Ontario Clean Water Agency
Agence Ontarienne Des Eaux

Stephan Burt
District Manager
Hamilton District Office
Ministry of the Environment, Conservation and Parks

March 28, 2025

Re: 2024 Annual Performance Report for the Delhi Wastewater Treatment Facility, Sewage Pumping Stations and the Delhi Linear Infrastructure.

Attached is the 2024 Annual Performance Report for the Delhi Wastewater Treatment Facility (WWTF) located at 244 Western Avenue in Delhi, Norfolk County and all associated sewage pumping stations (SPS's) and the Delhi Linear Infrastructure. This report has been completed in accordance with the following Approvals:

- Section 11(4)(a) through (k) cited in Environmental Compliance Approval #5168- AHCJ3G issued on March 17, 2017 to the Corporation of Norfolk County.
- Schedule E, Section 4.6 cited in the Consolidated Linear Infrastructure – Environmental Compliance Approval #070-W601 issue number 1 issued on July 27, 2022 to the Corporation of Norfolk County

This report, as it pertains to the WWTF, the SPS's and forcemains, was prepared by the Ontario Clean Water Agency on behalf of Norfolk County, based on the information contained in our records. The information included in the reports on the Delhi gravity separate sewers was provided by Norfolk County.

The report covers the period from January 1, 2024 to December 31, 2024.

Sincerely,

Allison Billingsley
Process and Compliance Technician
Ontario Clean Water Agency
Southwest Region -Norfolk Cluster

Cc:
Stephanie Davis – Director, Environmental Services, Norfolk County
Shaun Earls - Manager, Water & Wastewater Compliance, Norfolk County
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*Appendices available by request

Introduction:

Delhi Wastewater Treatment Facility (WWTF) is located at 244 Western Avenue in Delhi, Ontario (Norfolk County). Construction of the facility was completed in the summer of 2015, with commissioning completed in fall 2015. The community of Delhi includes both permanent and seasonal residents along with a food processing industrial plant and a fertilizer plant which also discharges to the sanitary sewer system.

The Delhi WWTF uses a conventional activated sludge process for wastewater treatment. The facility has a rated capacity of 3,182 m^3/d, and has unit processes including screening and grit removal, primary treatment, biological treatment, and UV for disinfection. Waste Activated Sludge (WAS) is co-thickened in the primary clarifiers and the combined sludge and scum are digested in an aerobic digester prior to disposal via land application. The treated effluent is discharged through an outfall pipe to the Big Creek which ultimately discharges into Lake Erie. The facility also has an odour control system which utilizes a bio filter to neutralize odourous gases emitted from the sludge digesters, headwork's and primary treatment.

Raw Wastewater Collection

The wastewater collected in the sanitary sewers in Delhi flows to the WWTF by pump and gravity flow. There are five (5) sewage pumping stations (SPS) in Delhi. St. Michael's Street SPS pumps sewage to the Main Street SPS and from there it is pumped to the WWTF. Hillside SPS's pump to the Western Ave SPS, Talbot SPS pumps to the intersection of King St and Main St and flows from gravity to the WWTF and the Western Ave SPS flows from gravity directly to the WWTF.

Sewage Pumping Stations

The Norfolk County Municipal Wastewater Collection System is made up of five separate wastewater collection systems. The Delhi wastewater collection system (population 5,344) conveys sewage to the Delhi Wastewater Treatment Facility through a total of 32 kilometres of gravity separate sewers, 1.5 kilometres of force mains and five (5) sewage pumping stations (SPS) in the system. There are no overflow or bypass systems in the SPS's of Delhi. For additional information on the individual SPS's listed below, please refer to CLI-ECA #070-W601 Issue #1

- WW484 – Hillside Avenue SPS located at 133 Hillside Avenue in Delhi Ontario. Hillside Ave SPS is a duplex pumping station equipped with 2 pumps (1 duty, 1 standby), with a wet well of 1.8 m3 capacity. The station is connected to a 100 mm diameter forcemain discharging to manhole located at 116 Hillside Avenue.
- WW452 – Main Street SPS located at 441 Main Street in Delhi Ontario. Main Street SPS is a triplex pumping station equipped with 3 pumps (1 duty, 2 standby), with 24.4 m total head, 1 – 3HP submersible mixer and a wet well of 130 m3 capacity. The station is connected to a 300 mm diameter forcemain, discharging to a manhole located at the intersection of Main Street & Western Avenue.
- WW482 – St. Michael's Street SPS located at 68 St. Michaels Street in Delhi Ontario. St. Michaels Street SPS is a duplex pumping station equipped with 2 pumps (1 duty, 1 standby), with a wet well of 10 m3 capacity. The station is connected to a 150 mm diameter forcemain, discharging to a manhole at the intersection of Smith Avenue & Gage Street.
- WW480 – Talbot Road SPS located at 200 Talbot Road in Delhi, Ontario. Talbot Road SPS is a duplex pumping station equipped with 2 pumps (1 duty, 1 standby), with 15.25 m of total head, and wet well with 9 m3 capacity. The station is connected to a 100 mm diameter forcemain, discharging to a manhole located at 130 King Street.
- WW481 – Western Avenue SPS located at 170 Western Avenue in Delhi, Ontario. Western Avenue SPS is a duplex pumping station equipped with 2 pumps (1 duty, 1 standby) with a wet well of 17

m3 capacity. The station is connected to a 150 mm diameter forcemain, discharging to 244 Western Avenue.

Inlet Works

The preliminary treatment unit includes coarse screening and grit removal equipment which are enclosed inside the main process area of the Headworks Building. Raw sewage flows via a 450 mm gravity sewer from the collection system to MH-1 located north of the Headworks Building. The sewage flows to the Headworks Building where it is screened through two (2) 6mm coarse screens, one (1) automatic screen, and one manual screen. There is a second automatic screen in storage as a spare. The automated screen continuously removes screenings and deposits them into the screenings conveyor. The screened sewage is then dosed with ferrous chloride as it passes through a Detritor Tank which removes grit prior to entering the main treatment process. The grit is pumped back into the Headworks Building to a grit classifier which washes and dewaters the grit slurry. The grit is deposited into a collection bin with the screenings for disposal; the wash-water is returned to the Detritus Tank inlet channel.

Primary Clarification

A double barrel inverted siphon conveys the screened sewage from the Detritor Tank to the Main Treatment Building. The sewage flows into the primary splitter box and is directed to one of the two (2) primary clarifiers by adjustable gates. The primary clarifiers remove a portion of the particulate load of TSS, cBOD5, TKN and TP by settling of suspended solids. Ferrous chloride can be dosed immediately upstream of the primary clarifiers as a back up to remove a fraction of the soluble phosphorus and promote settling.

Biological Tanks (Aeration and Anoxic Tanks)

The treatment process consists of an activated sludge system with provision of an anoxic swing zone for denitrification. The main purpose of the biological tanks is to remove BOD and TKN from the primary effluent by use of microorganisms. This is to ensure compliance with effluent requirements for cBOD5, unionized and total ammonia.

The biological treatment tanks consist of an anoxic/oxic configuration. The first and smallest of the two (2) cells is the swing zone which can be operated in both anoxic, as well as oxic mode. The second and the larger of the two (2) cells is a dedicated aeration tank with permanent oxic conditions. The swing zone is designed to be operated in anoxic mode for average loading conditions with a provision to switch it to oxic mode if required during peak loading conditions. Operating in anoxic mode, this tank effects denitrification (partial) of the nitrates recycled from the downstream aeration tank through the return activated sludge (RAS) system. Also, in doing so, it provides oxygen and alkalinity credit in the aeration zone which in turn helps maintain a steady state in the aeration zone under frequent loading fluctuations due to extraneous loads at the plant.

