



Ontario Clean Water Agency
Agence Ontarienne Des Eaux

2020 Client Monthly Operations Report

Lambton Area Water Supply System

March 31, 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

March: MECP inspection started February 12. Final results arrived March 31 with a 100% rating.

Offsite external audit conducted March 25th. No OFIs or non-conformities.

Maintenance, Operations & Distribution Works Summary 2020

Maintenance

March:

Date	(P)reventative Capital Major Mtc (C)orrective	Description
March 1-2	C	Drain down of West reservoir at the water treatment for inspection.
March 2	Capital	Testing East Lambton Pumping Station radio system.
March 2-3	C	West Reservoir at water treatment plant being cleaned.
March 3	P	Tested alarm system at the water treatment plant.
March 4	C	Engineers in to inspect West reservoir at the water treatment plant.
March 4	P	Completed monthly inspection of eyewash and emergency shower stations.
March 4-5	C	Crack injection of West reservoir begins.
March 5	P	Annual elevator service completed.
March 6	C	Replaced PRV on pre chlorine system to solve P+ issues.
March 6	P	Tested generators at East Lambton Pumping Station.
March 6	C	Replaced pH probe on Station 7.
March 6	P	Tested intruder alarm at West Lambton Pumping Station.
March 6	C	Removed loose louvers on the air handling units in the high lift room.

March 6	C	Filled coolant on generator 2 at the water treatment plant.
March 8	C	West reservoir superchlorinated and ready to be filled.
March 8	C	Adjusted PRV setpoints on pre chlorine system
March 9	P	Completed monthly calibration of chlorine analyzers at West Lambton Pumping Station.
March 10	P	Completed monthly inspection of online chlorine analyzers at the water treatment plant.
March 10	P	Tested diesel generators at West Lambton Pumping Station.
March 11	Capital	Meeting with Nick Wilson in regards to Ross Valve work at West Lambton Pumping Station.
March 11	P	Completed monthly maintenance on all turbidity meters at the water treatment plant.
March 12	P	Conducted monthly maintenance on vacuum priming system at East Lambton Pumping Station.
March 12	P	Conducted monthly maintenance on all pH probes at the water treatment plant.
March 12	P	Completed monthly maintenance on fluoride analyzer.
March 12	P	Conducted annual inspection of RMS gear drives.
March 16	C	Corrected issue with West Lambton fill valve.
March 17-18	P	Conducted monthly inspection of floc gear drives.
March 19	P	Conducted monthly inspection of travelling screens in the screens room.
March 20	P	Completed annual inspection of butterfly in Kiosk.
March 25	P	Completed annual inspection of screen room sluice gates.
March 31	P	Tested polymer system as per SOP
March 31	P	Tested RMS actiflo chlorine residuals, EQ overflow and plant drains. No chlorine residuals detected.
March 31	P	Completed monthly maintenance on chlorine analyzers at East Lambton Pumping Station.
March 31	P	Completed monthly inspection of Hach pocket chlorine colorimeter.
March 31	P	Completed monthly inspection of streaming current meters at the water treatment plant.
March 31	P	Conducted monthly maintenance on RMS turbidity meters.

Operations and Compliance

March:

March 1-2	Draining down West reservoir. Using new CT calculations due to bypass of reservoirs.
March 4	Pre chlorine pumps 2 and 3 failed with p+ alarm. Pumps and panels were reset.
March 5	Pre chlorine pumps 2 and 3 failed with p+ alarm. Pumps and panels were reset.
March 8	Start fill of West reservoir at water treatment plant after all work completed.

March 8	Emergency chlorine pumps started to help with reservoir fill chlorine residuals.
March 8	All pre chlorine pumps failed with p+ alarm. Pumps and panel were reset.
March 11	Completed forms and presented to Clinton all work done on reservoir.
March 11	Ravenswood taking water. Stopped taking water same day.
March 11	Sent notification to MECP that West reservoir back in service after bacteriological results came in as safe.
March 12	Emergency preparedness meeting with LAWSS GM and emergency prep team.
March 13	West Lambton Pumping Station fill valve not working. Will not open.
March 17	Conducted designated substance review.
March 19	Pre chlorine pumps 3 failed with p+ alarm. Pump and panel were reset.
March 20	Pre chlorine pumps 3 failed with p+ alarm. Pump and panel were reset.
March 25	Results of offsite external audit arrive. No OFIs or non-conformities.
March 27	HFS pump faulted with P-. Pump and panel were reset.
March 27	Filter to waste valve on Filter #6 failed to close after backwash. Valve was manually closed.
March 29	Filter to waste valve on Filter #6 failed to close after backwash. Valve was manually closed.
March 30	MDWL renewal complete and sent to MECP.
March 31	Lead sampling in St Clair Township is complete.
March 31	Results of MECP inspection back. 100%!

