

St. Marys Wastewater Treatment and Collection System Annual Performance Report



Prepared For:
The Town of St. Marys

Operating Authority:



Reporting Period of January 1st – December 31st, 2023

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Overview

The following report was prepared by Ontario Clean Water Agency on behalf of the Town of St. Marys in accordance with:

- Condition 12(4) (a) through (n) cited in Environmental Compliance Approval #6378-CB3M2T issued July 27, 2022, to The Corporation of the Separated Town of St. Marys.
- Schedule E (4) cited in Environmental Compliance Approval #056-W601 issued January 10, 2023, to The Corporation of the Separated Town of St. Marys.

System Process Description

The St. Marys WWTP is located at 309 Thomas Street, St. Marys, Ontario. The plant is an Anoxic/Oxic Biological Nutrient Removal (A/O BNR) System with Integrated Sludge Management. The facility has a rated capacity of 5,560 m³/d and is comprised of the following components:

- Wastewater collection system and pumping stations
- Preliminary treatment facility consisting of screens and grit removal
- Anoxic tanks
- Biological treatment facility including supplementary treatment system
- Secondary sedimentation consisting of two secondary clarifiers
- Disinfection system
- Biosolids Handling

Raw Wastewater Collection

Raw sewage typically flows by gravity throughout the system to the wastewater treatment plant. Where gravity flow is not possible due to elevation restrictions, raw sewage flows by gravity to each of the three pump stations that service the Town of St. Marys and from there is pumped to the wastewater treatment plant. The three pump stations are located as follows:

- Emily Street Pump Station consisting of 2, 30 HP pumps controlled by floats with high level float alarm.
- Robinson Street Pump Station consisting of 2, 7.5 HP pumps controlled by Milltronics with high level float alarm and an emergency back-up generator.
- Queen Street Pump Station consisting of 2, 10 HP pumps controlled by Milltronics with high level float alarm and an emergency back-up generator.

Inlet Works

Raw sewage flows from the collection system and the three pump stations into the wet well; raw sewage passes through automatic bar screens on route to the wet well. The raw sewage is then pumped through a grit tank and communitor. Grit is removed and conveyed into a bin that is sent to landfill for disposal. Raw sewage continues to flow by gravity to the process anoxic tanks.

Anoxic Tanks

The Raw sewage is introduced to the anoxic tanks along with recirculated material from the process aeration tanks and the clarifier's return activated sludge (RAS). Contents of each 2,359 m³ anoxic tank is

continually mixed with a mechanical mixer. The anoxic and aeration tanks contain micro-organisms that degrade, organics, nitrogen, and phosphorus in the wastewater.

Aeration Tanks

Sewage enters through the inlet chamber, where flow is split off to three distribution chambers which feed the three 859 m³ aeration basins. The parallel operating aeration basins are each equipped with fine air bubble diffusers. Air introduced here in the waste stream promotes oxidizing the carbon and ammonia from the raw sewage. In 2015 a 150 HP turbo blower was installed to provide a minimum of 2,506 m³ of air/hour replacing one of the centrifugal blowers.

One phosphorus removal system capable of processing internal recycle streams consisting of one polymerized aluminum sulphate feed system consisting of two chemical feed pumps discharging into the channel of the outlet of the aeration tanks.

Secondary Clarifiers

Sewage is split amongst four centre feed round clarifiers, two larger 802 m³ clarifiers and two smaller 268 m³ clarifiers. Return activated sludge (RAS) collected from clarifiers can be transferred to the anoxic tanks or to waste activated equalization tanks. Waste activated equalization tanks are holding tanks utilized for the sludge thickening process.

Final Effluent Disinfection

Effluent passes through two ultraviolet lamp arrays containing a total of 112 lamps. A sodium hypochlorite liquid feed system is provided for backup chlorination in the event of UV failure. Final effluent is discharged via pipe to the outfall on the bank of the Thames River.

Biosolids Handling

Waste activated sludge (WAS) is pumped from the two 230 m³ waste activated sludge equalization tanks (WASEQ), equipped with coarse air diffusion, into a flocculation tank for polymer addition and then into a rotary drum thickener for dewatering. The thickened waste activated sludge (TWAS) is pumped into one of the two sludge storage tanks that were previously used as digesters. Supernatant is taken off the top of the storage tanks to thicken the sludge. Sludge from these storage tanks is then dosed with polymer and processed through a dewatering centrifuge. The dewatered sludge produced by the centrifuge is pumped to the Lystek reactor to complete the Lystek process. Biosolids are mixed with potassium hydroxide in the heated mixing tank and processed.

Product from the mixing tank is pumped to a mixed storage tank equipped with an activated carbon odour control system. Biosolids are loaded from an overhead loading dock into a tanker for approved disposal. The loading area is equipped with curbing and is graded to catch basins tied into the process.

Standby Power

The wastewater treatment plant has an automatic standby generator, which will operate the plants essential components when a utility power failure occurs.

System Facts:

Environmental Compliance Approval	#6378-CB3M2T (issued July 27, 2022)
CLI Environmental Compliance Approval	#056-W601 (issued January 10, 2023)
Rated Capacity	5,560m ³ /d
Receiving Water	Thames River – North Branch

For 2023, the St. Marys WWTP and WWC system was operated in accordance with the provincial regulations as required in ECA #6378-CB3M2T and CLI-ECA #056-W601. The following report is presented such that it corresponds with ECA Condition 12(4) (a) through (n) and CLI-ECA Schedule E Condition 4.6.

Collection System Monitoring

Industrial Contributors

The St. Marys wastewater collection system industrial contributors are monitored for BOD5, total suspended solids, total phosphorous and oil & grease on a weekly basis by means of composite sample. This monitoring provides information on potential adverse impacts on the WWTP as well as for the Town to enforce their Sewer Use Bylaw. Refer to Figures 1 through 4 and **Operating Problems & Corrective Actions** section for more details on the results from the industrial contributors.

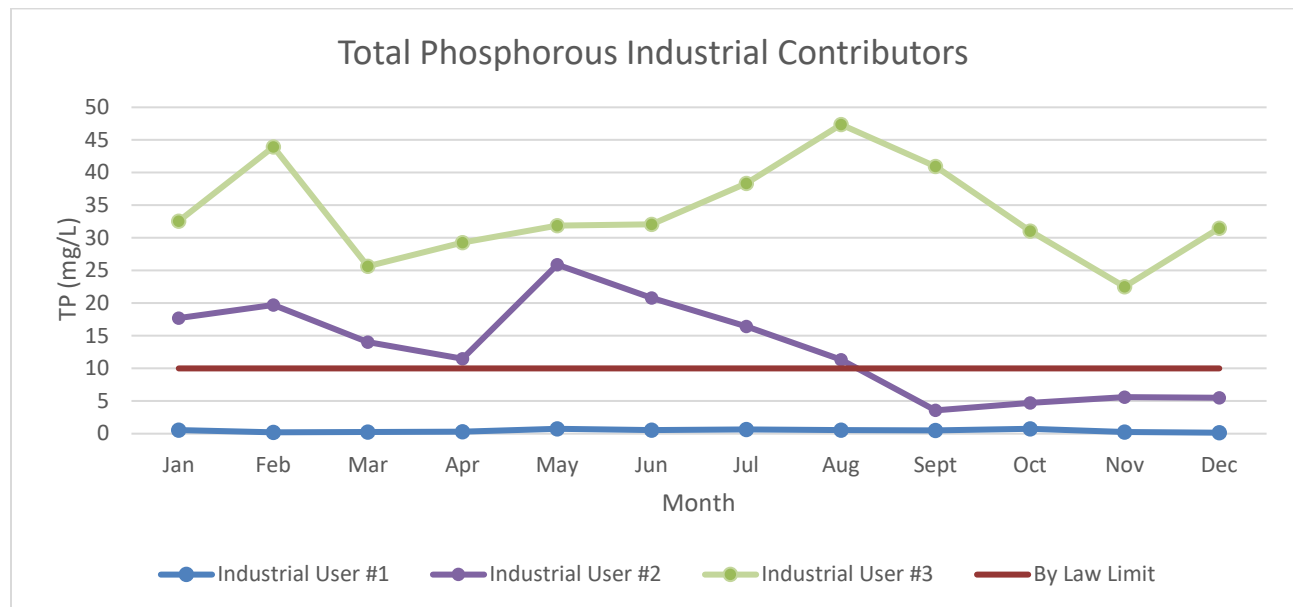


Figure 1. Monthly Average TP results from Industrial Contributors

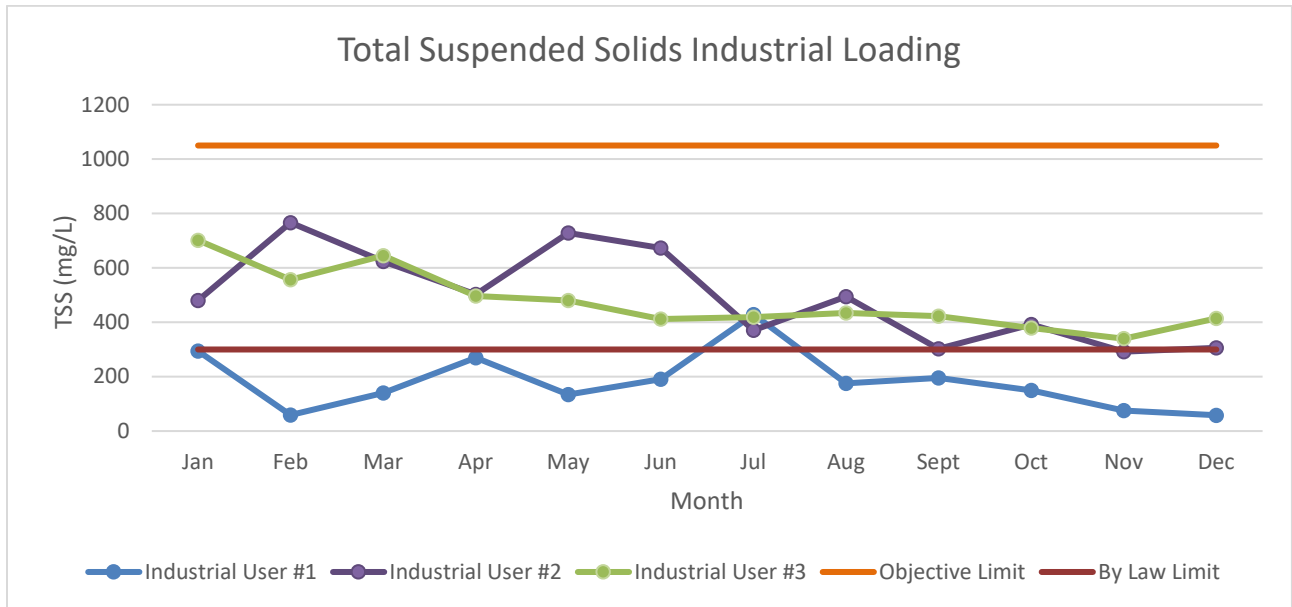


Figure 2. Monthly Average TSS from Industrial Contributors

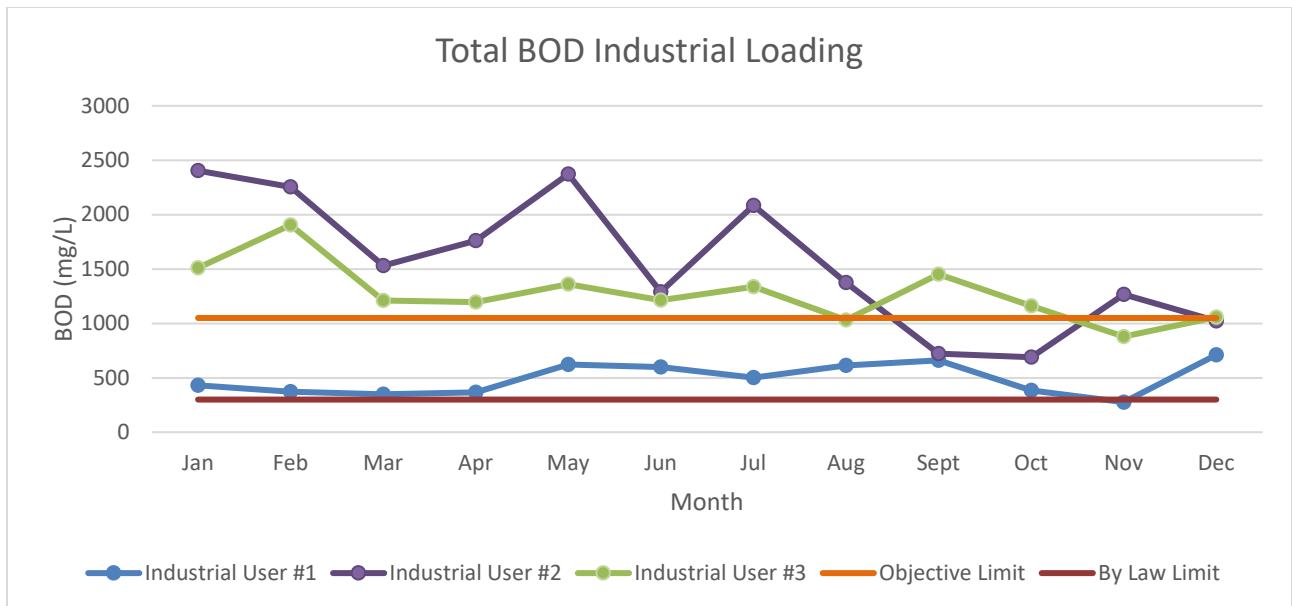


Figure 3. Monthly Average BOD from Industrial Contributors

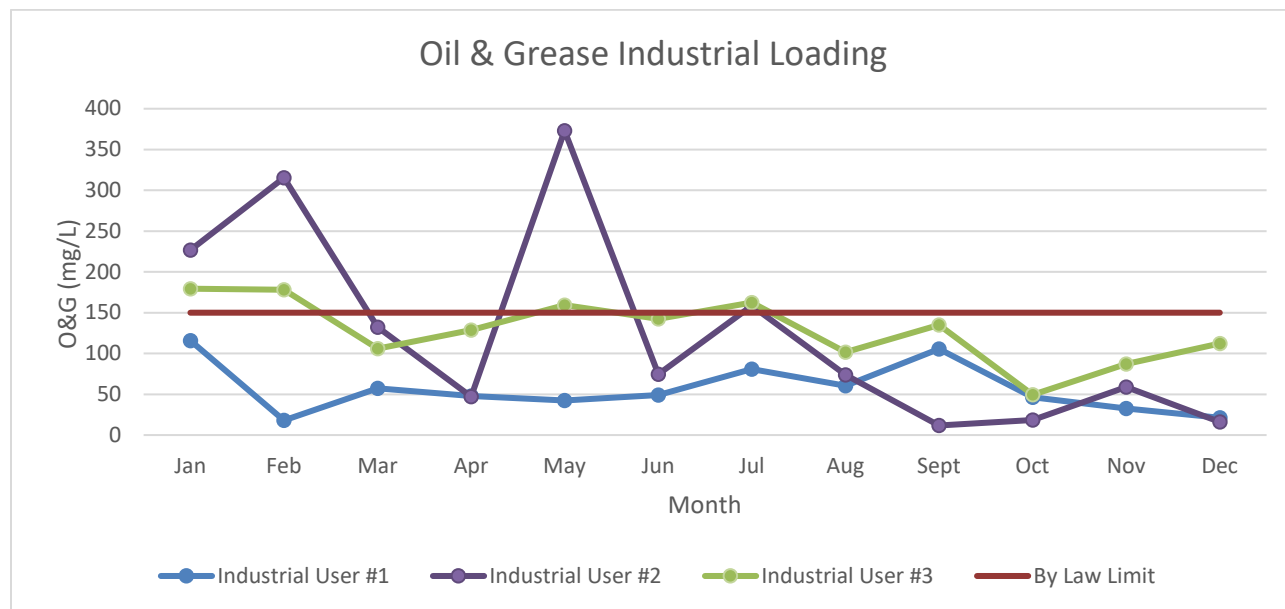


Figure 4. Monthly Average Oil & Grease from Industrial Contributors

Imported Sewage

The St. Marys WWTP is approved to accept imported sewage by licensed waste management system operators as identified within R.R.O Reg. 347: General Waste Management, as amended. In 2023, the WWTP has accepted 16.3 m³ of imported sewage as shown in Table 1.