Secondary Clarification

The flow from the biological tanks enters the secondary splitter box where it is directed to the two (2) secondary clarifiers. The purpose of the secondary clarifiers is to remove the activated sludge by gravity settling and recycle it to maintain a sufficient quantity of microorganisms in the biological treatment process.

The secondary effluent enters the secondary clarifier outlet chamber, while sludge settles and gets collected into the secondary hoppers. The sludge is then pumped to the aeration tanks (return activated sludge) to recirculate the activated sludge back into the biological treatment system. A portion of the recirculated activated sludge is pumped to the primary clarifier as waste to maintain the concentration of mixed liquors in the secondary treatment process.

Tertiary Treatment

Two (2) 3.25m x 2.65m x 2.68m SWD filtration tanks (one standby) each equipped with a cloth media filter with a Peak Flow Rate of 92L/s.

Disinfection Phase

The effluent is directed by gravity to the disinfection channel ultra-violet (UV) disinfection system equipped with comprising two (2) banks (one standby) of UV lamps before being finally discharged to the effluent outfall manhole flowing to Big Creek.

Sludge Management System

The overall objective of the sludge handling system is to collect, thicken, stabilize, store and dispose of the sludge produced at the plant in a safe and sustainable manner. There are two (2) main sources of sludge production in the treatment system: settling of raw sewage suspended solids, and the waste activated sludge resulting from conversion of a portion of the organic matter and nutrients in the raw sewage to new biomass by microorganisms in the aeration tanks. Both of these sources of sludge are removed from the primary clarifiers and pumped to the aerobic digester where it is biologically stabilized. The stabilized biosolids are periodically loaded in trucks and hauled away for disposal.

Odour Control

An odour control system has been provided to abate emission of foul odours (hydrogen sulphide and other odourous compounds such as mercaptans). Two (2) odour control fans convey foul air from the Primary Clarifiers, Sludge Digesters and Headworks Building to the biofilter located west of the Administration Building. The foul air flows through a perforated pipe embedded within the biofilter and flows upwards through the biofilter media bed. The biofilter media is comprised of a proportioned mixture of limestone, compost and woodchips. The media is irrigated and kept moist by treated plant effluent to develop and sustain a biomass layer that removes odours from the foul air.

Standby Power

The emergency power for the entire plant is supplied from a 600 kW/750 kVA, 600V, 3 phase Diesel Generator Set. The generator is a Generac model SD600 supplied and installed by Total Power Ltd. The gen-set is comprised of an 18.1L diesel engine, 730kW alternator, 225 Amp- hour battery, engine control panel and accessories within a sound-attenuating enclosure. The fuel storage tank is 7578L, allowing for a 48-hour emergency power supply with a full tank of fuel. The generator is sized and connected to provide power for 100% of the facility's connected load.

Delhi WWTF Facts:

Environmental Compliance Approval:	ECA 5168-AHCJ3G (issued March 17, 2017)
Rated Capacity:	3,182m^3/day
Receiving Water:	Big Creek

In 2024, the Delhi WWTF was operated in accordance with provincial regulations as required in ECA #5168-AHCJ3G (ECA) issued March 17, 2017.The following report is presented such that it corresponds with ECA #5168-AHCJ3G Section 11(4) (a) through (k) and satisfies the requirements for the sewage pumping stations and the Delhi linear infrastructure in CLI-ECA #070-W601 Issue #1 dated July 27, 2022.

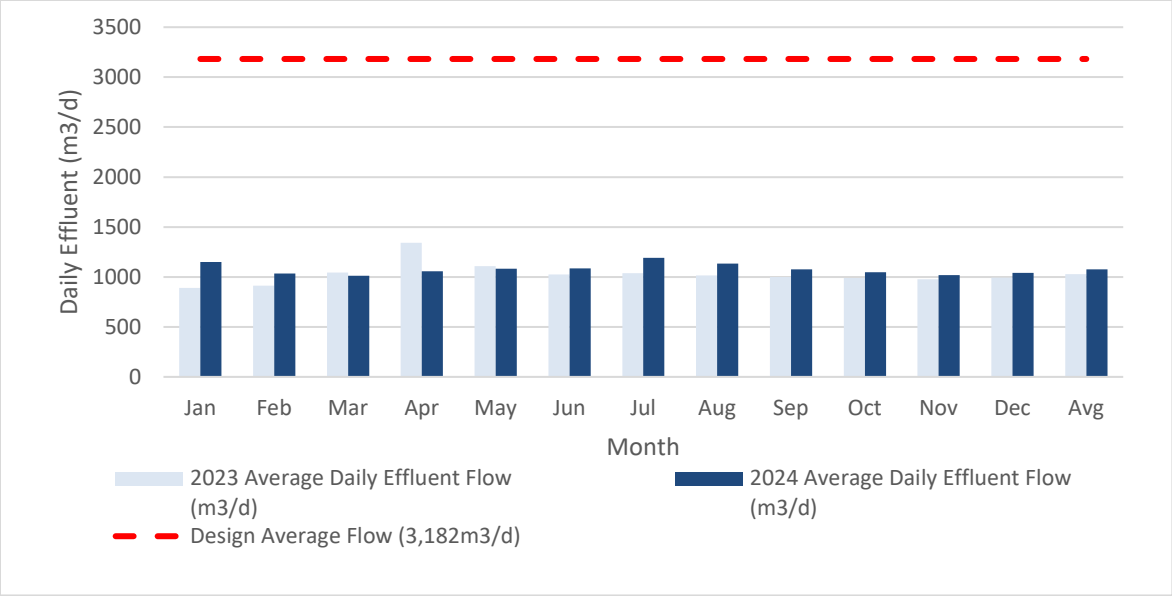
Section A: Summary of Monitoring Data

As outlined in ECA #5168-AHCJ3G, Section 11(4)(a) the following is a summary and interpretation of all monitoring data and a comparison to the compliance limits, including an overview of the success and adequacy of the Works. Detailed monitoring data is supplied in Appendix A.

(I) Effluent Flow Monitoring

The average daily effluent flow for 2024 was 1,078.0m^3/d, which is 33.9% of the Delhi WWTF's rated capacity of 3,182m^3/d. The following Graph 1 shows a comparison of the average daily flows per month for 2024 and 2023 compared to the rated capacity of the facility.

Graph 1. Average daily flows in 2024 compared to 2023.



