Anger Avenue Wastewater Treatment Plant Annual Performance Report Treatment and Collection Reporting Year: 2024

Niagara Region

Table of Contents:

List of Tables:

List of Figures:

Anger Avenue Wastewater Collection System Annual Performance Report (AA-C)

List of Tables

List of Figures

AA-T-1 Wastewater Treatment Process Description

The Anger Avenue (Fort Erie) Wastewater Treatment Plant (WWTP) is located at 1 Anger Avenue in the Town of Fort Erie and provides wastewater treatment to areas of Fort Erie. The Anger Avenue WWTP is a class IV extended aeration treatment facility and has been designed to treat an average daily flow (ADF) of 24,500 cubic meters per day (m^3/d). This facility can fully treat all flows up to 49,500 m^3/d and provides storm treatment for flows greater than 49,500 m^3/d up to a maximum flow rate of 98,000 m^3/d.

The Anger Avenue WWTP operates under the following MECP approvals:

Environmental Compliance Approval (Sewage): 0421-8LVJ3N, issued October 24, 2011
Environmental Compliance Approval (Air): 8-2372-95-006, Issued December 13, 1995

The Anger Avenue WWTP uses the following processes to treat wastewater:

- Imported Sewage Receiving
- Screening
- Raw Influent Pumping
- Grit Removal
- Phosphorus Removal
- Secondary Treatment
- Disinfection (Chlorination/Dechlorination)
- Solids Handling – sludge digestion, storage and transportation
- Storm Treatment

Imported Sewage Receiving Station: To provide service to Niagara Region residents outside the wastewater servicing area, the Anger Avenue WWTP accepts imported sewage from commercial haulers as well as Recreational Vehicle holding tank disposals. Receiving stations are situated to ensure all received sewage receives full treatment.

Screening: mechanically cleaned screens remove rags and large debris that could harm pumps and process equipment. Screenings are sent for disposal in landfill.

Raw Influent Pumping: After screening, wastewater from the collection system and imported sewage receiving station enters a wet well, equipped with raw sewage pumps. The wet well provides a low point for the collection system to discharge to while the raw sewage pumps lift the wastewater to allow the remainder of the treatment process to occur by gravity.

Grit Removal: A grit tank equipped with coarse bubble diffusers is used to remove grit from wastewater. Heavy suspended material such as sand and small stones (grit) is settled to the bottom of the tanks while lighter organic particles are kept in suspension and pass through the tanks for further treatment. The grit removed is dewatered for landfill disposal.

Phosphorus Removal: A coagulant, ferric chloride, is added to the treatment process to aid in phosphorus and suspended solids removal.

Secondary Treatment:

Aeration Tank: Large tanks are equipped with air diffusers to add fine bubbles into the wastewater. This oxygen-enriched environment encourages microorganisms (or “bugs”) to remove dissolved and suspended organics and nutrients. Activated sludge is returned to the aeration process to ensure enough bugs are present to provide adequate wastewater treatment.

Secondary Clarifiers: Secondary clarifiers receive effluent from the aeration tanks which separates the microorganism population and remaining solids. Solids settle as activated sludge on the bottom of the clarifier while a clean effluent flows from the clarifiers to be disinfected and discharged to the environment. A portion of the activated sludge collected on the bottom of the clarifier is pumped back to the front of the aeration tanks to ensure a healthy microbial population. Excess activated sludge is ‘wasted’ or removed from the process and is pumped to the solids handling treatment process.

Disinfection (chlorination/dechlorination):

Chlorine in the form of liquid sodium hypochlorite is added into the effluent stream for pathogen control from April 1 to October 31 each year. Adequate contact time is provided by the chlorine contact chambers. As chlorine can be toxic to aquatic species, disinfected effluent is dechlorinated with a sodium bisulphite solution before being discharged to the Niagara River.

Solids Handling

Waste Activated Sludge Thickening: Waste activated sludge from the secondary treatment process is mixed with a polymer solution and sent to a gravity belt thickener where the polymer acts to bring solids together while water is removed and sent back to the liquid treatment process, producing a thickened sludge.

Anaerobic Digestion: Thickened sludge is pumped to one of two (2) primary anaerobic digesters, which overflow into one (1) secondary digester for thickening. Anaerobic digestion allows a further breakdown of pollutants and pathogens in the collected sludge. The digested sludge is stored in onsite storage tanks until it is transported from site for further treatment or beneficial reuse such as land application or dewatering at the Garner Road Biosolids Facility.

Storm Treatment: During times of wet weather, inflow and infiltration (I&I) can occur in the collection system resulting in high flows of sewage and storm water to the treatment plant. To protect the plant processes from high flows, flows greater than the design peak flow of 49,500 m3/d are diverted to a storm treatment system. Storm flows diverted to the storm treatment system receive screening, phosphorus removal, settling (solids removal), chlorination and dechlorination (from April 1 to October 31) prior to discharge to the Niagara River via the storm

system outfall. The storm system act as a storage tank during wet weather and can hold approximately 4,000 m^3 in the settling tanks. This volume is returned to the plant for full treatment when wet weather events are over.

AA-T-2 Review of Plant Flows, Influent and Imported Sewage Sampling and Monitoring

Review of 2024 Plant Flows

Table AA-T-1 below outlines the volume of sewage treated at the Anger Avenue WWTP during the reporting year. It also outlines how much Imported Sewage was received at site for treatment.

Table AA-T-1: Table of Anger Avenue WWTP Treated and Imported Sewage Flows

Flow Statistic	Value
Design Average Daily Flow (ML/d)	24.500
Design Peak Flow Rate - Dry Weather (ML/d)	49.000
Design Peak Flow Rate - Wet Weather (ML/d)	98.000
Total Volume Processed (ML)	4,410.759
Annual Average Daily Flow (MLD)	12.051
% Annual Average Daily Flow Utilization	49%
% Increase/Decrease over prior year	-7%
Volume Imported Sewage Received (ML)	5.716
% Increase/Decrease Imported Sewage over prior year	10%
Imported Sewage as % of Flow	0.13%

Reviewing the treated flows in 2024, it was observed that, on average, the plant is utilizing 49% of its design Average Daily Flow capacity. This indicates that the facility has the hydraulic capacity to meet the needs of the collection system with room for additional flows that may be added from development. Where the average becomes greater than 80%, plant expansion should be considered.

Daily flows to the plant were reviewed. In 2024, there were 21 instances where the flow to the plant was greater than the design Average Daily Flow, amounting to approximately 6% of the year. These instances occurred during times of wet weather or heavy snow melt suggesting increased flows are occurring due to Inflow and Infiltration.

A review of the monthly average daily flow rate for the prior 10-year period was completed. This can be observed below in Figure AA-T-1 below. No trends were observed indicating that

the average flow at the plant is reasonably consistent. Spikes during typical wet weather seasons further support increased flows are occurring due to Inflow and Infiltration.

