4	P	Completed 3 year inspection of Ross Valves at West Lambton Pumping Station.
Feb 4	P	Completed 6 month inspection on Pumps 1, 2 and 5 at West Lambton Pumping Station.
Feb 4	Capital	Installed conduit for radio project at East Lambton Pumping Station.
Feb 4-5	Major Mtc	Installed new pre chlorine metering pumps at the water treatment plant.
Feb 6	P	Conducted monthly inspection of eyewash and safety showers at the water treatment plant.

Feb 6	P	Completed monthly calibration of chlorine analyzers at East and West Lambton Pumping Stations.
Feb 6	Capital	Onsite at Indian Road Tower working on radio project.
Feb 7	Capital	Complete power feed for radio project at Indian Rd Tower.
Feb 7	P	Conducted monthly calibration of online chlorine analyzers at the water treatment plant.
Feb 7	Capital	Complete power feed for radio project at Indian Rd Tower.
Feb 7-12	Capital	Onsite at Port Lambton working on radio project.
Feb 10	P	Conducted monthly calibration of fluoride analyzer.
Feb 11	P	Completed monthly inspection of travelling screens at the water treatment plant.
Feb 13	Capital	Complete power feed for radio project at Port Lambton Tower.
Feb 18-19	P	Completed monthly calibration of water treatment plant turbidity analyzers.
Feb 19	C	Repaired power receptacle for Station 5 sample pumps.
Feb 19-20	P	Conducted monthly calibration of pH probes at the water treatment plant.
Feb 20	P	Completed monthly inspection of vacuum priming system at East Lambton Pumping Station.
Feb 20	C	Working on Filter 7 turbidity meter (high reading).
Feb 21	P	Completed monthly verification of Hach handheld chlorine analyzers.
Feb 21	P	Conducted monthly maintenance on streaming current meters.
Feb 21	P	Completed monthly maintenance on RMS turbidity analyzers.
Feb 21-28	Capital	Working on coding for radio project.
Feb 25	C	Meeting in regards to upcoming West Reservoir work at the water treatment plant.
Feb 27	C	Meeting in regards to upcoming West Reservoir work at the water treatment plant. Reviewing procedure.

Feb 27	P	Tested generators at East and West Lambton Pumping Station.
Feb 27	C	Tested intruder alarm at West Lambton Pumping Station and found that the signal is not getting to the water treatment plant.
Feb 27-28	P	Completed monthly inspection of floc gear drives.
Feb 28	P	Completed monthly test of water treatment plant polymer system.
Feb 28	P	Completed monthly test of RMS and EQ overflow chlorine residuals. No issues noted.
Feb 28	C	Removed 4 inches of ice on travelling screens.

Operations and Compliance

February:

Feb 1	Ran Pump 1 at West Lambton Pumping Station.
Feb 4	Calibrated lab pH probe.
Feb 11	Forest distribution in recirculation mode for distribution work.
Feb 12	MECP inspection starts.
Feb 13	Emergency preparation meeting.
Feb 14	THM/HAA reports completed.
Feb 14	Petrolia interconnect opened up for Petrolia to take water. Water taking done same day.
Feb 14	West Lambton Pumping Station PLC failure due to radio work. All valving restored to normal.
Feb 19	Notified by SGS that bacteriological samples from Feb 17 were delayed.
Feb 19-20	Resampled all distribution bacteriological samples due to Purolator delay.
Feb 21	Pre chlorine pump failed due to P+. Pump and panel was reset.
Feb 24	Pre chlorine pump failed due to P+. Pump and panel was reset.
Feb 25	Power outage at the water treatment plant. Plant being run under generator power. Generator 2 did not start right away.
Feb 26	Calibrated lab pH probe.
Feb 28	Changed Station 7 chlorine alarms to 1.8 and 1.9 mg/L in preparation for West Reservoir work.

Distribution

February:

Feb 4	Onsite for directional drill on Indian Rd and Plank.
Feb 7	Onsite for directional bore at Indian and Plank Rd.
Feb 7	Onsite for crossing of LAWSS watermain at Indian and LaSalle.
Feb 9	After hours emergency locate #2020070097.
Feb 11	Onsite for 8" hot tap on Fleming.
Feb 11	Onsite for third party work on Queen St.
Feb 11	Onsite for third party work on Lakeshore.
Feb 11	After hours emergency locate # 2020074205

Feb 12	Onsite for third party work on Wilkesport Line.
Feb 13	Third party work on Indian Rd at overpass.
Feb 20	Closed Petrolia interconnect valve.
Feb 25	Onsite for third party work on Fleming and Egremont.

