

Lou Romano Water Reclamation Plant

(January 01, 2024 to December 31, 2024)



ANNUAL REPORT 2024

Submitted to:
The Ontario Ministry Environment, Conservation and Parks (MECP)
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Introduction

This Annual Report on the operation of the Lou Romano Water Reclamation Plant (LRWRP) covers the calendar year 2024 and is being submitted to the Ontario Ministry of the Environment, Conservation and Parks (MECP).

The LRWRP is a secondary, biological-physical - chemical pollution control plant that discharges its effluent through a 2750 mm box sewer directly to the Detroit River.

The plant has a rated maximum capacity of 273,000 m³/d (60 MGD) for primary treatment and 218,000 m³/d (48 MGD) for secondary treatment. The design capacities are twice the rated capacities, as indicated in the following Table contained on page one of the Environmental Compliance Approval.

Design Capacity with all Treatment Trains in Operation	Upon Issuance of this Approval
Rated Capacity	218,000 m ³ /d
Primary Treatment Capacity	545,000 m ³ /d
Secondary Treatment Capacity	436,000 m ³ /d

During the year of 2024, the plant was operating under the Environmental Compliance Approval (ECA) No. 1853-B43PVC dated September 28, 2018.

All samples are based on ECA sampling criteria and results are from an accredited external laboratory.

Summary of Performance

In 2024, the LRWRP provided primary treatment to 47,338.0 ML and secondary treatment to 46,801.9 ML of sewage, an average of 127.87 ML/day of secondary treated flow. The monthly volumes of sewage treated, treatment plant overflow and the total precipitation, as recorded at the Environment Canada Weather Station at the Windsor Airport are listed in Tables 1 (Raw Overflows) and Table 2 (Primary Overflows).

Influent and Imported Sewage

The influent water quality parameters for the LRWRP are listed in Appendix Table A1.

There were no incidences in 2024 where the daily average flow exceeded the design capacity at Lou Romano Water Reclamation Plant.

The LRWRP reported plant flows for 2024 using the effluent flow meter (less process water) as per ECA condition 9(5)b and recommended by MECP per inspection report received February 14, 2022.

The following Tables and Figures 1 & 2 include Total Flow, Precipitation, Raw Overflow and Primary Overflow volumes respectively.

Table 1: Total Flow, Raw Overflow & Precipitation - 2024

Month	Total Flow (ML)		Raw Overflow			Precipitation (mm)
	Total	Treated	Volume (ML)	# of events	Duration Hours	
January	5,777	5,774	3.2	1	9.2	91.4
February	3,355	3,355	0.0	0	0.0	2.0
March	3,702	3,702	0.0	0	0.0	55.2
April	4,784	4,784	0.0	0	0.0	103.6
May	4,327	4,327	0.0	0	0.0	92.7
June	3,787	3,787	0.0	0	0.0	90.3
July	4,298	4,298	0.0	0	0.0	95.4
August	4,300	4,300	0.0	0	0.0	126.2
September	3,052	3,052	0.0	0	0.0	24.4
October	3,062	3,062	0.0	0	0.0	55.2
November	3,017	3,017	0.0	0	0.0	44.9
December	3,877	3,877	0.0	0	0.0	76.0
Totals	47,338	47,335	3.2	1	9.2	857.3

Figure 1: Total Flow, Raw Overflow & Precipitation - 2024

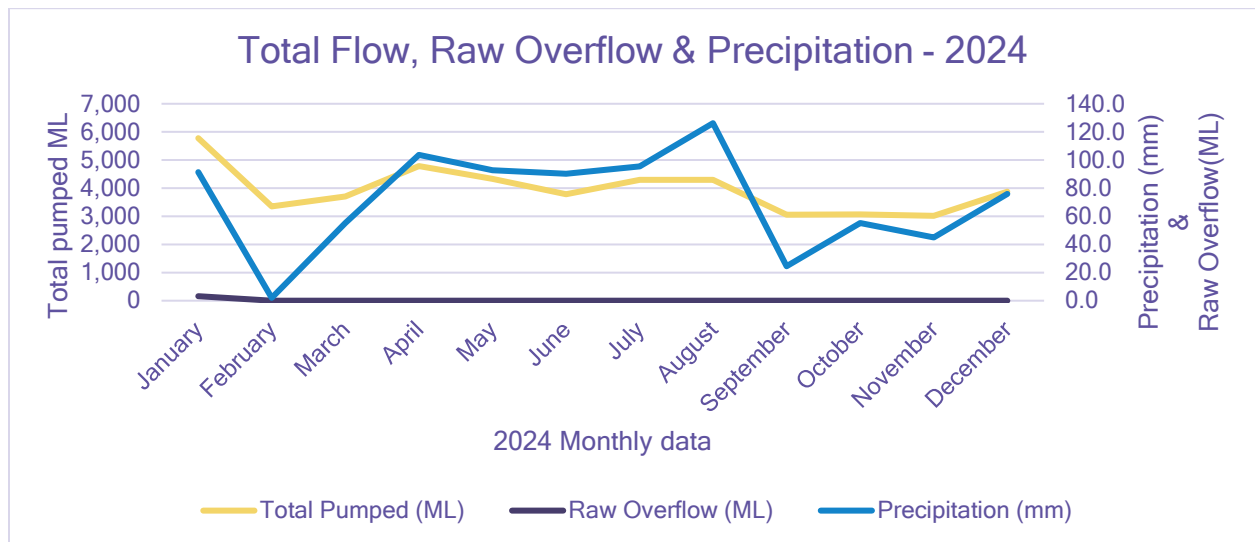
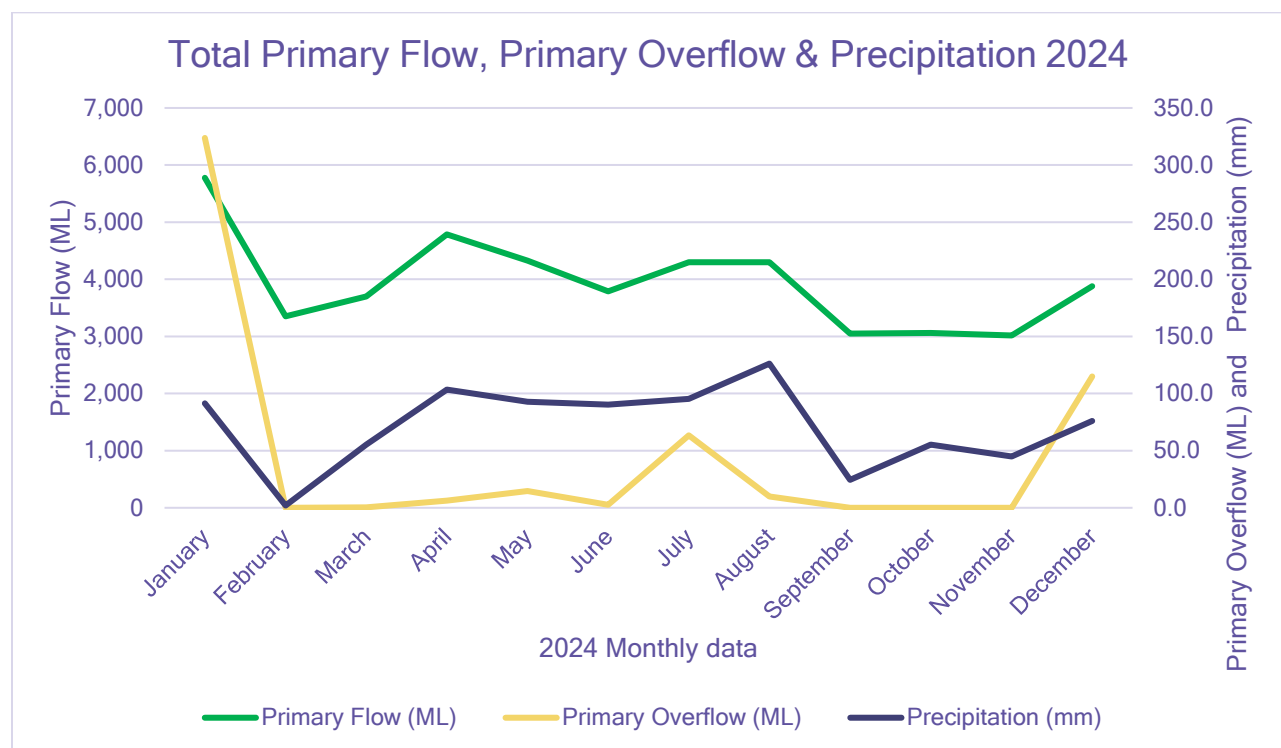


Table 2: Total Primary Flow, Primary Overflow & Precipitation - 2024

Month	Primary Flow (ML)		Primary Overflow (ML)			Precipitation (mm)
	Total	Treated	Volume (ML)	# of events	Duration Hours	
January	5,777	5,453	323.7	5	58.4	91.4
February	3,355	3,355	0.0	0	0.0	2.0
March	3,702	3,702	0.5	1	0.2	55.2
April	4,784	4,778	6.2	2	2.0	103.6
May	4,327	4,312	14.7	2	8.9	92.7
June	3,787	3,784	2.7	1	3.3	90.3
July	4,298	4,235	63.3	1	15.9	95.4
August	4,300	4,290	10.0	2	9.8	126.2
September	3,052	3,052	0.0	0	0.0	24.4
October	3,062	3,062	0.0	0	0.0	55.2
November	3,017	3,017	0.0	0	0.0	44.9
December	3,877	3,762	115.0	1	26.2	76.0
Totals	47,338	46,802	536.1	15	124.7	857.3

Figure 2: Total Primary Flow, Primary Overflow & Precipitation - 2024



Annual average wastewater characteristics and flow data for the past five years are presented in Appendix B, Tables B1 & B2. Appendix B, Tables B3 & B4 show the total volume of LRWRP bypasses (prior to 2018 ECA) and/or overflows from the years 2015 - 2024 and the associated amount of precipitation. There was one (1) Raw Plant Overflow in 2024. Appendix C includes the information on the imported sewage data.

Final Effluent - Design Objectives and Compliance Limits

Objectives

The Lou Romano Water Reclamation Plant undertook all practicable measures to operate the plant in accordance with the following objectives:

Final Effluent Parameter	Averaging Calculator	Objective
cBOD5	Monthly average effluent concentration	10.0 mg/L
Total Suspended Solids	Monthly average effluent concentration	10.0 mg/L
Total Phosphorus	Monthly average effluent concentration	0.40 mg/L
E. Coli	Monthly Average effluent concentration	100 CFU/100mL
pH	Single Sample Result	Between 6.5 - 9.0 inclusive
Unionized Ammonia	Monthly average effluent concentration	0.08 mg/L

Table 3: 2024 Monthly Plant Effluent Concentrations - Compliance Objectives

Month	cBOD5 (mg/L)	TSS (mg/L)	TP (mg/L)	E.Coli (CFU/100 mL)	UIA (mg/L)
January	5.0	7.2	0.14	46	0.01
February	6.9	6.2	0.20	72	0.03
March	8.8	10.3	0.32	51	0.02
April	8.2	13.3	0.36	152	0.02
May	9.3	16.4	0.34	131	0.02
June	5.4	10.2	0.19	34	0.02
July	4.8	7.8	0.27	206	0.01
August	4.7	4.9	0.13	54	0.01
September	8.0	8.1	0.25	64	0.03
October	5.4	8.8	0.25	40	0.02
November	6.6	8.7	0.24	64	0.02
December	8.8	11.6	0.27	75	0.02
Objectives	10.0 mg/L	10.0 mg/L	0.40 mg/L	100 CFU/100mL	0.08 mg/L

There were eight (8) incidents where the averaging calculation exceeded the objectives, as seen in Table 3.

- March (1 incident) - The TSS monthly average effluent concentration was 10.3 mg/L which is above the 10 mg/L objective.
- April (2 incidents) - The TSS monthly average effluent concentration was 13.3 mg/L which is above the 10 mg/L objective. The E. Coli monthly geometric mean density was 152 CFU/100 mL which is above the 100 CFU/100mL objective.
- May (2 incidents) - The TSS monthly average effluent concentration was 16.4 mg/L which is above the 10 mg/L objective. The E. Coli monthly geometric mean density was 131 CFU/100 mL which is above the 100 CFU/100mL objective.
- June (1 incident) - The TSS monthly average effluent concentration was 10.2 mg/L which is above the 10 mg/L objective.
- July (1 incident) - The E. Coli monthly geometric mean density was 206 CFU/100 mL which is above the 100 CFU/100mL objective.
- December (1 incident) - The TSS monthly average effluent concentration was 11.6 mg/L which is above the 10 mg/L objective.