Date	Volume (m ³)
April 4 th , 2023	10.6
April 17 th , 2023	5.7
Total	16.3

Table 1. Total Imported Sewage

A grab sample is required to be collected monthly when receiving imported sewage, refer to Table 2 for a summary of imported sewage monitoring data.

Date	BOD ₅ (mg/L)	TSS (mg/L)	TP (mg/L)	TKN (mg/L)
April 4 th , 2023	456	311	20	210
April 17 th , 2023	2,560	65,6000	713	1,570
Average	1,512.5	32,955.5	366.5	890

Table 2. Imported Sewage Grab Results

Influent Flow Monitoring

The St. Marys WWTP is rated to treat an average daily flow of 5,560 m³. Refer to Figure 5 for a comparison of the average daily flow for the last six years against the rated capacity of the plant. The WWTP is at 82 % of the rated capacity of 5,560 m³/d.

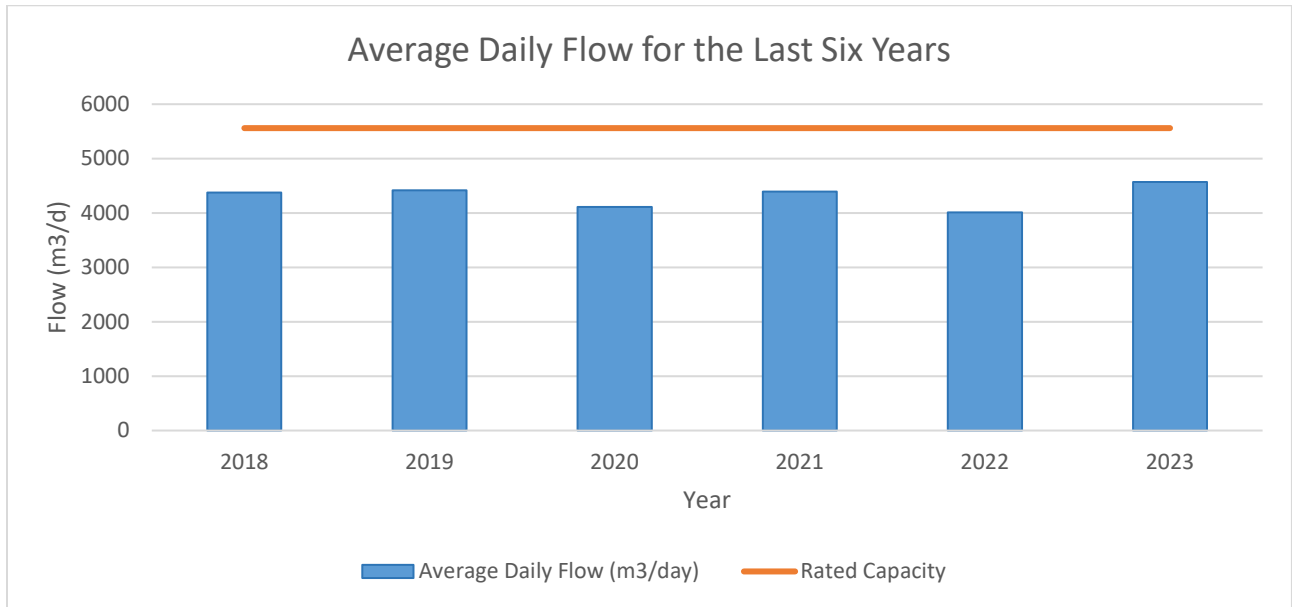


Figure 5. Average Daily Flow or the Last Six Years

The raw sewage average daily flow in 2023 was 4,571 m³/d, the average daily flow in 2022 was 4,013m³/d. This is a 13.9% increase from the 2022 average daily flows. Refer to Figure 6 for average daily flow each month and the overall annual average daily flow.

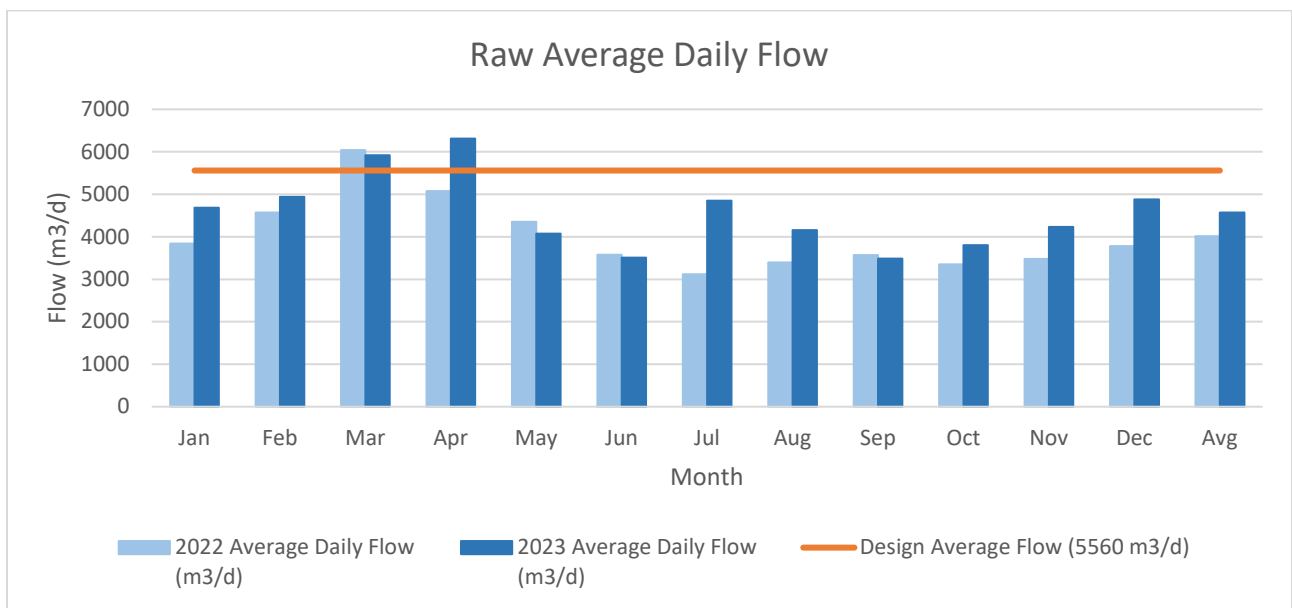


Figure 6. Average Daily Flow each Month

Influent Data

The influent is monitored for BOD5, total suspended solids, total phosphorous, alkalinity, total ammonia nitrogen and total kjeldahl nitrogen on a weekly basis by means of composite sample. Refer to Appendix A for more detail on monthly results.

Biochemical Oxygen Demand

In 2023, the average raw Biochemical Oxygen Demand (BOD5) concentration was 361mg/L, this is a 3.7% decrease from 2022. Refer to Figure 7 for a comparison of 2023 monthly raw BOD5 concentrations to 2022 concentrations.

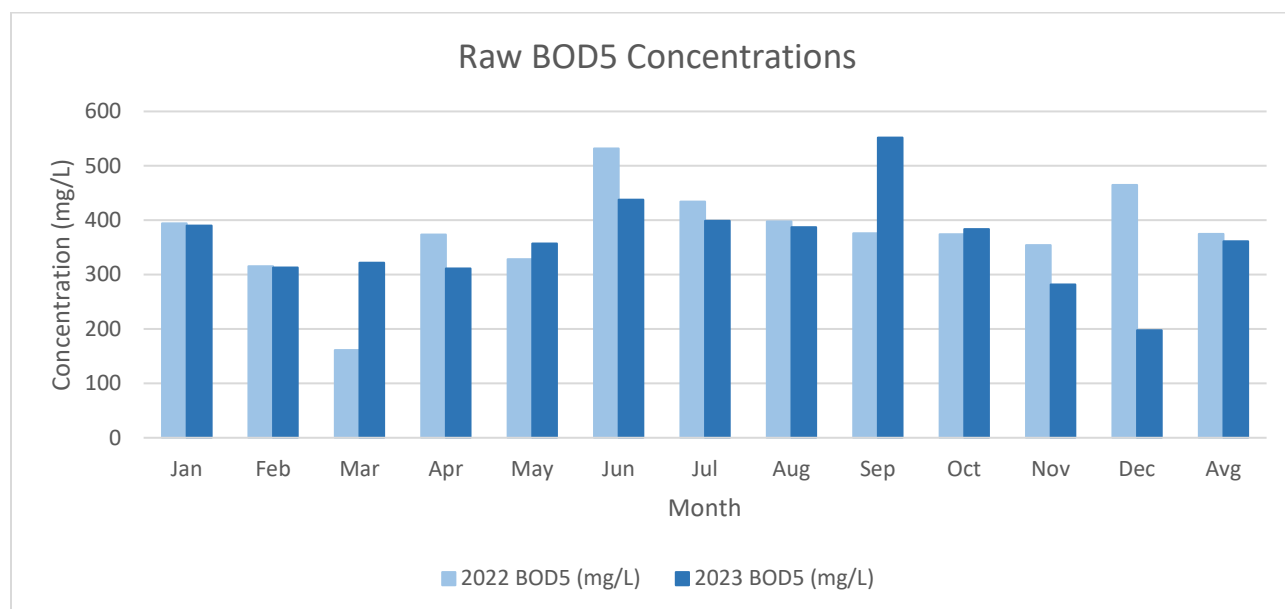


Figure 7. Raw BOD Concentrations

Total Suspended Solids

In 2023, the average raw Total Suspended Solids (TSS) concentration is 348 mg/L, this is a 12.4% increase from 2022. Refer to Figure 8 for a comparison of 2023 monthly raw TSS concentrations to 2022 concentrations.

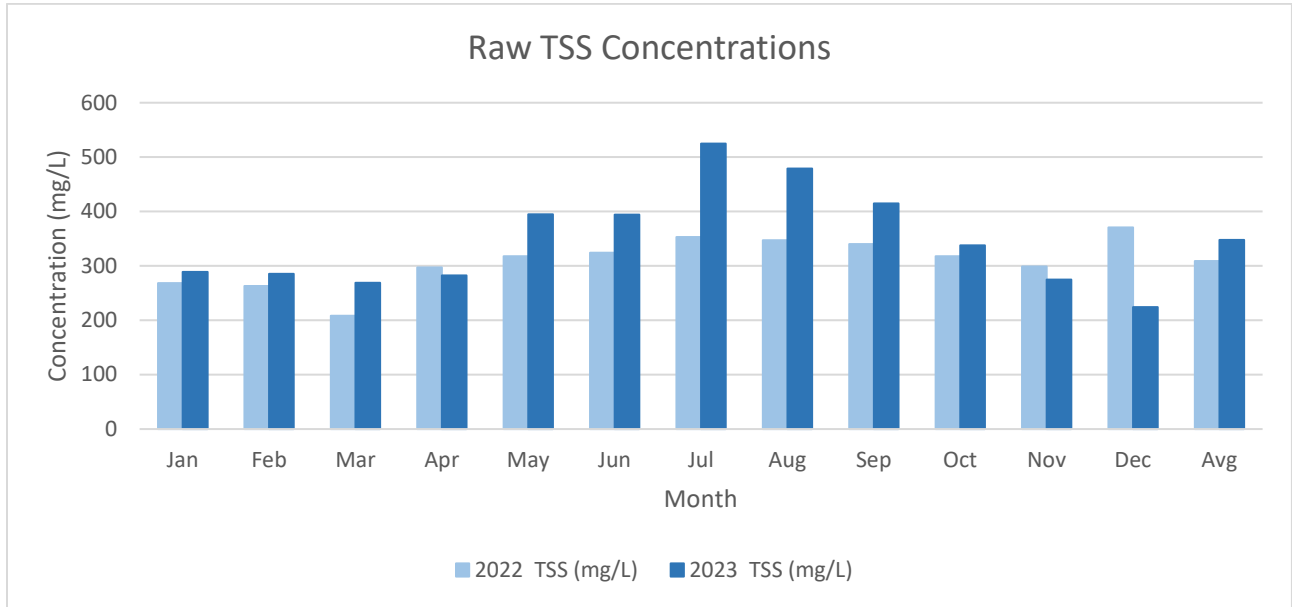


Figure 8. Raw TSS Concentrations

Total Phosphorus

In 2023, the average raw Total Phosphorus (TP) concentration is 7.0 mg/L, this is a 32.2% increase from 2022. Refer to Figure 9 for a comparison of 2023 monthly raw TP concentrations to 2022 concentrations.