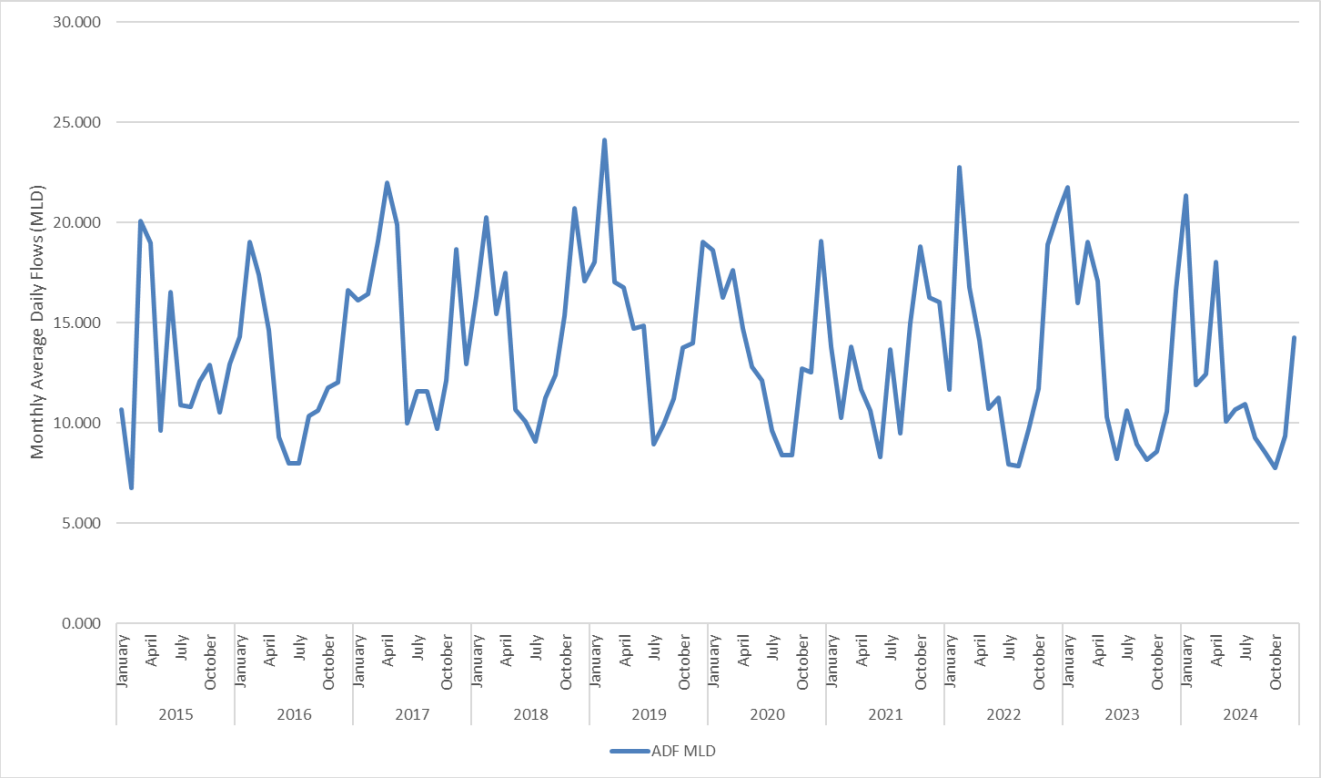

Figure AA-T-1: Graph displaying the Monthly Average Daily Flow Rate in MLD

The volume of imported sewage received at this facility increased by 10% compared to the previous reporting period. 2023 saw a large decrease in volume related to less haulage from a local sewage generator. The increase of hauled sewage received in 2024 is more typical of volumes received annually. No operational issues were encountered with receipt and treatment of imported sewage in 2024.

Review of Influent Sampling and Monitoring Activities

In 2024, 103 samples of influent were collected and tested. An annual summary of influent sampling can be observed in Table AA-T-5.

Although the volume of sewage is an important consideration for the effective operation of a wastewater treatment plant, another important factor to monitor is plant loading. Plant loading displays if the strength of the sewage received at the plant is getting stronger or weaker. Stronger sewage may impact the amount of sewage the plant can treat effectively.

Plant loading is calculated by measuring the average strength of a pollutant per liter of influent sewage and multiplying it by the average volume of sewage received. This is generally displayed as kilograms of pollutant per day or kg/d. Below in Figure AA-T-2, is a graph depicting four commonly monitored pollutant loading to the plant for the period of 2022-2024.

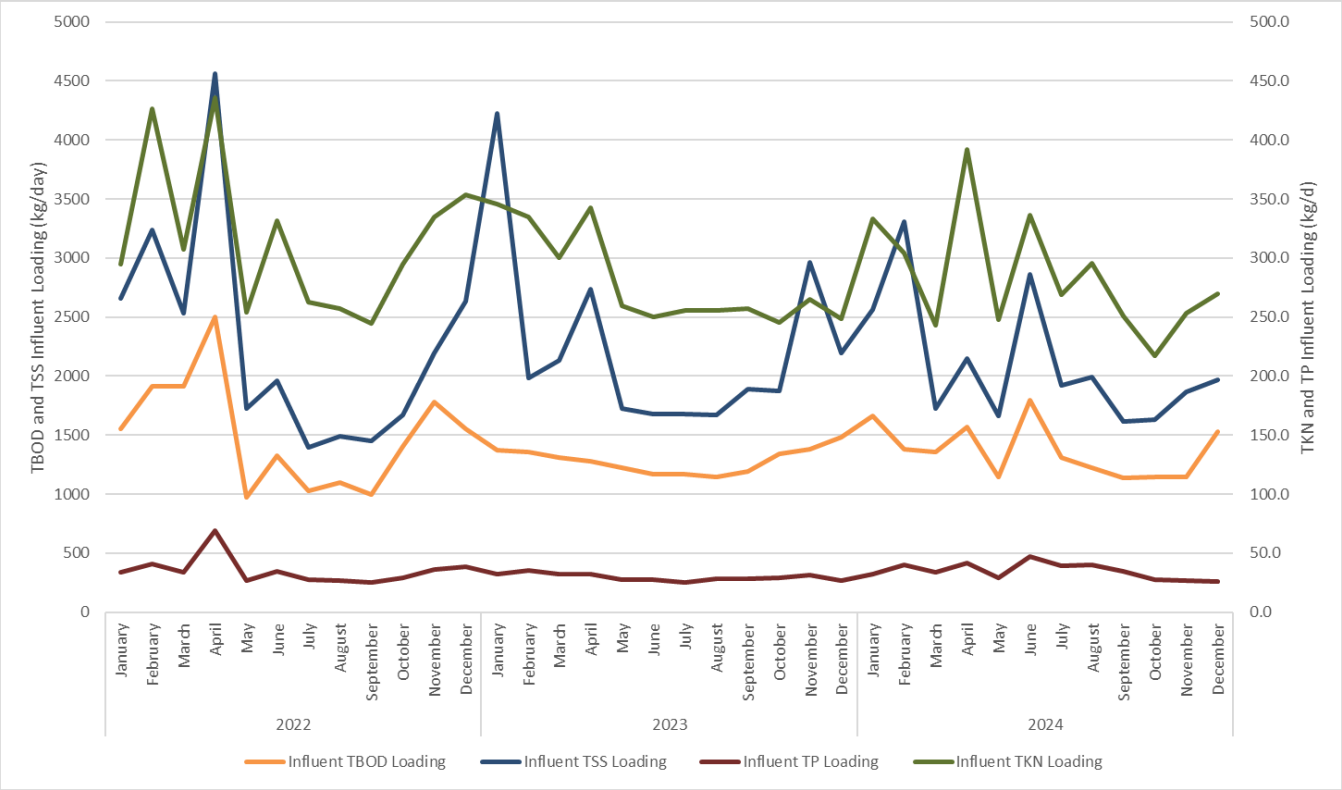

Figure AA-T-2: Figure of monthly plant loadings to the Anger Avenue WWTP for Total Biochemical Oxygen Demand (TBOD), Total Suspended Solids (TSS), Total Kjeldahl Nitrogen (TKN) and Total Phosphorus (TP), in kg/d, for the period 2022 to 2024.

Reviewing the calculated loadings for TBOD, TSS, TKN and TP for the past 3 years shows no observable trend indicating a change to the sewage strength being received at the site.