There were three (3) single sample pH results that were not in the compliance objective range of 6.5 - 9.0. The ranges of values of plant final effluent pH recorded in 2024 ranged from 6.44 to 7.55. See Table 4.

Table 4: Plant Final Effluent pH Recorded in 2024

Date	pH Single Sample Result
August 25, 2024	6.48
August 26, 2024	6.45
August 27, 2024	6.44

There were no exceedances of the monthly average concentration objectives for Total Phosphorous, cBOD5 and Unionized Ammonia (UIA) in 2024, as shown in Table 3.

Effluent Quality

The Lou Romano Water Reclamation Plant was operated and maintained in a manner that ensured compliance limits for the Final Effluent parameters, shown below were satisfactorily met.

Concentration Limits

Final Effluent Parameter	Averaging Calculator	Limit (maximum unless otherwise indicated)
cBOD5	Monthly average effluent concentration	15.0 mg/L
Total Suspended Solids	Monthly average effluent concentration	15.0 mg/L
Total Phosphorus	Monthly average effluent concentration	0.50 mg/L
E. Coli	Monthly Average effluent concentration	*200 CFU/100mL
pH	Single Sample Result	Between 6.0 - 9.5 inclusive
Toxicity to Rainbow Trout and Daphnia magna	Single Sample Result	Non-acutely lethal (no more than 50% mortality)
Unionized Ammonia	Monthly average effluent concentration	0.10 mg/L

*If the MPN method is utilized for E.coli analysis the limit shall be 200 MPN/100mL.

There were two (2) incidents in 2024 where the averaging calculation exceeded the Compliance Limit, as seen in Table 5.

Table 5: 2024 Monthly Plant Effluent Concentrations Compliance Limits

Month	cBOD5 (mg/L)	TSS (mg/L)	TP (mg/L)	E. Coli (CFU/100mL)	UIA (mg/L)
January	5.0	7.2	0.14	46	0.01
February	6.9	6.2	0.20	72	0.03
March	8.8	10.3	0.32	51	0.02
April	8.2	13.3	0.36	152	0.02
May	9.3	16.4	0.34	131	0.02
June	5.4	10.2	0.19	34	0.02
July	4.8	7.8	0.27	206	0.01
August	4.7	4.9	0.13	54	0.01
September	8.0	8.1	0.25	64	0.03
October	5.4	8.8	0.25	40	0.02
November	6.6	8.7	0.24	64	0.02
December	8.8	11.6	0.27	75	0.02
Limits	15.0 mg/L	15.0 mg/L	0.50 mg/L	200 CFU/100ml	0.10 mg/L

The values of plant final effluent pH recorded in 2024 ranged from 6.44 to 7.55.
There were no pH values in 2024 that were outside of the compliance limit range of 6.0 - 9.5.

There were two (2) incidents where effluent data exceeded compliance limits in 2024:

- May (1 incident) - The TSS monthly average effluent concentration was 16.4 mg/L which is above the 15 mg/L compliance limit. This incident was reported to MECP on June 3, 2024
- July (1 incident) - The E. Coli monthly geometric mean density was 206 CFU/100 mL which is above the 200 CFU/100mL compliance limits. This incident was reported to MECP on August 6, 2024

There were no exceedances of the monthly average concentration limits for cBOD5, Total Phosphorous (TP), Unionized Ammonia (UIA) and pH.

Monthly Average Loading Limits

Final Effluent Parameter	Averaging Calculator	Limit (maximum unless otherwise indicated)
cBOD5	Monthly average effluent concentration	3,270 kg/d
Total Suspended Solids	Monthly average effluent concentration	3,270 kg/d
Total Phosphorus	Monthly average effluent concentration	109 kg/d

There were no exceedances of monthly loading limits for cBOD5, Total Suspended Solids or Total Phosphorous included in Table 6.

Table 6: 2024 Monthly Average Loading Limit Data

Final Effluent Parameter	Averaging Calculator	Limit (maximum unless otherwise indicated)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
cBOD5 (kg)	Monthly average effluent concentration	3,270 kg/d	932	797	1051	1311	1303	687	666	647	814	533	659	1103
Total Suspended Solids (kg)	Monthly average effluent concentration	3,270 kg/d	1342	720	1230	2126	2295	1291	1082	678	824	869	872	1444
Total Phosphorus (kg)	Monthly average effluent concentration	109 kg/d	25	23	38	57	47	24	38	18	25	25	24	34

The Compliance Testing for final effluent toxicity results are shown in the following Table 7.

Table 7: 2024 Final Effluent Toxicity Results

Date	Daphnia Magna Mean Mortality (%)	Rainbow Trout Mean Mortality (%)	Limits
August 6, 2024	0.0	0.0	Non-Acutely Lethal

As per the Environmental Compliance Approval, the minimum monitoring frequency with respect to acute lethality to Rainbow Trout and Daphnia Magna shall, after eight (8) consecutive quarters of monitoring results not indicating acute lethality, be reduced to annually. If any Final Effluent sample indicates acute lethality to Rainbow Trout or Daphnia magna, the monitoring frequency shall revert to quarterly. The results for toxicity at LRWRP, for 2024, was not in exceedance of ECA limits. LRWRP plant is currently testing annually for toxicity.

The Lou Romano Water Reclamation Plant was operated and maintained such that the Final Effluent was disinfected continuously year-round in 2024.

Deviation from Monitoring Schedule

The Department of Infrastructure Services operates the Pollution Control Laboratory through its Environmental Quality Division. A monitoring program has been established using a contracted certified laboratory for compliance reporting as per the plant's ECA, Schedule D. The Pollution Control Laboratory also maintains a separate monitoring program for plant operational purposes. The established compliance schedule-monitoring program of collecting samples at the required sampling points, frequency, specified sample type and analysis can be found in Appendix D.

The 2024 and 2025 schedules list the day of the week/month for the scheduled sampling. As noted, the 2024 schedule was revised and updated for 2025. The revisions included a rotation of the day of the week/month for the scheduled sampling program, except when the actual scheduled monitoring frequency was three (3) or more times per week.

There were seven (7) deviations from the 2024 sampling schedule due to circumstances such as holidays, sampler malfunctions and power outages.

February 8, 2024

- LRWRP Imported Sewage was collected on February 9, 2024.

April 11, 2024

- LRWRP Imported Sewage sample was scheduled to be collected on April 11, 2024, but due to miscommunication the sample was collected on April 12, 2024.

June 13, 2024

- LRWRP Monthly Influent and Effluent were scheduled to be collected on June 13, 2024, but the date had to be changed to June 16, 2024, due to an insufficient collection amount to complete the required analysis.

June 16, 2024

- Due to the June 13, 2024, incident, the second weekly effluent sample was collected on June 20, 2024.

June 18, 2024

- LRWRP Annual Trace Organics June 18, 2024, collection schedule was changed to June 20, 2024, as the Annual Trace Organic sampling collection procedure had to be followed (using glass jugs and collecting sufficient volume). The samples included Influent, Effluent and sludge.

December 5, 2024

- LRWRP Effluent Industrial Wastewater Related collected on December 18, 2024.

December 29, 2024

- LRWRP 2nd Weekly scheduled to be collected on December 29 was collected on December 28.

Issues and Corrective Actions

The following is a summary of all operating issues encountered and corrective actions that were taken to maintain plant performance in order to ensure effluent quality standards were achieved.

- One planned period of reduced plant capacity occurred during the reporting period. This planned period of plant capacity reduction was required to replace 8 large gate valves in the Main Pumphouse. These valves included raw sewage pump suction and discharge isolation valves as well as a series of bypass valves for two of the three raw sewage pumps on Side 2 of the influent well. The bypass valves are used for pump and raw sewage well flushing. To facilitate this work, fifty percent of the raw sewage well capacity and fifty percent (3) of the raw sewage pumps were rendered out of service. During the period of plant capacity reduction, the maximum rate of flow through the plant was reduced from approximately 700 ML/day to 350 ML/day. Should the need have risen, a plan was in place to be able to restore plant operations back to full pumping capacity in a relatively short period of time. The valve replacement project began August 12, 2024, and was completed on October 15, 2024. Plant effluent quality was not impacted. The second half of this valve replacement project will be undertaken in 2025.
- Efforts to improve dewatering capacity continue. Gearbox, back drive motor and VFD upgrades to Centrifuge 2 have proven successful in reducing centrifuge down time as well as removing additional moisture content from the biosolids produced. A gearbox upgrade was also performed on Centrifuge 3. The gearbox upgrade on Centrifuge 3 has increased the centrifuge's reliability resulting in reduced down time. Back drive motor and VFD upgrades for Centrifuge 3 are planned for 2025. Several cationic polymer trials were performed in dewatering in 2024. The trials proved successful in selecting a new polymer which captures more solids from the sludge being centrifuged. Capturing more solids from the sludge results in less solids being returned to the plant headworks for resettling.
- Various plant equipment is cycled in and out of service over the course of the year based on influent flow rates. Alum and anionic polymer dosing rates are adjusted as necessary throughout the year to promote optimal solids settling and phosphorous removal. BAFF cell refurbishing continued through 2024. Efforts continue on refurbishing cell 12. To date, cells 1,3,6,7,8,10,11,14 and 16 have been refurbished. BAFF cell filtration durations are varied seasonally. Filtration durations refer to the time between backwash cycles. During winter months, cell filtration durations are increased to allow for the growth of additional microorganisms. This is done to compensate for the reduction in microbiological activity attributed to colder water temperatures. During the summer months, cell filtration durations are reduced as the microorganisms become more active. In 2024 BAFF filtration durations ranged from 19 hours to 16 hours throughout the course of the year. Defoamer application rates were adjusted as needed to combat foaming issues in the BAFF cells.

Repairs and Maintenance - Mechanical - 2024

ADMIN-MECHANIC SHOP

- Install additional safety guards for few machines

MAIN PUMPHOUSE

- Raw Sewage Pump RS-2 refurbishment
- Installation of five bypass valves and two suction/discharge valves
- CBS inclined conveyor repairs

GRIT REMOVAL FACILITY

- Replace C channels of the cleaning rake of FBS #3 and #4
- Installed a new hand operated valve/piping for header pipe flushing
- Installed new HW unit heater to replace HWUH-13

PRIMARY SETTLING TANKS

- PST-8, PST-1- drive seal replacement
- PST-2 Scum arm repair

SLUDGE PUMPHOUSES

- Rebuilt Primary sludge pump #1 and #6
- Make up air unit replacement- SPH-1

OUTFALL CHAMBER

- Replacement of PVC piping

PEPs

- Refurbishment PEP screw #4

BIOLOGICAL AERATED FILTERS

- Rehabilitation and reconstruction of Cell #12 (ongoing)
- New brushes for the curved screens
- Installed a new media recovery pump and discharge valve
- Backwash waste pump #2 coupling repairs
- Installation of new desiccant dryer
- Repairs for the Turbo Blower #5 exhaust piping (cracked welds)

DEWATERING

- Installed the refurbished unloader #4
- Install a new cutter set for Dew Grinder #1
- Install a new cutter set for Dew Grinder #2
- Shuttle conveyor bearing/ roller replacement
- Inclined conveyor bearing replacement
- Dewatering boiler repairs- Control board replacements
- Dewatering control room HV-1 extensive repairs
- Dewatering compressor piping repairs
- Installation of new refrigeration dryer for compressed air system

ENVIRONMENTAL LAB

- Repairs for tube cleaning metering pump
- Effluent sampler casing repairs

Repairs and Maintenance - Electrical - 2024

ADMIN

- Replaced GFCI in mechanical shop
- Utility power outage taken to change plant power meter
- Replaced 27.6kV insulator in switchgear

LAB

- Repaired Digi-Prep machine
- Repaired Still
- Repaired Hot Plate
- Repaired Muffle Furnace

MPH

- Replaced RSP5 motor starter
- Repaired damaged distribution breaker
- Refurbished RSP2 motor
- Repaired RSP1 VFD
- Disconnect/Reconnect RSP1 motor for maintenance
- Disconnect/Reconnect RSP2 motor for maintenance
- Replaced CBS PLC power supply contactor
- Replaced security system UPS
- Added shaft grounding kit to RSP1 motor
- Repaired RSDC-C1 check valve
- Installed CBS area sump pump