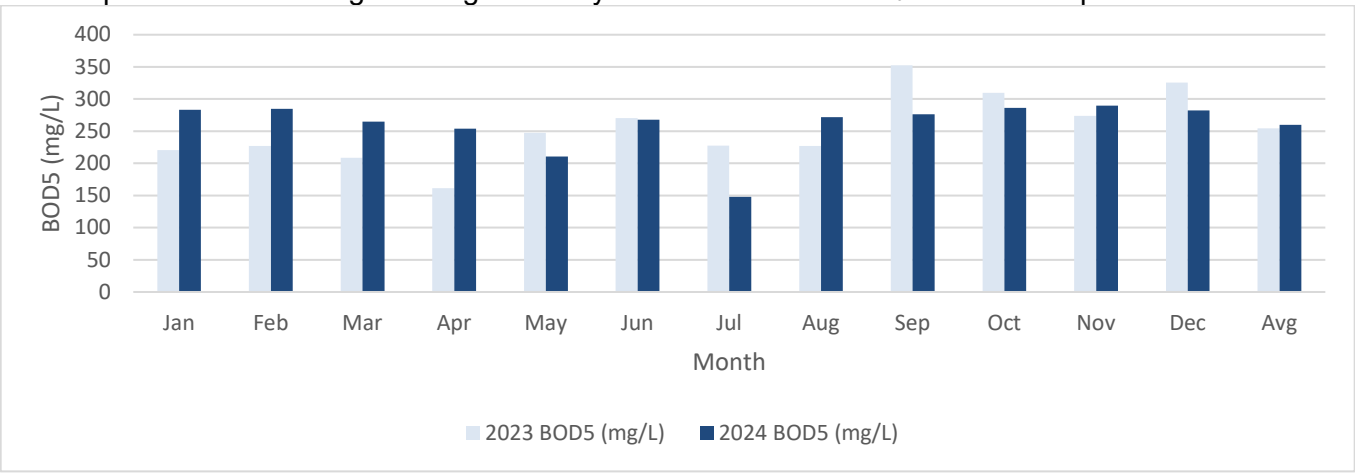
(II) Influent Sewage Monitoring

The influent sewage is monitored for BOD_5, total suspended solids (TSS), total phosphorus (TP) and total kjeldahl nitrogen (TKN) on a monthly basis (minimum) by means of a composite sample in accordance with the ECA. The treatment capabilities of the facility were designed based on the raw water characteristics identified in the Operations Manual from the design engineers. Refer to Appendix A for the detailed monthly results.

The influent at the Delhi WWTF is currently sampled on a weekly basis to better monitor the incoming parameters and to ensure greater control over the operations of the facility. The following Graphs 2-5 show the monthly average concentrations for the required influent parameters in 2024 compared to 2023.

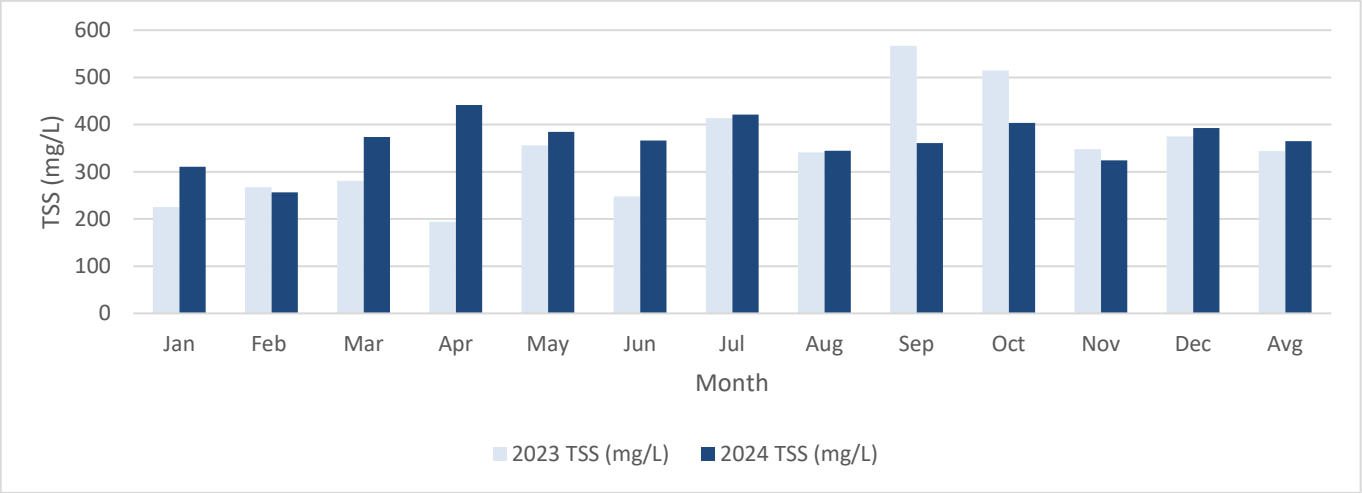
The annual average for the influent sewage BOD_5 concentration to the plant in 2024 was 365mg/L with an average loading of 279kg/d. This annual average loading is below the design criteria of 570kg/d

Graph 2. Influent sewage average monthly concentration of BOD_5 for 2024 compared to 2023.



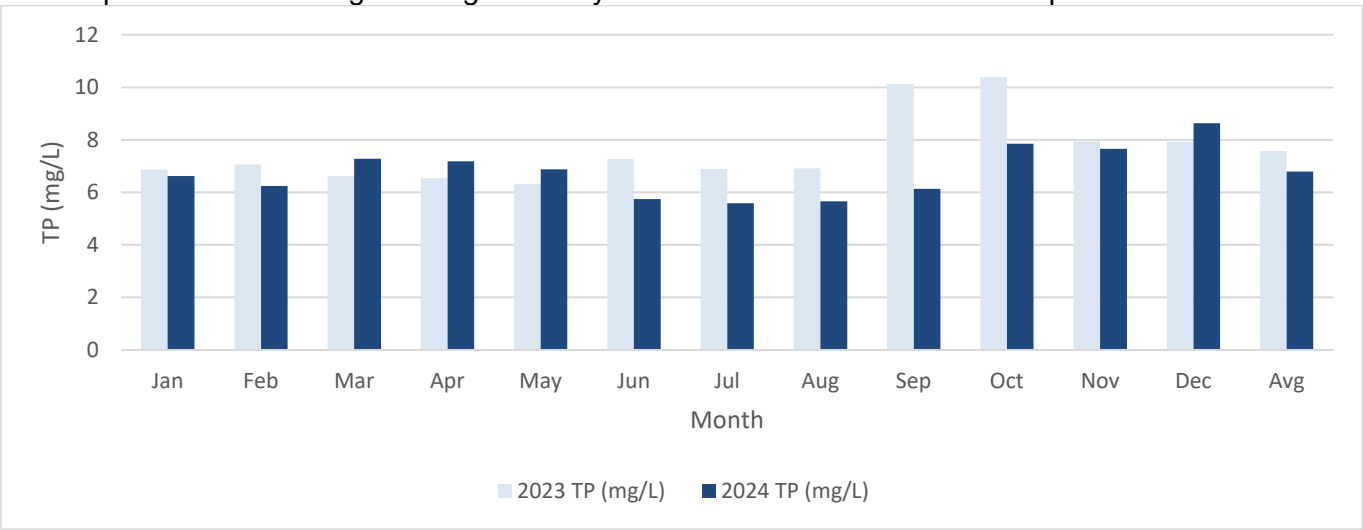
The annual average for the influent sewage total suspended solids (TSS) concentration to the plant in 2024 was 365mg/L with an average loading of 394kg/d. This annual average loading is below the design criteria of 627kg/d

Graph 3. Influent sewage average monthly concentration of TSS for 2024 compared to 2023.