Review of Imported Sewage Sampling and Monitoring

Imported sewage is sampled bi-weekly to ensure sewage being received will not have an adverse impact to the treatment process or the beneficial re-use of biosolids resulting from the wastewater treatment process. Sampling and testing of imported sewage is not regulated by the ECA but is completed as a best practice. In 2024, 24 samples of imported sewage were collected and submitted for testing by an ISO 17025:2017 accredited laboratory. Results were reviewed and compared to the Niagara Region Sewer Use By-law. Where exceedances of the by-law were noted, the source of the imported sewage is investigated. Exceedances of treatable parameters (BOD, COD, TP, TSS, TKN and pH) are allowable under the SUBL.

Table AA-T-2: Table of Imported Sewage monthly average analysis results

Analyte	Units	SUBL Limit	January	February	March	April	May	June	July	August	September	October	November	December
Total Solids	mg/L	-	770	3273	740	985	2645	915	3520	6043	3325	7240	17840	3140
Phosphorus	mg/L	10	5.17	30.47	3.61	14.45	25.05	10.20	27.60	49.50	34.20	52.10	150.30	3.20
Arsenic	mg/L	1	0.02	0.04	0.02	0.02	0.06	0.01	0.06	0.08	0.26	0.23	0.50	0.01
Cadmium	mg/L	0.7	0.01	0.02	0.01	0.00	0.02	0.00	0.02	0.03	0.10	0.09	0.20	0.00
Chromium	mg/L	3	0.02	0.05	0.02	0.02	0.06	0.02	0.06	0.18	0.26	0.23	0.50	0.01
Cobalt	mg/L	5	0.01	0.02	0.01	0.00	0.02	0.00	0.02	0.03	0.10	0.09	0.20	0.00
Copper	mg/L	3	0.86	2.69	0.27	0.35	1.11	0.66	1.65	2.44	2.42	2.34	8.15	0.04
Lead	mg/L	1	0.08	0.17	0.02	0.03	0.06	0.03	0.11	0.21	0.27	0.23	0.50	0.01
Mercury	ug/L	10	0.24	0.11	0.27	0.69	0.44	0.05	9.78	3.24	0.26	1.41	2.65	1.86
Molybdenum	mg/L	5	0.01	0.02	0.01	0.01	0.03	0.01	0.06	0.07	0.11	0.10	0.40	0.01
Nickel	mg/L	2	0.02	0.07	0.01	0.01	0.03	0.01	0.03	0.18	0.11	0.10	0.30	0.00
Selenium	mg/L	1	0.02	0.04	0.02	0.02	0.06	0.01	0.06	0.08	0.26	0.23	0.50	0.01
Zinc	mg/L	3	1.00	5.00	0.50	0.50	4.60	0.70	3.60	11.03	4.17	5.23	19.00	0.05
Aluminum	mg/L	-	4.80	13.48	1.41	1.47	7.47	2.91	13.12	34.33	27.68	27.87	66.00	0.04
Antimony	mg/L	5	0.04	0.08	0.04	0.03	0.11	0.02	0.11	0.17	0.51	0.47	1.00	0.02
Barium	mg/L	-	0.07	0.32	0.04	0.04	0.19	0.06	0.17	0.66	0.35	0.43	1.20	0.01
Beryllium	mg/L	-	0.02	0.04	0.02	0.02	0.06	0.01	0.06	0.08	0.26	0.23	0.50	0.01
Boron	mg/L	-	0.40	0.80	0.40	0.30	1.10	0.20	1.35	1.67	5.10	4.67	10.00	0.20
COD	mg/L	600	603	4427	813	768	3906	757	4636	7983	4763	9860	27650	2940
Conductivity	us/cm	-	691	1915	636	1577	1160	1022	1444	2160	1290	2750	2775	1840
Iron	mg/L	-	7.20	20.30	6.94	2.75	12.20	5.01	14.82	47.00	29.26	30.93	103.25	0.06
Manganese	mg/L	-	0.19	0.53	0.14	0.11	0.34	0.12	0.31	0.67	0.63	0.67	3.50	0.02
pH		6-11	6.90	7.50	7.40	7.30	7.45	7.35	7.40	7.63	7.45	7.40	7.30	7.60

Analyte	Units	SUBL Limit	January	February	March	April	May	June	July	August	September	October	November	December
Silver	mg/L	5	0.02	0.05	0.02	0.02	0.06	0.01	0.06	0.08	0.26	0.23	0.50	0.01
Tin	mg/L	5	0.04	0.08	0.04	0.03	0.31	0.02	0.11	0.27	0.54	0.47	1.00	0.02
Total Volatile Solids	mg/L	-	310.00	2210	390	550	1795	530	2400	4133	2195	5413	13380	1680
Vanadium	mg/L	-	0.01	0.03	0.02	0.01	0.03	0.01	0.05	0.07	0.10	0.10	0.20	0.01

Review of Final Effluent Sampling and Monitoring Activities

In 2024, 102 samples of final effluent were collected and tested. Individual as well as monthly average results are reviewed and compared to the objective and compliance limits stated in the facility ECA. Table AA-T-3 below summarizes the number of monthly objective and compliance limit exceedances at the Anger Avenue WWTP in the reporting year.

Table AA-T-3: Evaluation of Final Effluent sample results to ECA objectives and compliance limits

Pollutant	ECA Monthly Concentration Objective	ECA Monthly Concentration Limit	Number of Objective Concentration Exceedances	Number of Monthly Limit Concentration Exceedances
pH[1]	6.0-9.0	-	0	-
Carbonaceous Biochemical Oxygen Demand (CBOD)	15 mg/L	25 mg/L	0	0
Total Suspended Solids (TSS)	15 mg/L	25 mg/L	2	1
Total Phosphorus (TP)	1.0 mg/L	1.0 mg/L	0	0
Total Residual Chlorine[2] (TRC)	0.5 mg/L	-	1	-
E-Coli (geomean)[3]	200 CFU/100 mL	200 CFU/100 mL	0	0

Anger Avenue WWTP exceeded the compliance limit for TSS in January 2024. The ECA objective for TSS was also not met in December 2024. Full details of this exceedance are included in section AA-T-3 Operational Issues Encountered below.

The objective for Total Residual Chlorine (TRC) was not achieved in November 2024. This incident was non-compliant with federal Wastewater Systems Effluent Regulations (WSER) and was reported to the Spills Action Centre. This is also described in greater detail in section AA-T-3 below.

A review of individual results against ECA objectives was also completed. Below summarizes the percentage of samples that were over the ECA objective:

- CBOD – 2%
- TSS – 4%
- TP – 0%
- E.Coli –10%

[1] pH must meet objectives/limits at all times (inclusive)
[2] Total Residual Chlorine monitoring only required April 01 to October 31 inclusive
[3] E.Coli monitoring only required April 01 to October 31 inclusive

Final Effluent sample results did not exceed the ECA objective greater than 50% of the time.

The plant continues to effectively treat all wastewater received for treatment. An annual summary of monthly average final effluent sample results are available in Table AA-T-5 below.

Effluent Quality Assurance Measurements and Control Measures

To ensure Anger Avenue WWTP continues to produce a high-quality effluent the following measures have been implemented:

- Development and implementation of a Wastewater Quality Management System (WWQMS) program
    - This program promotes an environment of continuous improvement for all staff impacting the quality of wastewater
- Development of an ISO 14001:2015 Environmental Management System
- Compliance samples are analyzed by an ISO 17025:2017 accredited laboratory unless sample results are required to be collected in the field at the time of sampling
- Standard Operating Procedures (SOPs) are in place to support proper sampling and field measurements
- A compliance sampling schedule is created each year to ensure regulatory requirements are being met, as a minimum
- Equipment used in the monitoring and measurement of Final Effluent quality are calibrated annually

Deviations from Scheduled Monitoring Program

Compliance sampling activities at the Anger Avenue WWTP follow a scheduled monitoring program to ensure all provincial and federal requirements are met. A schedule is prepared for the upcoming year and is submitted to the MECP as part of the annual reporting requirement.