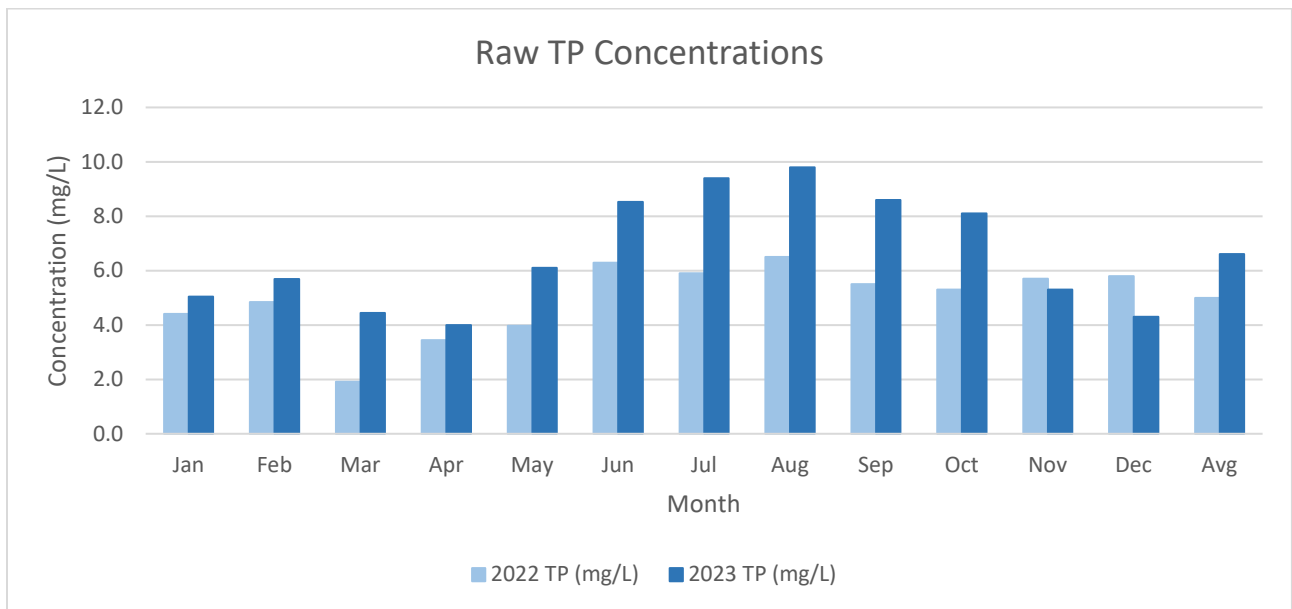


Figure 9. Raw TP Concentrations

Total Kjeldahl Nitrogen

In 2023, the average raw Total Kjeldahl Nitrogen (TKN) concentration is 37.7 mg/L, this is a 17.1% increase from 2022. Refer to Figure 10 for a comparison of 2023 monthly raw TKN concentrations to 2022 concentrations.

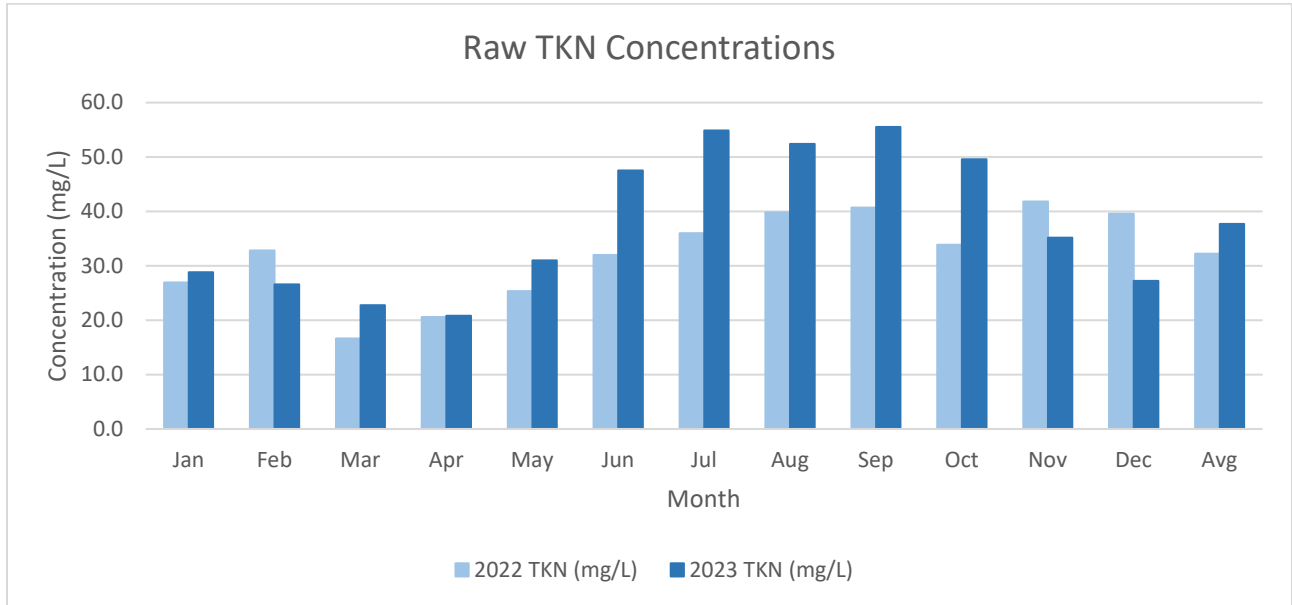


Figure 10. Raw TKN Concentrations

Total Ammonia Nitrogen

In 2023, the average raw Total Ammonia Nitrogen (TAN) concentration is 19.4 mg/L, this is a 2.3% decrease from 2022. Refer to Figure 11 for comparison of 2023 monthly raw TKN concentrations to 2022 concentrations.

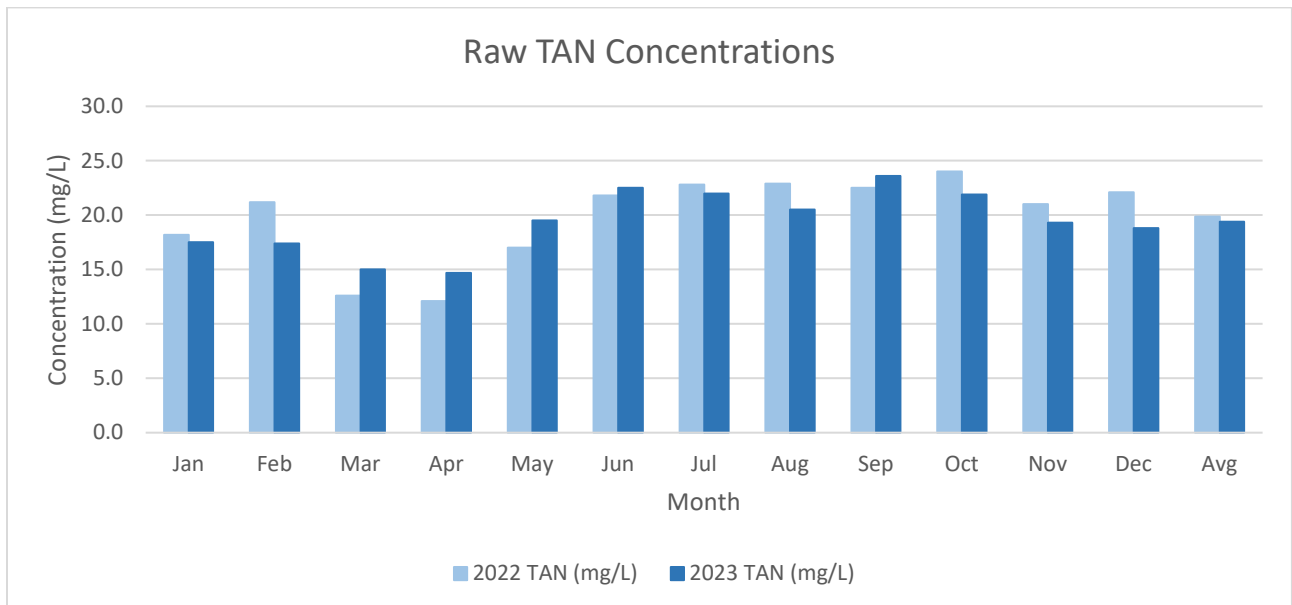


Figure 11. Raw TAN Concentrations

Comparison to Compliance Limits and Objectives

Effluent from the St. Marys WWTP is sampled for on a weekly basis and analyzed for: CBOD₅, Total Suspended Solids, Total Phosphorous and Total Ammonia Nitrogen by a composite sample. Grab samples are collected weekly and tested for E.coli, pH and dissolved oxygen. Detailed results are found in Appendix A. For details on objective and limit exceedances refer to **Summary of Efforts Made to Achieve Design Objectives**.

CBOD₅

St. Marys WWTP average monthly effluent Carbonaceous Biochemical Oxygen Demand (CBOD₅) concentration in 2023 was 4.3 mg/L, which is an 18.3% increase from the annual average in 2022. The effluent monthly average limits have been met for CBOD₅ in 2023. Refer to Figure 12 for a comparison of 2023 monthly effluent CBOD₅ concentrations to 2022 concentrations. There was one single sample limit exceedance in July 2023. Refer to Figure 13 for the single sample concentrations compared to the exceedance limit. For details on the objective and limit exceedances refer to **Summary of Efforts Made to Achieve Design Objectives**.

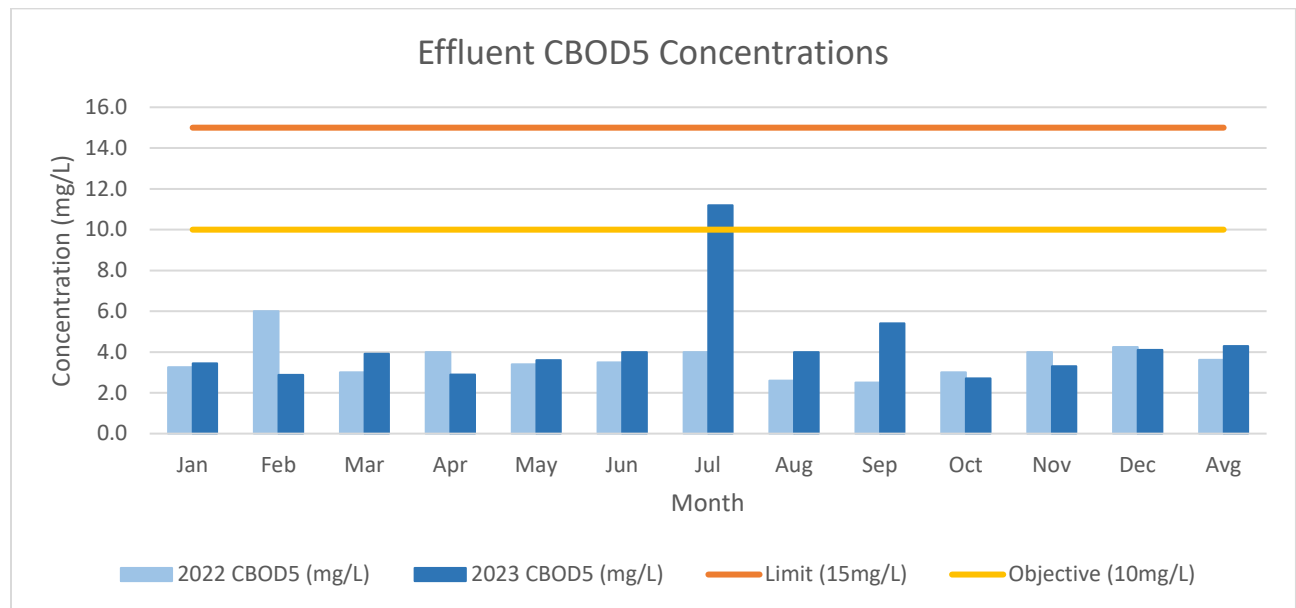


Figure 12. Effluent CBOD Concentrations

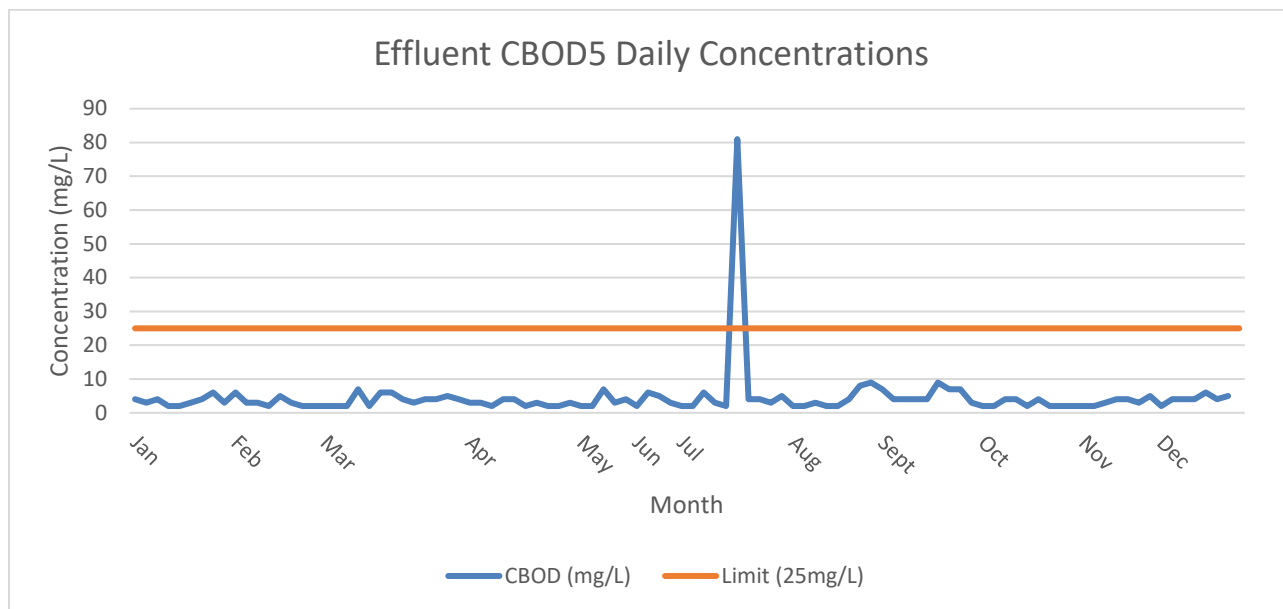


Figure 13. Effluent Single Sample CBOD Concentrations

Total Suspended Solids

The average monthly effluent Total Suspended Solids (TSS) concentration in 2023 was 8.4 mg/L, which is a 0.7% increase from the annual average in 2022. All monthly average and single sample limits were met for 2023. For details on the objective exceedances refer to **Summary of Efforts Made to Achieve Design Objectives**. Refer to Figure 14 for a comparison of 2023 monthly effluent TSS concentrations to 2022 concentrations. Refer to Figure 15 for the single sample concentrations compared to the exceedance limit.