GRIT

- Replaced unit heater
- Replaced inbound truck bay FOB reader
- Replaced North Grit O2 gas sensor
- Replaced GRP01 VFD
- Replaced South Grit O2 and CH4 gas sensor
- Replaced velocity flow sensor in channel1
- Replaced inlet PH probe
- Replaced GRP05 disconnect switch
- Replaced North Grit gas alarm horn

PST

- Replaced scum tray heaters as needed
- Replaced PST1 rake arm motor
- Installed sludge depth monitoring instrument on PST2
- Repaired PSP00-C12 valve

BAF

- Replaced Cell12 DC1 actuator
- Disconnect/reconnect PEPS4 motor for maintenance
- Replaced 27.6kV T2 feeder cables and fuses
- Replaced Cell9 DC1 actuator
- Disconnect/reconnect Cell4 IC5 for maintenance
- Replaced generator panel UPS
- Replaced Cell16 DC1 actuator
- Replaced surge suppression module in MCC2 (x2)

UV

- Repaired many UV racks
- Replaced bank 3A control board
- Replaced bank 1A UV intensity sensor
- Replaced velocity flow sensor in channel
- Replaced door access control board

DEWATERING

- LBU4 installed and reconnected
- Replaced EF3 motor base
- Disconnect/reconnect Centrifuge2 motors for maintenance
- Replaced Centrifuge2 VFDs
- Disconnect/reconnect air dryer for replacement
- Disconnect/reconnect LBU1 for maintenance

OUTFALL

- Replaced unit heater and installed low building temperature alarm

Effluent Quality Assurance or Control Measures

The effluent quality assurance and control measures that were undertaken at the plant included the following:

- Operational lab data collected daily
- CALA certified laboratory retained for ECA compliance testing
- Computerized preventative maintenance schedule and log
- Treatment chemical feed pump calibration (alum & anionic polyelectrolyte)
- Flow measurement device calibration
- Exercise schedule for plant equipment
- Staff training
- Public education & outreach - provided several tours at LRWRP in 2024

Equipment Calibration

The LRWRP monitored and recorded the flow rate and daily quantity using flow measuring devices, calibrated to an accuracy within plus or minus 10 percent (+/- 10%) of the actual flow rate of the following:

The Plant effluent flow was measured using an open channel flow meter positioned within the UV influent channel downstream of the BAFF facility. A new effluent flow meter and control panel was installed in August 2020. As per ECA Condition 9(5)b, the LRWRP started to report plant flows to the MECP in 2021 using the values collected from this instrument from which was subtracted the Plant Effluent Water Pumping Station measured flow. The LRWRP continued to report plant flows for 2024 using this calculated value.

Plant influent flow to the Sewage Treatment Plant was continuously measured by the plant influent flow meters located in the Modified Parshall Flumes (used to balance the flow between primary settling tanks 1-4 and 5-9) and the plant's secondary treatment backwash return flow meter. The secondary backwash value was subtracted from the sum of the two Modified Parshall Flume flow meter values. Flow volumes from these two flow meters are used for process control only.

Annual inspections of the Final Effluent and Plant Effluent Pumping Station flow monitoring units are performed in order to assess their performance. Calibration test certificates of the influent and effluent monitoring equipment are included in Appendix E.

Design Objectives

The design objectives for the effluent parameter E. coli did meet the 50% threshold of the design objective for the reporting period. The design objective for E. coli is 100 CFU/100 ml. The design objective for E. coli was exceeded in 3 months out of 12 in 2024. TSS design objectives were exceeded in 5 months out of 12 in 2024. There was no increasing trend in the deterioration of the final effluent quality in 2024. LRWRP Plant Rated Capacity = 218 ML. 80% of rated capacity = 174.4 ML. The average daily flow for the LRWRP in 2024 was 129.34 ML. The Annual Average Daily Influent flow did not reach 80% of the Rated Capacity.

Sludge Generated

A total of 219,374,472 liters of raw sludge (average 5.00 % solids) was dewatered during the year. A total of 31,181 tonnes of wet sludge cake (average 26.61 % solids) was produced at the LRWRP in 2024. All of the Lou Romano Water Reclamation Plant's biosolid production in 2024 was converted to approximately 8,297 tonnes of fertilizer while zero tonnes were sent to the landfill. For the year 2024, Synagro (Windsor) Limited operated the Windsor Biosolids Processing Facility (WBPF). The quantities of sludge pumped, wet cake produced and associated solid percentages are listed in the following Table 8. There is no anticipated change in biosolids production in 2025.

Table 8: 2024 Volume of Sludge Processed for LRWRP

Month	Sludge Pumped (L)	Sludge Solids %	Wet Cake (Tonnes)	Landfilled (Tonnes)	Processed (Tonnes)	Cake Solids (%)
January	16,901,838	5.60	2762.70	0	2762.70	27.78
February	15,696,677	5.58	2560.06	0	2560.06	27.54
March	14,664,347	5.84	2544.08	0	2544.08	26.44
April	16,765,031	6.07	2988.27	0	2988.27	26.45
May	18,479,113	5.59	3047.97	0	3047.97	26.86
June	19,908,579	4.56	2553.69	0	2553.69	25.68
July	22,470,324	4.32	2690.37	0	2690.37	26.47
August	21,089,432	3.90	2634.09	0	2634.09	24.88
September	19,097,514	3.95	2186.33	0	2186.33	24.29
October	22,371,585	3.95	2577.60	0	2577.60	26.94
November	16,456,712	5.05	2200.10	0	2200.10	28.14
December	15,473,320	5.57	2435.26	0	2435.26	27.82
Total	219,374,472	5.00 (average)	31,181	0	31,181	26.61 (average)

Additional sludge monitoring data can be found in Appendix F, Table F1 and F2.

Complaints

In 2024, Pollution Control did not receive any 311 service requests that resulted from the LRWRP Operations. The Lab staff were dispatched for investigation purposes, along with the Fire Department, Operations, The Building Department, Enbridge, and/or others to resolve 30 service requests for odour from sewers. None of these "odour from sewers" Service Requests (SR) were the direct result of the plant operations. In addition, to the above service requests, the lab staff attended 71 incidents involving "vehicles leaking fluids" and "Disposal - liquid" due to accidents. None of these incidents were related to the plant operations.

Overflows

As noted in Table 9 below, a total of 3.19 ML of raw sewage to the LRWRP overflowed to the Detroit River. Primary plant overflow was 536.148 ML as noted in Table 9. These primary

overflows represent 1.13% of the primary total flow (ML), for the LRWRP in 2024. All primary plant overflows pass through coarse and fine bar screening, grit removal and disinfection. Plant overflow is currently initiated when the flow to the LRWRP exceeds 436,000 m³/d, (2 times the rated capacity of 218,000 m³/d). There were 15 primary treatment overflows in 2024.

Table 9 : 2024 Primary & Raw Treatment Overflow

Month	Raw Sewage Overflow			Primary Treatment Overflow			Precipitation (mm)
	Volume (ML)	# of Events	Duration (Hours)	Volume (ML)	# of events	Duration (Hours)	
January	3.194	1	9.20	323.740	5	58.40	91.40
February	0.000	0	0.00	0.000	0	0.00	2.00
March	0.000	0	0.00	0.490	1	0.20	55.20
April	0.000	0	0.00	6.240	2	2.00	103.60
May	0.000	0	0.00	14.680	2	8.90	92.70
June	0.000	0	0.00	2.740	1	3.30	90.30
July	0.000	0	0.00	63.310	1	15.90	95.40
August	0.000	0	0.00	9.950	2	9.80	126.20
September	0.000	0	0.00	0.000	0	0.00	24.40
October	0.000	0	0.00	0.000	0	0.00	55.20
November	0.000	0	0.00	0.000	0	0.00	44.90
December	0.000	0	0.00	114.998	1	26.20	76.00
Totals	3.194	1	9.20	536.148	15	124.70	857.30

UV Bypasses

There were 19 spills/UV bypasses in 2024 at the LRWRP, as noted in Table 10. All UV bypasses receive disinfection with sodium hypochlorite.

Table 10: 2024 Spills/UV Bypasses

Event #	Event Summary	Event Type	Date Occurred	Facility Name	Volume Discharge (ML)
#1-4KFHSP	UV bypass	Spills	January 5	LRWRP	0.241
#1-4M4KVC	UV bypass	Spills	January 24	LRWRP	0.594
#1-4U7LXJ	UV bypass	Spills	March 7	LRWRP	0.931
#1-5BUAKP	UV bypass	Spills	March 30	LRWRP	1.137
#1-5C3ZZS	UV bypass	Spills	March 31	LRWRP	0.006
#1-5TY1VU	UV bypass	Spills	April 16	LRWRP	8.328
#1-5VXLCH	UV bypass	Spills	April 17	LRWRP	0.620
#1-6G1ESM	UV bypass	Spills	May 3	LRWRP	0.348
#1-6K3CZA	UV bypass	Spills	May 7	LRWRP	0.360
#1-99TUDB	UV bypass	Spills	July 24	LRWRP	0.923
#1-9JC364	UV bypass	Spills	August 1	LRWRP	0.199
#1-AAZ2L8	UV bypass	Spills	August 27	LRWRP	0.038
#1-AINY11	UV bypass	Spills	September 4	LRWRP	0.056
#1-BRRF9Z	UV bypass	Spills	October 7	LRWRP	0.080
#1-BWTPSC	UV bypass	Spills	October 9	LRWRP	0.276
#1-DVVWXC	UV bypass	Spills	November 26	LRWRP	0.529
#1-F4JLDD	UV bypass	Spills	December 20	LRWRP	0.304
#1-FC78HQ	UV bypass	Spills	December 29	LRWRP	0.670
#1-FBFJTP	UV bypass	Spills	December 30	LRWRP	1.024

Modifications to Sewage Works

There were no Notice of Modifications to Sewage Works completed under Paragraph 1.d. of Condition 10 for the 2024 reported year.

Procedure F-5-1 Conformance

The City's Engineering Department is in the progress of implementing a Sewer Master Plan at a cost of approximately \$5,000,000,000.00 that is intended to identify short and long-term solutions to reduce the risks of basement, surface, and coastal flooding in the City. This work includes public engagement, sewer system modeling, on site flow monitoring, sewer inflow & infiltration investigation, pumping station requirements, additional storm water storage, foundation drains and downspout disconnection. The Sewer Master Plan's recommendations were endorsed by Council in late 2020 with implementation efforts planned over the next 50 plus years.

The implementation of the Sewer Master Plan is anticipated to directly affect flows to the LRWRP and LRPCP over the short and long term. The City is continuing to implement this Master Plan which includes reducing wet weather flow in the sanitary and combined sewage systems and it is anticipated to reduce the associated peak rate and volume of wet weather flow conveyed to the LRWRP and LRPCP.

Construction Schedule

The following Capital Improvement projects were completed or begun in 2024.