In 2024, three (3) deviations from the scheduled sampling days occurred.

Table AA-T-4 below provides the instances where a deviation occurred and a reason for the deviation.

A copy of the 2025 sampling schedule is available upon request.

Table AA-T-4: Table of sampling schedule deviations

Sampling Date Deviation	Sample Type(s)	Reason
2024-03-14	Imported Sewage	No samples available for submission
2024-11-14	Final Effluent – field pH and temperature	Staff error – no field measurements recorded.
2024-12-19	Imported Sewage	No samples available for submission

Table AA-T-5: Annual Summary of Plant and Imported Sewage Flows, Influent and Effluent Sampling and Monitoring Results

Measured Parameter	January	February	March	April	May	June	July	August	September	October	November	December	Total / Average	Total Samples Collected
Influent - Monthly Average TSS (mg/L)	120	278	139	119	165	268	176	215	190	210	200	138	185	
Number of Influent TSS Samples	10	8	8	7	9	8	10	8	9	9	8	9		103
Influent - Monthly Average TBOD5 (mg/L)	78	116	109	87	114	168	120	132	134	147	123	107	120	
Number of Influent TBOD5 Samples	10	8	8	7	9	8	10	8	9	9	8	9		103
Influent - Monthly Average TP (mg/L)	1.5	3.4	2.7	2.3	2.9	4.4	3.6	4.3	4.1	3.5	2.9	1.8	3.1	
Number of Influent TP Samples	10	8	8	7	9	8	10	8	9	9	8	9		103
Influent - Monthly Average TKN (mg/L)	15.60	25.61	19.55	21.73	24.64	31.48	24.62	31.89	29.49	27.94	27.10	18.89	24.88	
Number of Influent TKN Samples	10	8	8	7	9	8	10	8	9	9	8	9		103
Total Plant Flows (ML)	661.708	344.780	385.288	540.693	312.146	320.738	338.970	287.646	255.421	241.175	279.944	442.250	4410.759	
Daily Average (MLD)	21.345	11.889	12.429	18.023	10.069	10.691	10.935	9.279	8.514	7.780	9.331	14.266	12.051	
Maximum Flow (ML)	54.455	17.881	21.379	52.456	18.980	30.809	24.322	16.325	17.214	18.923	21.489	30.356	**MAX**	54.455
Minimum Flow (ML)	11.112	9.665	3.586	8.926	7.349	6.695	6.982	6.879	6.248	6.200	6.498	7.359	**MIN**	3.586
Volume Imported Sewage Received (ML)	0.352	0.310	0.275	0.333	0.411	0.386	0.743	1.369	0.574	0.403	0.297	0.262	5.716	
Final Effluent - Monthly Average TSS (mg/L)	32.7	5.6	4.0	4.9	8.6	7.1	4.7	5.1	4.3	3.2	4.1	18.0	8.5	
Final Effluent - Average Daily TSS Loading (kg/d)	698	67	50	88	87	76	51	47	37	25	38	257	103	
Number of Final Effluent TSS Samples	10	8	7	7	9	8	10	8	9	9	8	9		102
Final Effluent - Monthly Average CBOD5 (mg/L)	10.5	4.0	4.3	4.0	6.0	4.5	4.0	4.9	4.0	4.0	4.0	5.2	5.0	
Final Effluent - Average Daily CBOD5 Loading (kg/d)	224	48	53	72	60	48	44	45	34	31	37	74	60	
Number of Final Effluent CBOD5 Samples	10	8	7	7	9	8	10	8	9	9	8	9		102
Final Effluent - Monthly Average TP (mg/L)	0.55	0.21	0.21	0.21	0.36	0.21	0.20	0.28	0.27	0.18	0.14	0.33	0.26	
Final Effluent - Average Daily TP Loading (kg/d)	11.74	2.50	2.61	3.78	3.62	2.25	2.19	2.60	2.30	1.40	1.31	4.71	3.16	
Number of Final Effluent TP Samples	10	8	7	7	9	8	10	8	9	9	8	9		102
Final Effluent - Monthly Average TKN (mg/L)	2.67	2.75	2.94	10.21	10.86	7.70	1.64	6.69	4.82	1.99	3.04	2.61	4.83	
Number of Final Effluent TKN Samples	10	8	7	7	9	8	10	8	9	9	8	9		102
Final Effluent - Monthly Average NH3 (mg/L)	0.19	1.35	1.51	7.59	8.50	5.21	0.44	4.18	2.95	0.80	1.25	0.47	2.87	
Final Effluent - Average Daily NH3 Loading (kg/d)	4.06	16.05	18.77	136.80	85.59	55.70	4.81	38.79	25.12	6.22	11.66	6.71	34.59	
Number of Final Effluent NH3 Samples	10	8	7	7	9	8	10	8	9	9	8	9		102
Final Effluent - Monthly Average NO3 (mg/L)	6.40	6.65	4.89	1.09	1.80	5.45	8.34	6.25	7.39	14.69	11.31	9.06	6.94	
Number of Final Effluent NO3 Samples	10	8	7	7	9	8	10	8	9	9	8	9		102
Final Effluent - Monthly Average NO2 (mg/L)	0.77	0.56	0.33	0.10	0.18	0.35	0.36	0.25	0.36	0.40	0.40	0.41	0.37	
Number of Final Effluent NO2 Samples	10	8	7	7	9	8	10	8	9	9	8	9		102
Final Effluent - Monthly Geomean E.Coli (cfu/100mL)				12	9	10	5	6	4	3			6	
Number of Final Effluent E.Coli Samples				8	9	8	9	9	8	10				61

Final Effluent - Monthly Average TRC (mg/L)				0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.67		0.08	
Number of Final Effluent TRC Samples				30	31	30	30	30	30	31	3			215
Final Effluent - Monthly Average Temperature (°C)	11.60	9.45	10.73	11.70	14.62	18.43	20.21	20.19	19.40	18.31	15.33	11.20	15.10	
Number of Final Effluent Temperature Samples	10	8	7	7	9	8	10	8	9	9	7	9		101
Final Effluent - Monthly Average pH	7.07	6.90	7.13	7.21	7.12	7.04	7.05	7.05	6.90	6.84	7.07	6.99	7.03	
Number of Final Effluent pH Samples	10	8	7	7	9	8	10	8	9	9	7	9		101

AA-T-3 Description of Operating Problems Encountered and Corrective Actions Taken

Total Suspended Solids Limit Exceedance – January 2024

The gearbox in secondary clarifier #1 failed in May 2023. The tank was drained and isolated to allow for repair. The gearbox was removed and sent out to be rebuilt. While awaiting the gearbox rebuild, the plant was limited to a single final clarifier in service which reduces the treatment capacity and retention time, particularly during times of wet weather.

The facility was able to effectively treat the rated Average Daily Flow with a single in-service clarifier, however, during wet weather events where the flow rate was at or approaching the Peak Flow Rate of 49,000 m^3/d, the rate of flow caused solids to carryover, impacting the quality of the final effluent.