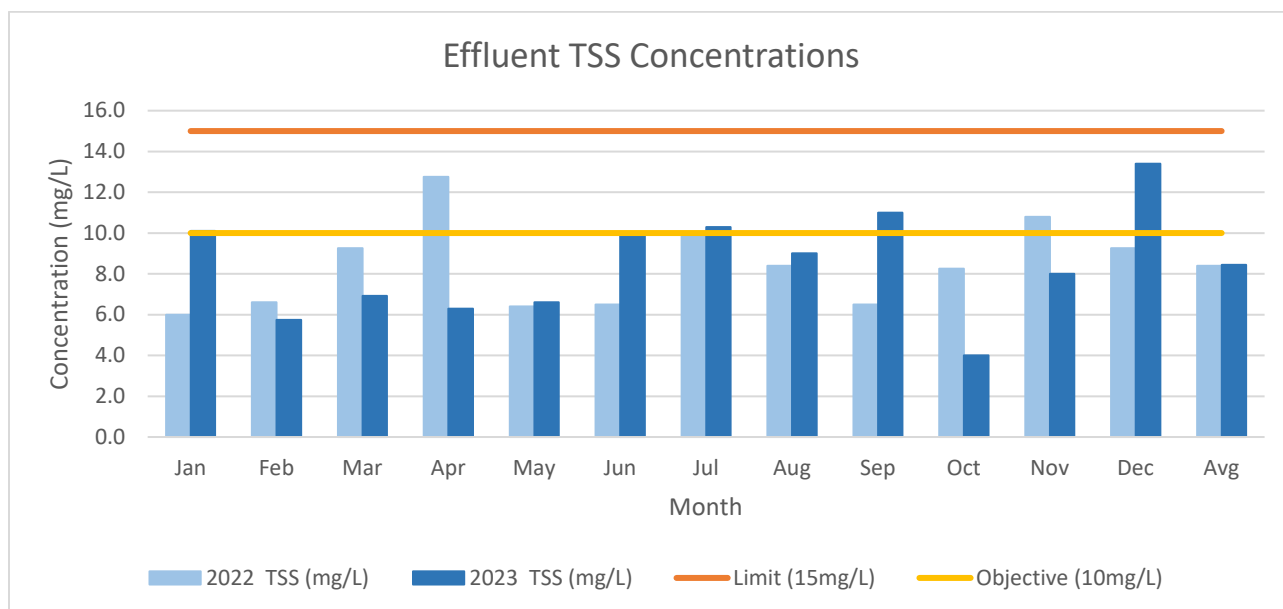


Figure 14 Effluent TSS Concentrations.

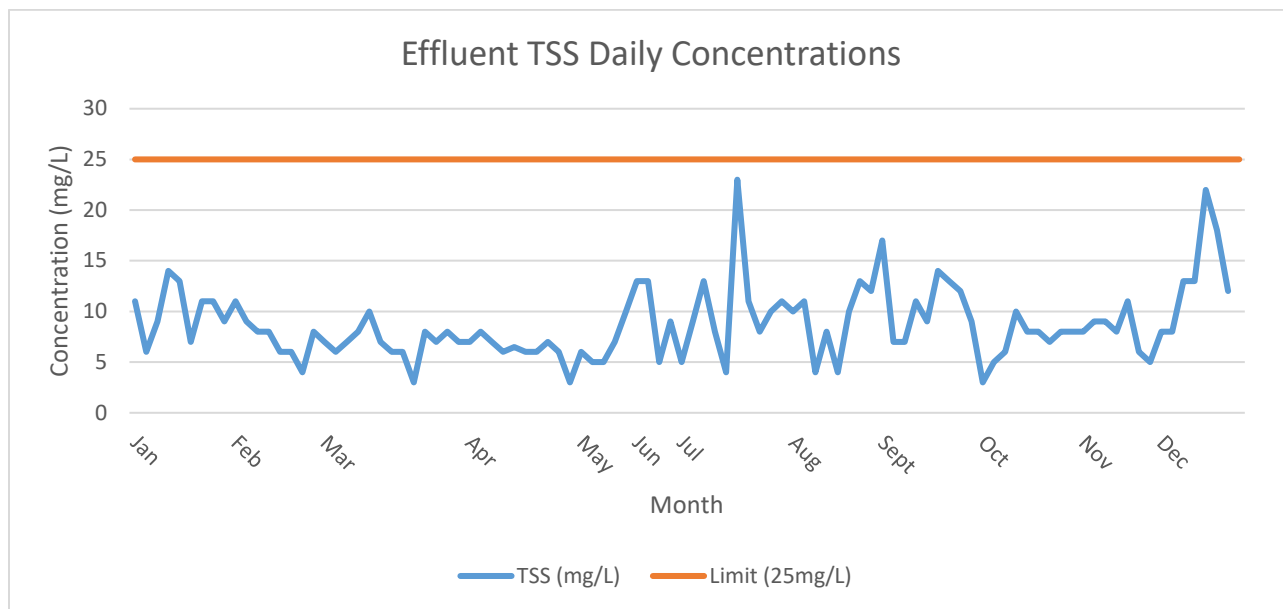


Figure 15. Effluent Single Sample TSS Concentrations

Total Phosphorus

The average monthly effluent Total Phosphorus (TP) concentration in 2023 was 0.45 mg/L, which is an 86.8% increase from the annual average in 2022. There was one monthly average limit exceedance and five single sample limit exceedances in 2023. This was due to upgrades to the Aeration Tanks in 2023. For details on the objective and limit exceedances refer to **Summary of Efforts Made to Achieve Design Objectives**. Refer to Figure 16 for a comparison of 2023 monthly effluent TP concentrations to 2022 concentrations. Refer to Figure 17 for the single sample concentrations compared to the exceedance limit.

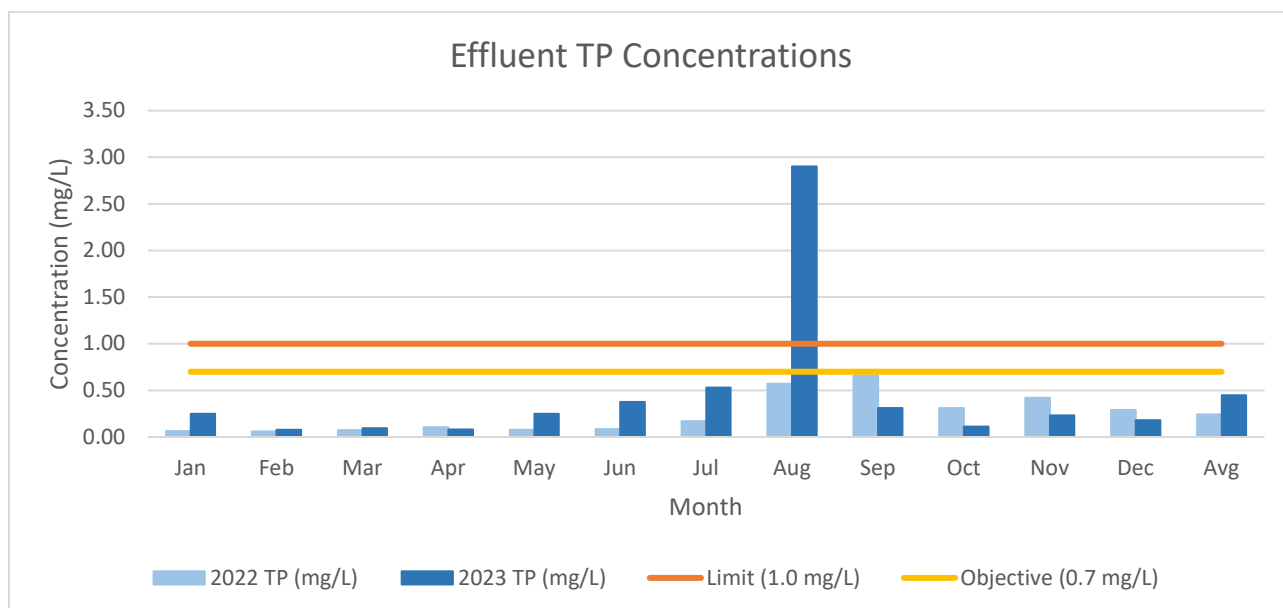


Figure 16 Effluent TP Concentrations

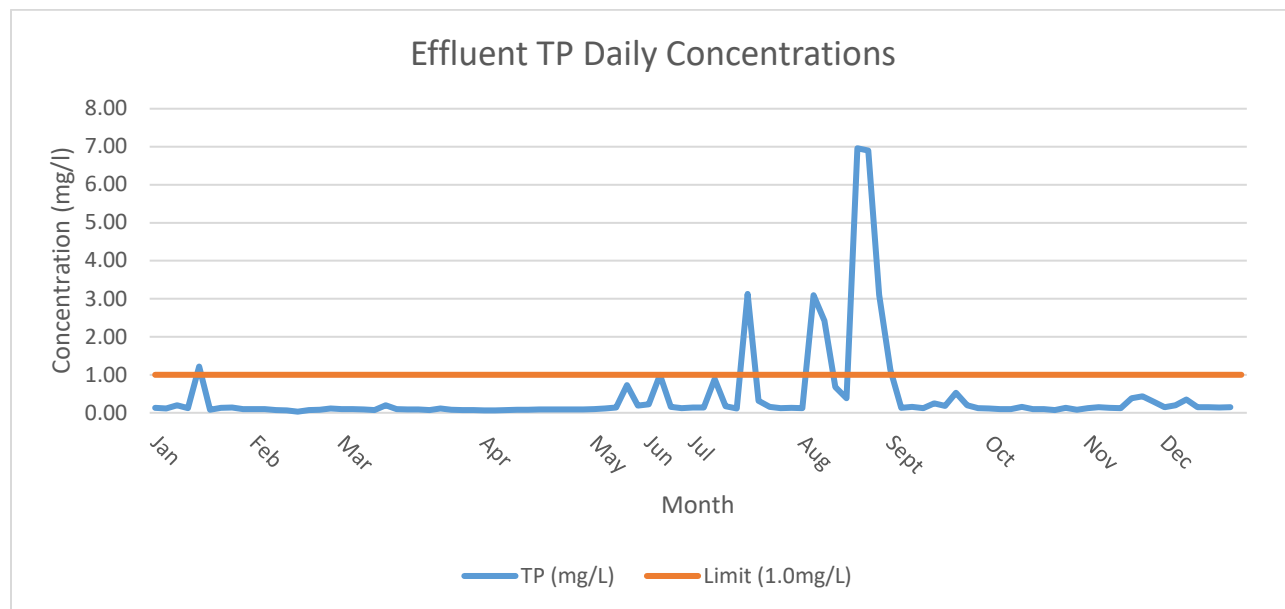


Figure 17 Effluent Single Sample TP Concentrations

Total Ammonia Nitrogen

The average monthly effluent Total Ammonia Nitrogen (TAN) in 2023 was 2.4 mg/L, which is a 110% increase from the annual average in 2022. There was one monthly average limit exceedance and 11 single sample limit exceedances in 2023. This was due to upgrades to the aeration tanks in 2023. For details on the objective exceedances refer to **Summary of Efforts Made to Achieve Design Objectives**. Refer to Figure 18 for a comparison of 2023 monthly effluent TAN concentrations to 2022 concentrations. Refer to Figure 19 for the single sample concentrations compared to the exceedance limit.

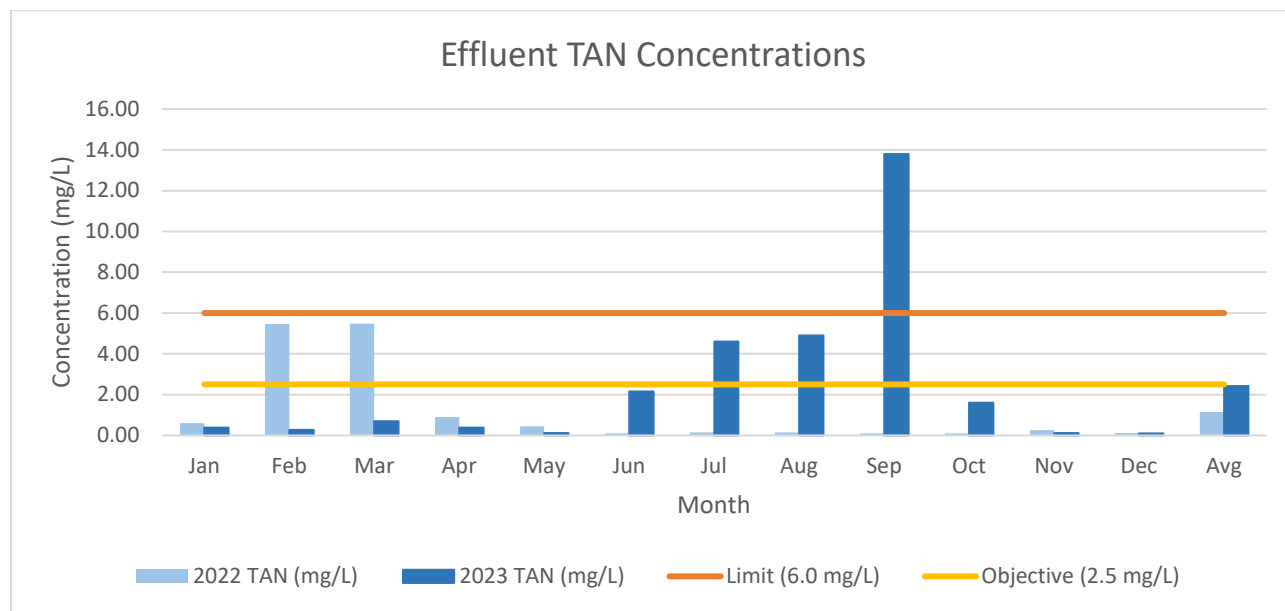


Figure 18 Effluent TAN Concentrations

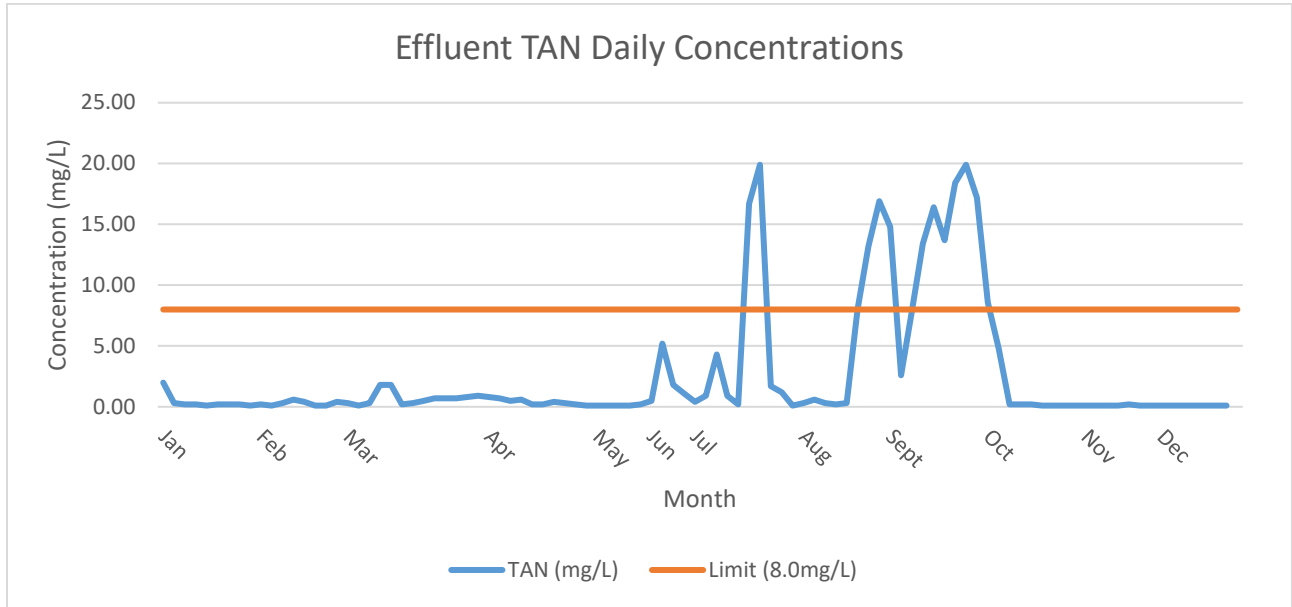


Figure 19 Effluent Single Sample TAN Concentrations

E-Coli

The monthly geometric mean effluent E. coli concentration in 2023 was 13.5 cfu/100mL, which is a 41% decrease from the annual average in 2022. There were no objective or limit exceedances in 2023. Refer to Figure 20 for a comparison of 2023 monthly effluent E. coli concentrations to 2022 concentrations.