Administration Building:

- Plant Perimeter Security upgrades - Completed
- Mechanical Workshop Fire Safety Upgrade - In Progress
- Server Room Fire Safety & Security Upgrade - In Progress

Main Pumphouse:

- Replacement of Raw Sewage Pump VFDs - In Progress
- Refurbishment of Raw Sewage Pump No. 2 (RSP-2) - In Progress
- Replacement of isolation valves - In Progress

Chemical Building:

- New Sodium Hypochlorite disinfection System - In Design

Sludge Pumphouses:

- Miscellaneous Sludge pump refurbishments:

Biological Aerated Filtration Facility (BAFF):

- Backwash Waste pumps VFD replacement - Completed
- Refurbishment of BAFF Cells 11 and 14 - Complete
- Refurbishment of BAFF Cells 4, 5, 9 and 12 - In Progress

Primary Effluent Pumping Station (PEP):

- PEP #2 lower bearing replacement

Dewatering Facility:

- Centrifuge No. 1 VFD replaced - Completed
- Upsizing sludge hopper unloader motor and controls - In Progress
- Centrifuge No. 2 VFD replacement - In Progress

Ultraviolet Disinfection Facility (UV)

- UV Module Replacement - Purchased/In Progress



APPENDIX A

Influent Sewage Data

Appendix A: Influent Sewage Data

Table A1 - 2024 LRWRP Influent Wastewater Characteristics

MONTH	INFLUENT													
	BOD (mg/L)			TSS (mg/L)			TP (mg/L)			TKN (mg/L)			pH	
	avg.	max.	min	avg.	max.	min	avg.	max.	min.	avg.	max.	min.	max	min
Jan	145	212	113	209	243	169	2.5	3.8	1.3	17.9	27.9	12.0	7.23	6.65
Feb	208	277	112	235	370	128	3.7	4.2	2.8	26.6	33.3	18.9	7.24	6.81
Mar	233	289	166	267	355	149	3.9	5.1	3.3	27.0	31.7	17.9	7.13	6.76
Apr	187	290	91	237	318	175	3.1	4.0	2.1	20.0	27.6	8.0	7.15	6.75
May	225	287	126	269	400	163	4.0	5.4	2.2	22.4	30.1	16.2	7.55	6.72
Jun	187	242	137	232	281	143	4.7	5.6	3.5	23.5	26.7	17.8	7.02	6.63
Jul	178	310	92	242	264	216	3.1	4.8	2.1	17.1	26.6	6.7	7.01	6.73
Aug	166	346	59	191	262	123	3.2	6.0	1.1	19.4	27.8	8.8	7.08	6.44
Sep	234	260	206	255	306	173	4.2	4.9	3.5	29.7	34.1	25.3	6.94	6.72
Oct	235	319	163	258	292	152	4.5	6.1	2.5	33.1	37.7	29.9	6.97	6.64
Nov	182	226	101	270	421	177	4.6	6.3	3.2	30.1	35.0	17.2	6.78	6.58
Dec	180	274	53	310	426	132	3.9	4.8	3.3	27.2	35.7	13.0	6.89	6.59
Avg.	197	278	118	248	328	158	3.8	5.1	2.6	24.5	31.2	16.0	7.08	6.67
Max.	235	346	206	310	426	216	4.7	6.3	3.5	33.1	37.7	29.9	7.55	6.81
Min.	166	212	53	191	243	123	2.5	3.8	1.1	17.1	26.6	6.7	6.78	6.44



APPENDIX B

Yearly Comparisons & Historical Data

Appendix B: Yearly Comparisons & Historical Data

Table B1 - LWRRP YEARLY COMPARISONS/RAW OVERFLOW 2020- 2024

Influent Concentration (mg/L)				Effluent Concentration (mg/L)				Percent Removal				FLOW DATA									
YEAR	BOD	SS	TP	TKN	cBOD5	SS	TP	NH3	SS	TP	NH3	Total Flow (ML)	Total Treated Flow (ML)	Raw Overflow (ML)	Raw Overflow Occ.	Raw Overflow Hours	Avg. Daily Flow (ML/D)	Avg. Daily Flow (MGD)	Max. Daily Flow (ML/D)	Effluent Avg. Daily Flow (MI/D)	Effluent Daily Flow (MGD)
2020	158	223	4.5	15.3	6.0	10.1	0.33	3.44	95	93	78	63551	63483	68.00	7	62	171.0	38	525	173	38.1
2021	124	209	4.1	20.6	10.6	11.9	0.32	5.14	94	91	61	52453	60754	43.72	6	43	143.5	32	347	139	30.5
2022	189	249	4.4	30.6	7.5	9.0	0.20	9.76	96	94	47	43973	53034	0.00	0	0	120.5	27	244	120	26.4
2023	186	248	4.2	21.9	7.1	8.8	0.21	6.78	96	93	57	49113	49113	0.00	0	0	134.6	30	477	135	29.6
2024	197	248	3.8	24.5	6.8	9.5	0.25	6.57	96	92	65	47338	47338	3.19	1	9	127.9	28	407	129	28.5

Table B2 - LRWRP YEARLY COMPARISONS/PRIMARY TOTAL OVERFLOWS 2020 - 2024

	Influent Concentration (mg/L)				Effluent Concentration (mg/L)				Percent Removal			FLOW DATA							
YEAR	BOD	SS	TP	TKN	cBOD5	SS	TP	NH3	SS	TP	NH3	Effluent Flow (ML)	Total Treated Flow (ML)	Total Overflow (ML)*	Total Overflow Occ.*	Total Overflow Hrs.*	Avg. Daily flow (ML/D)	Avg. Daily Flow (MGD)	Max Daily Flow (ML/D)
2020	158	223	4.5	15.3	6.0	10.1	0.33	3.44	95	93	78	55558	63483	954.02	25	236	171.0	37.6	525
2021	124	209	4.1	20.6	10.6	11.9	0.32	5.14	94	91	61	51399	59744	746.08	16	188	140.6	30.9	343
2022	189	249	4.4	30.6	7.5	9.0	0.20	9.76	96	94	47	43973	53034	240.71	11	66	120.7	26.6	244
2023	186	248	4.2	21.9	7.1	8.8	0.21	6.78	96	93	57	49113	49113	599.13	14	136	134.6	29.6	477
2024	197	248	3.8	24.5	6.8	9.5	0.25	6.57	96	92	65	47338	47338	536.15	15	125	129.3	28.4	407

Appendix B: Yearly Comparisons & Historical Data

Table B3: Historical Raw Plant Overflow (ML) and Total Precipitation (mm) 2015- 2024

Year	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	Average	Maximum	Minimum
January	0.00	0.00	0.00	0.00	0.00	13.00	0.00	0.00	0.00	3.19	1.30	13.00	0.00
February	0.00	0.00	0.40	7.80	0.00	0.00	0.00	0.00	0.00	0.00	0.82	7.80	0.00
March	0.00	21.60	0.00	0.00	0.00	3.29	0.00	0.00	0.00	0.00	2.49	21.60	0.00
April	0.00	0.00	0.00	0.00	5.65	0.00	0.00	0.00	0.00	0.00	0.57	5.65	0.00
May	15.00	0.00	10.60	2.10	15.61	0.02	0.00	0.00	0.00	0.00	4.33	15.61	0.00
June	12.00	0.00	0.00	0.00	0.00	0.00	6.06	0.00	0.00	0.00	1.81	12.00	0.00
July	0.20	0.00	0.00	0.00	0.00	7.01	19.99	0.00	0.00	0.00	2.72	19.99	0.00
August	0.00	5.60	95.00	0.00	0.00	43.04	4.91	0.00	0.00	0.00	14.86	95.00	0.00
September	17.70	16.30	0.00	0.00	0.00	1.79	10.35	0.00	0.00	0.00	4.61	17.70	0.00
October	0.00	0.00	15.40	0.00	0.00	0.00	2.40	0.00	0.00	0.00	1.78	15.40	0.00
November	0.00	0.00	42.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.29	42.90	0.00
December	23.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.35	23.50	0.00
Totals	68.40	43.50	164.30	9.90	21.26	68.15	43.71	0.00	0.00	3.19	41.92	164.30	0.00
Total Precip (mm)	981.30	1020.00	1080.50	927.80	814.90	814.10	816.10	593.20	917.10	857.30	882.23	1080.50	593.20

Table B4: Historical Primary Plant Overflow (ML) and Total Precipitation (mm) 2015-2024

Year	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	Average	Maximum	Minimum
January	14.60	0.00	2.80	2.10	47.94	203.30	0.00	0.00	81.14	323.74	67.56	323.74	0.00
February	0.00	49.10	52.60	352.60	15.45	0.00	0.00	47.48	205.50	0.00	72.27	352.60	0.00
March	16.90	211.10	98.70	34.80	85.05	153.11	48.57	10.26	117.23	0.49	77.62	211.10	0.49
April	42.80	5.00	2.50	199.70	262.13	0.00	0.00	7.90	23.70	6.24	55.00	262.13	0.00
May	86.30	5.00	104.60	158.00	8.45	34.74	3.64	18.90	0.00	14.68	43.43	158.00	0.00
June	173.10	0.40	0.00	0.00	0.00	35.97	110.09	8.06	15.01	2.74	34.54	173.10	0.00
July	36.10	0.20	0.00	0.00	2.56	90.36	174.07	0.03	24.58	63.31	39.12	174.07	0.00
August	52.40	48.70	226.10	0.00	13.13	246.02	62.12	0.23	131.97	9.95	79.06	246.02	0.00
September	79.60	231.80	0.00	116.20	18.69	114.24	180.96	0.00	0.00	0.00	74.15	231.80	0.00
October	20.50	0.00	40.90	29.40	125.07	5.28	140.21	0.00	0.00	0.00	36.14	140.21	0.00
November	1.00	16.70	132.30	131.10	0.20	2.85	0.00	37.38	0.00	0.00	32.15	132.30	0.00
December	98.20	48.40	0.00	1.50	18.78	0.00	26.42	110.47	0.00	115.00	41.88	115.00	0.00
Totals	621.50	616.40	660.50	1025.40	597.45	885.87	746.08	240.71	599.13	536.15	652.92	1025.40	240.71
Total Precip (mm)	981.30	1020.00	1080.50	927.80	814.90	814.10	816.10	593.20	917.10	857.30	882.23	1080.50	593.20



APPENDIX C

Imported Sewage Data

Appendix C: Imported Sewage Data

2024 Lou Romano Water Reclamation Plant ECA Non-Regulated Test Results

Imported Sewage

Imported Sewage - Monthly

Parameter	Unit	Imported Sewage											
		11-Jan-24	9-Feb-24	14-Mar-24	12-Apr-24	9-May-24	13-Jun-24	11-Jul-24	8-Aug-24	12-Sep-24	10-Oct-24	14-Nov-24	12-Dec-24
BOD ⁵	mg/L	1480.00	97.00	201.00	26.00	195.00	1010.00	212.00	192.00	122.00	183.00	207.00	338.00
Total Suspended Solids	mg/L	29.00	32.00	49.00	53.00	108.00	117.00	124.00	100.00	100.00	70.00	55.00	143.00
Total Kjeldahl Nitrogen	mg/L	1380.00	1070.00	983.00	996.00	904.00	748.00	882.00	728.00	711.00	907.00	1180.00	1430.00
Total Phosphorous	mg/L	5.30	5.70	1.60	9.10	13.70	16.40	14.60	14.20	19.40	20.50	16.30	17.20

Leachate

Leachate Related Metals - Quarterly

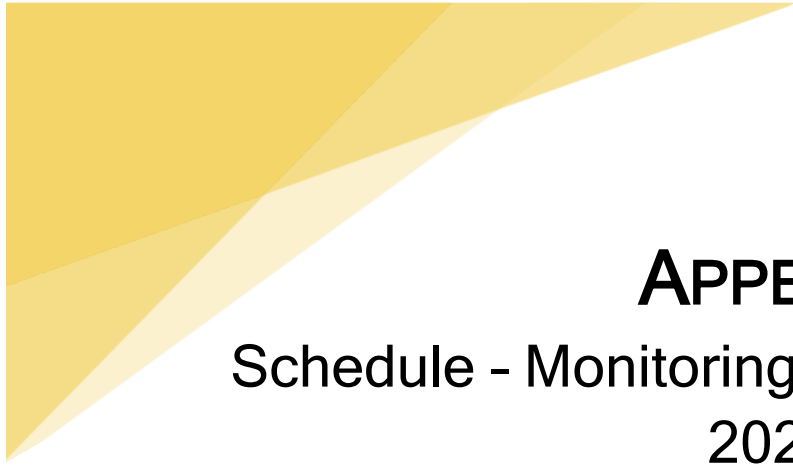
Parameter	Unit	LRWRP Effluent			
		7-Mar-24	6-Jun-24	5-Sep-24	5-Dec-24
Boron (Total)	mg/L	0.203	0.146	0.060	0.177
Cobalt (Total)	mg/L	0.000405	0.000288	0.00824	0.000226
Magnesium (Total)	mg/L	16.9	13.80	13.60	15.0
Manganese (Total)	mg/L	0.050	0.0351	0.212	0.067
Potassium (Total)	mg/L	21.90	9.20	2.85	22.80
Strontium (Total)	mg/L	0.761	0.836	0.647	0.62
Bis(2-Ethylhexyl)phthalate	µg/L	2.0	2.0	2.0	2

Industrial waste

Industrial Water Related Organics Outlet of UV Disinfection

- Quarterly Composite Samples

Parameter	Unit	LRWRP Effluent			
		7-Mar-24	6-Jun-24	5-Sep-24	18-Dec-24
Lindane	µg/L	0.01	0.01	0.01	0.01
Aldrin	µg/L	0.01	0.01	0.01	0.01
Chlordane	µg/L	0.02	0.02	0.02	0.02
Dieldrin	µg/L	0.01	0.01	0.01	0.01
Hexachlorobenzene	µg/L	1.00	1.00	1.00	1.00
Benzo(a)pyrene	µg/L	0.01	0.01	0.01	0.01
PCBs	µg/L	0.04	0.04	0.04	0.0
Cadmium (Total)	mg/L	0.00001	0.000011	0.000010	0.000007
Mercury (Total)	mg/L	0.00001	0.00001	0.00001	0.00001