On January 24, 2024, heavy rainfall occurred resulting in high flows to the Anger Avenue WWTP. The plant was operating at the peak design flow rate of 49,000 m^3/d for a portion of January 24 through to January 27. A sample of the final effluent was collected during the rainfall/high flow event with a resulting TSS of 266 mg/L. The high flows caused solids carryover into the final effluent as a single final clarifier is not capable of achieving the required settling at this flow rate.

This single result caused the TSS monthly average to exceed the ECA limit. All other samples collected in January were below the ECA TSS objective of 15 mg/L

Delays were experienced with rebuild of the gearbox. It was competed and returned to service March 2024.

An inspection of final clarifier #2 components was completed in August and a rebuild of the gearbox was required. Similar to above, secondary clarifier #2 was removed from service August 22, 2025, and was out of service for the remainder of 2024, once again reducing the clarifier capacity and impacting solids removal efficiency during high flows/wet weather.

This limited final clarifier capacity resulted in the objective exceedance in December 2024 where high solids were measured in the effluent during times of wet weather. The gearbox has been rebuilt and is awaiting favourable weather conditions for install.

Total Residual Chlorine Objective Exceedance – November 2024

The Anger Avenue WWTP is required to disinfect the effluent from April 1 to October 31 annually. To allow for required maintenance to be completed on the disinfection system, operators were instructed to continue to run both the chlorination and dechlorination systems past October 31, 2024, to reduce the levels in the chemical tanks for the maintenance to be carried out safely.

On the morning of November 3, 2024, the operator received multiple SCADA alarms alerting them to issues with the dechlorination pumps. The operator reset the pumping system and cleared all pump fault alarms. At 06:20, the operator received another SCADA alarm indicating the dechlorination pump had faulted again. The pump was reset remotely, and all alarms cleared. Two minutes later, the pump faulted again, triggering alarms through the SCADA system. This alarm was cleared upon shift change by the incoming operator. No further action was taken to rectify the faulted dechlorination pumps.

During this time, from November 3, 07:00 to November 4, 07:00, the chlorination system continued to run with no dechlorination, resulting in the Total Residual Chlorine (TRC) result greater than 2.00 mg/L measured on the morning of November 4, 2024.

Upon review of this incident, it was discovered that testing and monitoring of the effluent and the chemical systems was not conducted on November 3 by the operator on shift as instructed and required by the standard operating procedure.

The operator starting shift on November 4, 07:00 during plant rounds observed all dechlorination pumps were not running even though the chlorination pumps were still operational. The operator immediately started a dechlorination pump and shut down the chlorination pump. After starting the dechlorination system, the operator monitored the effluent to confirm proper dechlorination. Once dechlorination was confirmed both chemical systems were shut down.

Niagara Region will explore the use of UV disinfection at this site to eliminate the use of chemical products for disinfection and dechlorination.

AA-T-4 Summary of Major Maintenance Activities and Capital Works

Summary of Maintenance Carried out on Major Equipment

Niagara Region works to keep wastewater infrastructure in a state of good repair. Maintenance activities completed include regular preventative maintenance (PM) activities and normal and emergency equipment repair or replacement. Where a substantial amount of upgrade is required, this work is carried out under the capital works program.

Below is a summary of normal and emergency repairs carried out on major equipment at the Anger Avenue WWTP:

- Secondary clarifier #1 gearbox rebuild completed March 2024
- Secondary clarifier #2 scum arm repairs
- Secondary clarifier #2 gearbox seal repairs
- Secondary clarifier #2 framing repairs

- Rebuild waste activated sludge pump
- Aeration blower piping repairs
- Aeration butterfly valve replacement
- Diversion chamber valve repairs
- Bar screen repairs
- Rebuild raw sewage pump #4
- VFD replacement for raw sewage pump #5
- Repairs to gravity belt thickener

This list does not include PM activities. PMs are completed and tracked in a computerized maintenance management system. PMs completed during the reporting year are available upon request.

Planned Capital Upgrades

The following is a list of capital upgrades forecasted for the Anger Avenue WWTP:

- Rehabilitation of storm tanks
- Cleanout of biosolids storage tank and valve replacement

Summary and Update of Notice of Modifications Completed

Through the facility ECA, MECP has given System Owners the ability to complete low risk changes to a treatment plant without requiring approval from the MECP. These modifications are documented on a Notice of Modification form and are signed off by the Owner or delegate of the system. Any pre-authorized modifications must be reported on annually to the MECP.

During the reporting year 2024, no Notices of Modification were completed.

No Notice of Modification forms were completed in previous reporting years. No status update is required.

Proposed Works – Status Update

There were no Proposed Works to be reported on for the 2024 reporting period.

AA-T-5 Summary Calibration Activities

Flow Meter Calibration – Influent, Effluent and Imported Sewage

Flow meters measuring discharges to the environment are calibrated at minimum, once per calendar year. Below in Table AA-T-6 provides a summary of flow meter calibration.

Table AA-T-6: Summary of Flow Meter Calibration

Meter Name	Date Calibrated	Comments
Anger Avenue Influent Meter	2024-11-06	Passed
Anger Avenue Final Effluent Meter	2024-12-12	Passed
Anger Avenue Storm Flow Meter	2024-12-13	Passed

Calibration certificates are available upon request.

The volume of Imported Sewage received at site is reported by the sewage hauler on submitted paper manifests. No calibration required.

Effluent Monitoring Equipment Calibration/Verification

It is a requirement to calibrate, or, where unable to calibrate, verify equipment that is used to measure effluent quality.

Some effluent monitoring equipment calibration or verification is completed daily or as used by operations staff such as pH meter calibration or verification of the Total Residual Chlorine colorimeter.

Once annually, a contractor performs calibration or verification on all effluent monitoring equipment. A summary of calibration/verification activities are available in Table AA-T-7 below.

Table AA-T-7: Summary of Calibration/Verification of Effluent Monitoring Equipment

Equipment Description	Date Calibrated	Comments
DR1900 Spectrophotometer	2024-09-18	Passed
COD Reactor (HACH DRB200)	2024-09-18	Passed
Thermo Star A111 pH Meter	2024-09-18	Passed
Chlorine Portable Pocket Colorimeter (asset 37662)	2024-09-18	Passed
Chlorine Portable Pocket Colorimeter (asset 42401)	2024-09-18	Passed
Balance - AG204DR	2024-09-09	Passed
HQ30D with Dissolved Oxygen Probe	2024-09-18	Passed
HQ40D with pH Probe	2024-09-18	Passed

Calibration certificates are available upon request.

AA-T-6 Solids Handling

Processed Organics Received

No processed organics were received at the Anger Avenue WWTP during the reporting period. Anger Avenue does not typically receive processed organics.

Volumes Sludge Generated and Removed From Site

Solids removed from the treatment process are thickened, digested and transported from site for further processing and beneficial re-use. All sludge removed from the Anger Avenue WWTP is taken to Niagara Region's Garner Road Biosolids Facility where it is stored, further thickened and either sent for land application or for dewatering and conversion to a pelletized fertilizer.

In May 2024, the gravity belt thickener at the Anger Avenue WWTP was out of service for repair. During this period, 780 m^3 of waste activated sludge was transferred to Port Dalhousie WWTP for further treatment and digestion. 824 m^3 was transported to the Welland WWTP.

173 m^3 of activated sludge was transferred to the Crystal Beach WWTP to replenish the bacterial population after a loss of biomass from the secondary treatment process.

One (1) load, 43 m^3, of activated sludge was transferred to the Queenston WWTP to help improve the plant biomass and settling of solids in the final clarifier.

Table AA-T-8 provides a summary of 2023 and 2024 sludge volumes removed from site.