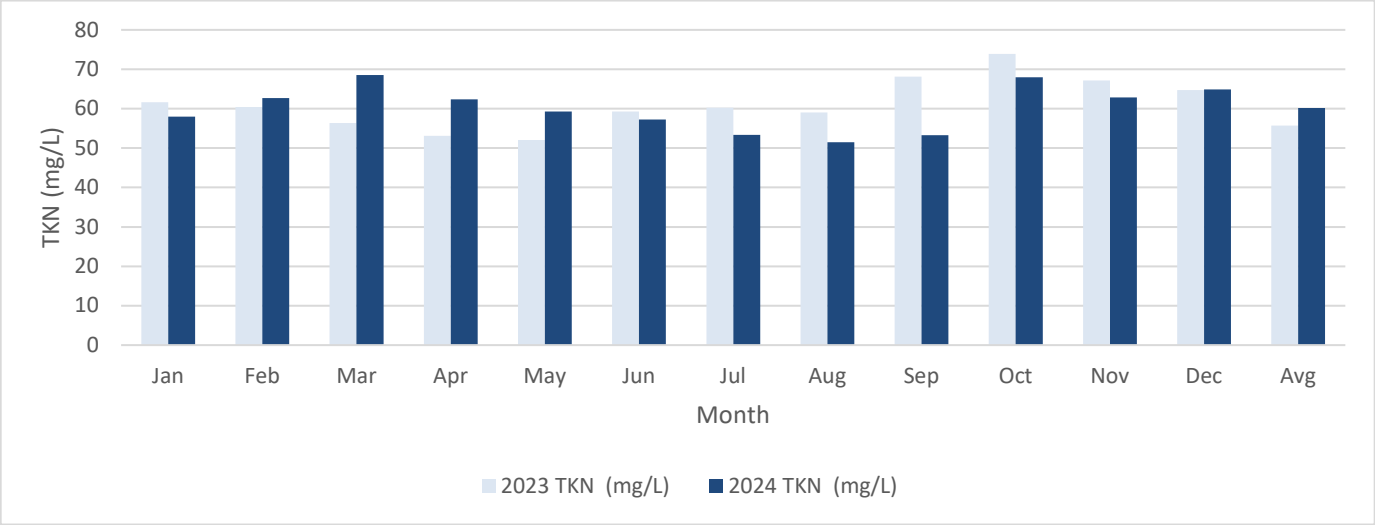
The annual average for the influent sewage total phosphorus (TP) concentration to the plant in 2024 was 8.64mg/L with an average loading of 7.28kg/d. This annual average loading is below the design criteria of 20kg/d.

Graph 4. Influent sewage average monthly concentration of TP for 2024 compared to 2023.



The annual average for the influent sewage total kjeldahl nitrogen (TKN) concentration to the plant in 2024 was 60.2mg/L with an average loading of 64.6kg/d. This annual average loading is below the design criteria of 162kg/d.

Graph 5. Influent sewage average monthly concentration of TKN for 2024 compared to 2023.



The influent parameters all show an overall increase in 2024 compared to 2023 except Total Phosphorus which has remained fairly consistent throughout 2024. These variations are reflective of what is entering the facility at the time of sampling.

(III) Sewage Pumping Stations Monitoring Data

In accordance with CLI-ECA Schedule E Condition 4.6.3, below is a summary of all required monitoring data. Currently there is no flow monitoring at the Delhi SPS's. Flow meters are scheduled to be installed and commissioned in early 2025. The following Tables 1 and 2, show the total pump run time hours for each sewage pumping station in 2024 compared to 2023.

NOTE: As discussed in the 2023 annual report, the Main Street SPS had a pump replacement in June of 2023. A 3.75HP pump was replaced with a 10HP pump resulting in data that is not comparable to the 2024 data.

Table 1. Pump Run Hours for the Delhi SPS's in 2024 and 2023

Sewage Pumping Station (SPS)	Year	Pump #1 (hours)	Pump #2 (hours)
Hillside Avenue	2023	8.80	10.50
	2024	6.80	7.70
Main Street	2023	-	-
	2024	-	-
St. Michaels Street	2023	212.60	375.20
	2024	224.90	408.10
Talbot Road	2023	626.50	222.20
	2024	774.40	257.00
Western Avenue	2023	899.20	5.20
	2024	897.80	7.50

Table 2. Total Pump Run Hours for the Delhi SPS's in 2024 compared to 2023

Sewage Pumping Station (SPS)	Total Hours 2023 (hours)	Total Hours 2024 (hours)	Percent Change (%)
Hillside Avenue	19.30	14.50	-24.9%
Main Street	-	-	-
St. Michaels Street	587.80	633.00	+7.7%
Talbot Road	848.70	1031.40	+21.5%
Western Avenue	904.40	905.30	+0.1%

There is no additional monitoring data that requires interpretation or conclusions for the Delhi sewage pumping stations in 2024.

(IV) Final Effluent Monitoring

The Final Effluent is sampled on a weekly basis and tested for $cBOD_5$, total suspended solids, total phosphorus and total ammonia, as a composite sample. A grab sample is taken weekly and tested for E. coli, pH and temperature. Total residual chlorine is required weekly when chlorination is in use. During the 2024 reporting period, chlorination was not utilized. Detailed results are found in Appendix A. Table 3 below shows the monthly average effluent results and Table 4 shows the monthly average loadings.

Table 3. Monthly average effluent results for 2024.

Month	cBOD5 (mg/L)	TSS (mg/L)	TP (mg/L)	TAN (mg/L)	E. coli (cfu/100mL) Geomean	pH (min-max)	Temp (°C)
January	2.0	3.0	0.17	0.47	2.0	6.86-7.24	13.2
February	3.0	5.6	0.23	0.08	4.6	7.00-7.43	13.5
March	2.5	9.5	0.18	0.09	7.5	6.95-7.41	13.6
April	2.0	3.8	0.17	0.05	85.5	7.25-7.69	14.6
May	2.0	3.4	0.19	0.06	1.6	7.09-7.59	16.4
June	2.0	3.3	0.16	0.19	2.6	7.15-7.49	78.6
July	2.1	2.0	0.17	0.09	2.0	7.13-7.88	20.0
August	2.0	2.0	0.18	0.06	1.9	7.01-7.88	20.3
September	2.0	2.3	0.21	0.06	1.9	6.92-7.36	19.8
October	2.2	2.2	0.19	0.07	2.0	6.87-7.78	17.3
November	2.0	2.5	0.22	0.06	5.8	6.57-8.03	16.4
December	2.0	5.0	0.20	0.10	2.4	6.66-8.13	13.5
Average	**2.2**	**3.7**	**0.19**	**0.11**	**10.0**	**6.57-8.13**	**21.4**
ECA Objective	10.0	10.0	0.25	3.0(6.0)*	200	6.5-8.5	n/a
ECA Limit	15.0	15.0	0.3	4.0(8.0)*	150	6.5-8.5	n/a

Table 4. Monthly average loadings for 2024.

Month	cBOD5 (kg/d)	TSS (kg/d)	TP (kg/d)	TAN (kg/d)
January	2.30	3.45	0.20	0.54
February	3.10	5.80	0.24	0.08
March	2.53	9.62	0.18	0.09
April	2.11	4.02	0.18	0.05
May	2.16	3.68	0.21	0.06
June	2.17	3.53	0.17	0.21
July	2.50	2.38	0.20	0.10
August	2.27	2.27	0.20	0.07
September	2.15	2.48	0.23	0.06
October	2.31	2.31	0.20	0.07
November	2.04	2.55	0.22	0.06
December	2.08	5.20	0.21	0.10
Average	**2.31**	**3.94**	**0.20**	**0.13**
ECA Limit	63.6	63.6	0.95	12.7(25.5)*

*TAN Objective and Limit is based on temperature. Values in brackets are from Dec 1 -Mar 1