APPENDIX D

Schedule - Monitoring Program 2024 & 2025



2024 LRWRP/LRPCP MECP ECA & ECCC WSER Testing Schedule

Jan-24	Feb-24	Mar-24
Monday, 1 January 2024	Thursday, 1 February 2024	Friday, 1 March 2024
Tuesday, 2 January 2024	Friday, 2 February 2024	Saturday, 2 March 2024
Wednesday, 3 January 2024	Saturday, 3 February 2024	Sunday, 3 March 2024
Thursday, 4 January 2024	Sunday, 4 February 2024	Monday, 4 March 2024
Friday, 5 January 2024	Monday, 5 February 2024	Tuesday, 5 March 2024
Saturday, 6 January 2024	Tuesday, 6 February 2024	Wednesday, 6 March 2024
Sunday, 7 January 2024	Wednesday, 7 February 2024	Thursday, 7 March 2024
Monday, 8 January 2024	Thursday, 8 February 2024	Friday, 8 March 2024
Tuesday, 9 January 2024	Friday, 9 February 2024	Saturday, 9 March 2024
Wednesday, 10 January 2024	Saturday, 10 February 2024	Sunday, 10 March 2024
Thursday, 11 January 2024	Sunday, 11 February 2024	Monday, 11 March 2024
Friday, 12 January 2024	Monday, 12 February 2024	Tuesday, 12 March 2024
Saturday, 13 January 2024	Tuesday, 13 February 2024	Wednesday, 13 March 2024
Sunday, 14 January 2024	Wednesday, 14 February 2024	Thursday, 14 March 2024
Monday, 15 January 2024	Thursday, 15 February 2024	Friday, 15 March 2024
Tuesday, 16 January 2024	Friday, 16 February 2024	Saturday, 16 March 2024
Wednesday, 17 January 2024	Saturday, 17 February 2024	Sunday, 17 March 2024
Thursday, 18 January 2024	Sunday, 18 February 2024	Monday, 18 March 2024
Friday, 19 January 2024	Monday, 19 February 2024	Tuesday, 19 March 2024
Saturday, 20 January 2024	Tuesday, 20 February 2024	Wednesday, 20 March 2024
Sunday, 21 January 2024	Wednesday, 21 February 2024	Thursday, 21 March 2024
Monday, 22 January 2024	Thursday, 22 February 2024	Friday, 22 March 2024
Tuesday, 23 January 2024	Friday, 23 February 2024	Saturday, 23 March 2024
Wednesday, 24 January 2024	Saturday, 24 February 2024	Sunday, 24 March 2024
Thursday, 25 January 2024	Sunday, 25 February 2024	Monday, 25 March 2024
Friday, 26 January 2024	Monday, 26 February 2024	Tuesday, 26 March 2024
Saturday, 27 January 2024	Tuesday, 27 February 2024	Wednesday, 27 March 2024
Sunday, 28 January 2024	Wednesday, 28 February 2024	Thursday, 28 March 2024
Monday, 29 January 2024	Thursday, 29 February 2024	Friday, 29 March 2024
Tuesday, 30 January 2024		Saturday, 30 March 2024
Wednesday, 31 January 2024		Sunday, 31 March 2024

1 - Holiday

2A - Composite - Monthly - LRWRP & LRPCP Influent/Effluent

2B - Composite - Monthly - LRWRP & LRPCP Sludge

3 - Composite - Weekly - LRWRP & LRPCP Influent/Effluent

4 - Composite - 2nd Weekly - LRWRP Effluent (CBOD & TSS)

5 - Grab - Weekly - LRWRP & LRPCP Effluent - E. Coli **

6 - Grab - Annual - LRWRP/LRPCP Effluent Toxicity

7 - Grab - Monthly - LRWRP Imported Sewage

8 - Composite - Quarterly - LRWRP Effluent Industrial Wastewater Related

9 - Grab - Quarterly - LRWRP Effluent Leachate Related

10 - Grab - Annual - LRWRP/LRPCP Sludge & Influent/Effluent (Trace Organics)

** LRWRP - WSER Acute Lethality RT testing is quarterly unless of test failure (>50% mortality), then testing reverts to monthly as per WSER (federal regulation)

** LRWRP - ECA Acute Lethality RT & DM testing is annually unless of test failure (>50% mortality), then testing reverts to quarterly as per MECP ECA (provincial regulation, see LRWRP ECA Condition 9(4) & Schedule D for details)

**LRPCP - Effluent E. Coli must be monitored during the disinfection period from May 1 through October 31

Note: In the event of a holiday or a missed sample, the scheduled sampling date shall be moved to the next available date

LRWRP - Plant operations outside of Normal Operating Conditions - occurs when primary or secondary daily flow exceeds the available capacity for the day
Effluent Composite - CBOD TSS TP NH3 TKN NO2 NO3

LRWRP - Raw Sewage or Primary Overflow
BOD TSS TP TKN

LRPCP - Primary Overflow
BOD TSS TP E. Coli

2024 LRWRP/LRPCP MECP ECA & ECCC WSER Testing Schedule

Apr-24	May-24	Jun-24
Monday, 1 April 2024	Wednesday, 1 May 2024	Saturday, 1 June 2024
Tuesday, 2 April 2024	Thursday, 2 May 2024	Sunday, 2 June 2024
Wednesday, 3 April 2024	Friday, 3 May 2024	Monday, 3 June 2024
Thursday, 4 April 2024	Saturday, 4 May 2024	Tuesday, 4 June 2024
Friday, 5 April 2024	Sunday, 5 May 2024	Wednesday, 5 June 2024
Saturday, 6 April 2024	Monday, 6 May 2024	Thursday, 6 June 2024
Sunday, 7 April 2024	Tuesday, 7 May 2024	Friday, 7 June 2024
Monday, 8 April 2024	Wednesday, 8 May 2024	Saturday, 8 June 2024
Tuesday, 9 April 2024	Thursday, 9 May 2024	Sunday, 9 June 2024
Wednesday, 10 April 2024	Friday, 10 May 2024	Monday, 10 June 2024
Thursday, 11 April 2024	Saturday, 11 May 2024	Tuesday, 11 June 2024
Friday, 12 April 2024	Sunday, 12 May 2024	Wednesday, 12 June 2024
Saturday, 13 April 2024	Monday, 13 May 2024	Thursday, 13 June 2024
Sunday, 14 April 2024	Tuesday, 14 May 2024	Friday, 14 June 2024
Monday, 15 April 2024	Wednesday, 15 May 2024	Saturday, 15 June 2024
Tuesday, 16 April 2024	Thursday, 16 May 2024	Sunday, 16 June 2024
Wednesday, 17 April 2024	Friday, 17 May 2024	Monday, 17 June 2024
Thursday, 18 April 2024	Saturday, 18 May 2024	Tuesday, 18 June 2024
Friday, 19 April 2024	Sunday, 19 May 2024	Wednesday, 19 June 2024
Saturday, 20 April 2024	Monday, 20 May 2024	Thursday, 20 June 2024
Sunday, 21 April 2024	Tuesday, 21 May 2024	Friday, 21 June 2024
Monday, 22 April 2024	Wednesday, 22 May 2024	Saturday, 22 June 2024
Tuesday, 23 April 2024	Thursday, 23 May 2024	Sunday, 23 June 2024
Wednesday, 24 April 2024	Friday, 24 May 2024	Monday, 24 June 2024
Thursday, 25 April 2024	Saturday, 25 May 2024	Tuesday, 25 June 2024
Friday, 26 April 2024	Sunday, 26 May 2024	Wednesday, 26 June 2024
Saturday, 27 April 2024	Monday, 27 May 2024	Thursday, 27 June 2024
Sunday, 28 April 2024	Tuesday, 28 May 2024	Friday, 28 June 2024
Monday, 29 April 2024	Wednesday, 29 May 2024	Saturday, 29 June 2024
Tuesday, 30 April 2024	Thursday, 30 May 2024	Sunday, 30 June 2024
	Friday, 31 May 2024	

1 - Holiday

2 - Composite - Monthly - LRWRP & LRPCP Influent/Effluent

2 - Composite - Monthly - LRWRP & LRPCP Sludge

3 - Composite - Weekly - LRWRP & LRPCP Influent/Effluent

4 - Composite - 2nd Weekly - LRWRP Effluent (CBOD & TSS)

5 - Grab - Weekly - LRWRP & LRPCP Effluent - E. Coli **

6 - Grab - Annual - LRWRP/LRPCP Effluent Toxicity

7 - Grab - Monthly - LRWRP Imported Sewage

8 - Composite - Quarterly - LRWRP Effluent Industrial Wastewater Related

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LRWRP - Raw Sewage or Primary Overflow
BOD TSS TP TKN

LRPCP - Primary Overflow
BOD TSS TP E. Coli



2024 LRWRP/LRPCP MECP ECA & ECCC WSER Testing Schedule

Jul-24	Aug-24	Sep-24
Monday, 1 July 2024	Thursday, 1 August 2024	Sunday, 1 September 2024
Tuesday, 2 July 2024	Friday, 2 August 2024	Monday, 2 September 2024
Wednesday, 3 July 2024	Saturday, 3 August 2024	Tuesday, 3 September 2024
Thursday, 4 July 2024	Sunday, 4 August 2024	Wednesday, 4 September 2024
Friday, 5 July 2024	Monday, 5 August 2024	Thursday, 5 September 2024
Saturday, 6 July 2024	Tuesday, 6 August 2024	Friday, 6 September 2024
Sunday, 7 July 2024	Wednesday, 7 August 2024	Saturday, 7 September 2024
Monday, 8 July 2024	Thursday, 8 August 2024	Sunday, 8 September 2024
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Wednesday, 10 July 2024	Saturday, 10 August 2024	Tuesday, 10 September 2024
Thursday, 11 July 2024	Sunday, 11 August 2024	Wednesday, 11 September 2024
Friday, 12 July 2024	Monday, 12 August 2024	Thursday, 12 September 2024
Saturday, 13 July 2024	Tuesday, 13 August 2024	Friday, 13 September 2024
Sunday, 14 July 2024	Wednesday, 14 August 2024	Saturday, 14 September 2024
Monday, 15 July 2024	Thursday, 15 August 2024	Sunday, 15 September 2024
Tuesday, 16 July 2024	Friday, 16 August 2024	Monday, 16 September 2024
Wednesday, 17 July 2024	Saturday, 17 August 2024	Tuesday, 17 September 2024
Thursday, 18 July 2024	Sunday, 18 August 2024	Wednesday, 18 September 2024
Friday, 19 July 2024	Monday, 19 August 2024	Thursday, 19 September 2024
Saturday, 20 July 2024	Tuesday, 20 August 2024	Friday, 20 September 2024
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Wednesday, 24 July 2024	Saturday, 24 August 2024	Tuesday, 24 September 2024
Thursday, 25 July 2024	Sunday, 25 August 2024	Wednesday, 25 September 2024
Friday, 26 July 2024	Monday, 26 August 2024	Thursday, 26 September 2024
Saturday, 27 July 2024	Tuesday, 27 August 2024	Friday, 27 September 2024
Sunday, 28 July 2024	Wednesday, 28 August 2024	Saturday, 28 September 2024
Monday, 29 July 2024	Thursday, 29 August 2024	Sunday, 29 September 2024
Tuesday, 30 July 2024	Friday, 30 August 2024	Monday, 30 September 2024
Wednesday, 31 July 2024	Saturday, 31 August 2024	

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LRWRP - Raw Sewage or Primary Overflow
BOD TSS TP TKN

LRPCP - Primary Overflow
BOD TSS TP E. Coli



2024 LRWRP/LRPCP MECP ECA & ECCC WSER Testing Schedule

Oct-24	Nov-24	Dec-24
Tuesday, 1 October 2024	Friday, 1 November 2024	Sunday, 1 December 2024
Wednesday, 2 October 2024	Saturday, 2 November 2024	Monday, 2 December 2024
Thursday, 3 October 2024	Sunday, 3 November 2024	Tuesday, 3 December 2024
Friday, 4 October 2024	Monday, 4 November 2024	Wednesday, 4 December 2024
Saturday, 5 October 2024	Tuesday, 5 November 2024	Thursday, 5 December 2024
Sunday, 6 October 2024	Wednesday, 6 November 2024	Friday, 6 December 2024
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Tuesday, 22 October 2024	Friday, 22 November 2024	Sunday, 22 December 2024
Wednesday, 23 October 2024	Saturday, 23 November 2024	Monday, 23 December 2024
Thursday, 24 October 2024	Sunday, 24 November 2024	Tuesday, 24 December 2024
Friday, 25 October 2024	Monday, 25 November 2024	Wednesday, 25 December 2024
Saturday, 26 October 2024	Tuesday, 26 November 2024	Thursday, 26 December 2024
Sunday, 27 October 2024	Wednesday, 27 November 2024	Friday, 27 December 2024
Monday, 28 October 2024	Thursday, 28 November 2024	Saturday, 28 December 2024
Tuesday, 29 October 2024	Friday, 29 November 2024	Sunday, 29 December 2024
Wednesday, 30 October 2024	Saturday, 30 November 2024	Monday, 30 December 2024
Thursday, 31 October 2024		Tuesday, 31 December 2024