Distribution

March:

March 2	Meter reads complete for February.
March 3	After hours emergency locate #20200105594.
March 3	Hydrant #46 tested, flushed and placed back in service.
March 3	Site meet for drill hole work on Fleming.
March 4	Site meet at Fleming and Lakeshore for future Bell work.
March 4	Onsite to flush and pressure test hydrant on Fleming with Jacobs.
March 5	Onsite for third party work at Fleming and Lakeshore.
March 6	Onsite for third party work at Fleming and Lakeshore.
March 11	Site meet at Canatara Park for future work.
March 17	Site meet at LaSalle Line near fire school for upcoming work.
March 24	Onsite for third party work on LaSalle Line.
March 25	On site for third party work at Navoo Rd and Zion Line.
March 30	Onsite for third party work on LaSalle Line near fire school.
March 31	Meter reads complete for March.
March 31	Site meet with Bluewater Power at Exmouth and Venetian.

Call Outs 2020

March: Call out March 1st for an emergency locate and a leaking hydrant.
Call out March 28th for an emergency locate in Sombra.

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	107									

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	231									

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 – 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: 2020-03-01

End Date: 2020-03-31

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	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)	2	2	2	5.75	245.89	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	2.00	74.22	85.00%	100.00%	-15.00%
		Total	4	4	4	8.75	357.90	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%

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Health & Safety Work Order Summary by Facility

Start Date: 2020-01-01

End Date: 2020-03-31

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	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)	11	11	11	20.50	875.53	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.Claire Distribution (5544-WDWS)	2	2	2	2.00	75.58	85.00%	100.00%	-15.00%
		Lambton Area Water Treatment Plant (5544)	2	2	2	3.00	131.69	85.00%	100.00%	-15.00%
		Total			15	15	15	25.50	1082.80	85.00%

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

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Work Order Summary by Facility

Start Date: 2020-03-01
End Date: 2020-03-31
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)	5544, East Lambton Distribution (5544-WDEL)	0	0	0	0	0	0	0	0	0	0	1	1	1	6	265.26
		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)	1	1	1	1.5	55.67	0	0	0	0	0	0	0	0	0	0
		5544, Lambton Area WTP (5544-WTLA)	4	4	2	8	342.72	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 Stn (5544-WPWL)	1	1	1	1.5	55.67	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	1	1	1	6	211.62
		Lambton Area Water Treatment Plant (5544)	1	1	1	2	74.22	0	0	0	0	0	0	0	0	0	0
Grand Total			7	7	5	13	528.28	0	0	0	0.00	0.00	2	2	2	12.00	476.88

Work Order Summary by Facility

Start Date: 2020-03-01
End Date: 2020-03-31
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)	5544, East Lambton Distribution (5544-WDEL)	1	1	0	0	0	4	4	4	16.25	638.04	0	0	0	0	0	85%	83.33%	1.666%
		5544, East Lambton PS (5544-WPEL)	4	4	4	11.25	597.18	2	2	2	6.75	242.59	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	2	100.31	2	2	2	6.5	227.47	0	0	0	0	0	85%	100%	-15.0%
		5544, Lambton Area WTP (5544-WTLA)	29	29	29	75.25	2989.78	10	10	9	1615.25	45892	0	0	0	0	0	85%	93.02%	-8.02%
		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)	3	3	3	8	423.8	2	2	2	14.25	669.53	0	0	0	0	0	85%	100%	-15.0%
		5544, West ST.Clair Distribution (5544-WDWS)	0	0	0	0	0	3	3	3	6.75	282.58	0	0	0	0	0	85%	100%	-15.0%
		Lambton Area Water Treatment Plant (5544)	1	1	1	2	74.22	0	0	0	0	0	0	0	0	0	0	85%	100%	-15.0%
Grand Total			40	40	39	98.5	4185.29	23	23	22	1665.75	47952.21	0	0	0	0	0	85%	100%	-15.0%

Work Order Summary by Facility

Start Date: 2020-01-01
End Date: 2020-03-31
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	2	2	2	16	3764.87
		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)	1	1	1	1.5	55.67	0	0	0	0	0	0	0	0	0	0
		5544, Lambton Area WTP (5544-WTLA)	10	10	6	154.25	7728.67	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 Stn (5544-WPWL)	2	2	2	10	429.69	0	0	0	0	0	0	0	0	0	0
		5544, West ST.Claire Distribution (5544-WDWS)	1	1	0	0	0	0	0	0	0	0	1	1	1	6	211.62
Grand Total			16	16	10	187	9130.71	0	0	0	0.00	0.00	3	3	3	22.00	3976.49