Call Outs 2020

February: Call out on February 7 for afterhours emergency locate. Call out on February 29th due to leaking hydrant on London Line in Plympton-Wyoming.

One Call Utility Locates

These numbers represent the number of locate notifications that were cleared from LAWSS assets

Number of Locates/Month

YEAR	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
2019	69	62	104	164	189	149	182	153	121	148	81	50
2020	57	54										

RMS Sludge Haulage

These numbers represent total monthly amounts of sludge produced by the Residual Management System and hauled to Sarnia WPCP

Amount of sludge produced per month in m³

YEAR	Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec
2019	236	158	237	236	216	158	313	237	160	160	159	163
2020	241	228										

Required Monthly Reports

Monthly System Flows- see separate attached summary report

Workplace Management System Reports – see separate attached reports

Performance Data and Compliance – See separate attached report

Required Financial Reports

Quarterly Financial Summary –Q4 was due January 30, 2020. Q1 due April 30, 2020.

Semi-Annual “Schedule G” Reconcilable Commodities Report – Due July 30, 2020.

Health & Safety Work Order Summary by Facility

Start Date: 2020-02-01

End Date: 2020-02-29

Hub: Lambton

Cluster	ORG ID	Facility ID	Health and Safety					Closure Rate		
			Initiated	Approved	Completed	Total Labor Hrs	Total Cost \$	Target	Actual	Variance
LAWSS (133000)	Lambton Area Water Treatment Plant (5544)	5544, East Lambton Distribution (5544-WDEL)	0	0	0	0.00	0.00	85.00%	100.00%	-15.00%
		5544, East Lambton PS (5544-WPEL)	0	0	0	0.00	0.00	85.00%	100.00%	-15.00%
		5544, Forrest Standpipe (5544-WDFS)	0	0	0	0.00	0.00	85.00%	100.00%	-15.00%
		5544, Indian Road Tower (5544-WDIR)	0	0	0	0.00	0.00	85.00%	100.00%	-15.00%
		5544, Lambton Area RMS (5544-WWLA)	0	0	0	0.00	0.00	85.00%	100.00%	-15.00%
		5544, Lambton Area WTP (5544-WTLA)	5	5	5	8.00	331.60	85.00%	100.00%	-15.00%
		5544, Port Lambton Standpipe (5544-WDPL)	0	0	0	0.00	0.00	85.00%	100.00%	-15.00%
		5544, Watford Standpipe (5544-WDWF)	0	0	0	0.00	0.00	85.00%	100.00%	-15.00%
		5544, West Lambton Booster Stn (5544-WPWL)	0	0	0	0.00	0.00	85.00%	100.00%	-15.00%
		5544, West ST.Clair Distribution (5544-WDWS)	1	1	1	1.00	37.79	85.00%	100.00%	-15.00%
		Lambton Area Water Treatment Plant (5544)	1	1	1	1.00	57.47	85.00%	100.00%	-15.00%
		Total			7	7	7	10.00	426.86	85.00%

Key Column	Colour	Meaning
Init		No Work Orders initialized
Closed		Closure Rate between 20-50%
Closed		Closure Rate less than 20%