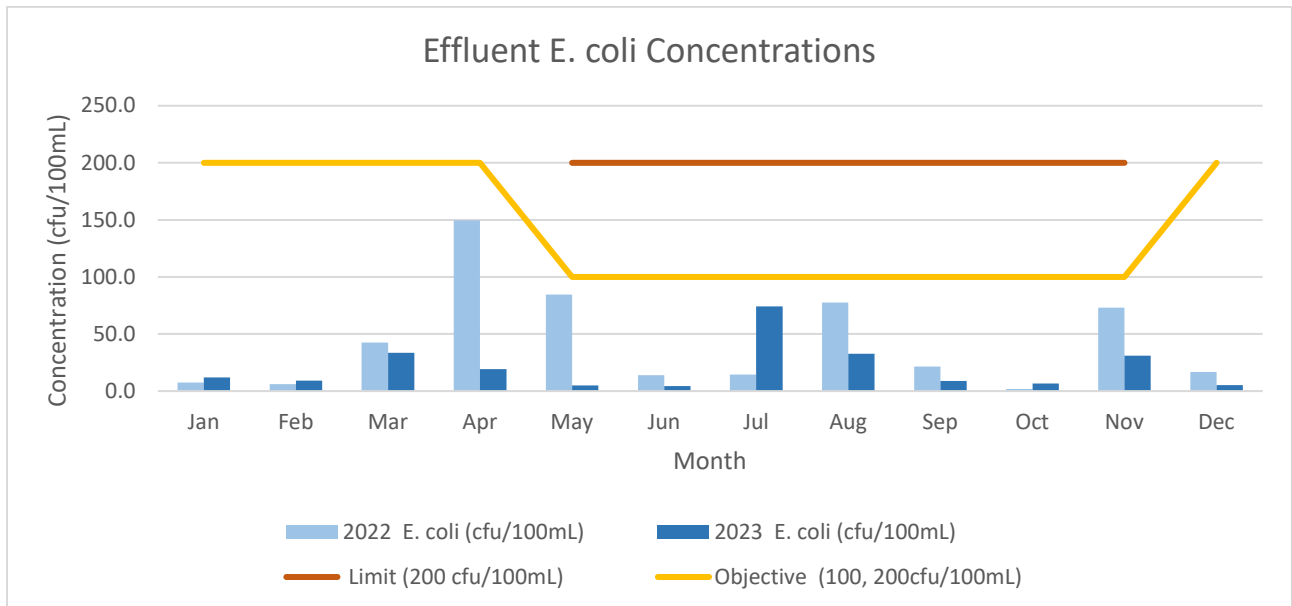


Figure 20 Effluent E. coli Concentrations

[pH](#)

The annual monthly average for pH concentration in 2023 was 7.4. There was one objective exceedance, which did not result in a limit exceedance. For details on the objective exceedance refer to **Summary of Efforts Made to Achieve Design Objectives**. Refer to Figure 21 for a comparison of 2023 daily effluent pH values to the objectives and limits.

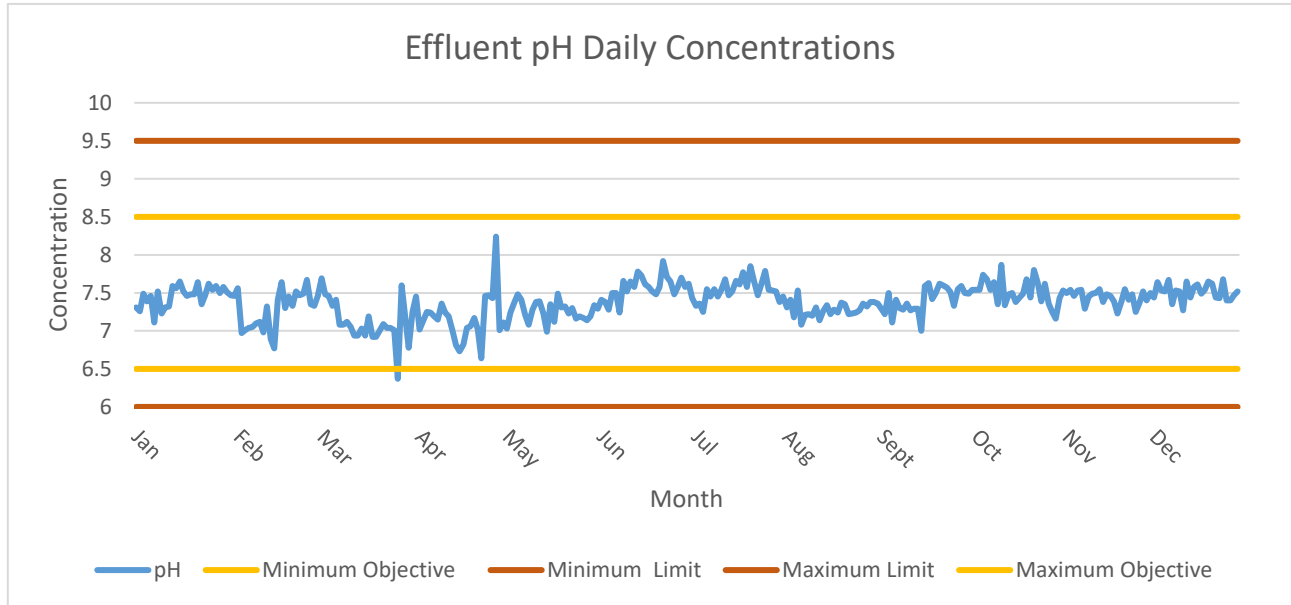


Figure 21 Effluent pH Values

[Dissolved Oxygen](#)

The annual monthly average for Dissolved Oxygen (DO) concentration in 2023 was 7.5 mg/L. There were no objective exceedances in 2023. Refer to Figure 22 for a comparison of 2023 daily effluent DO concentrations to the objective.

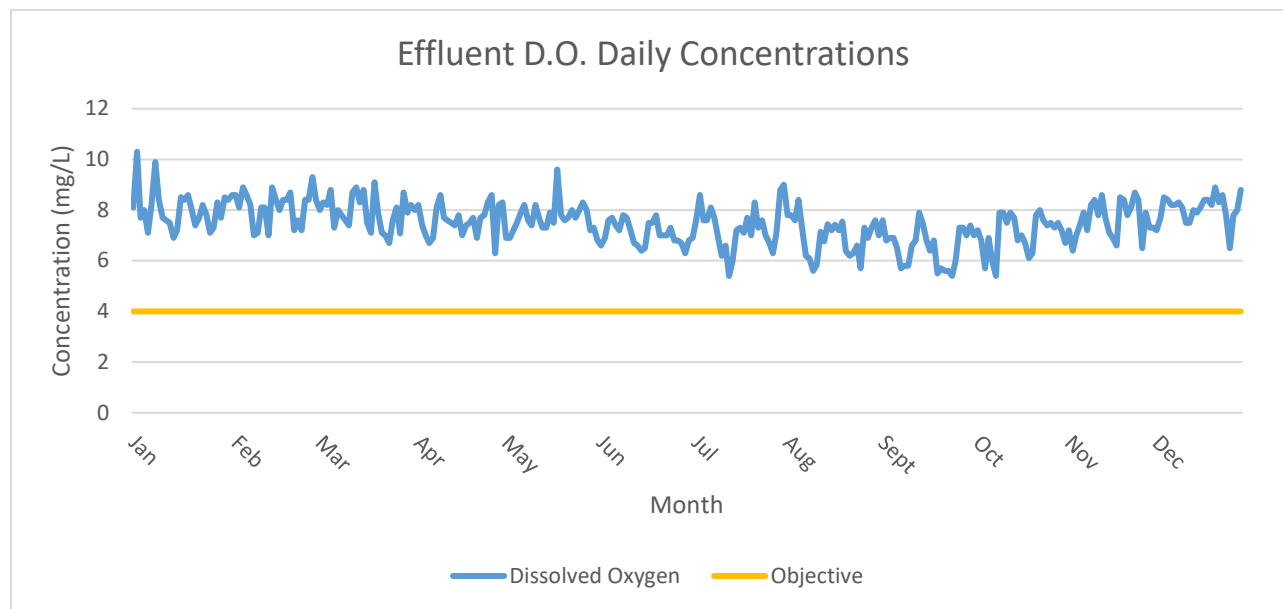


Figure 22 Effluent DO Concentrations

Deviations from Monitoring Schedule

Deviations from the 2023 sample calendar are outlined in Table 5. Refer to Appendix C for the 2024 sampling schedule.

Scheduled Date	Collected Date	Reason for Deviation
January 3, 2023	January 4, 2023	Acute Lethality moved due to scheduling issue
April 12, 2023	April 24, 2023	Quarterly samples moved due facility issue/scheduling conflict
June 7, 2023	June 8, 2023	Final Effluent sampled due to facility issue/schedule conflict
November 14, 20 & 27, 2023	N/A	Samples not required to be collected due to aeration project being completely early

Table 1. Summary of Deviations from Monitoring Schedule

Operating Problems and Corrective Actions

In 2023, there were challenges in meeting Total Phosphorous and Total Ammonia Nitrogen daily and monthly average limits. Operational staff made process adjustments and carefully monitored the treatment process to help alleviate the effects of the increased loading.

These exceedances were a direct result of upgrades made to the aeration system between July and November compounded by industrial loadings. Operational staff were in frequent communication with the OCWA’s Innovations, Process Optimization and Technical Services Team to troubleshoot solutions for optimal plant performance. Following the upgrades, effluent quality has since improved contributing to better wastewater treatment outcomes. These adjustments were part of ongoing efforts to improve system efficiency and environmental performance.

Refer to ***Bypass, Overflows, Spills & Abnormal Discharge Events & Summary of Efforts Made to Achieve Design Objectives*** for event details.

The collection system is routinely monitored to enforce the municipal bylaw for sewage discharges. The results have identified some areas of concern in which the Town of St. Marys is addressing through bylaw enforcement. Through these efforts, it was identified that an industrial contributor had changed the cleaning product being used, which contained high levels of phosphorous. Communication between the Town of St. Marys and the industrial contributor initiated a review of practices, where they converted to an alternative cleaning agent. Another industrial contributor, which has caused plant upsets in the past had installed pre-treatment.

Furthermore, the completion of the Aeration Tank Project upgrades, has proven to provide better oxygen transfer and effective TAN removal. Improvements can be viewed in **Comparison to Compliance Limits & Objectives**.

Capital and major maintenance recommendations have been submitted by OCWA to the Town of St. Marys to address aging infrastructure and ongoing maintenance requirements for the collection system and WWTP to continue to produce high quality effluent. Items included on the list for 2024 are:

- General repairs
- UV system repairs
- Clarifier chamber clean out
- Turbo blower annual maintenance
- SCADA upgrades
- Clarifier #3 and #4 weir replacements - engineering
- Centrifuge bowl and bearing replacements
- Muffin Monster Grinder Pump rebuild for Lystek centrifuge
- RAS pump #5 replacement
- Gas boiler removal, heater additions and annual maintenance
- Dewatered sludge pump rebuild P 252
- Internal recirculation pump rebuild P 321
- Installation of VFD's for: centrifuge feed, Lystek mixer, flocculator, and RDT
- Cured in place pipe lining of wastewater collection system
- Emily St SPS Milltronic's controls replacement
- Emily St SPS pump #1 rebuild

Maintenance Activities

Preventative and corrective maintenance is assigned and monitored within the Workplace Management System (WMS) program. Refer to Appendix B for the maintenance summary for 2023. Refer to Table 6 for a list of repairs and replacements that took place in 2023.

Major Maintenance-WWTP
New steam boiler for Lystek process
Gas boiler repairs
Replaced dissolved oxygen sensor
Repairs on final effluent disinfection system (UV)
Replacement of the water line for the headworks equipment
Muffin Monster new grinder equipment on bar screen

Major Maintenance-WWTP
Replaced three raw sewage pumps
Replaced RAS pump #4
Rebuild of anoxic tank mixer
Replaced Hot water tank for Lystek building
Replaced HMI screen for centrifuge PLC for Lystek process
Replaced aeration piping and diffusers
Replaced space heater in bar screen room
Major Maintenance-WWC
Investigate sanitary system for blockage on Elizabeth Street
Repair sanitary clean-out on Brock Street
Emily St. SPS pump #2 rebuild
Replaced Industrial autosampler
1,100 linear metres of Cured In Place Pipe (CIPP) sewer rehabilitation

Table 2. Major Maintenance

Effluent Quality Assurance

Effluent quality assurance is evaluated by monitoring parameters and changes throughout the facilities processes. Operational staff monitor plant performance by performing weekly in-house laboratory analysis on; raw sewage, raw sludge, primary sludge, mixed liquor and effluent. These tests include dissolved oxygen, pH, temperature, settling tests and Mixed Liquor Suspended Solids (MLSS). chemical dosages and wasting volumes are also monitored and recorded. 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.