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2 - Composite - Monthly - LRWRP & LRPCP Sludge

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Effluent Composite - CBOD TSS TP NH3 TKN NO2 NO3

LRWRP - Raw Sewage or Primary Overflow
BOD TSS TP TKN

LRPCP - Primary Overflow
BOD TSS TP E. Coli

2025 LRWRP/LRPCP MECP ECA & ECCC WSER Testing Schedule

Jan-25	Feb-25	Mar-25
Wednesday, 1 January 2025	Saturday, 1 February 2025	Saturday, 1 March 2025
Thursday, 2 January 2025	Sunday, 2 February 2025	Sunday, 2 March 2025
Friday, 3 January 2025	Monday, 3 February 2025	Monday, 3 March 2025
Saturday, 4 January 2025	Tuesday, 4 February 2025	Tuesday, 4 March 2025
Sunday, 5 January 2025	Wednesday, 5 February 2025	Wednesday, 5 March 2025
Monday, 6 January 2025	Thursday, 6 February 2025	Thursday, 6 March 2025
Tuesday, 7 January 2025	Friday, 7 February 2025	Friday, 7 March 2025
Wednesday, 8 January 2025	Saturday, 8 February 2025	Saturday, 8 March 2025
Thursday, 9 January 2025	Sunday, 9 February 2025	Sunday, 9 March 2025
Friday, 10 January 2025	Monday, 10 February 2025	Monday, 10 March 2025
Saturday, 11 January 2025	Tuesday, 11 February 2025	Tuesday, 11 March 2025
Sunday, 12 January 2025	Wednesday, 12 February 2025	Wednesday, 12 March 2025
Monday, 13 January 2025	Thursday, 13 February 2025	Thursday, 13 March 2025
Tuesday, 14 January 2025	Friday, 14 February 2025	Friday, 14 March 2025
Wednesday, 15 January 2025	Saturday, 15 February 2025	Saturday, 15 March 2025
Thursday, 16 January 2025	Sunday, 16 February 2025	Sunday, 16 March 2025
Friday, 17 January 2025	Monday, 17 February 2025	Monday, 17 March 2025
Saturday, 18 January 2025	Tuesday, 18 February 2025	Tuesday, 18 March 2025
Sunday, 19 January 2025	Wednesday, 19 February 2025	Wednesday, 19 March 2025
Monday, 20 January 2025	Thursday, 20 February 2025	Thursday, 20 March 2025
Tuesday, 21 January 2025	Friday, 21 February 2025	Friday, 21 March 2025
Wednesday, 22 January 2025	Saturday, 22 February 2025	Saturday, 22 March 2025
Thursday, 23 January 2025	Sunday, 23 February 2025	Sunday, 23 March 2025
Friday, 24 January 2025	Monday, 24 February 2025	Monday, 24 March 2025
Saturday, 25 January 2025	Tuesday, 25 February 2025	Tuesday, 25 March 2025
Sunday, 26 January 2025	Wednesday, 26 February 2025	Wednesday, 26 March 2025
Monday, 27 January 2025	Thursday, 27 February 2025	Thursday, 27 March 2025
Tuesday, 28 January 2025	Friday, 28 February 2025	Friday, 28 March 2025
Wednesday, 29 January 2025	Saturday, 1 March 2025	Saturday, 29 March 2025
Thursday, 30 January 2025		Sunday, 30 March 2025
Friday, 31 January 2025		Monday, 31 March 2025

1 - Holiday

2A - Composite - Monthly - LRWRP & LRPCP Influent/Effluent

2B - Composite - Monthly - LRWRP & LRPCP Sludge

3 - Composite - Weekly - LRWRP & LRPCP Influent/Effluent

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LRWRP - Plant operations outside of Normal Operating Conditions - occurs when primary or secondary daily flow exceeds the available capacity for the day

Effluent Composite - CBOD TSS TP NH3 TKN NO2 NO3

LRWRP - Raw Sewage or Primary Overflow

BOD TSS TP TKN

LRPCP - Primary Overflow

BOD TSS TP E. Coli



2025 LRWRP/LRPCP MECP ECA & ECCC WSER Testing Schedule

Apr-25	May-25	Jun-25
Tuesday, 1 April 2025	Thursday, 1 May 2025	Sunday, 1 June 2025
Wednesday, 2 April 2025	Friday, 2 May 2025	Monday, 2 June 2025
Thursday, 3 April 2025	Saturday, 3 May 2025	Tuesday, 3 June 2025
Friday, 4 April 2025	Sunday, 4 May 2025	Wednesday, 4 June 2025
Saturday, 5 April 2025	Monday, 5 May 2025	Thursday, 5 June 2025
Sunday, 6 April 2025	Tuesday, 6 May 2025	Friday, 6 June 2025
Monday, 7 April 2025	Wednesday, 7 May 2025	Saturday, 7 June 2025
Tuesday, 8 April 2025	Thursday, 8 May 2025	Sunday, 8 June 2025
Wednesday, 9 April 2025	Friday, 9 May 2025	Monday, 9 June 2025
Thursday, 10 April 2025	Saturday, 10 May 2025	Tuesday, 10 June 2025
Friday, 11 April 2025	Sunday, 11 May 2025	Wednesday, 11 June 2025
Saturday, 12 April 2025	Monday, 12 May 2025	Thursday, 12 June 2025
Sunday, 13 April 2025	Tuesday, 13 May 2025	Friday, 13 June 2025
Monday, 14 April 2025	Wednesday, 14 May 2025	Saturday, 14 June 2025
Tuesday, 15 April 2025	Thursday, 15 May 2025	Sunday, 15 June 2025
Wednesday, 16 April 2025	Friday, 16 May 2025	Monday, 16 June 2025
Thursday, 17 April 2025	Saturday, 17 May 2025	Tuesday, 17 June 2025
Friday, 18 April 2025	Sunday, 18 May 2025	Wednesday, 18 June 2025
Saturday, 19 April 2025	Monday, 19 May 2025	Thursday, 19 June 2025
Sunday, 20 April 2025	Tuesday, 20 May 2025	Friday, 20 June 2025
Monday, 21 April 2025	Wednesday, 21 May 2025	Saturday, 21 June 2025
Tuesday, 22 April 2025	Thursday, 22 May 2025	Sunday, 22 June 2025
Wednesday, 23 April 2025	Friday, 23 May 2025	Monday, 23 June 2025
Thursday, 24 April 2025	Saturday, 24 May 2025	Tuesday, 24 June 2025
Friday, 25 April 2025	Sunday, 25 May 2025	Wednesday, 25 June 2025
Saturday, 26 April 2025	Monday, 26 May 2025	Thursday, 26 June 2025
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Monday, 28 April 2025	Wednesday, 28 May 2025	Saturday, 28 June 2025
Tuesday, 29 April 2025	Thursday, 29 May 2025	Sunday, 29 June 2025
Wednesday, 30 April 2025	Friday, 30 May 2025	Monday, 30 June 2025
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1 - Holiday

2A - Composite - Monthly - LRWRP & LRPCP Influent/Effluent

2B - Composite - Monthly - LRWRP & LRPCP Sludge

3 - Composite - Weekly - LRWRP & LRPCP Influent/Effluent

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BOD TSS TP TKN

LRPCP - Primary Overflow
BOD TSS TP E. Coli



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Jul-25			Aug-25			Sep-25		
Tuesday, 1 July 2025	1	3	Friday, 1 August 2025			Monday, 1 September 2025	1	
Wednesday, 2 July 2025			Saturday, 2 August 2025			Tuesday, 2 September 2025	3	
Thursday, 3 July 2025	4	5	Sunday, 3 August 2025			Wednesday, 3 September 2025		
Friday, 4 July 2025			Monday, 4 August 2025	1		Thursday, 4 September 2025	4	5
Saturday, 5 July 2025			Tuesday, 5 August 2025	3		Friday, 5 September 2025		
Sunday, 6 July 2025			Wednesday, 6 August 2025			Saturday, 6 September 2025		
Monday, 7 July 2025	2A	2B 7	Thursday, 7 August 2025	4	5	Sunday, 7 September 2025		
Tuesday, 8 July 2025	3		Friday, 8 August 2025			Monday, 8 September 2025	2A	2B 7
Wednesday, 9 July 2025			Saturday, 9 August 2025			Tuesday, 9 September 2025	3	
Thursday, 10 July 2025	4	5	Sunday, 10 August 2025			Wednesday, 10 September 2025		
Friday, 11 July 2025			Monday, 11 August 2025	2A	2B 7	Thursday, 11 September 2025	4	5
Saturday, 12 July 2025			Tuesday, 12 August 2025	3		Friday, 12 September 2025		
Sunday, 13 July 2025			Wednesday, 13 August 2025			Saturday, 13 September 2025		
Monday, 14 July 2025			Thursday, 14 August 2025	4	5	Sunday, 14 September 2025		
Tuesday, 15 July 2025	3		Friday, 15 August 2025			Monday, 15 September 2025		
Wednesday, 16 July 2025			Saturday, 16 August 2025			Tuesday, 16 September 2025	3	
Thursday, 17 July 2025	4	5	Sunday, 17 August 2025			Wednesday, 17 September 2025		
Friday, 18 July 2025			Monday, 18 August 2025			Thursday, 18 September 2025	4	5
Saturday, 19 July 2025			Tuesday, 19 August 2025	3		Friday, 19 September 2025		
Sunday, 20 July 2025			Wednesday, 20 August 2025			Saturday, 20 September 2025		
Monday, 21 July 2025	8	9	Thursday, 21 August 2025	4	5	Sunday, 21 September 2025		
Tuesday, 22 July 2025	3		Friday, 22 August 2025			Monday, 22 September 2025		
Wednesday, 23 July 2025			Saturday, 23 August 2025			Tuesday, 23 September 2025	3	
Thursday, 24 July 2025	4	5	Sunday, 24 August 2025			Wednesday, 24 September 2025		
Friday, 25 July 2025			Monday, 25 August 2025			Thursday, 25 September 2025	4	5
Saturday, 26 July 2025			Tuesday, 26 August 2025	3		Friday, 26 September 2025		
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Monday, 28 July 2025			Thursday, 28 August 2025	4	5	Sunday, 28 September 2025		
Tuesday, 29 July 2025	3		Friday, 29 August 2025			Monday, 29 September 2025		
Wednesday, 30 July 2025			Saturday, 30 August 2025			Tuesday, 30 September 2025	1	3
Thursday, 31 July 2025	4	5	Sunday, 31 August 2025					

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3 - Composite - Weekly - LRWRP & LRPCP Influent/Effluent

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7 - Grab - Monthly - LRWRP Imported Sewage

8 - Composite - Quarterly - LRWRP Effluent Industrial Wastewater Related

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Friday, 3 October 2025	Monday, 3 November 2025	Wednesday, 3 December 2025
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BOD TSS TP TKN

LRPCP - Primary Overflow
BOD TSS TP E. Coli

A yellow geometric graphic consisting of several overlapping triangles and quadrilaterals, creating a dynamic, abstract shape that points towards the right.