Health & Safety Work Order Summary by Facility

Start Date: 2020-01-01

End Date: 2020-02-29

Hub: Lambton

Cluster	ORG ID	Facility ID	Health and Safety					Closure Rate		
			Initiated	Approved	Completed	Total Labor Hrs	Total Cost \$	Target	Actual	Variance
LAWSS (133000)	Lambton Area Water Treatment Plant (5544)	5544, East Lambton Distribution (5544-WDEL)	0	0	0	0.00	0.00	85.00%	100.00%	-15.00%
		5544, East Lambton PS (5544-WPEL)	0	0	0	0.00	0.00	85.00%	100.00%	-15.00%
		5544, Forrest Standpipe (5544-WDFS)	0	0	0	0.00	0.00	85.00%	100.00%	-15.00%
		5544, Indian Road Tower (5544-WDIR)	0	0	0	0.00	0.00	85.00%	100.00%	-15.00%
		5544, Lambton Area RMS (5544-WWLA)	0	0	0	0.00	0.00	85.00%	100.00%	-15.00%
		5544, Lambton Area WTP (5544-WTLA)	9	9	9	14.75	629.64	85.00%	100.00%	-15.00%
		5544, Port Lambton Standpipe (5544-WDPL)	0	0	0	0.00	0.00	85.00%	100.00%	-15.00%
		5544, Watford Standpipe (5544-WDWF)	0	0	0	0.00	0.00	85.00%	100.00%	-15.00%
		5544, West Lambton Booster Stn (5544-WPWL)	0	0	0	0.00	0.00	85.00%	100.00%	-15.00%
		5544, West ST.Clair Distribution (5544-WDWS)	1	1	1	1.00	37.79	85.00%	100.00%	-15.00%
		Lambton Area Water Treatment Plant (5544)	1	1	1	1.00	57.47	85.00%	100.00%	-15.00%
		Total	11	11	11	16.75	724.90	85.00%	100.00%	-15.00%

Key Column	Colour	Meaning
Init		No Work Orders initialized
Closed		Closure Rate between 20-50%
Closed		Closure Rate less than 20%

Work Order Summary by Facility

Start Date: 2020-02-01
End Date: 2020-02-29
Hub: Lambton

Key Col	Colour	Meaning
Init		No Work Orders initialized
Closed		Closure Rate between 20-50%
Closed		Closure Rate less than 20%

			Corrective Maintenance					Emergency Maintenance					Call Back				
			Init	Approved	Completed	Total Labor Hrs	Total Cost \$	Init	Approved	Completed	Total Labor Hrs	Total Cost \$	Init	Approved	Completed	Total Labor Hrs	Total Cost \$
LAWSS (133000)	Lambton Area Water Treatment Plant (5544)	133000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		5544, East Lambton Distribution (5544-WDEL)	1	1	1	12.25	534.9	0	0	0	0	0	0	0	0	0	0
		5544, East Lambton PS (5544-WPEL)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		5544, Forrest Standpipe (5544-WDFS)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		5544, Indian Road Tower (5544-WDIR)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		5544, Lambton Area RMS (5544-WWLA)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		5544, Lambton Area WTP (5544-WTLA)	4	4	3	5.5	270.98	0	0	0	0	0	0	0	0	0	0
		5544, Port Lambton Standpipe (5544-WDPL)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		5544, Watford Standpipe (5544-WDWF)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		5544, West Lambton Booster Str (5544-WPWL)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		5544, West ST.Clair Distribution (5544-WDWS)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total			5	5	4	17.75	805.88	0	0	0	0.00	0.00	0	0	0	0.00	0.00

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Work Order Summary by Facility

Start Date: 2020-02-01
End Date: 2020-02-29
Hub: Lambton

Key Col	Colour	Meaning
Init		No Work Orders initialized
Closed		Closure Rate between 20-50%
Closed		Closure Rate less than 20%

			Preventive Maintenance					Operational					Capital/Project Work					Closure Rate		
			Init	Approved	Completed	Total Labor Hrs	Total Cost \$	Init	Approved	Completed	Total Labor Hrs	Total Cost \$	Init	Approved	Completed	Total Labor Hrs	Total Cost \$	Target	Actual	Variance
LAWSS (133000)	Lambton Area Water Treatment Plant (5544)	133000	0	0	0	0	0	0	0	0	0	0	1	1	0	19.25	1124.61	85%	100%	-15.0%
		5544, East Lambton Distribution (5544-WDEL)	0	0	0	0	0	4	4	4	8.5	298.5	0	0	0	0	0	85%	100%	-15.0%
		5544, East Lambton PS (5544-WPEL)	4	4	4	9.25	470.96	2	2	2	7.75	303.78	0	0	0	0	0	85%	100%	-15.0%
		5544, Forrest Standpipe (5544-WDFS)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	85%	100%	-15.0%
		5544, Indian Road Tower (5544-WDIR)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	85%	100%	-15.0%
		5544, Lambton Area RMS (5544-WWLA)	2	2	2	6	260.58	2	2	2	6.5	239.83	0	0	0	0	0	85%	100%	-15.0%
		5544, Lambton Area WTP (5544-WTLA)	25	25	24	86.5	3703.98	16	16	14	1458.5	42830.97	0	0	0	0	0	85%	91.11%	-6.11%
		5544, Port Lambton Standpipe (5544-WDPL)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	85%	100%	-15.0%
		5544, Watford Standpipe (5544-WDWF)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	85%	100%	-15.0%
		5544, West Lambton Booster Stn (5544-WPWL)	10	10	10	11	503.41	2	2	2	25.75	1282	0	0	0	0	0	85%	100%	-15.0%
		5544, West ST.Clair Distribution (5544-WDWS)	0	0	0	0	0	3	3	3	4.5	190.34	0	0	0	0	0	85%	100%	-15.0%
Grand Total			41	41	40	112.75	4938.93	29	29	27	1511.5	45145.42	1	1	0	19.25	1124.61	85%	100%	-15.0%