Table AA-T-8: Summary of Sludge Removed from Site 2024

Month	2024 Volume Sludge Hauled (ML)	Prior Year Volume Sludge Hauled (ML)
January	0.477	0.607
February	1.214	1.908
March	1.041	1.214
April	3.209	2.645
May	2.341	1.648
June	4.726	5.377
July	4.726	2.038
August	1.951	3.425
September	1.127	0.477
October	0.911	0.000
November	0.000	2.948
December	0.043	0.000
TOTAL	**21.767**	**22.287**

It was noted there was a 2% decrease in sludge removed from site in 2024 versus reporting year 2023. Anger Avenue WWTP is equipped with two sludge storage tanks allowing for a large amount of on-site storage capacity. Where the volume of sludge removed is zero for a given month, this means sludge produced was stored on site. Variations in sludge removed from site year to year occur due to batch haulage from the storage tanks.

More sludge haulage from the site is anticipated in 2025 as the storage tanks will be cleaned out to facilitate valve replacement.

Sludge Quality Monitoring

Sludge is sampled and analyzed bi-weekly to meet regulatory requirements of the Garner Road Biosolids Facility ECA and maintain our ability to beneficially re-use biosolids. Results are trended and compared to Nutrient Management Act (NMA) limits. Where a trend is detected, investigations are initiated to identify potential sources of the pollutant and correct any issue identified. Average monthly results for 2024 sludge analysis from the Anger Avenue WWTP is included in Table AA-T-9.

Table AA-T-9: Summary of Monthly Average Sludge Results

Analyte	Units	NMA Limits	January	February	March	April	May	June	July	August	September	October	November	December
Total Solids	%	-	2.25	2.00	2.15	2.43	2.80	2.60	3.15	3.05	3.00	2.47	2.60	2.75
Ammonia as N	mg/kg	-	390	350	245	307	525	440	560	615	485	543	365	440
Nitrate+Nitrite	mg/kg	-	0.99	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.98	0.98	0.99	1.00
Phosphorus	mg/kg	-	21,550	17,350	16,850	15,667	21,450	19,950	19,550	22,150	20,800	23,533	24,750	21,400
Arsenic	mg/kg	170	8.23	10.00	6.61	5.61	6.00	5.50	7.75	7.30	6.55	6.73	3.70	7.40
Cadmium	mg/kg	34	1.10	0.65	0.65	0.80	0.50	1.35	1.50	1.75	1.40	1.43	1.30	1.25
Chromium	mg/kg	2,800	246.0	142.0	87.1	92.9	94.5	105.5	122.0	131.5	107.5	125.0	131.0	121.0
Cobalt	mg/kg	340	3.60	2.85	3.20	3.03	3.70	2.30	3.15	3.10	3.25	3.43	3.45	3.15
Copper	mg/kg	1,700	375.5	293.0	241.5	267.0	303.0	299.0	291.5	340.5	308.5	348.7	329.0	265.0
Lead	mg/kg	1,100	108.50	62.50	35.00	51.53	47.00	88.50	118.00	104.50	51.00	36.33	28.00	17.50
Mercury	mg/kg	11	0.25	0.25	0.25	0.25	0.21	0.29	0.13	0.23	0.20	0.23	0.20	0.18
Molybdenum	mg/kg	94	7.00	5.50	5.50	5.40	3.00	5.00	5.50	6.50	6.00	7.67	8.00	7.00
Nickel	mg/kg	420	45.60	21.65	18.80	19.60	21.75	21.60	27.65	32.10	24.90	26.93	27.20	23.75
Potassium	mg/kg	-	4,960	6,120	5,675	4,877	5,595	5,040	4,745	4,945	3,830	4,120	3,740	3,510
Selenium	mg/kg	34	2.65	2.14	1.56	2.06	2.45	2.15	2.60	2.90	2.40	2.03	0.30	2.65
Zinc	mg/kg	4,200	424.5	355.5	324.0	393.0	468.5	406.5	460.5	532.5	490.0	530.0	484.5	377.0

AA-T-7 Complaints

No complaints were received in 2024 regarding the operation of the Anger Avenue WWTP. Complaints were received regarding the Anger Avenue sewage collection system. This is included in section AA-C-6 Summary of Collection System Complaints below.

AA-T-8 Bypasses, Overflows, other situations outside Normal Operating, Spills and Abnormal Discharge Events

Bypasses and Overflows

There were three (3) secondary overflow events at the Anger Avenue WWTP in 2024. Secondary overflows from this facility receive partial treatment prior to discharge including screening, phosphorus removal, settling (solids removal), chlorination and dechlorination (from April 1 to October 31). Table AA-T-10 provides a monthly breakdown of secondary overflow events occurring at the Anger Avenue WWTP during the reporting period. A complete listing of individual events are available upon request.

Table AA-T-10: Annual Summary of Secondary Overflow Events by Month

Month Name	Number of Overflow Events	Total Volume (ML)
January	1	20.656
February	0	0.000
March	0	0.000
April	1	20.800
May	0	0.000
June	0	0.000
July	0	0.000
August	0	0.000
September	0	0.000
October	0	0.000
November	0	0.000
December	1	2.321
Total	**3**	**43.777**

Secondary overflows are sampled and submitted for analysis. Results are shown in Table AA-T-11 below.

Table AA-T-11: Anger Avenue WWTP Overflow Sampling Results

Date	CBOD (mg/L)	Total Suspended Solids (mg/L)	Phosphorus (total) (mg/L)	Total Kjeldahl Nitrogen (mg/L)	Ammonia as N (mg/L)	Nitrate (mg/L)	Nitrite (mg/L)	E. Coli[4]
2024-01-26	40	58	0.41	3.40	0.90	1.60	0.10	
2024-04-12	40	83	0.90	5.00	1.60	1.00	0.10	240,000
2024-12-30	30	70	0.50	9.10	4.20	0.80	0.10	

Situations Outside of Normal Operating Conditions

The MECP defines “Normal Operating Conditions” as when all unit process(es), excluding the Preliminary Treatment System, in a treatment train is operating within its design capacity.

Secondary Clarifier #1 was out of service in January and February 2024. Secondary Clarifier #2 was taken out of service in August 2024 for the remainder of the reporting year. The plant was able to fully treat flows up to the daily rated capacity during this time. However, during periods of high flows (wet weather), one clarifier was unable to provide adequate solids removal at the peak flow rate of 49,000 m3/d. This was discussed in AA-T-3 above.

Spills

Niagara Region strives to maintain and operate wastewater infrastructure so spills to the environment do not occur. However, circumstances may arise and a spill occurs due to equipment malfunction, failure or other reasons. Occasionally, a planned spill may be required to safely complete required maintenance to critical equipment. If this is necessary, approval from the MECP is obtained in advance.

All spills are reported to the MECP Spills Action Centre upon discovery. Spills are investigated and written reports are submitted to the MECP and Environment and Climate Change Canada as required by legislation. Below in Table AA-T-12 summarizes spills that occurred at the Anger Avenue WWTP in 2024.

[4] Sampling and Analysis of E.Coli is only required April 1 through October 31, annually

Table AA-T-12: Summary of spills occurring at the Anger Avenue WWTP during the reporting year

Spill Date	MECP Incident Number	Short Description of Spill	Link to Public Spill Report
No Spills in 2024			

Abnormal Discharges

An abnormal discharge is a discharge to the environment that is abnormal in quality or quantity. Final effluent that was not dechlorinated was discharged to the environment on November 3 and 4, 2024. This incident was covered in detail in section AA-T-3 above. A verbal report of the incident was made to the Spills Action Centre and a written report was provided to the district MECP office.