Calibration Records

Influent and effluent flow meters were calibrated by Pierce Services & Solutions Inc. on June 7th and 8th, 2023. The flow meters met the accuracy tolerance of within 15% of the actual flow rate. Imported sewage volumes are calculated utilizing the haul truck manifests. All in-house meters were also calibrated by Pierce Services & Solutions Inc. in accordance with manufactures instructions. Operational staff complete routine pH meter calibrations and verifications.

All pump station level transmitters were also calibrated by Pierce Services & Solutions Inc. in accordance with manufactures instructions.

Refer to Appendix E for the third party calibration records.

Summary of Efforts Made to Achieve Design Objectives

The St. Marys WWTP experienced several objective exceedance in 2023. There were nine monthly average objective exceedances and 22 single sample objective exceedances. Refer to Table 7 for a summary of the monthly objective exceedances and Table 8 for the single sample objective exceedances.

When the plant experiences higher flows due to snow melt and/or precipitation it can lead to objective exceedances for TSS. There were three monthly average objective exceedances in 2023. Operational

staff monitored plant performance closely when this occurs and make adjustments accordingly to ensure sufficient treatment is met.

The combination of higher flows and industrial loading led to single sample objective exceedances to TP and pH. There was one single sample exceedance for TP and one single sample exceedance for pH in 2023. Operational staff monitored plant performance closely when this occurs and make adjustments accordingly to ensure sufficient treatment is met.

Excessive foam was identified in the effluent in July due to an industrial user experiencing a process failure. This resulted in one TAN and one CBOD monthly average objective exceedance. There were also two TAN, one TP and one CBOD single sample exceedances for this event. OCWA operational staff monitored system performance, increased coagulant dosing, increased wasting and performed in-house analysis for the duration of the event. This exceedance was a direct result of the identified collection system industrial loading. The collection system is routinely monitored to enforce the municipal bylaw for sewage discharges. Refer to ***Bypass, Overflows, Spills & Abnormal Discharge Events*** for more event details.

The WWTP experienced an increase in raw wastewater TP concentration in August, which resulted in objective and limit exceedances. There was one monthly average TP exceedance and four single sample limit exceedances. It was identified that an industrial contributor had changed the cleaning product being used, which contained high levels of phosphorous. An alternate cleaning agent was implemented. The collection system is routinely monitored to enforce the municipal bylaw for sewage discharges. Operational staff made process changes and carefully monitor the treatment process to help alleviate the effects of the increased loading.

The Aeration Tank Project began on August 28th, which removed one aeration tank from service at a time for diffuser and piping replacement. The strain of reduced treatment capacity and industrial loading resulted in several objective exceedance during the early stages of the project. There were two total ammonia nitrogen and one TSS monthly average objective exceedances. There were 10 TAN and two TP single sample objective exceedances. Troubleshooting of the blower system was completed to ensure adequate air was provided to the remaining tanks in service. Increased sampling and in house analysis was conducted for the duration of the project. Operational staff managed the plant by optimizing the mixed liquor suspended solids, increasing sludge blanket in final clarifiers, valve adjustments and pumping from the WAS tank which is high in DO. and increasing the internal recirculation pumping to achieve denitrification as a means to bring up the DO. The project completed on November 2nd, 2023 and improved effluent quality has been experienced since.

Despite there being design objectives exceedances there were no parameters that exceeded more than 50% of the time in 2023 and there are no trends in deterioration of final effluent quality. The average influent flow has exceeded 80% of the rated capacity with it being 82% in 2023. However, the objective exceedances were not a result of hydraulic loading. The objective exceedances as described were due to precipitation, industrial loading and planned maintenance.

Date	Parameter	Concentration (mg/L)	Objective (mg/L)	Issue
01/2023	TSS	10.1	10.0	High Flows
07/2023	TSS	10.3	10.0	High Flows
07/2023	CBOD	11.2	10.0	Foam/Spill event
07/2023	TAN	4.6	2.5	Foam/Spill event
08/2023	TP	2.9	0.7	Aeration Project/Industrial Loading
08/2023	TAN	4.9	2.5	Aeration Project/Industrial Loading
09/2023	TSS	11.0	10.0	Aeration Project
09/2023	TAN	13.8	2.5	Aeration Project/Industrial Loading
12/2023	TSS	13.4	10.0	High Flows

Table 7. Monthly Average Exceedances

Date	Parameter	Concentration (mg/L)	Objective (mg/L)	Limit (mg/L)	Issue
01/06/2023	TP	1.2	N/A	1.0	High Flows/ Industrial Loading
03/26/2023	pH	6.4	6.5	6.0	High Flows/ Industrial Loading
07/18/2023	CBOD	81	N/A	25	Foam/Spill Event
07/18/2023	TP	3.1	N/A	1.0	Foam/Spill event
07/18/2023	TAN	16.7	N/A	8.0	Foam/Spill event
07/19/2023	TAN	19.9	N/A	8.0	Foam/Spill event
08/09/2023	TP	3.1	N/A	1.0	Industrial Loading
08/16/2023	TP	2.4	N/A	1.0	Industrial Loading
08/29/2023	TP	7.0	N/A	1.0	Industrial Loading
08/30/2023	TP	6.9	N/A	1.0	Industrial Loading
08/30/2023	TAN	13.2	N/A	8.0	Aeration Project/Industrial Loading
08/31/2023	TP	3.1	N/A	1.0	Aeration Project/Industrial Loading
08/31/2023	TAN	16.9	N/A	8.0	Aeration Project/Industrial Loading
09/01/2023	TP	1.1	N/A	1.0	Aeration Project/Industrial Loading
09/01/2023	TAN	14.8	N/A	8.0	Aeration Project/Industrial Loading
09/11/2023	TAN	13.4	N/A	8.0	Aeration Project/Industrial Loading
09/13/2023	TAN	16.4	N/A	8.0	Aeration Project/Industrial Loading
09/18/2023	TAN	13.7	N/A	8.0	Aeration Project/Industrial Loading
09/20/2023	TAN	18.4	N/A	8.0	Aeration Project/Industrial Loading
09/25/2023	TAN	19.9	N/A	8.0	Aeration Project/Industrial Loading
09/27/2023	TAN	17.2	N/A	8.0	Aeration Project/Industrial Loading
10/02/2023	TAN	8.6	N/A	8.0	Aeration Project/Industrial Loading

Table 8. Single Sample Exceedances

Notice of Modification to the Works & Purposed Works

Alterations to the Wastewater Treatment Plant

There were two modifications to the process at the St. Marys WWTP in 2023:

1. The Grit Removal Upgrades, which modifications were part of the proposed works within ECA#6378-CB2M2T (Issued July 27, 2022). Communication and notifications were submitted to the MECP as required. The works are scheduled to be completed in 2024. Refer to Appendix D Modification of Works for Proposed Construction Schedule dated November 2023.
2. The Aeration Tank Upgrades, which required a Notice of Modification to Sewage Works in 2022 as required within ECA#6378-CB2M2T (Issued July 27, 2022) section 11 Limited Operational Flexibility. Communication and notifications were submitted to the MECP as required. The project was completed on November 2nd, 2023. Refer to Appendix D Modification of Works for signed LOF.

Alterations to the Wastewater Collection System

No alteration to the collection system posed any significant threat to the drinking water systems in 2023.

Sludge Generation and Haulage

Lystek International Inc and the Town of St. Marys have an agreement for marketing and management of the LysteGro fertilizer produced from the facility. Biosolids produced at the St. Marys WWTP are from the Lystek System which results in a federally registered fertilizer product with the Canadian Food Inspection Agency (CFIA). As such, the material is applied as a fertilizer, where the rate of application is based on soil characteristics and crop requirements.

The annual report from Lystek identified 2,960 m³ of biosolids were produced from the St. Marys WWTP in 2023. This is a 15.3% decrease compared to the 2022 value of 3,414m³.

The 2023 application season was a success for the St. Marys material which was marketed effectively and applied responsibly as a fertilizer. All hauling and application of material was completed according to best practices in terms of nutrient management.

It is estimated that approximately 3,200m³ will be produced in 2024.

Complaints

In 2023, a total of three complaints were received for the St. Marys WWTP.

On May 5th, 2023 an odour complaint for the WWTP was received from a local resident. Operational staff investigated and noted an odour at the time of the complaint. At the time of the complaint processing and hauling of the Lystek Biosolids was occurring.

On May 31st, 2023 an odour and noise complaint for the WWTP was received from a local resident. Operational staff investigated and noted an odour at the time of the complaint. At the time of the complaint processing and hauling of the Lystek Biosolids was occurring.

On July 21st, 2023 an odour complaint for the WWTP was received from a local resident. Operational staff investigated and noted an odour at the time of the complaint due to wind direction. At the time of the complaint processing of the Lystek Biosolids was occurring.

The St.Marys WWTP is undergoing upgrades, which includes a new odour control unit for the Lystek Process, this is anticipated to alleviate complaints in the future.

There were no complaints received for the Wastewater Collection System in 2023.

Bypass, Overflows, Spills and Abnormal Discharge Events

The ECA# 6378-CB3M2T issued on July 27, 2022 requires additional daily sampling for the WWTP when the plant is operated outside of normal operating conditions. Monitoring results during these events are included in final effluent monthly results. Refer to Figure 23 for number of days the WWTP operated outside its normal operating conditions. In addition, refer to Table 9 for details on each event.

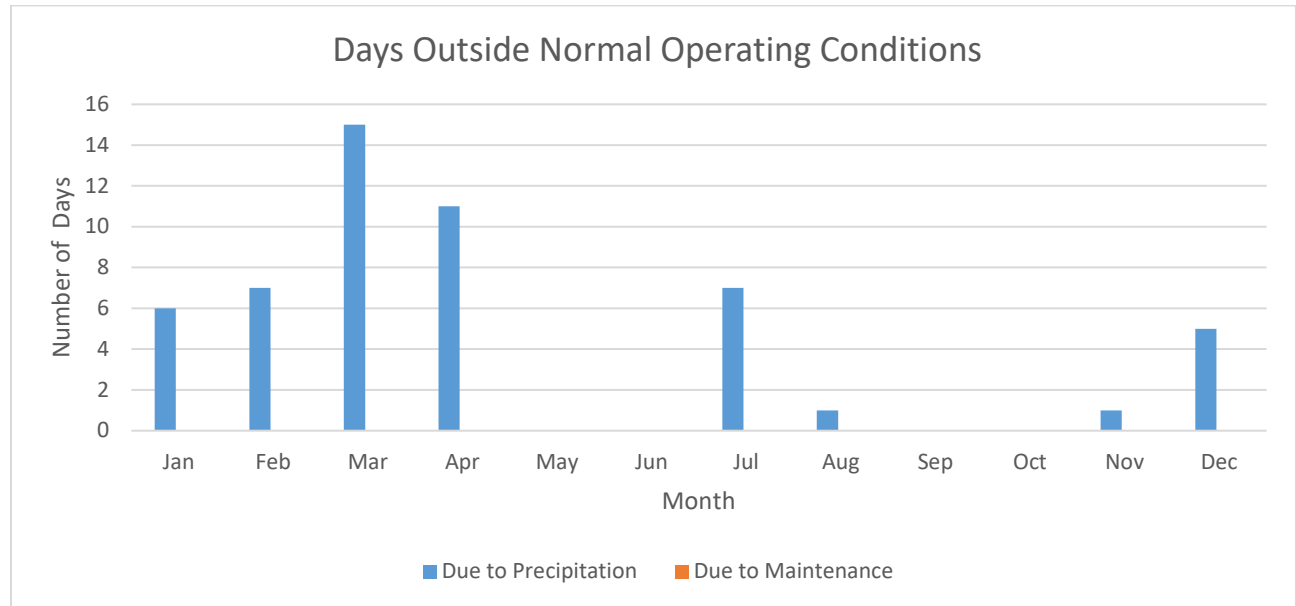


Figure 23. Days Outside Normal Operating Conditions

Date	Event Details	Date	Event Details
January 2, 2023	High flow, over capacity	April 4, 2023	High flow, over capacity
January 3, 2023	High flow, over capacity	April 6, 2023	High flow, over capacity
January 5, 2023	High flow, over capacity	April 10, 2023	High flow, over capacity
January 6, 2023	High flow, over capacity	April 13, 2023	High flow, over capacity
January 7, 2023	High flow, over capacity	April 25, 2023	High flow, over capacity
February 10, 2023	High flow, over capacity	July 7, 2023	High flow, over capacity
February 13, 2023	High flow, over capacity	July 13, 2023	High flow, over capacity
February 14, 2023	High flow, over capacity	July 14, 2023	High flow, over capacity
February 16, 2023	High flow, over capacity	July 17, 2023	Foam/Spill Event
March 20, 2023	High flow, over capacity	July 18, 2023	Foam/Spill Event
March 21, 2023	High flow, over capacity	July 28, 2023	High flow, over capacity
March 23, 2023	High flow, over capacity	July 30, 2023	High flow, over capacity
March 24, 2023	High flow, over capacity	July 31, 2023	High flow, over capacity
March 27, 2023	High flow, over capacity	November 1, 2023	High flow, over capacity
March 28, 2023	High flow, over capacity	December 28, 2023	High flow, over capacity
March 30, 2023	High flow, over capacity	December 29, 2023	High flow, over capacity
March 31, 2023	High flow, over capacity	December 30, 2023	High flow, over capacity
April 3, 2023	High flow, over capacity	December 31, 2023	High flow, over capacity

Table 9. Outside Normal Operating Conditions Event Details

On July 17th, 2023 operational staff had noticed large amounts of thick foam at the bar screen that was making its way through the WWTP. After investigation of the collection system it was traced back to a nearby manhole to determine the source of the foam was coming from an industrial user due to a cooling press failure. The industrial user was notified and ensured that corrective actions was implemented. This included; hourly checks and level alarms programmed within the PLC. The installation of a DAF treatment system was also completed at the industrial location.

On July 18th, 2023 the foaming condition had subsided and the WPCP began to recover. On July 19th, 2023 the WPCP continued to recover and returned to normal operating conditions. At the St. Marys WWTP operational staff monitored system performance, increased coagulant dosing, increased wasting and performed in-house analysis for the duration of the event. Daily effluent samples were collected of the event due to significant changes in influent characteristics being experienced. The event was sampled as Outside Normal Operating Conditions and results are included in final effluent monthly as seen in effluent results. Limit exceedance are identified within **Summary of Efforts Made to Achieve Design Objectives**. On September 6th, 2023 the local MECP inspector deemed the foaming event as a spill where it immediately notified to Spills Action Center under incident #1-3T86HK.

Summary of Efforts made to achieve conformance with F-5-1

The Town of St. Marys is a separated collection system, therefore a Pollution Prevention Control Program is not required to be established or maintained.