Work Order Summary by Facility

Start Date: 2020-01-01
End Date: 2020-03-31
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	47.5	2774.99	85%	100%	-15.0%
		5544, East Lambton Distribution (5544-WDEL)	3	3	0	0	0	12	12	12	27	1031.7	0	0	0	0	0	85%	83.33%	1.666%
		5544, East Lambton PS (5544-WPEL)	18	18	17	27.75	1453.13	6	6	6	21.25	831.49	0	0	0	0	0	85%	92%	-7.00%
		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)	6	6	6	13	596.21	6	6	6	15.5	567.61	0	0	0	0	0	85%	100%	-15.0%
		5544, Lambton Area WTP (5544-WTLA)	92	92	83	287	12581.62	39	39	35	4729	138534	4	4	2	23	17209.88	85%	87.94%	-2.94%
		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)	18	18	18	25	1261.25	6	6	6	60.75	3115.08	0	0	0	0	0	85%	100%	-15.0%
		5544, West ST.Clair Distribution (5544-WDWS)	1	1	0	0	0	9	9	8	22	888.15	1	1	0	10.5	651.94	85%	75%	9.999%
Grand Total			138	138	124	352.75	15892.21	78	78	73	4875.5	144968	6	6	2	81	20636.81	85%	100%	-15.0%

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Ontario Clean Water Agency
Time Series Info Report

From: 01/01/2020 to
31/03/2020

Report extracted 04/08/2020 10:07

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	03/2020	Total	Avg	Max	Min
Coagulation/Floculation / Coagulant Dosage-Calculated - mg/L							
Max IH	26.437	30.355	29.818			30.355	
Mean IH	20.802	24.673	25.189		23.53		
Min IH	15.602	20.415	20.129				15.602
Coagulation/Floculation / Coagulant Used - kg							
Max IH	1241.6	1459.2	1638.4			1638.4	
Mean IH	964.129	1110.069	1104.103		1058.321		
Min IH	691.2	870.4	793.6				691.2
Total IH	29888	32192	34227.2	96307.2			
Coagulation/Floculation / Coagulant Volume Used - m³							
Max IH	0.97	1.14	1.28			1.28	
Mean IH	0.753	0.867	0.863		0.827		
Min IH	0.54	0.68	0.62				0.54
Total IH	23350	25150	26740	75240			
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	1.83			1.83	
Mean OL	1.359	1.372	1.434		1.388		
Min OL	0	0	0				0
Filter Backwash / Backwash Volume - m³							
Max IH	2988	4208	3666			4208	
Mean IH	2017.581	2051.793	2001.742		2023.088		
Min IH	1208	1200	0				0
HFS / Fluoride Dosage - mg/L							
Max IH	0.63	0.633	0.647			0.647	
Mean IH	0.55	0.556	0.555		0.554		
Min IH	0.477	0.516	0.433				0.433
HFS / Fluoride Used - l							
Max IH	88.823	94.553	91.689			94.553	
Mean IH	83.185	82.796	81.437		82.466		
Min IH	68.766	77.361	63.295				63.295
Total IH	2578.73	2401.087	2524.546	7504.363			
HFS / HFS (kg) - kg							
Max IH	108.364	115.355	111.86			115.355	
Mean IH	101.486	101.011	99.353		100.608		
Min IH	83.895	94.38	77.22				77.22
Total IH	3146.051	2929.326	3079.946	9155.323			
HFS / Treated Water Fluoride Residual - mg/L							
Max OL	2	0.81	0.92			2	
Mean OL	0.544	0.63	0.692		0.622		
Min OL	0	0.23	0.51				0