AA-T-9 Summary of Efforts to Achieve Conformance with F-5-1 and/or F-5-5

Summary of Efforts – Procedure F-5-1 – Secondary Treatment Equivalent

Procedure F-5-1 states wastewater treatment facilities are to provide treatment of wastewater to a minimum of secondary treatment equivalence. This means the WWTP should be designed to meet objectives of 15 mg/L for CBOD and TSS and 1 mg/L for TP.

As demonstrated above in section AA-T-2, in general, Anger Avenue achieved effluent quality that met or exceeded design objectives. The Final Effluent annual average quality achieved in 2024 was equivalent with the MECP design objectives for advanced treatment plants. The observed annual average for CBOD was 5 mg/L, the observed annual average for TSS was less than 9 mg/L, while the annual average TP concentration of the Final Effluent was less than 0.3 mg/L.

Summary of Efforts – Procedure F-5-1 – Sewage Bypass/Overflow from Nominally Separated System

Procedure F-5-1 states that bypasses and overflows from nominally separated systems are not allowed except in emergency situations. Emergency situations include protection from basement flooding, preventing damage to WWTP equipment or pumping stations or to prevent treatment process washout.

The Anger Avenue WWTP experiences high flow conditions due to inflow and infiltration in the collection system that require overflows to occur to prevent emergency situations. Being a two-tier system, Niagara Region works closely with the Town of Fort Erie to reduce overflows at the wastewater treatment plant. Niagara Region participates in a cost sharing strategy with lower tier municipalities to fund overflow reduction projects. In 2024, Niagara Region had an approved budget totaling $2.0M for the overflow reduction cost sharing program. Three (3) projects were approved for cost sharing in the Town of Fort Erie with Niagara Region contributing $328,500 to support overflow reduction.

Excess Primary Treatment Capacity

F-5-1 allows for excess primary treatment where it is impractical or uneconomical to provide secondary treatment to wet weather flow. Anger Avenue is equipped with four storm tanks that provide excess primary treatment to wet weather flow. Flows greater than the plant design peak flow of 49,500 m^3/d are diverted to the storm systems. Storm flows diverted to the storm treatment system receive screening, phosphorus removal, settling (solids removal), chlorination and dechlorination (from April 1 to October 31) prior to discharge to the Niagara River via the storm system outfall.

The storm system also acts as a storage tank during wet weather and can hold approximately 4,000 m^3 in the settling tanks prior to a secondary overflow occurring. This volume is returned to the plant for full treatment when wet weather events are over.

Industrial Waste

Industrial waste can contain material that can have negative impacts on collection system infrastructure as well as the wastewater treatment process itself. Upsets to the treatment process can cause a plant to become non-compliant with ECA objectives and limits. To protect our infrastructure, the Niagara Region has a Sewer Use By-law in place. Environmental Enforcement Officers conduct industry inspections as well as sampling and monitoring of industrial discharges on a routine basis to ensure that they meet the Sewer Use By-law limits.

In 2024, an update to the Sewer Use By-law was approved by Council. Sewer Use By-law 2024-51 is now in place ensuring better protection of Niagara Region wastewater infrastructure.

Summary of Efforts – Procedure F-5-5

The MECP Procedure F-5-5 applies to combined sewage systems. The Anger Avenue wastewater collection system is considered nominally separated. This procedure does not apply.

AA-C-1 Overview of the Anger Avenue WWTP Collection System

The Anger Avenue WWTP collection system is a class IV system that collects wastewater from domestic, commercial and some industrial sources from the southeast area of the municipality of Fort Erie. The collection system consists of the following:

- Local sanitary sewers
- 10.7 kilometres of regional gravity mains
- 12.0 kilometres of regional force mains
- 7 pumping stations:
    - Alliston Avenue Sewage Pumping Station
    - Bardol Avenue Sewage Pumping Station
    - Catherine Street Sewage Pumping Station
    - Dominion Road Sewage Pumping Station
    - Lakeshore Road Sewage Pumping Station
    - Rose Avenue Sewage Pumping Station
    - Thompson Rd Sewage Pumping Station
- A total of six Sanitary Sewage Outfalls (SSO) outfalls, including overflow structures at three of the seven pumping stations

Figure AA-C- 1: Map of Anger Avenue WWTP Collection System

The collection system is operated under a two-tier system, where the Town of Fort Erie owns and operates local gravity sanitary sewers and Niagara Region owns and operates sewage pumping stations, forcemains and larger gravity sanitary sewers or trunk sewers. It is classified as a nominally separated system meaning that storm water is collected separately from sanitary sewage but the system may still be impacted by inflow and infiltration from sources such as roof leaders, foundation drains, leaky pipes and joints and maintenance holes.

The collection system operates under the following Consolidated Linear Infrastructure ECA:

- Fort Erie Trunk Wastewater Catchment System, 007-W610, issue number 1

Annual reporting has been prepared to meet the requirements of this approval.

AA-C-2 Summary and Interpretation of Collection System Monitoring Data

Monitoring of Pump Station Operations

Pump stations operate through automatic control and are monitored continuously using Supervisory Control and Data Acquisition (SCADA). Stations alarms are programmed to alert the operations staff at the Anger Avenue WWTP 24 hours a day of potential issues including but not limited to high wet well levels, pump faults, communication failures and standby generator status. Operators will respond to station alarms as required to ensure proper station operation.

Station operation is trended in SCADA. SCADA trends are reviewed daily by operations staff to evaluate station performance. Operators will look at pump cycle times, station discharge flow and pump duty rotation to identify potential issues. Where potential issues are identified, work orders are generated for follow up by maintenance staff.

In addition to SCADA monitoring, monthly station inspections are completed by operations staff. This includes inspection of the station and testing of standby generator equipment. In addition, starting in 2024, operations staff conducted six (6) visual inspections of sanitary sewer overflow locations.

Sanitary Sewer Closed-Circuit Television Inspection Program

Niagara Region owns and maintains 145 kilometers of trunk sanitary gravity sewers, 161 kilometers of sanitary forcemains, and 2,093 sanitary access chambers across 11 municipalities. Approximately 85% of its conventional trunk sanitary gravity system is inspected using closed-circuit television (CCTV) once every three years. The remaining 15% is large diameter trunk sewers, which are inspected once every 10 to 15 years due to the necessity for specialized equipment to access and inspect sewers that have continuous high flow levels.

Table AA-C- 1 details the total length of sewers inspected over the past four years.

Table AA-C- 1- CCTV Program Summary

Measurement in Kilometers (km)	2021[5]	2022	2023	2024
Inspection Length (km)	18.5	59.3	33.0	31.3

Observations from the inspections are recorded for structural and operational deficiencies of the pipes. Operational deficiencies (blockage from grease, roots, debris) are addressed through the cleaning/flushing program. Structural deficiencies (broken, fractured, surface

[5] 2021 marked the end of one inspection contract and the start of a new contract. Delays in the procurement process due to competing priorities resulted in a gap in inspection contracts. As a result, the length of sewers inspected in 2021 was less than in prior years.

damage, holes) as well as Inflow and Infiltration are forwarded for consideration in the asset management plan and capital upgrade program.

Flow Monitoring

Niagara Region monitors sewer flows at 158 locations. Flow monitoring information is used for municipal Pollution Prevention and Control Plans (PPCPs), Master Servicing Plans (MSPs) including the 2021 Water and Wastewater MSP, Inflow and Infiltration studies, billing, development planning, and capital project design.

AA-C-3 Summary of Operating Issues Encountered and Corrective Actions Taken

Pump Stations and Forcemains

Operational issues were experienced at the Lakeshore Road sewage pumping station in 2024. Sewage pump #1 discharge piping failed in September 2024 restricting the station to a single pump with no backup in the event of a breakdown. A portable pump was stored onsite to pump to tanker if needed in an emergency. This station is scheduled for an upgrade, anticipated to start in 2025.