(V) Big Creek Surface Water Monitoring Data

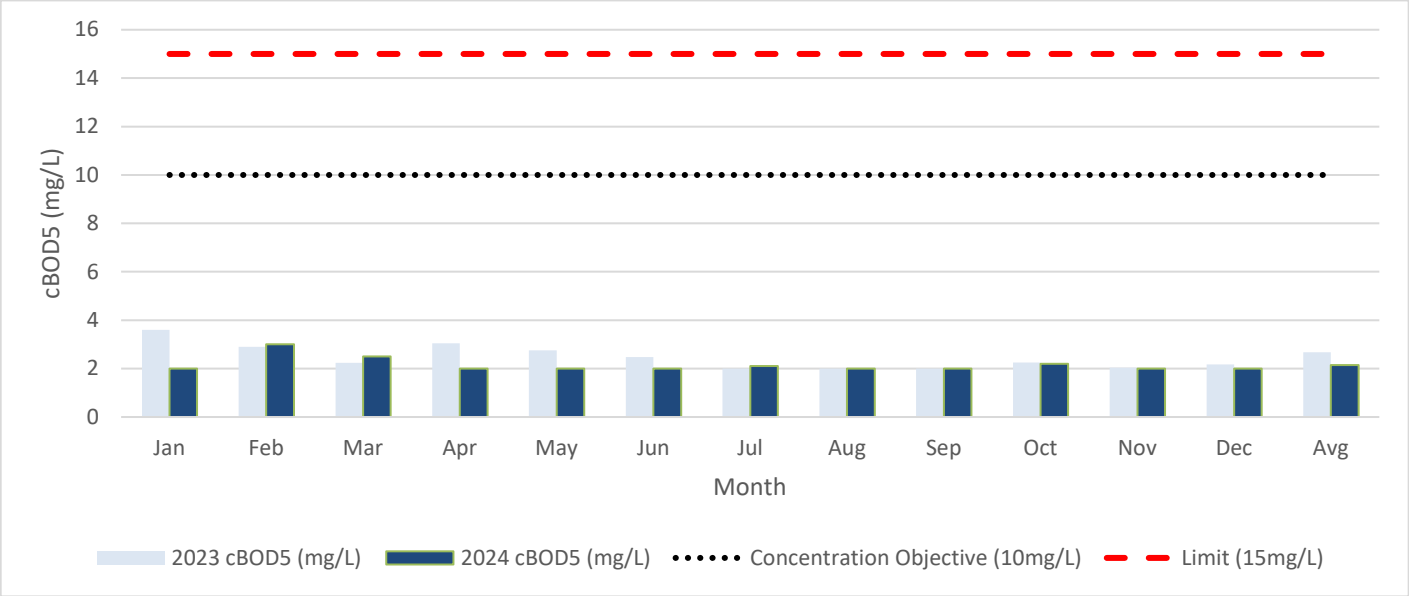
As per the ECA Section 9(7)(f), the annual monitoring data for the Big Creek Surface Water Sampling

Program concluded in 2024. The completed report, including the data review from 2012-2022, and conclusions and recommendations drawn from the program was submitted to the MECP on August 10, 2023. AECOM was provided with a copy of the report. The status of the program remains under review.

(VI) Comparison to Effluent Compliance Limits and Objectives

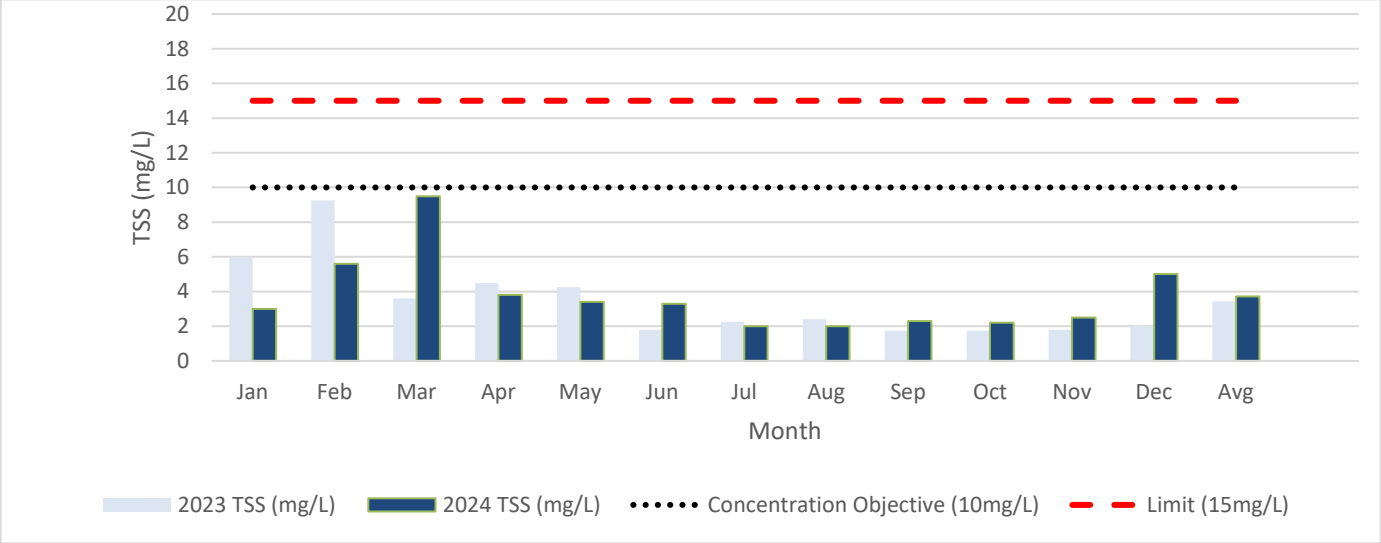
The annual average for the effluent $cBOD_5$ in 2024 was 2.2mg/L which is a 24.6% decrease from 2023. The annual loading of $cBOD_5$ was 2.31kg/d. The monthly compliance limit and objective of 15mg/L and 10mg/l, respectively, were not exceeded in 2024. Refer to Graph 6 for the effluent monthly average concentration of $CBOD_5$ in 2024 compared to 2023.

Graph 6. The effluent monthly average concentration of $cBOD_5$ in 2024 compared to 2023.



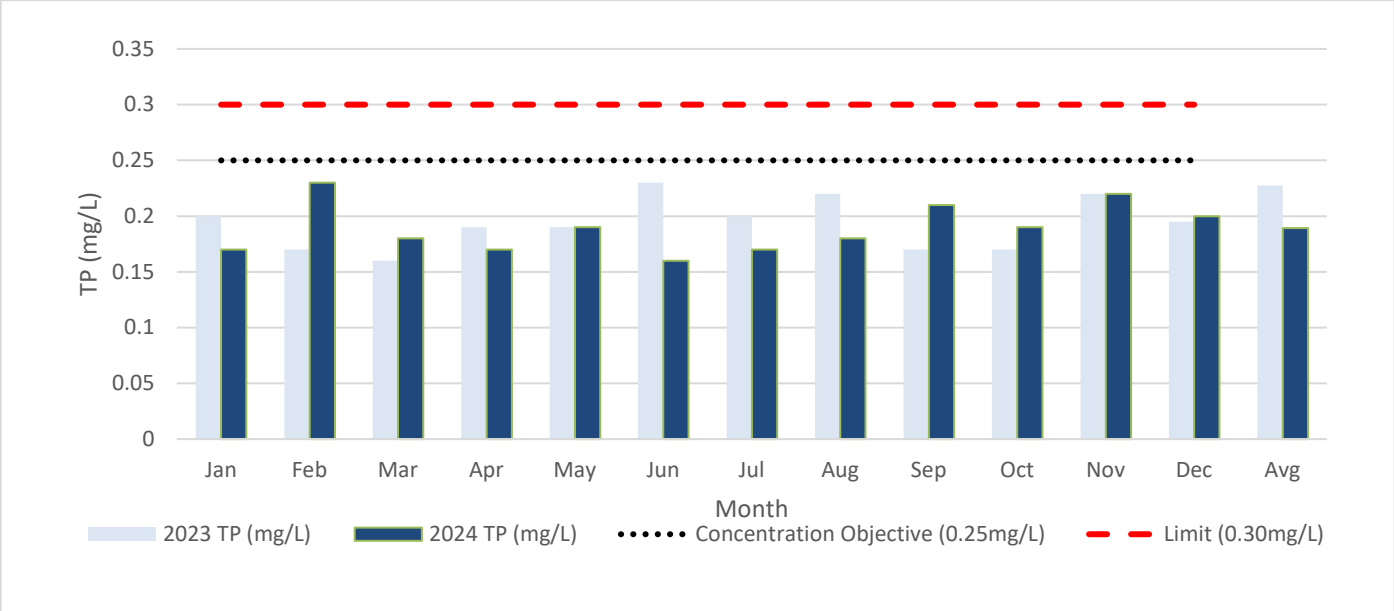
The annual average for effluent TSS in 2024 was 3.7mg/L which is a 7.3% increase from 2023. The annual loading of TSS was 3.94kg/d. The monthly compliance limit and objective of 15mg/L and 10mg/l, respectively, were not exceeded in 2024. Refer to Graph 7 for the effluent monthly average concentration of TSS in 2024 compared to 2023.