There are two designed overflows within the collection system and one at the treatment plant for the protection against basement flooding, damage to equipment/property and prevention of treatment process wash out. No overflows or bypasses have occurred in 2023, therefore no projects were completed in 2023 or planned for 2024 as there is no need to under take an overflow/bypass overall reduction or elimination.

Appendix A

Monitoring Data

5520 ST MARYS WASTEWATER TREATMENT FACILITY 110001275

	1/ 2023	2/ 2023	3/ 2023	4/ 2023	5/ 2023	6/ 2023	7/ 2023	8/ 2023	9/ 2023	10/ 2023	11/ 2023	12/ 2023	<--Total-->	<--Avg-->	<--Max-->	<-Criteria-->
Flows																
Raw Flow: Total - Raw Sewage m³/d	145,265.00	138,241.00	183,614.00	189,243.00	125,820.00	105,289.00	150,276.00	128,922.00	104,693.00	117,826.00	127,014.00	151,366.00	1,667,569.00			0.00
Raw Flow: Avg - Raw Sewage m³/d	4,685.97	4,937.18	5,923.03	6,308.10	4,058.71	3,509.63	4,847.61	4,158.77	3,489.77	3,800.84	4,233.80	4,882.77		4,568.68		5,560.00
Raw Flow: Max - Raw Sewage m³/d	7,130.00	8,842.00	9,119.00	14,685.00	5,296.00	4,464.00	7,838.00	5,987.00	4,061.00	5,129.00	6,086.00	7,833.00			14,685.00	0.00
Raw Flow: Count - Raw Sewage m³/d	31.00	28.00	31.00	30.00	31.00	30.00	31.00	31.00	30.00	31.00	30.00	31.00	365.00			0.00
Eff. Flow: Total - Final Effluent m³/d	103,147.00	109,253.00	147,467.00	165,587.00	115,510.00	92,983.00	126,401.00	103,551.00	151,976.00	95,480.00	112,756.00	126,352.00	1,450,463.00			0.00
Eff. Flow: Avg - Final Effluent m³/d	3,327.32	3,901.89	4,757.00	5,519.57	3,726.13	3,099.43	4,077.45	3,340.35	5,065.87	3,080.00	3,758.53	4,075.87		3,973.87		
Eff. Flow: Max - Final Effluent m³/d	4,831.00	8,799.00	8,963.00	21,713.00	4,699.00	3,608.00	11,125.00	4,009.00	13,129.00	3,958.00	5,073.00	6,340.00			21,713.00	0.00
Eff Flow: Count - Final Effluent m³/d	31.00	28.00	31.00	30.00	31.00	30.00	31.00	31.00	30.00	31.00	30.00	31.00	365.00			0.00
Carbonaceous Biochemical Oxygen Demand: CBOD																
Eff: Avg cBOD5 - Final Effluent mg/L	3.44	2.88	3.92	2.91	3.60	4.00	11.20	4.00	5.44	2.67	3.29	4.14		4.35	11.20	25.00
Eff: # of samples of cBOD5 - Final Effluent	9.00	8.00	13.00	11.00	5.00	4.00	10.00	8.00	9.00	9.00	7.00	7.00	100.00			0.00
Loading: cBOD5 - Final Effluent kg/d	11.461	11.218	18.662	16.057	13.414	12.398	45.667	13.361	27.581	8.213	12.349	16.886		17.29	45.67	
Biochemical Oxygen Demand: BOD5																
Raw: Avg BOD5 - Raw Sewage mg/L	390.00	312.75	322.00	311.25	357.20	437.50	399.25	387.00	552.00	383.50	282.40	197.75		361.05	552.00	0.00
Raw: # of samples of BOD5 - Raw Sewage	4.00	4.00	5.00	4.00	5.00	4.00	4.00	5.00	4.00	4.00	5.00	4.00	52.00			0.00
Total Suspended Solids: TSS																
Raw: Avg TSS - Raw Sewage mg/L	289.00	285.25	269.00	282.50	395.00	394.00	525.25	478.60	414.50	338.25	275.00	224.00		347.53	525.25	0.00
Raw: # of samples of TSS - Raw Sewage	4.00	4.00	5.00	4.00	5.00	4.00	4.00	5.00	4.00	4.00	5.00	4.00	52.00			0.00
Eff: Avg TSS - Final Effluent mg/L	10.11	5.75	6.92	6.27	6.60	10.00	10.30	9.00	11.00	7.00	8.00	13.43		8.44	13.43	15.00
Eff: # of samples of TSS - Final Effluent	9.00	8.00	13.00	11.00	5.00	4.00	10.00	8.00	9.00	9.00	7.00	7.00	100.00			0.00
Loading: TSS - Final Effluent kg/d	33.643	22.436	32.933	34.623	24.592	30.994	41.998	30.063	55.725	21.560	30.068	54.733		33.54	55.72	
Percent Removal: TSS - Raw Sewage %	96.50	97.98	97.43	97.78	98.33	97.46	98.04	98.12	97.35	97.93	97.09	94.01		97.33	98.33	0.00
Total Phosphorus: TP																
Raw: Avg TP - Raw Sewage mg/L	5.04	5.69	4.44	4.01	6.08	8.53	9.38	9.76	8.58	8.10	5.25	4.37		6.60	9.76	0.00
Raw: # of samples of TP - Raw Sewage	4.00	4.00	5.00	4.00	5.00	4.00	4.00	5.00	4.00	4.00	5.00	4.00	52.00			0.00
Eff: Avg TP - Final Effluent mg/L	0.25	0.08	0.10	0.08	0.25	0.38	0.53	2.96	0.31	0.11	0.23	0.18		0.43	2.96	1.00
Eff: # of samples of TP - Final Effluent	9.00	8.00	13.00	11.00	5.00	4.00	10.00	8.00	9.00	9.00	7.00	7.00	100.00			0.00
Loading: TP - Final Effluent kg/d	0.824	0.302	0.454	0.437	0.946	1.186	2.165	9.875	1.587	0.325	0.870	0.751		1.72	9.87	
Percent Removal: TP - Raw Sewage %	95.08	98.64	97.85	98.03	95.82	95.51	94.34	69.71	96.35	98.70	95.59	95.78		94.28	98.70	0.00
Nitrogen Series																
Raw: Avg TKN - Raw Sewage mg/L	28.83	26.60	22.78	20.78	31.00	47.55	54.85	52.36	55.45	49.63	35.18	27.18		37.68	55.45	0.00

Raw: # of samples of TKN - Raw Sewage		4.00		4.00		5.00		4.00		5.00		4.00		4.00		5.00		4.00		4.00		5.00		4.00		52.00				0.00		
Eff: Avg TAN - Final Effluent mg/L		0.39	<	0.28		0.70	<	0.38	<	0.12		2.15	<	4.62		4.98		13.81	<	1.60	<	0.11	<	0.10				2.54		13.81		6.00
Eff: # of samples of TAN - Final Effluent		9.00		8.00		13.00		11.00		5.00		4.00		10.00		8.00		9.00		9.00		7.00		7.00		100.00					0.00	
Loading: TAN - Final Effluent kg/d		1.294	<	1.073		3.330	<	2.107	<	0.447		6.664	<	18.838		16.618		69.965	<	4.928	<	0.430	<	0.408				10.11		69.97		
Eff: Avg NO3-N - Final Effluent mg/L		4.89		3.38		4.26		5.33		4.14		1.62	<	2.48		2.84		0.70		3.90		5.67		5.88				3.76		5.88		0.00
Eff: # of samples of NO3-N - Final Effluent		9.00		8.00		13.00		11.00		5.00		4.00		10.00		8.00		9.00		9.00		7.00		7.00		100.00					0.00	
Eff: Avg NO2-N - Final Effluent mg/L	<	0.23	<	0.27	<	0.11	<	0.07	<	0.19	<	0.30	<	0.13	<	0.17	<	0.19	<	0.38	<	0.11	<	0.11				0.19	<	0.38		0.00
Eff: # of samples of NO2-N - Final Effluent		9.00		8.00		13.00		11.00		5.00		4.00		10.00		8.00		9.00		9.00		7.00		7.00		100.00					0.00	
Disinfection																																
Eff: GMD E. Coli - Final Effluent cfu/100mL		11.93		9.12		33.54		19.19		5.04		4.43		74.26		32.66		8.80		6.66		31.06		5.09							200.00	
Eff: # of samples of E. Coli - Final Effluent		4.00		4.00		5.00		4.00		5.00		4.00		5.00		8.00		5.00		4.00		5.00		4.00		57.00					0.00	

Appendix B

Maintenance Summary

St. Marys WWTP Maintenance Summary Report

Report Start Date: Jan 1, 2023 12:00 AM

Report End Date: Dec 31, 2023 11:59 PM

Location: 5520

Work Order Type: CAP,CORR,EMER,PM

			WorkOrder		Workorder Details		
WO #	Asset ID	Asset Description	Type	Class	Work Order Description	Status	Actual Finish
3156553	0000277891	SAMPLER 01 RAW INFLUENT	PM	Refurbish/Replace/Repair	Sampler 01 Raw Influent Service (1y) 5520	COMP	1/12/23 03:21 PM
3156666	0000065477	BLOWER CENTRIFUGAL #3 AERATION	PM	Refurbish/Replace/Repair	Blower Centrifugal 03 Aeration Insp/Service (1y) 5520	CLOSE	1/3/23 03:50 PM
3156677	0000065544	PANEL ALARM/DIALER	PM	Inspection	Alarm Dialer Testing (1m) 5520	CLOSE	1/3/23 03:51 PM
3156682	0000065226	PANEL ALARM/DIALER 01 QUEEN ST	PM	Inspection	Alarm Dialer 01 Queen PS Testing (1m) 5520	CLOSE	1/5/23 07:45 AM
3156687	0000065211	PANEL ALARM/DIALER 01 ROBINSON ST	PM	Inspection	Alarm Dialer 01 Robinson PS Testing (1m) 5520	CLOSE	1/5/23 07:45 AM
3156897			PM	Inspection	PH Probe Insp/Calib (1m) 5520	CLOSE	1/5/23 02:40 PM
3157133	0000065403	TANK 01 CLARIFIER SECONDARY	PM	Refurbish/Replace/Repair	Tank Clarifier 01 Insp/Service (1m/1y) 5520	CLOSE	1/3/23 02:40 PM
3157143	0000065420	TANK 03 CLARIFIER SECONDARY	PM	Refurbish/Replace/Repair	Tank Clarifier 03 Insp/Service (1m/1y) 5520	COMP	1/11/23 03:44 PM
3157153	0000065498	TANK 04 CLARIFIER SECONDARY	PM	Refurbish/Replace/Repair	Tank Clarifier 04 Insp/Service (1m/1y) 5520	CLOSE	1/6/23 08:43 AM
3157163	0000065526	UV LIGHT BANK 02 Final Effluent Building	PM	Inspection	Uv Light Bank 02 Effluent Insp/Clean/Service (1m/1y) 5520	COMP	1/19/23 08:00 AM
3157170	0000065527	UV LIGHT BANK 01 Final Effluent building	PM	Inspection	Uv Light Bank 01 Effluent Insp/Clean/Service (1m/1y) 5520	COMP	1/19/23 08:01 AM
3157177	0000065531	ENGINE DIESEL GENERATOR	PM	Inspection	Engine Diesel St. Mary's WWTP Insp/Test (1m) 5520	COMP	1/11/23 01:38 PM
3157196	0000065585	PUMP CENT #4 RAS	PM	Inspection	Pump Cent 03 Return Sludge Insp/Service (1m/1y)	CLOSE	1/5/23 02:41 PM

		BLOWER BUILDING			5520		
3157206	0000207020	PUMP P404 ROT LOBE DIGESTER BASEMENT	PM	Inspection	Pump Rot Lobe Insp/Service (1m/1y) 5520	CLOSE	1/9/23 12:25 PM
3157212	0000269085	ENGINE DIESEL GENERATOR ROBINSON ST	PM	Inspection	Engine Diesel Robinson St PS Insp/Test (1m) 5520	CLOSE	1/5/23 07:41 AM
3157467	0000269084	BLOWER CENTRIFUGAL B313 TURBO BLOWER BUILDING	PM	Refurbish/Replace/Repair	Blower Cent Turbo Insp/Service (1m/3m/1y) 5520	CLOSE	1/3/23 03:56 PM
3158059	0000269089	PANEL ALARM/DIALER 01 EMILY ST	PM	Inspection	Alarm Dialer 01 Emily St. PS Testing (1m) 5520	CLOSE	1/5/23 07:42 AM
3182803	0000065351	TANK 02 CLARIFIER SECONDARY	PM	Inspection	Tank Clarifier 02 Inspection/Maintenance (1m) 5520	CLOSE	1/6/23 08:49 AM
3183412	0000207059	GENERATOR Diesel Queen St 5520	PM	Refurbish/Replace/Repair	Engine Diesel Queen St PS Insp/Test (1m) 5520	CLOSE	1/5/23 07:43 AM
3185693	0000334274	PUMP CENT 1 RAS PUMP OLD RAS BUILDING	PM	Inspection	RAS PUMP #1 Insp/Maint (1m) 5520	CLOSE	1/5/23 02:44 PM
3185702	0000334260	MOTOR 2 RAS PUMP OLD RAS BUILDING	PM	Refurbish/Replace/Repair	RAS PUMP MOTOR 2 Insp/Maint (1m) 5520	CLOSE	1/5/23 02:45 PM
3186790	0000332739	FAN EXHAUST DUCT VENTILATION LYTEK BUILDING	PM	Refurbish/Replace/Repair	Fan Exhaust Duct Lystek Building Insp/Maint (1m) 5520	CLOSE	1/9/23 03:53 PM
3186849			PM	Inspection	UPS Route Insp/Service (1m) 5520	CLOSE	1/3/23 03:58 PM
3187145			PM	Refurbish/Replace/Repair	Detroit Route Insp/Maint (1m) 5520	CLOSE	1/9/23 03:54 PM
3188174			PM	Predictive Maintenance	Lystek Building Greasing Route	CLOSE	1/9/23 03:49 PM
3188184			PM	Predictive Maintenance	Lystek Motor Greasing Schedule	CLOSE	1/9/23 03:50 PM
3188195			PM	Predictive Maintenance	Raw Building Gear Box Inspections	CLOSE	1/9/23 03:51 PM
3188199			PM	Predictive Maintenance	WASEQ Pump Greasing 3-4	CLOSE	1/3/23 04:00 PM
3188202			PM	Predictive Maintenance	WASEQ Motor greasing (1-2)	CLOSE	1/3/23 04:01 PM
3188205			PM	Predictive Maintenance	Blower Room Greasing (1m) 5520	CLOSE	1/6/23 08:51 AM
3188491	0000334273	MOTOR #1 OLD RAS	PM	Refurbish/Replace/Repair	RAS PUMP MOTOR 1 Insp/Maint (1m) 5520	CLOSE	1/5/23 02:48 PM