Post Disinfection / Chlorine Dosage - mg/L													
Max IH	2.078	1.897	2.157					2.157					
Mean IH	1.449	1.561	1.676				1.562						
Min IH	0.822	1.03	1.288								0.822		
Post Disinfection / Hypochlorite Dosage - mg/L													
Max IH	17.316	15.809	17.977					17.977					
Mean IH	12.072	13.011	13.971				13.018						
Min IH	6.854	8.586	10.733								6.854		
Post Disinfection / Hypochlorite Used - kg													
Max IH	777.85	680.325	1083.35					1083.35					
Mean IH	559.262	585.231	615.927				586.841						
Min IH	254.975	358.375	440.625								254.975		
Total IH	17337.13	16971.7	19093.75			53402.58							
Post Disinfection / Hypochlorite Volume-Total - m³													
Max IH	0.662	0.579	0.922					0.922					
Mean IH	0.476	0.498	0.524				0.499						
Min IH	0.217	0.305	0.375								0.217		
Total IH	14755	14444	16250			45449							
Post Disinfection / Station 7 Cl Residual: Free - mg/L													
Max OL	5	1.75	3.1					5					
Mean OL	1.608	1.636	1.816				1.687						
Min OL	0	1.45	1.45								0		
Raw Water / Background - cfu/100mL													
Max Lab	10	5	0					10					
Mean Lab	2.5	1.25	0				1.154						
Min Lab	0	0	0								0		
Raw Water / Conductivity - µS/cm													
Max IH	223.4	235.2	231.1					235.2					
Mean IH	220.597	226.503	222.677				223.188						
Min IH	217.1	217.6	217.8								217.1		
Raw Water / E. Coli: EC - cfu/100mL													
Max Lab	0	0	0					0					
Mean Lab	0	0	0				0						
Min Lab	0	0	0								0		
Raw Water / Raw Flow Daily - m³/d													
Max IH	51462	49347	68210					68210					
Mean IH	46223.13	45011.1	43968.16				45068.7						
Min IH	37203	38233	26615								26615		
Raw Water / Raw Flow Rate - l/s													
Max IH	595.62	571.15	789.47					789.47					
Mean IH	534.99	523.03	508.89				522.29						
Min IH	430.59	442.51	308.04								308.04		
Raw Water / Raw Water Turbidity - NTU													
Max OL	14	11.4	23					23					
Mean OL	2.445	3.495	3.194				3.044						
Min OL	0.26	0.51	0.587								0.26		
Raw Water / Raw Water pH - ---													
Max IH	8.27	8.16	8.13					8.27					
Mean IH	8.114	8.051	8.051				8.073						
Min IH	8.02	7.98	7.96								7.96		
Raw Water / Temperature - °C													
Max IH	10	8	12					12					
Mean IH	7.466	6.083	9.203				7.617						
Min IH	5.5	3	5.9								3		
Raw Water / Total Coliform: TC - cfu/100mL													
Max Lab	0	0	0					0					
Mean Lab	0	0	0				0						
Min Lab	0	0	0								0		
Treated Water / Background - cfu/100mL													
Max Lab	0	0	0					0					
Mean Lab	0	0	0				0						

Min Lab		0		0		0					0	
Treated Water / E. Coli: EC - cfu/100mL												
Max Lab		0		0		0				0		
Mean Lab		0		0		0		0				
Min Lab		0		0		0					0	
Treated Water / Electrical Consumption - kWh												
Total IH		1060323		1063396		1033647		3157366				
Treated Water / Flow: Total of All Sources - m³/d												
Max IH		48147		47888		47433				48147		
Mean IH		44815.48		44078.86		43484.03		44127.16				
Min IH		37737		38449		35292					35292	
Total IH		1389280		1278287		1348005		4015572				
Treated Water / HPC - cfu/mL												
Max Lab	<	10	<	40	<	10			<	40		
Mean Lab	<	10	<	17.5	<	10		<	12.308			
Min Lab	<	10	<	10	<	10					<	10
Treated Water / Total Coliform: TC - cfu/100mL												
Max Lab		0		0		0				0		
Mean Lab		0		0		0		0				
Min Lab		0		0		0					0	
Treated Water / Turbidity - NTU												
Max OL		0.094		0.11		0.741				0.741		
Mean OL		0.069		0.069		0.082		0.073				
Min OL		0.052		0.052		0.048					0.048	
West Lambton Booster Station / Cl Residual: Outlet Free - mg/L												
Max OL		4.98		1.88		2.22				4.98		
Mean OL		1.666		1.694		1.735		1.698				
Min OL		0		0		0					0	
Zebra Mussel Control / Chlorine Dosage - mg/L												
Max IH		1.251		1.294		1.283				1.294		
Mean IH		1.057		1.137		1.143		1.112				
Min IH		0.972		0.971		1.039					0.971	
Zebra Mussel Control / Cl Residual: Free - mg/L												
Max IH		0.66		0.67		0.71				0.71		
Mean IH		0.597		0.599		0.634		0.61				
Min IH		0.46		0.44		0.51					0.44	
Zebra Mussel Control / Cl Residual: Total - mg/L												
Max IH		0.84		0.82		0.86				0.86		
Mean IH		0.759		0.754		0.785		0.766				
Min IH		0.61		0.6		0.67					0.6	
Zebra Mussel Control / Hypochlorite Dosage - mg/L												
Max IH		10.423		10.787		10.696				10.787		
Mean IH		8.812		9.472		9.521		9.264				
Min IH		8.102		8.095		8.656					8.095	
Zebra Mussel Control / Hypochlorite Used - kg												
Max IH		470		492.325		667.4				667.4		
Mean IH		407.081		425.512		418.262		416.763				
Min IH		339.575		358.375		278.475					278.475	
Total IH		12619.5		12339.85		12966.13		37925.48				
Zebra Mussel Control / Hypochlorite Volume-Total-1 - m³												
Max IH		0.4		0.419		0.568				0.568		
Mean IH		0.346		0.362		0.356		0.355				
Min IH		0.289		0.305		0.237					0.237	
Total IH		10740		10502		11035		32277				