Graph 7. The effluent monthly average concentration of TSS in 2024 compared to 2023.



The annual average for effluent TP in 2024 was 0.19mg/L which is a 20.2% decrease from 2023. The annual loading of TP was 0.20kg/d. The monthly compliance limit and objective of 0.3mg/L and 0.25mg/l, respectively, were not exceeded in 2024. Refer to Graph 8 for the effluent monthly average concentration of TP in 2024 compared to 2023.

Graph 8. The effluent monthly average concentration of TP in 2024 compared to 2023.

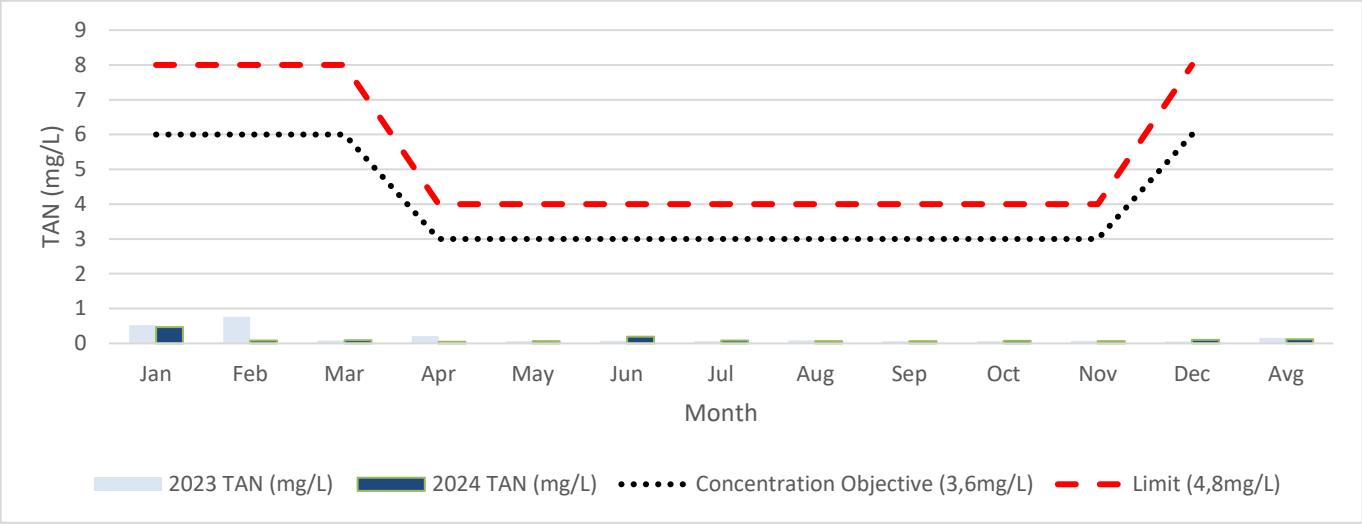


The annual average for effluent Total Ammonia Nitrogen (TAN) in 2024 was 0.11mg/L which is a 35.7% decrease from 2023. The annual loading of TAN was 0.13kg/d. The limits and objectives for TAN are based on temperature (refer to Table 2):

- December 1st to March 31st – limit is 8.0mg/L, objective is 6.0mg/L
- April 1st to November 30th - limit is 4.0mg/L, objective is 3.0mg/L.

There were no limit or objective exceedances for TAN in 2024. Refer to Graph 9 for the effluent monthly average concentrations of TAN in 2024 compared to 2023.

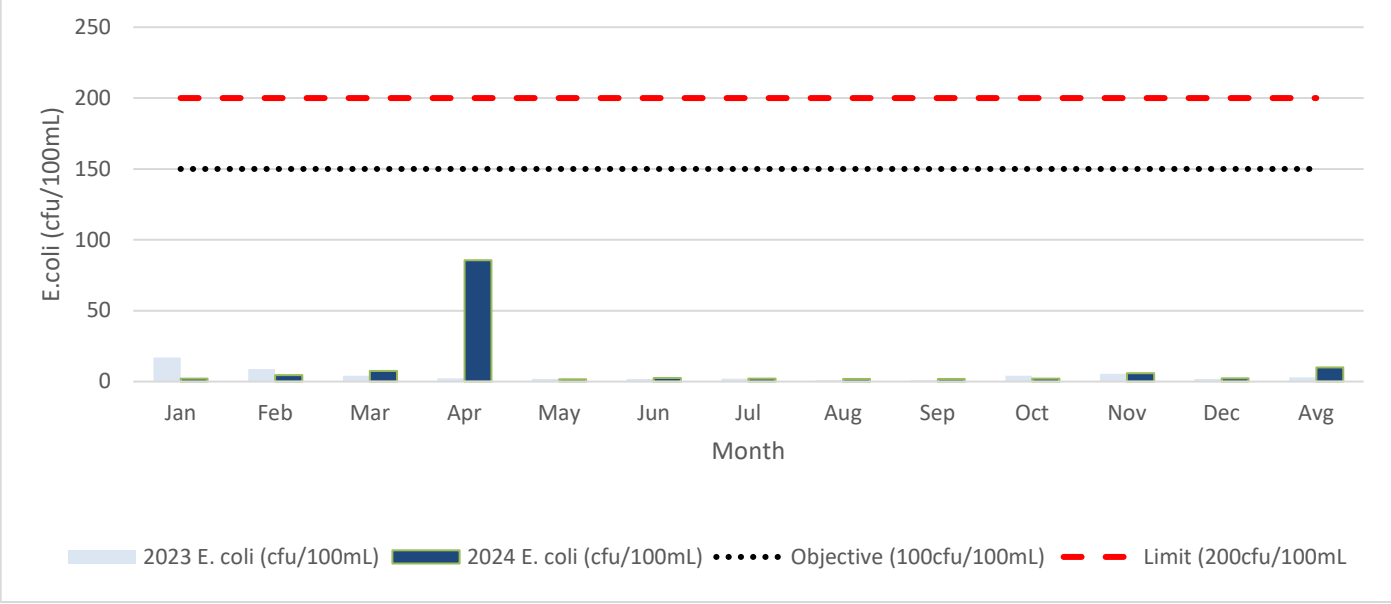
Graph 9. The effluent monthly average concentration of TAN in 2024 compared to 2023.