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Work Order Summary by Facility

Start Date: 2020-01-01
End Date: 2020-02-29
Hub: Lambton

Key Col	Colour	Meaning
Init		No Work Orders initialized
Closed		Closure Rate between 20-50%
Closed		Closure Rate less than 20%

			Corrective Maintenance					Emergency Maintenance					Call Back				
			Init	Approved	Completed	Total Labor Hrs	Total Cost \$	Init	Approved	Completed	Total Labor Hrs	Total Cost \$	Init	Approved	Completed	Total Labor Hrs	Total Cost \$
LAWSS (133000)	Lambton Area Water Treatment Plant (5544)	133000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		5544, East Lambton Distribution (5544-WDEL)	1	1	1	12.25	534.9	0	0	0	0	0	1	1	1	10	3499.61
		5544, East Lambton PS (5544-WPEL)	1	1	0	9	381.78	0	0	0	0	0	0	0	0	0	0
		5544, Forrest Standpipe (5544-WDFS)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		5544, Indian Road Tower (5544-WDIR)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		5544, Lambton Area RMS (5544-WWLA)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		5544, Lambton Area WTP (5544-WTLA)	6	6	4	146.25	7385.95	0	0	0	0	0	0	0	0	0	0
		5544, Port Lambton Standpipe (5544-WDPL)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		5544, Watford Standpipe (5544-WDWF)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		5544, West Lambton Booster Strn (5544-WPWL)	1	1	1	8.5	374.02	0	0	0	0	0	0	0	0	0	0
		5544, West ST.Clair Distribution (5544-WDWS)	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total			10	10	6	176	8676.65	0	0	0	0.00	0.00	1	1	1	10.00	3499.61

Work Order Summary by Facility

Start Date: 2020-01-01
End Date: 2020-02-29
Hub: Lambton

Key Col	Colour	Meaning
Init		No Work Orders initialized
Closed		Closure Rate between 20-50%
Closed		Closure Rate less than 20%

			Preventive Maintenance					Operational					Capital/Project Work					Closure Rate		
			Init	Approved	Completed	Total Labor Hrs	Total Cost \$	Init	Approved	Completed	Total Labor Hrs	Total Cost \$	Init	Approved	Completed	Total Labor Hrs	Total Cost \$	Target	Actual	Variance
LAWSS (133000)	Lambton Area Water Treatment Plant (5544)	133000	0	0	0	0	0	0	0	0	0	0	1	1	0	19.25	1124.61	85%	100%	-15.0%
		5544, East Lambton Distribution (5544-WDEL)	2	2	0	0	0	8	8	8	10.75	379.35	0	0	0	0	0	85%	83.33%	1.666%
		5544, East Lambton PS (5544-WPEL)	14	14	13	16.5	855.95	4	4	4	14.5	580.81	0	0	0	0	0	85%	89.47%	-4.47%
		5544, Forrest Standpipe (5544-WDFS)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	85%	100%	-15.0%
		5544, Indian Road Tower (5544-WDIR)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	85%	100%	-15.0%
		5544, Lambton Area RMS (5544-WWLA)	4	4	4	11	490.92	4	4	4	9	340.14	0	0	0	0	0	85%	100%	-15.0%
		5544, Lambton Area WTP (5544-WTLA)	63	63	53	209.75	9476.9	29	29	26	3105.75	91956.47	4	4	2	23	17209.88	85%	84.69%	0.306%
		5544, Port Lambton Standpipe (5544-WDPL)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	85%	100%	-15.0%
		5544, Watford Standpipe (5544-WDWF)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	85%	100%	-15.0%
		5544, West Lambton Booster Stn (5544-WPWL)	15	15	15	17	837.45	4	4	4	46.5	2433.1	0	0	0	0	0	85%	100%	-15.0%
		5544, West ST.Clair Distribution (5544-WDWS)	1	1	0	0	0	6	6	5	15.25	603.09	1	1	0	10.5	651.94	85%	62.5%	22.49%
Grand Total			99	99	85	254.25	11661.22	55	55	51	3201.75	96292.96	6	6	2	52.75	18986.43	85%	100%	-15.0%