APPENDIX E

Calibration Certificates

	CALIBRATION REPORT	Report No.: 240924	WW_ADMN_E W_FM1
		Date: 24-Sep-24	

SITE: Lou Romano WWTP
PROCESS AREA: Biosolids Flow
INSTR. TAG: WW_ADMN_EW_FM1
MANUFACTURER: Krohne
MODEL: IFC 300
SERIAL No.: C09 1407
INSTR. RANGE: 0-100 l/s

SERVICE DATE: September 24, 2024

TECHNICIAN: Mike Humphries

JOB REFERENCE: 240924

Input (Test)			Output (Signal)		(Process)	
Type:	GS 8 (X val)		Type or EGU:	mA	l/s	
Min:	0.00		Min:	4.00	0.00	
Max:	1.72		Max:	20.00	140.00	
DN (mm):	300					
GK=1 GKL=2	1					
GK:	3.7836					
Constant:	4177.44					
			Before Calibration		After Calibration	
Input (Y pos)	Knob Setting	Calc. O/P (mA)	Output (mA)	%Error	Output (mA)	%Error
0.00	0	4.00	4.00	0.00%	4.00	0.00%
0.50	A	8.66	8.67	0.12%	8.67	0.12%
1.00	B	13.32	13.33	0.08%	13.33	0.08%
2.00	C	22.63				
5.00	D	50.58				
10.00	E	97.16				

Calibration Equipment

Type:	DMM	Flow Simulator	
Manufacturer:	Fluke	Krohne	
Model:	Model 87	GS8 B	
Serial No.:	94140067	U1127700020705	
Last Cal. Date:	March 15, 2024	March 26, 2024	

Comments: Totalizer: AF: 15318104 m³, AL: 15318110 m³
 Coil 132.6

AS FOUND: **PASS**

AS LEFT: **PASS**

CERTIFIED BY: Mike Humphries

Flowmeter Verification Certificate Transmitter

City of Windsor

Customer

Backwash

Order code

PROMAG 50 W DN600

Device type

81080719000

Serial number

V2.00.00

Software Version Transmitter

09/24/2024

Verification date

WWTP

Plant

WW_BAFF_BWP_FM1

Tag Name

1.2871 - 1.2871

K-Factor

-2

Zero point

V1.04.00

Software Version I/O-Module

14:05

Verification time

Verification result Transmitter: Passed

Test item	Result	Applied Limits
Amplifier	Passed	Basis: 0.55 %
Current Output 1	Passed	0.05 mA
Test Sensor	Passed	

FieldCheck Details

550149

Production number

1.07.10

Software Version

03/2024

Last Calibration Date

Simubox Details

Production number

1.00.01

Software Version

03/2024

Last Calibration Date

Date

Operator's Sign

Inspector's Sign

Overall results:

The achieved test results show that the instrument is completely functional, and the measuring results lie within +/- 1% of the original calibration. ¹⁾

The calibration of the Fieldcheck test system is fully traceable to national standards.

¹⁾ Prerequisite is an additional proof of electrode integrity with a high voltage test.

FieldCheck - Result Tab Transmitter

Customer	City of Windsor	Plant	WWTP
Order code	Backwash	Tag Name	WW_BAFF_BWP_FM1
Device type	PROMAG 50 W DN600	K-Factor	1.2871 - 1.2871
Serial number	81080719000	Zero point	-2
Software Version Transmitter	V2.00.00	Software Version I/O-Module	V1.04.00
Verification date	09/24/2024	Verification time	14:05

Verification Flow end value (100 %): 4071.504 m3/h
Flow speed 4.00 m/s

Passed / Failed	Test item	Simul. Signal	Limit Value	Deviation
	Test Transmitter			
	Amplifier	203.576 m3/h (5%)	1.50 %	-0.67 %
✓		407.151 m3/h (10.0%)	1.00 %	-0.73 %
✓		2035.753 m3/h (50.0%)	0.60 %	-0.07 %
✓		4071.505 m3/h (100%)	0.55 %	-0.02 %
	Current Output 1	4.000 mA (0%)	0.05 mA	0.003 mA
✓		4.800 mA (5%)	0.05 mA	0.003 mA
✓		5.600 mA (10.0%)	0.05 mA	-0.009 mA
✓		12.000 mA (50.0%)	0.05 mA	0.005 mA
✓		20.000 mA (100%)	0.05 mA	0.020 mA
		Start value	Limits range	Measured value
	Test Sensor			
✓	Coil Curr. Rise	46.400 ms	0.000..81.000 ms	52.661 ms
✓	Coil Curr. Stability		---	---
✓	Electrode Integrity	mV	0.0..300.001 mV	0.000 mV

Legend of symbols

✓	✗	—	?	!
Passed	Failed	not tested	not testable	Attention

FieldCheck: Parameters Transmitter

Customer	City of Windsor	Plant	WWTP
Order code	Backwash	Tag Name	WW_BAFF_BWP_FM1
Device type	PROMAG 50 W DN600	K-Factor	1.2871 - 1.2871
Serial number	81080719000	Zero point	-2
Software Version Transmitter	V2.00.00	Software Version I/O-Module	V1.04.00
Verification date	09/24/2024	Verification time	14:05

Current Output	Assign	Current Range	Value 0_4mA	Value 20 mA		
Terminal 26/27	VOLUME FLOW	4-20 mA active	0.0 m3/h	4000.01 m3/h		

Actual System Ident.

123.0



CALIBRATION REPORT

TAG NO.: WW_PSTS_FM14
REPORT NO.: 240924
DATE: 24-Sep-24

SITE: Lou Romano WWTP
PROCESS AREA: Parshall Flume
INSTR. TAG: WW_PSTS_FM14
MANUFACTURER: Siemens
MODEL: Sitrans MR200 HMI, XRS-5C
SERIAL No.:
INSTR. RANGE: 0 - 272 MI/d

DATE: September 24, 2024

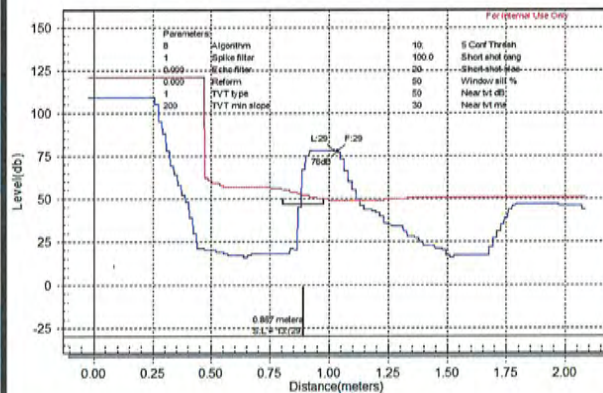
TECHNICIAN: Mike Humphries

REPORT NO.: 240924

PRIMARY
DEVICE: Modified Parshall Flume

MAX FLOW: 272 MI/d
MAX HEAD: 89.91 cm
CONSTANT: 322.58
EXPONENT: 1.587

Output: mA Flow
Zero: 4 0.00
Max: 20 272.0



Confidence: 29
Echo Strength: 88 dB
Noise Average: 3 dB
Empty: 122.00 cm
Span: 89.91 cm
Transducer: XRS-5C

OCM Flow Table

Head Applied (cm)	Head Displayed (cm)	Error (%)	Calculated Flow (MI/d)	Flow Displayed (MI/d)	Error (%)	Calculated mA Output	Measured mA Output	Error (%)
0.00	0.00	0.00	0.00	0.00	0.00	4.00	4.00	0.00
20.00	19.97	-0.15	25.1	25.0	-0.41	5.48	5.46	-0.28
40.00	40.07	0.17	75.4	75.6	0.26	8.43	8.45	0.21
60.00	59.93	-0.12	143.4	143.2	-0.18	12.44	12.42	-0.13
80.00	79.88	-0.15	226.4	226.0	-0.18	17.32	17.28	-0.21
		0.00	0.0		0.00	4.00		#DIV/0!

Totalizer As Found NA m³
Totalizer As Left NA m³

Zero As Found 122.00000 cm
Zero As Left (including offset) 122.00000 cm
Change in Zero 0.00000 cm

Comments

Unable to stop flow at time of service.

AS FOUND: PASS

AS LEFT: PASS

CERTIFIED BY:

Mike Humphries



CALIBRATION REPORT

TAG NO.: WW_PSTS_FM59
REPORT NO.: 240924
DATE: 24-Sep-24

SITE: Lou Romano WWTP
PROCESS AREA: Parshall Flume
INSTR. TAG: WW_PSTS_FM59
MANUFACTURER: Siemens
MODEL: Sitrans MR200 HMI, XRS-5C
SERIAL No.:
INSTR. RANGE: 0 - 443 MI/d

DATE: September 24, 2024

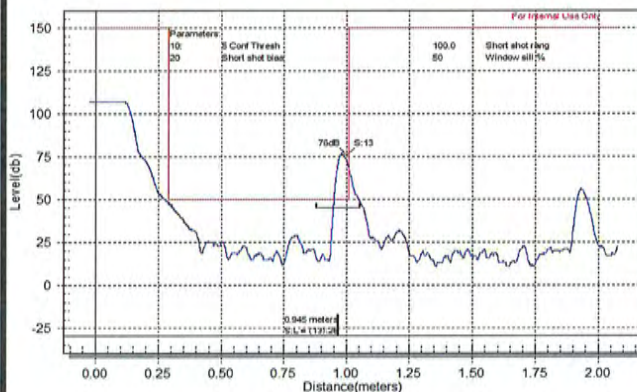
TECHNICIAN: Mike Humphries

REPORT NO.: 240924

PRIMARY
DEVICE: Modified Parshall Flume

MAX FLOW: 443 MI/d
MAX HEAD: 94.20 cm
CONSTANT: 484.5
EXPONENT: 1.500

Output: mA Flow
Zero: 4 0.00
Max: 20 443.0



Confidence: 13
Echo Strength: 74 dB
Noise Average: -2 dB
Empty: 123.50 cm
Span: 94.20 cm
Transducer: XRS-5C

OCM Flow Table

Head Applied (cm)	Head Displayed (cm)	Error (%)	Calculated Flow (MI/d)	Flow Displayed (MI/d)	Error (%)	Calculated mA Output	Measured mA Output	Error (%)
0.00	0.00	0.00	0.00	0.00	0.00	4.00	3.99	-0.25
20.00	20.03	0.15	43.3	43.2	-0.31	5.57	5.55	-0.27
40.00	39.97	-0.08	122.6	122.3	-0.22	8.43	8.41	-0.20
60.00	59.95	-0.08	225.2	224.9	-0.12	12.13	12.11	-0.19
80.00	79.97	-0.04	346.7	346.4	-0.08	16.52	16.51	-0.07

Totalizer As Found NA m³
Totalizer As Left NA m³

Zero As Found 123.50000 cm
Zero As Left (including offset) 123.50000 cm
Change in Zero 0.00000 cm

Comments

Unable to stop flow at time of service.

c PASS

AS LEFT: PASS

CERTIFIED BY:

Mike Humphries



VERIFICATION REPORT

Customer Name:	City of Windsor						
Plant Name and address:	Lou Romano Water Reclamation Plant; 4155 Ojibway Parkway, Windsor, ON N9C 4C3						
Service Date:	11-Sep-24	Instrument Type:	FIT	W.O. Number:	240686-0001	Asset#:	NA
Due Date:	11-Sep-25	Manufacturer:	Nivus				
Follow-Up Required:	No	Model:	NF7-5M3E0A001				
As Left Status:	OK	Serial #:	2020NF72192				
Instrument Visual Inspection:		Range:	0 to 545 MI/d			Output:	4-20 mA
Mechanical Inspection:	OK	Tag Information:	MP1 (WW_UVEE_FM1)				
Electrical Inspection:	OK	Description:	Flow Measurement				
As found Display information:	OK	Process/Location Description:	Flow Measurement				

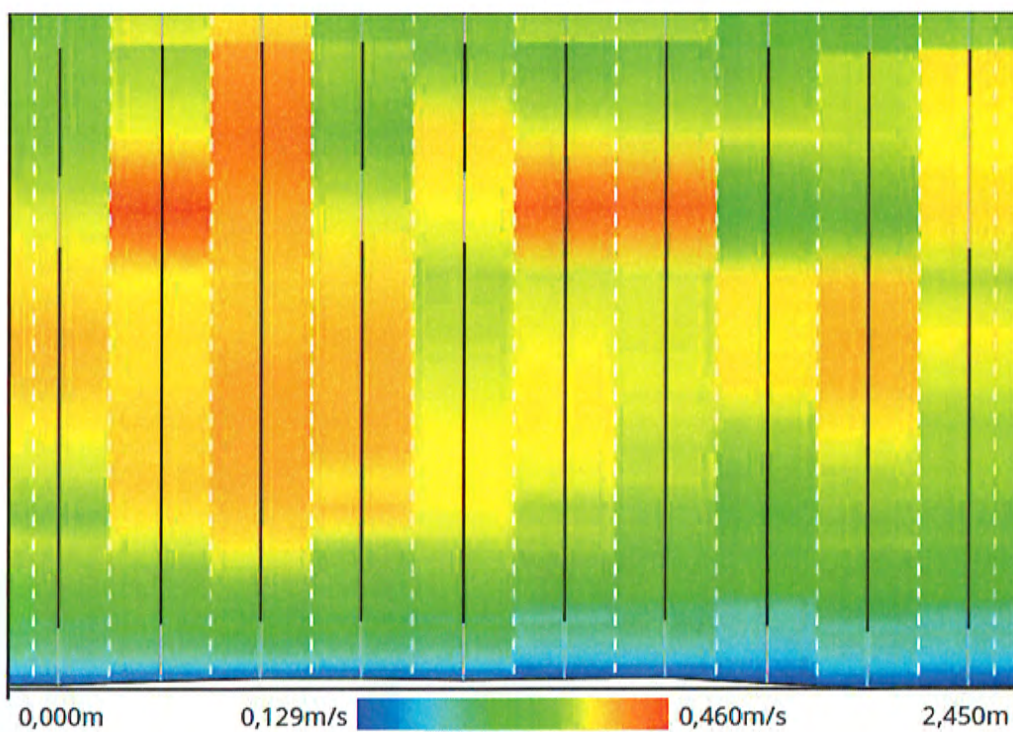
Instrument Information:	
Channel Profile:	Rectangle
Sludge Level:	0.00 m
Flow Unit:	MI/d
Sensor Type:	Wedge
Mounting Height:	0.050 m
Mounting Angle:	0.00°
Distance Center v1:	+0.410 m
Distance Center v2:	-0.410 m
Offset:	0.00 m
Velocity Unit:	m/s
Level Unit:	m