The annual geometric mean (Geomean) for effluent E.coli in 2024 was 10.0cfu/100mL which is a 70.7% increase from 2023 due to an elevated sample result collected in April. This elevated results is suspected to have been caused by excess precipitation. The monthly compliance limit and objective of 200cfu/100mL and 150cfu/100mL, respectively, were not exceeded in 2024. Refer to Graph 10 for the effluent monthly geometric mean concentrations in 2024 compared to 2023.

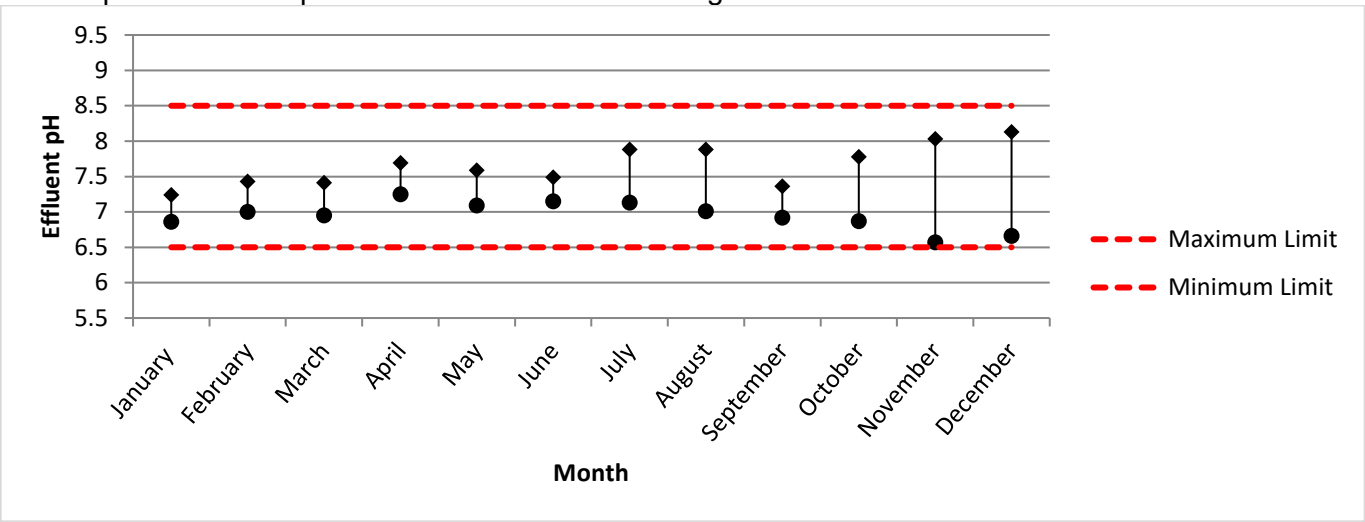
Note: ECA incorrectly identifies objective as 200cfu/100mL and limit as 150cfu/100mL.

Graph 10. The effluent monthly geomean concentration of E.coli in 2024 compared to 2023.



The effluent pH is monitored weekly, at a minimum, at the Delhi WWTF. There were no results below or above the compliance limits and objectives of 6.5-8.5 in 2024. The pH is required to be maintained between 6.5-8.5 at all times. Refer to Graph 11 for the monthly minimum and maximum pH ranges for 2024

Graph 11. Effluent pH minimum and maximum ranges for 2024.



Section B: Operating Problems and Corrective Actions

Overall, the Delhi WWTF performed well in 2024, meeting all effluent objectives and limits. Additionally, there were no non-compliance, overflow or spill events at the Delhi WWTF during the reporting period. As per the CLI-ECA Schedule E Condition 4.6.4, there was one (1) sewer main blockage due to grease buildup on December 28, 2024. High velocity flushing was utilized to clean sewermain and remove blockage. There were no additional operating problems at the sewage pumping stations or with the linear infrastructure that required corrective actions for 2024.

All major maintenance completed at the Delhi WWTF and at the SPS's is included below in **Section C: Maintenance Activities.**

Section C: Maintenance Activities

Regular scheduled monthly, preventative maintenance for the Delhi WWTF and associated SPS's (as per the CLI-ECA Schedule E Condition 4.6.5) are assigned and monitored using the Workplace Management System (WMS) program. Refer to **Appendix B** for preventative maintenance schedules. Norfolk County's preventative maintenance of the gravity separate sewers involves a sanitary flushing program (including manhole inspections), aiming to flush 20% of each system on an annual basis. In 2024, a pilot project to optimize sewer system maintenance was also completed, which included screening of the sanitary sewer, and manhole inspections. Refer to **Appendix D** for "RATS Sewer System Summary Report".

Items that were repaired or replaced in 2024 were as follows:

Table 5. Delhi WWTF Major Maintenance Completed in 2024

Date	Maintenance Activities
January 23	Potable water line pipe burst – contractor onsite to repair on January 26
January 26	Contractor onsite to replace light fixture in chemical building hallway
January 26	Contractor onsite to replace switch for the potable hot water line recirculation pump
February 2	Check valve replaced on blower room sump lines
February 20	Replaced battery on plant generator
April 5	Contractor onsite to survey plant generator
May 1	Third party completed gas detector calibrations
May 7	Contractor onsite to clean out storm water well
May 9	Third party completed flow meter calibrations
July 3	Norfolk County completed communication alarm maintenance
July 19	Contractor onsite to repair aeration building door
August 20	Started filter #1 recovery clean – completed August 27
September 3	Replaced pressure gauges on filter backwash system vacuum and discharge lines
September 10	Contractor onsite to replace air handling unit VFD on top of the filter building
September 13	Contractor onsite to survey plant generator
September 20	Contractor installed coolant sensor on plant generator
September 23	Installed two rubber man-hole pans in the collection system manholes on the plant driveway
September 25	Contractor onsite to replace effluent channel solenoid and secure effluent piping to the wall.
October 17	Third Party completed in house lab equipment calibrations
October 25	Digester #1 ball valve replaced
November 19	Replaced H2S and O2 sensors in headwork's building
November 20	Contractor onsite to fix door latches
November 20	Electrical Contractor onsite to move ferrous chloride receptacle
November 25	Gas detector system in headworks was reprogrammed by a third party
December 2	Screw conveyor screw broken – replaced with spare
December 2	Contractor completed backflow preventer inspections
December 16	Contractor onsite to remove debris from filter #1
December 17	Replaced block heater on plant generator
December 27	Contractor onsite to fix 2 of the backflow preventers as identified during the inspection

Table 6. Talbot Rd. SPS Major Maintenance Completed in 2024

Date	Maintenance Activities
March 25/26	Contractor onsite to complete generator service and load test
November 5	Contractor completed wet well clean out
December 20	Contractors onsite to complete install of new cabinet, wiring and flow meter displays
December 23	Contractor onsite to complete flow meter installation

Table 7. Main St. SPS Major Maintenance Completed in 2024

Date	Maintenance Activities
January 12	Contractor onsite to replace ultrasonic meter controller
March 25/26	Contractor onsite to complete generator service and load test
December 19	Contractor onsite to complete flow meter installation

Table 8. St. Michaels St. SPS Major Maintenance Completed in 2024

Date	Maintenance Activities
May 6	Contractor onsite to service facility generator and load test – windings failed
May 8	Contractor delivered and connected portable generator
May 10	Contractor completed wet well clean out
May 21	Contractor installed new alternator and radiator for the facility generator
May 21	Contractor removed portable generator
June 20	Electrical Contractor onsite to repair PLC
July 17	Replaced coolant line on generator
November 14	Norfolk County installed new HMI screen on PLC cabinet
December 17	Contractor onsite to install new cabinet, wiring and flow meter display
December 30	Contractor onsite to replace piping on the pump station discharge line
December 30	Contractor onsite to complete flow meter installation