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From: U
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Facility Org Number:	5544
Facility Works Number:	210000906
Facility Name:	LAMBTON AREA WATER SUPPLY SYSTEM (LAWSS)
Facility Owner:	Local Services Board: LAMBTON AREA WATER SUPPLY SYSTEM
Facility Classification:	Class 4 Water Treatment
Receiver:	
Service Population:	100000.0
Total Design Capacity:	181844.0 m3/day

	01/2020	02/2020	Total	Avg	Max	Min				
Coagulation/Floculation / Coagulant Dosage-Calculated - mg/L										
Max IH	26.437	30.355			30.355					
Mean IH	20.802	24.673		22.673						
Min IH	15.602	20.415				15.602				
Coagulation/Floculation / Coagulant Used - kg										
Max IH	1241.6	1459.2			1459.2					
Mean IH	964.129	1110.069		1034.667						
Min IH	691.2	870.4				691.2				
Total IH	29888	32192	62080							
Coagulation/Floculation / Coagulant Volume Used - m³										
Max IH	0.97	1.14			1.14					
Mean IH	0.753	0.867		0.808						
Min IH	0.54	0.68				0.54				
Total IH	23350	25150	48500							
DW THM Data / Trihalomethane: Total - µg/l										
Max Lab	31				31					
Mean Lab	29.667			29.667						
Min Lab	28					28				
East Lambton Booster Station / Cl Residual: Inlet Free - mg/L										
Max OL	1.49	1.49			1.49					
Mean OL	1.359	1.372		1.365						
Min OL	0	0				0				
Filter Backwash / Backwash Volume - m³										
Max IH	2988	4208			4208					
Mean IH	2017.581	2051.793		2034.117						
Min IH	1208	1200				1200				
HFS / Fluoride Dosage - mg/L										
Max IH	0.63	0.633			0.633					
Mean IH	0.55	0.556		0.553						
Min IH	0.477	0.516				0.477				
HFS / Fluoride Used - l										
Max IH	88.823	94.553			94.553					
Mean IH	83.185	82.796		82.997						
Min IH	68.766	77.361				68.766				
Total IH	2578.73	2401.087	4979.817							
HFS / HFS (kg) - kg										
Max IH	108.364	115.355			115.355					
Mean IH	101.486	101.011		101.256						
Min IH	83.895	94.38				83.895				
Total IH	3146.051	2929.326	6075.377							
HFS / Treated Water Fluoride Residual - mg/L										
Max OL	2	0.81			2					
Mean OL	0.544	0.63		0.587						
Min OL	0	0.23				0				
Post Disinfection / Chlorine Dosage - mg/L										