No other operational issues were encountered with the pump station and forcemains in the Anger Avenue collection system.

Gravity Trunk Sewers

No operational issues were encountered with Niagara Region gravity trunk sewers in 2024.

AA-C-4 Summary of Major Maintenance, Capital Projects and Pre-Authorized Alterations

Summary of Maintenance Carried out on Major Equipment

Niagara Region works to keep wastewater infrastructure in a state of good repair. Maintenance activities completed include regular preventative maintenance (PM) activities and normal and emergency equipment repair or replacement. Where a substantial amount of upgrade is required, this work is carried out under the capital works program.

Below is a summary of normal and emergency repairs carried out on major equipment in the Anger Avenue Collection System:

- Dominion Road SPS – rebuild of pump #1, replace pump #2 VFD
- Lakeshore Road SPS – rebuild of pump #2
- Rose Avenue SPS – rebuild of pump #2

This list does not include PM activities. PMs are completed and tracked in a computerized maintenance management system. PM completed during the reporting year are available upon request.

Planned Capital Upgrades

The following is a list of capital upgrades forecasted for the Anger Avenue Collection System:

- The Catherine Street SPS requires sustainability and capacity upgrades. A Municipal Class Environmental Assessment has been completed to determine the best path forward to complete the necessary station improvements. Further archeological work was undertaken in 2024. Conceptual design to follow completion of archeological assessment.
- Lakeshore Road SPS will undergo upgrades to the station itself as well as replacement of the station forcemain. Upgrades support operations and maintenance of the station, sustainability as well as a capacity increase.

Summary of Pre-Authorized Alterations Undertaken

Through collection system ECAs, MECP has given System Owners the ability to complete low risk changes to a sewage pumping station, forcemain or gravity main without requiring further approval from the MECP. These modifications are documented on an applicable MECP form and signed off by the Owner or delegate of the system. Any pre-authorized modifications must be reported on annually to the MECP.

During the reporting year 2024, no pre-authorized modifications were completed.

No pre-authorized works were completed and therefore, there were no alterations that would pose a significant threat to drinking water.

AA-C-5 Summary of Calibration Activities

Collection system overflow meters are calibrated at minimum once per year. Other instrumentation used in process control is calibrated on an as needed basis. Table AA-C- 2 below provides a summary of calibrations completed in the collection system in 2024.

Table AA-C- 2: Annual Summary of Collection System Flow Meter Calibrations

Equipment Description	Date Calibrated	Comments
Lakeshore Road SPS Overflow Meter	2024-06-20	Passed

Calibration certificates are available upon request.

AA-C-6 Summary of Complaints

Two (2) odour complaints were received in 2024 regarding the operation of the Anger Avenue collection system. When a complaint is received, operations staff attend the site to verify the

complaint. Corrective actions are taken if required based on the site verification. All complaints and corrective actions are logged in a complaint tracking system.

AA-C-7 Summary of Collection System Overflows and Spills

Collection System Overflows

Although the Anger Avenue wastewater collection system is nominally separated, collection system overflows occur during wet weather events due to inflow and infiltration into the sewage collection system. Overflows are necessary to prevent basement flooding and to protect downstream infrastructure and wastewater treatment processes.

Table AA-C- 3 provides a summary of collection system overflows that occurred during the reporting year. The table includes volume discharge, overflow durations as well as pollutant loading to the environment. Individual event details are available upon request.

More information on sewage overflows and inflow and infiltration, is available on the Region's website (www.niagararegion.ca/living/sewage/cso).

Table AA-C- 3 - Summary of Collection System Overflow Events. Where NS is indicated, no sample results are available.

Overflow Location	Overflow Date	Overflow Volume (ML)	Overflow Duration (hhh:mm)	BOD Loading (kg)	TSS Loading (kg)	TP Loading (kg)	TKN Loading (kg)	E.Coli (CFU/100 mL)	Was the Overflow Disinfected (Yes/No)	Were Any Adverse Impacts Observed (Yes/No)	Corrective Actions Taken
Lakeshore Road SPS	2024-01-09	0.004	0:26	0.2	2.0	0.01	0.09	NS	No	No	Awaited End of Event
Lakeshore Road SPS	2024-01-26	0.006	16:45	0.2	0.2	0.00	0.03	NS	No	No	Awaited End of Event
Lakeshore Road SPS	2024-04-11	3.735	17:43	149.4	295.1	2.61	20.54	130,000	No	No	Awaited End of Event
Lakeshore Road SPS	2024-06-29	0.828	3:30	NS	NS	NS	NS	NS	No	No	Awaited End of Event
Lakeshore Road SPS	2024-07-15	0.002	1:00	0.1	0.1	0.00	0.02	2,010,000	No	No	Awaited End of Event

Collection System Spills

Niagara Region strives to maintain and operate wastewater infrastructure so spills to the environment do not occur. However, circumstances arise where a spill occurs due to equipment malfunction, failure or other reasons. Occasionally, a spill is required to safely complete required maintenance to critical equipment. If this is necessary, approval from the MECP is obtained in advance.

All spills are reported to the MECP Spills Action Centre upon discovery. Spills are investigated and written reports are submitted to the MECP and Environment and Climate Change Canada as required by legislation. Table AA-C- 4 below summarizes spills that occurred in the Anger Avenue collection system in 2024.

Table AA-C- 4: Summary of Spills Occurring in the Anger Avenue Collection System

Spill Date	MECP Incident Number	Description of Spill	Link to Spill Report
2024-09-09	1-ANJ731	Lakeshore Road SPS – equipment failure causing spill	CWCD 24-162 (https://www.niagararegion.ca/council/Council%20Documents/2024/council-correspondence-oct-04-2024.pdf)

AA-C-8 Summary of Efforts to Reduce WWTP Bypasses/Overflows and Collection System Overflows

Projects Undertaken to Reduce Bypasses or Overflows

The Anger Avenue WWTP experiences high flow conditions that require overflows to occur due to inflow and infiltration in the collection system to prevent emergency situations. Being a two-tier system, Niagara Region works closely with the Town of Fort Erie to reduce overflows at the wastewater treatment plant. Niagara Region participates in a cost sharing strategy with lower tier municipalities to fund overflow reduction projects. In 2024, Niagara Region had an approved budget totaling $2.0M for the overflow reduction cost sharing program. Three (3) projects were approved for cost sharing in the Town of Fort Erie with Niagara Region contributing $328,500 to support overflow reduction.

The Anger Avenue collection system had five overflows from the Lakeshore Road SPS in 2024. The Lakeshore Road SPS is to undergo major capital upgrades which includes an increase in the station’s pumping capacity. Construction is anticipated to start in 2025.

Public Reporting of Bypasses and Overflows

Niagara Region reports all bypass and overflow events publicly on the Niagara Region website (https://www.niagararegion.ca/living/sewage/CSO/Reporting/CSOLocations.aspx)

Niagara Region updates the data on recent overflows four times a year and displays any overflows that may have occurred in the past 12 months.

A listing of overflow data back to 2008 is available through the Niagara Open Data website (https://niagaraopendata.ca/dataset/combined-sewage-overflow)

An active project is underway to improve public reporting of bypasses and overflows including making the data available in near real time.

In 2024, Niagara Region posted signs at publicly accessible sites close to overflow locations that warn about potential hazards and precautions on water use following wet weather. These precautions are not in place at all times but are recommended after wet weather when overflows may affect water quality and safety.

Figure AA-C- 2 - Image of Sanitary Sewer Overflow Public Signage