Table 9. Hillside St SPS Major Maintenance Completed in 2024

Date	Maintenance Activities
February 28	Replaced dialer pad battery

Table 10. Western Ave SPS Major Maintenance Completed in 2024

Date	Maintenance Activities
April 30	Contractor onsite to complete generator service and load test
May 7	Contractor completed wet well clean out
October 2	Contractor onsite to complete install of pump #1 check valve
October 7	Contractor onsite to complete install of pump #2 check valve
November 5	Contractor completed wet well clean out
December 16	Contractor onsite to install tap and valve on pump #1
December 23	Contractor onsite to start flow meter installation
December 31	Contractor onsite to troubleshoot flow meter installation

Section D: Effluent Quality Assurance

Effluent quality assurance is evaluated by monitoring parameters and changes throughout the facility's processes. The operators monitor the aeration basin by performing weekly tests on the mixed liquor. These tests include dissolved oxygen, pH, temperature, settling tests and mixed liquor suspended solids (MLSS). As well, monitoring of chemical dosages and wasting volumes are completed. Data collected from these tests provide valuable information to the operators to make the appropriate adjustments in the treatment process and take corrective actions before the plant reaches its effluent

limits.

Section E: Calibration and Maintenance on Effluent Monitoring Equipment

The Delhi WWTF effluent flow meter was calibrated by JBF Controls on May 9, 2024 and is operating as required. In house meters for pH and dissolved oxygen were calibrated by JBF Controls on October 17, 2024 as per manufacturer's instructions.

As per the CLI-ECA Schedule E Condition 4.6.5 - There are no flow meters at the Delhi sewage pumping stations that required calibration in 2024.

Section F: Objective Exceedances & Best Efforts

Table 11. Sample results compared against the effluent objectives and loading limits.

Parameter	Effluent Objective (mg/L)	Monthly Effluent Result Ranges (mg/L)	# of Objective Exceedances	Effluent Loading Limit (kg/d)	Monthly Loadings Result Ranges (kg/d)	# of Limit Loading Exceedances
cBOD5	10.0	2.0-3.0	0	63.6	2.0-3.1	0
TSS	10.0	2.0-9.5	0	63.6	2.3-9.6	0
TP	0.25	0.16-0.23	0	1.9	0.17-0.24	0
TAN	3.0 (6.0)	0.05-0.47	0	12.7 (25.5)	0.05-0.54	0
E. coli (cfu/100mL)*	150	1.6-85.5	0	n/a	n/a	n/a
pH**	6.5 – 8.5	6.57-8.13	0	n/a	n/a	n/a

*expressed as geometric mean, ECA incorrectly identifies objective as 200cfu/100mL
**minimum and maximum result

The Delhi WWTF performed well in 2024 producing quality effluent. There were no objective exceedances in 2024.

Section G: Sludge Handling and Generation

Sludge sampling results can be found in **Appendix C**. Sludge is removed from the Delhi WWTF and sent to the Townsend Lagoon for processing or taken to field for land application. The total volume generated in 2024 was 3,416m^3, refer to Table 12 below for a breakdown and Table 13 for the sludge disposal locations.

It is expected that 2025 will be similar to 2024 with approximately 3,000m^3 of sludge being removed from the Delhi WWTF.

Table 12. Sludge Generation – Volume Hauled Delhi WWTF 2024.

Month	Townsend Lagoon (m^3)	Field (m^3)	Total (m^3)
January	606	0	606
February	0	0	0
March	405	0	405
April	255	0	255
May	263	1,073	1,336
June	135	0	135
July	0	45	45
August	0	0	0
September	180	0	180
October	129	0	129
November	0	100	100
December	225	0	225
Total	**2,199**	**1,218**	**3,416**

Table 13. Delhi Sludge Disposal Locations 2024.

Site	NASM#	Volume (m3)	Date Spread
OX1110	24975	180.00	May 3, 2024
OX1110	24975	533.00	May 6, 2024
HN1207	60905	360.00	May 7, 2024
HN1068	60406	45.34	July 23, 2024
HN1340	60746	54.00	November 8, 2024
HN1340	60746	45.55	November 9, 2024
Total		**1,217.89**	

Section H: Complaints

There were seven-teen (17) community complaints received for the Delhi WWTF in 2024. All complaints were communicated between Norfolk County and OCWA and promptly investigated by reviewing the conditions at the facility, ensuring the odour control fans were operational and reviewing weather conditions in the area.

As per the CLI-ECA Schedule E Condition 4.6.6 - there were no community complaints received for the Delhi sewage pumping stations or gravity separate sewers in 2024.

Table 14. Community Complaints received

Date	Nature of Complaint	Investigating Response
February 8	Odour	No unusual conditions or modifications to the facility that would cause odours.
March 14	Odour	No unusual conditions or modifications to the facility that would cause odours.
March 25	Odour	No unusual conditions or modifications to the facility that would cause odours.
June 8	Odour	Wood fire smell at the bridge on Western Ave

Date	Nature of Complaint	Investigating Response
June 10	Odour	No unusual conditions or modifications to the facility that would cause odours.
June 21	Odour	No unusual conditions or modifications to the facility that would cause odours. Neighbourhood online group noted Sulphur odours
June 26	Odour	No unusual conditions or modifications to the facility that would cause odours.
June 27	Odour	No unusual conditions or modifications to the facility that would cause odours.
June 30	Odour	No unusual conditions or modifications to the facility that would cause odours.
July 5	Odour	Faint raw sewage smell at the gate near collections manholes
July 12	Odour	"Dumpster smell" was noted on Western Ave, away from the plant.
September 3 (am)	Odour	No unusual conditions or modifications to the facility that would cause odours.
September 3 (pm)	Odour and Light	Plugged Headworks bar screens from collections system. Light was covered
September 12	Odour	No unusual conditions or modifications to the facility that would cause odours. Construction noted on the roadway neadby.
September 20	Odour	No unusual conditions or modifications to the facility that would cause odours.
September 21	Odour	No unusual conditions or modifications to the facility that would cause odours.
October 1	Odour	No unusual conditions or modifications to the facility that would cause odours.

Section I: By-pass, Spill or Abnormal Discharge Events

There were no Bypass, Spill or Abnormal Discharge Events at the Delhi WWTF in 2024.

As per CLI-ECA Schedule E Condition 4.6.3, 4.6.8 and 4.6.9 - There were no overflow events (raw sewage spills) at the Delhi SPS's, or in the linear infrastructure for 2024.

Norfolk County has retained Civica Infrastructure Inc. to complete a County wide Inflow and Infiltration reduction study over a five (5) year period between 2024 and 2029. Initial priority for the program was to collect flow and rainfall data to characterize the existing dry and wet weather flow conditions within the sanitary sewer networks in Port Dover and Port Rowan with Delhi becoming the next priority for flow monitoring and investigations starting in the fourth quarter of 2025. The Civica Work Plan has been provided in Appendix E.

Section J: Copy of Notice of Modifications Submitted

There were no Notice of Modifications to Sewage Works submitted for the Delhi WWTF during the 2024 reporting period.
As per the CLI-ECA Schedule E Condition 4.6.7 – There were no alterations to the Delhi SPS's in 2024 and one (1) SS#1 form completed for the linear infrastructure on James Street made in

2024.

Section K: Report Summarizing Modifications as a result of Schedule B, Section 3

There were no modifications completed at the Delhi WWTF as a result of Schedule B, Section 3 in 2024.