Point	Channel Width	Portable velocity (m/s)	Process flow meter Average During that Duration velocity reading (m/s)	Deviation (%)
Point 1	0.123	0.348	0.360	2.28%
Point 2	0.368	0.368		
Point 3	0.613	0.385		
Point 4	0.858	0.357		
Point 5	1.102	0.350		
Point 6	1.347	0.353		
Point 7	1.592	0.348		
Point 8	1.837	0.326		
Point 9	2.082	0.342		
Point 10	2.328	0.341		
AVERAGE		0.352	0.3600	2.28%

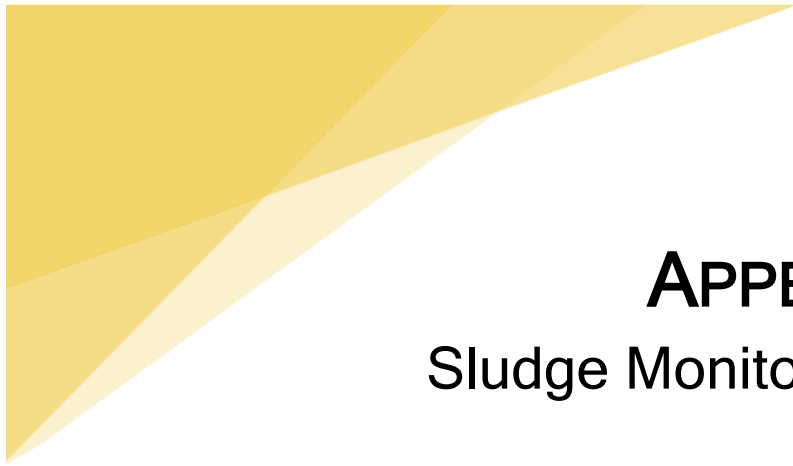
Comments		Test Equipment Used			
		Name / Type		Serial and Due Date	
Flow meter verified successfully and it is well within the range.		Nivuflow Nivumobile Stick		2209NFS0094	
Channel Width: 2.450 m					
Channel Height: 2.146 m					
Other Outputs Tested:	Tested	Technician Name		Witness Name	
Loop Check Performed:	Tested	Vishal/ Vaibhav		Curtis	
Within Specification:	Yes	Date:	11-Sep-24	Date:	11-Sep-24

FM2@app1_v [m/s]	
Name:	FM2@app1_v [m/s]
Start:	11/09/2024 11:03:30
End:	11/09/2024 11:25:00
Number Measurement Values:	44
Measurement Values Duration:	00:21:30
Average:	0.360 [m/s]
Sum:	NaN []
Minimum Value:	0.201 [m/s]
Minimum Time:	11/09/2024 11:13:00
Maximum Value:	0.376 [m/s]
Maximum Time:	11/09/2024 11:24:00

Fixed Field Flow Meter
WW_UVEE_FM1



Portable Flow Meter



APPENDIX F

Sludge Monitoring Data

Appendix F: Sludge Monitoring Data

Table F1 - 2024 Lou Romano Sludge - Monthly

Parameter	Unit	Date Sample was Collected											
		11-Jan-24	8-Feb-24	13-Mar-24	10-Apr-24	8-May-24	12-Jun-24	10-Jul-24	7-Aug-24	11-Sep-24	9-Oct-24	13-Nov-24	11-Dec-24
Arsenic	mg/kg	6.0	6.0	5.0	4.0	5.0	6.0	5.0	8.0	6.0	5.0	5.0	6.0
Cadmium	mg/kg	0.8	0.6	0.4	0.3	0.4	0.5	0.6	0.7	0.5	0.4	0.6	0.5
Chromium	mg/kg	47.0	43.0	23.0	28.0	31.0	24.0	21.0	39.0	34.0	42.0	44.0	41.0
Cobalt	mg/kg	6.0	4.0	4.0	3.0	3.0	4.0	4.0	4.0	4.0	3.0	4.0	5.0
Copper	mg/kg	330	230	210	130	170	230	260	270	260	250	330	210
Lead	mg/kg	39.0	16.0	14.0	10.0	17.0	14.0	23.0	41.0	13.0	11.0	27.0	18.0
Molybdenum	mg/kg	10.0	7.0	7.0	5.0	6.0	8.0	8.0	11.0	8.0	8.0	8.0	6.0
Nickel	mg/kg	36.0	47.0	34.0	26.0	30.0	33.0	27.0	33.0	27.0	31.0	38.0	35.0
Phosphorous	mg/kg	18000	20000	16000	13000	15000	20000	17000	16000	20000	24000	19000	19000
Potassium	mg/kg	2900	2600	2400	2000	2200	2000	1900	1900	2700	2800	2000	2800
Selenium	mg/kg	4.0	4.0	3.0	3.0	3.0	4.0	3.0	3.0	3.0	3.0	3.0	2.0
Zinc	mg/kg	690	410	380	260	340	480	470	560	450	440	560	430
Mercury	mg/kg	0.39	0.17	0.18	0.14	0.21	0.30	0.33	0.31	0.22	0.23	0.37	0.26
Solids	%	6.46	5.39	6.03	5.88	5.29	4.71	4.60	5.80	3.72	3.44	5.12	5.50
Ammonia as N (KCL Extr)	ug/g	1590	1710	1340	1690	1250	1280	2150	1130	2070	4190	744	1100
Nitrate as N (10:1)	ug/g	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Results reported on a dry weight basis

Ammonia on sludge is not an accredited analysis. Reporting of results approved by MECP, Sean Morrison, District Manager Sarnia/Windsor Region in email dated February 4, 2020

Appendix F: Sludge Monitoring Data



Lou Romano Water Reclamation Plant ECA#1853-B43PVC Non-Regulated Sampling Results - 2024

Table F2

Date: December 31, 2024

Sludge Holding Tank/Truck Loading Bay - Quarterly Grab Sample					
Parameter	Unit	13-Mar-24	12-Jun-24	11-Sep-24	11-Dec-24
Arsenic	mg/kg	5.0	6.0	6.0	6.0
Cadmium	mg/kg	0.4	0.5	0.5	0.5
Chromium	mg/kg	23.0	24.0	34.0	41.0
Cobalt	mg/kg	4.0	4.0	4.0	5.0
Copper	mg/kg	210	230	260	210
Lead	mg/kg	14.0	14.0	13.0	18.0
Molybdenum	mg/kg	7.0	8.0	8.0	6.0
Nickel	mg/kg	34.0	33.0	27.0	35.0
Phosphorus	mg/kg	16000	20000	20000	19000
Potassium	mg/kg	2400	2000	2700	2800
Selenium	mg/kg	3.0	4	3.0	2.0
Zinc	mg/kg	380	480	450	430
Mercury	mg/kg	0.18	0.30	0.22	0.26
Solids	%	6.03	4.71	3.72	5.50
Ammonia as N (KCl Extr)	µg/g	1340	1280	2070	1100
Nitrate as N (10:1)	µg/g	3	3	3	3

Final Effluent Acute Lethality Mean Mortality - Quarterly Grab Sample					
Parameter	Unit	6-Aug-24			
Daphnia Magna	%	0.0			
Rainbow Trout	%	0.0			

Raw Sewage Overflows - Grab Sample			
Parameter	Unit	26-Jan-24	26-Jan-24
BOD5	mg/L	39.0	40.0
Total Suspended Solids	mg/L	90.0	141.0
Total Phosphorous	mg/L	0.6	0.5
TKN	mg/L	4.7	3.4

Final Effluent Outside Normal Operating Conditions (Bypass-Composite/Overflow-Grab)																				
(Bypass of Unit Processes/Overflows except for Raw and Primary Overflows)																				
Parameter	Unit	5-Jan-24	24-Jan-24	7-Mar-24	30-Mar-24	31-Mar-24	16-Apr-24	17-Apr-24	3-May-24	7-May-24	24-Jul-24	1-Aug-24	27-Aug-24	4-Sep-24	7-Oct-24	9-Oct-24	26-Nov-24	20-Dec-24	29-Dec-24	30-Dec-24
Carbonaceous BOD	mg/L	8.00	No sample collected	12.00	4.00	6.00	5.00	12.00	35.00	7.00	6.00	8.00	4.00	6.00	6.00	4.00	4.00	9.00	11.00	6.00
Total Suspended Solids	mg/L	2.00		17.00	9.00	9.00	10.00	19.00	21.00	20.00	9.00	15.00	7.00	4.00	3.00	6.00	9.00	9.00	18.00	4.00
NH3	mg/L	9.20		15.90	6.10	6.20	7.10	5.70	3.00	9.70	3.50	3.90	4.10	4.70	9.80	2.10	8.60	11.70	1.60	1.00
TKN	mg/L	10.10		16.70	6.40	7.80	8.90	5.80	3.20	10.50	4.90	5.40	4.90	5.10	11.30	3.20	10.00	15.00	2.00	1.80
Nitrate	mg/L	10.50		7.46	8.40	9.54	7.62	3.81	3.46	3.32	7.95	9.82	7.43	9.58	9.37	3.31	10.90	9.13	3.22	4.45
Nitrite	mg/L	0.13		0.15	0.10	0.11	0.15	0.08	0.04	0.11	0.14	0.27	0.27	0.60	0.21	0.09	0.64	0.06	0.03	0.09
Total Phosphorous	mg/L	0.14		0.30	0.14	0.13	0.16	0.37	0.19	0.25	0.24	0.26	0.16	0.13	0.14	0.08	0.26	0.19	0.29	0.35

Primary Treated Overflows - Grab Sample															
Parameter	Unit	9-Jan-24	10-Jan-24	13-Jan-24 2:45pm	13-Jan-24 10:00pm	24-Jan-24	25-Jan-24	25-Jan-24	26-Jan-24	26-Jan-24	26-Jan-24	28-Jan-24	31-Mar-24	11-Apr-24	19-Apr-24
BOD5	mg/L	99.0	39.0	57.0	27.0	52.0	35.0	47.0	68.0	20.0	24.0	28.0	179.0	45.0	67.0
Total Suspended Solids	mg/L	96.0	39.0	85.0	17	80	77	78	162	59	48	64	79	61.0	72.0
Total Phosphorous	mg/L	1.33	0.79	0.91	0.24	0.79	0.60	1.23	0.66	0.44	0.44	0.33	0.73	0.99	0.44
TKN	mg/L	12.60	6.80	6.20	3.00	16.20	6.90	7.30	4.00	7.70	5.80	5.90	19.30	10.80	12.10

Primary Treated Overflows - Grab Sample															
Parameter	Unit	3-May-24	26-May-24	29-Jun-24	10-Jul-24	10-Jul-24	10-Jul-24	6-Aug-24	7-Aug-24	28-Aug-24	29-Dec-24	29-Dec-24	30-Dec-24	30-Dec-24	
BOD5	mg/L	37.0	64.0	79.0	60.0	16.0	70.0	59.0	40.0	77.0	121.0	21.0	28.0	27.0	
Total Suspended Solids	mg/L	67.0	102	40	120	52	109	60	46	57	120	138.0	80.0	86.0	
Total Phosphorous	mg/L	0.59	0.91	0.91	1.26	0.55	1.58	0.92	0.71	0.83	0.17	0.94	0.63	0.62	
TKN	mg/L	9.80	14.90	6.20	9.10	4.80	5.40	8.70	3.80	10.70	10.00	6.20	5.20	4.10	