Max IH	2.078	1.897			2.078				
Mean IH	1.449	1.561		1.503					
Min IH	0.822	1.03				0.822			
Post Disinfection / Hypochlorite Dosage - mg/L									
Max IH	17.316	15.809			17.316				
Mean IH	12.072	13.011		12.526					
Min IH	6.854	8.586				6.854			
Post Disinfection / Hypochlorite Used - kg									
Max IH	777.85	680.325			777.85				
Mean IH	559.262	585.231		571.814					
Min IH	254.975	358.375				254.975			
Total IH	17337.13	16971.7	34308.83						
Post Disinfection / Hypochlorite Volume-Total - m³									
Max IH	0.662	0.579			0.662				
Mean IH	0.476	0.498		0.487					
Min IH	0.217	0.305				0.217			
Total IH	14755	14444	29199						
Post Disinfection / Station 7 Cl Residual: Free - mg/L									
Max OL	5	1.75			5				
Mean OL	1.608	1.636		1.622					
Min OL	0	1.45				0			
Raw Water / Background - cfu/100mL									
Max Lab	10	5			10				
Mean Lab	2.5	1.25		1.875					
Min Lab	0	0				0			
Raw Water / Conductivity - µS/cm									
Max IH	223.4	235.2			235.2				
Mean IH	220.597	226.503		223.452					
Min IH	217.1	217.6				217.1			
Raw Water / E. Coli: EC - cfu/100mL									
Max Lab	0	0			0				
Mean Lab	0	0		0					
Min Lab	0	0				0			
Raw Water / Raw Flow Daily - m³/d									
Max IH	51462	49347			51462				
Mean IH	46223.13	45011.1		45637.32					
Min IH	37203	38233				37203			
Raw Water / Raw Flow Rate - l/s									
Max IH	595.62	571.15			595.62				
Mean IH	534.99	523.03		529.21					
Min IH	430.59	442.51				430.59			
Raw Water / Raw Water Turbidity - NTU									
Max OL	14	11.4			14				
Mean OL	2.445	3.495		2.97					
Min OL	0.26	0.51				0.26			
Raw Water / Raw Water pH - ---									
Max IH	8.27	8.16			8.27				
Mean IH	8.114	8.051		8.084					
Min IH	8.02	7.98				7.98			
Raw Water / Temperature - °C									
Max IH	10	8			10				
Mean IH	7.466	6.083		6.797					
Min IH	5.5	3				3			
Raw Water / Total Coliform: TC - cfu/100mL									
Max Lab	0	0			0				
Mean Lab	0	0		0					
Min Lab	0	0				0			
Treated Water / Background - cfu/100mL									
Max Lab	0	0			0				
Mean Lab	0	0		0					
Min Lab	0	0				0			

Treated Water / E. Coli: EC - cfu/100mL													
Max Lab		0		0				0					
Mean Lab		0		0			0						
Min Lab		0		0						0			
Treated Water / Electrical Consumption - kWh													
Total IH		1060323		1063396		2123719							
Treated Water / Flow: Total of All Sources - m³/d													
Max IH		48147		47888				48147					
Mean IH		44815.48		44078.86			44459.45						
Min IH		37737		38449						37737			
Total IH		1389280		1278287		2667567							
Treated Water / HPC - cfu/mL													
Max Lab	<	10	<	40				<	40				
Mean Lab	<	10	<	17.5			<	13.75					
Min Lab	<	10	<	10						<	10		
Treated Water / Total Coliform: TC - cfu/100mL													
Max Lab		0		0				0					
Mean Lab		0		0			0						
Min Lab		0		0						0			
Treated Water / Turbidity - NTU													
Max OL		0.094		0.11				0.11					
Mean OL		0.069		0.069			0.069						
Min OL		0.052		0.052						0.052			
West Lambton Booster Station / CI Residual: Outlet Free - mg/L													
Max OL		4.98		1.88				4.98					
Mean OL		1.666		1.694			1.68						
Min OL		0		0						0			
Zebra Mussel Control / Chlorine Dosage - mg/L													
Max IH		1.251		1.294				1.294					
Mean IH		1.057		1.137			1.096						
Min IH		0.972		0.971						0.971			
Zebra Mussel Control / CI Residual: Free - mg/L													
Max IH		0.66		0.67				0.67					
Mean IH		0.597		0.599			0.598						
Min IH		0.46		0.44						0.44			
Zebra Mussel Control / CI Residual: Total - mg/L													
Max IH		0.84		0.82				0.84					
Mean IH		0.759		0.754			0.756						
Min IH		0.61		0.6						0.6			
Zebra Mussel Control / Hypochlorite Dosage - mg/L													
Max IH		10.423		10.787				10.787					
Mean IH		8.812		9.472			9.131						
Min IH		8.102		8.095						8.095			
Zebra Mussel Control / Hypochlorite Used - kg													
Max IH		470		492.325				492.325					
Mean IH		407.081		425.512			415.989						
Min IH		339.575		358.375						339.575			
Total IH		12619.5		12339.85		24959.35							
Zebra Mussel Control / Hypochlorite Volume-Total-1 - m³													
Max IH		0.4		0.419				0.419					
Mean IH		0.346		0.362			0.354						
Min IH		0.289		0.305						0.289			
Total IH		10740		10502		21242							