3202885			CAP	Refurbish/Replace/Repair	To install new RAS pump - Fabricate shims and plasma cut base to fit to existing piping.	COMP	1/31/23 02:42 PM
3203414			EMER	Refurbish/Replace/Repair	SCADA issues bridge breaker	COMP	1/31/23 02:46 PM
3204597			EMER	Refurbish/Replace/Repair	Bar Screen Grinder Clog	COMP	1/19/23 08:12 AM
3206872			CAP	Refurbish/Replace/Repair	Raw Sewage Pump #1 ground fault issues requiring rebuild	COMP	3/7/23 07:42 AM
3211476	0000065544	PANEL ALARM/DIALER	PM	Inspection	Alarm Dialer Testing (1m) 5520	COMP	2/6/23 10:03 AM
3211481	0000065226	PANEL ALARM/DIALER 01 QUEEN ST	PM	Inspection	Alarm Dialer 01 Queen PS Testing (1m) 5520	COMP	2/1/23 11:51 AM
3211486	0000065211	PANEL ALARM/DIALER 01 ROBINSON ST	PM	Inspection	Alarm Dialer 01 Robinson PS Testing (1m) 5520	COMP	2/2/23 03:37 PM
3211491	0000065313	PUMP CENT OLD SLUDGE LOADING DIGESTER BASEMENT	PM	Inspection	Pump Cent Sludge Loading Insp/Service (1y) 5520	COMP	2/3/23 02:21 PM
3211675			PM	Inspection	PH Probe Insp/Calib (1m) 5520	COMP	2/1/23 03:57 PM
3211877	0000065403	TANK 01 CLARIFIER SECONDARY	PM	Refurbish/Replace/Repair	Tank Clarifier 01 Insp/Service (1m/1y) 5520	COMP	2/15/23 03:24 PM
3211887	0000065420	TANK 03 CLARIFIER SECONDARY	PM	Refurbish/Replace/Repair	Tank Clarifier 03 Insp/Service (1m/1y) 5520	COMP	2/7/23 03:47 PM
3211897	0000065498	TANK 04 CLARIFIER SECONDARY	PM	Refurbish/Replace/Repair	Tank Clarifier 04 Insp/Service (1m/1y) 5520	COMP	2/7/23 03:48 PM

3211907	0000065526	UV LIGHT BANK 02 Final Effluent Building	PM	Inspection	Uv Light Bank 02 Effluent Insp/Clean/Service (1m/1y) 5520	COMP	2/10/23 01:45 PM
3211914	0000065527	UV LIGHT BANK 01 Final Effluent building	PM	Inspection	Uv Light Bank 01 Effluent Insp/Clean/Service (1m/1y) 5520	COMP	2/7/23 12:59 PM
3211921	0000065531	ENGINE DIESEL GENERATOR	PM	Inspection	Engine Diesel St. Mary's WWTP Insp/Test (1m) 5520	BUSCOMP	2/10/23 02:24 PM
3211940	0000334281	PUMP CENTRIFUGAL RAS #3 BLOWER BUILDING	PM	Inspection	Pump Cent 03 Return Sludge Insp/Service (1m/1y) 5520	COMP	2/1/23 11:53 AM
3211950	0000207020	PUMP P404 ROT LOBE DIGESTER BASEMENT	PM	Inspection	Pump Rot Lobe Insp/Service (1m/1y) 5520	COMP	2/1/23 12:56 PM
3211956	0000269085	ENGINE DIESEL GENERATOR ROBINSON ST	PM	Inspection	Engine Diesel Robinson St PS Insp/Test (1m) 5520	COMP	2/1/23 03:58 PM
3212197	0000269084	BLOWER CENTRIFUGAL B313 TURBO BLOWER BUILDING	PM	Refurbish/Replace/Repair	Blower Cent Turbo Insp/Service (1m/3m/1y) 5520	COMP	2/1/23 12:21 PM
3212575	0000269089	PANEL ALARM/DIALER 01 EMILY ST	PM	Inspection	Alarm Dialer 01 Emily St. PS Testing (1m) 5520	COMP	2/2/23 03:39 PM
3229720	0000065351	TANK 02 CLARIFIER SECONDARY	PM	Inspection	Tank Clarifier 02 Inspection/Maintenance (1m) 5520	COMP	2/7/23 03:52 PM
3230481	0000207059	GENERATOR Diesel Queen St 5520	PM	Refurbish/Replace/Repair	Engine Diesel Queen St PS Insp/Test (1m) 5520	COMP	2/1/23 11:55 AM
3232088	0000334274	PUMP CENT 1 RAS PUMP OLD RAS BUILDING	PM	Inspection	RAS PUMP #1 Insp/Maint (1m) 5520	COMP	2/2/23 03:33 PM
3232097	0000334260	MOTOR 2 RAS PUMP OLD RAS BUILDING	PM	Refurbish/Replace/Repair	RAS PUMP MOTOR 2 Insp/Maint (1m) 5520	COMP	2/2/23 12:33 PM
3232564			PM	Inspection	Supervisor Spot Check St Marys Facilities (3m) 5520/1262	COMP	3/9/23 01:00 PM
3232896			PM	Inspection	VFD Route Electrician Insp/Maint (1y) 5520	COMP	2/15/23 12:54 PM
3232903	0000332739	FAN EXHAUST DUCT VENTILATION LYSTEK BUILDING	PM	Refurbish/Replace/Repair	Fan Exhaust Duct Lystek Building Insp/Maint (1m) 5520	COMP	2/2/23 03:34 PM
3232964			PM	Inspection	UPS Route Insp/Service (1m) 5520	COMP	2/9/23 03:53 PM

3233155			PM	Refurbish/Replace/Repair	Detroit Route Insp/Maint (1m) 5520	COMP	2/2/23 03:35 PM
3233796			PM	Predictive Maintenance	Lystek Building Greasing Route	COMP	2/2/23 03:37 PM
3233812			PM	Predictive Maintenance	Raw Building Gear Box Inspections	COMP	2/15/23 12:57 PM
3233816			PM	Predictive Maintenance	WASEQ Pump Greasing 3-4	COMP	2/1/23 12:54 PM
3233819			PM	Predictive Maintenance	Blower Room Greasing (1m) 5520	COMP	2/1/23 12:25 PM
3234040	0000334273	MOTOR #1 OLD RAS	PM	Refurbish/Replace/Repair	RAS PUMP MOTOR 1 Insp/Maint (1m) 5520	COMP	2/2/23 12:32 PM
3244707			EMER	Refurbish/Replace/Repair	Raw Sewage Pump Rental - Monthly charge	APPR	
3245311			CORR	Refurbish/Replace/Repair	Steam boiler installation	COMP	2/10/23 11:00 AM
3252959	0000065544	PANEL ALARM/DIALER	PM	Inspection	Alarm Dialer Testing (1m) 5520	COMP	3/1/23 12:09 PM
3252964	0000065226	PANEL ALARM/DIALER 01 QUEEN ST	PM	Inspection	Alarm Dialer 01 Queen PS Testing (1m) 5520	COMP	3/1/23 10:03 AM
3252969	0000065211	PANEL ALARM/DIALER 01 ROBINSON ST	PM	Inspection	Alarm Dialer 01 Robinson PS Testing (1m) 5520	COMP	3/1/23 10:04 AM
3252974	0000157008	SAMPLER 01 AUTO Final Effluent Building	PM	Refurbish/Replace/Repair	Sampler 01 Auto Effluent Insp/Service (1y) 5520	COMP	3/10/23 10:56 AM
3253132			PM	Inspection	PH Probe Insp/Calib (1m) 5520	COMP	3/6/23 01:51 PM
3253316	0000065403	TANK 01 CLARIFIER SECONDARY	PM	Refurbish/Replace/Repair	Tank Clarifier 01 Insp/Service (1m/1y) 5520	COMP	3/21/23 03:52 PM

3253326	000065420	TANK 03 CLARIFIER SECONDARY	PM	Refurbish/Replace/Repair	Tank Clarifier 03 Insp/Service (1m/1y) 5520	BUSCOMP	3/6/23 03:30 PM
3253336	000065498	TANK 04 CLARIFIER SECONDARY	PM	Refurbish/Replace/Repair	Tank Clarifier 04 Insp/Service (1m/1y) 5520	COMP	3/6/23 03:31 PM
3253346	000065526	UV LIGHT BANK 02 Final Effluent Building	PM	Inspection	Uv Light Bank 02 Effluent Insp/Clean/Service (1m/1y) 5520	BUSCOMP	3/27/23 03:46 PM
3253353	000065527	UV LIGHT BANK 01 Final Effluent building	PM	Inspection	Uv Light Bank 01 Effluent Insp/Clean/Service (1m/1y) 5520	COMP	3/27/23 03:44 PM
3253360	000065531	ENGINE DIESEL GENERATOR	PM	Inspection	Engine Diesel St. Mary's WWTP Insp/Test (1m) 5520	COMP	3/30/23 11:55 AM
3253379	0000334281	PUMP CENTRIFUGAL RAS #3 BLOWER BUILDING	PM	Inspection	Pump Cent 03 Return Sludge Insp/Service (1m/1y) 5520	COMP	3/6/23 12:52 PM
3253389	0000207020	PUMP P404 ROT LOBE DIGESTER BASEMENT	PM	Inspection	Pump Rot Lobe Insp/Service (1m/1y) 5520	COMP	3/6/23 03:33 PM
3253395	0000269085	ENGINE DIESEL GENERATOR ROBINSON ST	PM	Inspection	Engine Diesel Robinson St PS Insp/Test (1m) 5520	BUSCOMP	3/1/23 01:02 PM
3253649	0000269084	BLOWER CENTRIFUGAL B313 TURBO BLOWER BUILDING	PM	Refurbish/Replace/Repair	Blower Cent Turbo Insp/Service (1m/3m/1y) 5520	COMP	3/1/23 12:10 PM
3254072	0000269089	PANEL ALARM/DIALER 01 EMILY ST	PM	Inspection	Alarm Dialer 01 Emily St. PS Testing (1m) 5520	COMP	3/1/23 10:06 AM
3272685	000065351	TANK 02 CLARIFIER SECONDARY	PM	Inspection	Tank Clarifier 02 Inspection/Maintenance (1m) 5520	BUSCOMP	3/6/23 03:35 PM
3273243	0000207059	GENERATOR Diesel Queen St 5520	PM	Refurbish/Replace/Repair	Engine Diesel Queen St PS Insp/Test (1m) 5520	COMP	3/1/23 12:13 PM
3274939	0000334274	PUMP CENT 1 RAS	PM	Inspection	RAS PUMP #1 Insp/Maint (1m) 5520	BUSCOMP	3/1/23 03:30 PM

		PUMP OLD RAS BUILDING					
3274948	0000334260	MOTOR 2 RAS PUMP OLD RAS BUILDING	PM	Refurbish/Replace/Repair	RAS PUMP MOTOR 2 Insp/Maint (1m) 5520	COMP	3/1/23 03:33 PM
3275768	0000332739	FAN EXHAUST DUCT VENTILATION LYTEK BUILDING	PM	Refurbish/Replace/Repair	Fan Exhaust Duct Lystek Building Insp/Maint (1m) 5520	COMP	3/8/23 03:11 PM
3275820			PM	Inspection	UPS Route Insp/Service (1m) 5520	COMP	3/2/23 03:40 PM
3275972			PM	Refurbish/Replace/Repair	Detroit Route Insp/Maint (1m) 5520	COMP	3/7/23 07:40 AM
3276648			PM	Predictive Maintenance	Lystek Building Greasing Route	COMP	3/9/23 12:47 PM
3276658			PM	Predictive Maintenance	Raw Building Gear Box Inspections	COMP	3/8/23 03:13 PM
3276662			PM	Predictive Maintenance	WASEQ Pump Greasing 3-4	COMP	3/6/23 12:55 PM
3276665			PM	Predictive Maintenance	Blower Room Greasing (1m) 5520	COMP	3/6/23 12:57 PM
3276877	0000334273	MOTOR #1 OLD RAS	PM	Refurbish/Replace/Repair	RAS PUMP MOTOR 1 Insp/Maint (1m) 5520	COMP	3/1/23 03:32 PM
3287615			EMER	Refurbish/Replace/Repair	WAS basement flooding	COMP	3/10/23 02:02 PM
3288271			PM	Predictive Maintenance	Pressurized grease pot installation on Netzsch sludge loading pump 5520	COMP	3/6/23 10:50 AM
3289009			CORR	Refurbish/Replace/Repair	3/4" pvc line replacement 5520	COMP	3/9/23 01:41 PM
3289163	0000241346	PUMP CENT P241 LYTEK PROD PUMP	CORR	Refurbish/Replace/Repair	Replaced faulty solenoid valve on P241 seal 5520	COMP	3/10/23 02:05 PM
3290017	0000326660	PUMP CENT P347 WAS	CORR	Refurbish/Replace/Repair	P 347 auto issues	COMP	3/22/23 03:55 PM
3290343			EMER	Refurbish/Replace/Repair	Clarifier #3 motor issues	COMP	3/20/23 11:47 AM

3297630			PM	Inspection	Lifting Device Route (1y) 5520	COMP	5/24/23 07:45 AM
3297696	0000065331	CONVEYOR 01 RAKE GRIT	PM	Refurbish/Replace/Repair	Conveyor 01 Rake Grit Insp/Service (1y) 5520	COMP	4/12/23 03:18 PM
3297706	0000065334	MIXER 01 GRIT ORGANIC PUMP	PM	Refurbish/Replace/Repair	Mixer 01 Grit Organic Pump Insp/Service (1y) 5520	COMP	4/12/23 03:19 PM
3297717	0000065544	PANEL ALARM/DIALER	PM	Inspection	Alarm Dialer Testing (1m) 5520	COMP	4/3/23 03:33 PM
3297722	0000065226	PANEL ALARM/DIALER 01 QUEEN ST	PM	Inspection	Alarm Dialer 01 Queen PS Testing (1m) 5520	COMP	4/5/23 02:56 PM
3297727	0000065211	PANEL ALARM/DIALER 01 ROBINSON ST	PM	Inspection	Alarm Dialer 01 Robinson PS Testing (1m) 5520	COMP	4/3/23 03:32 PM
3297732	0000065337	SCREEN 01 DETROITER TANK COMPONENTS	PM	Refurbish/Replace/Repair	Screen 01 Detrioter Tank Components Insp/Service (1y) 5520	BUSCOMP	4/12/23 03:20 PM
3297964			PM	Inspection	PH Probe Insp/Calib (1m) 5520	COMP	4/11/23 12:59 PM
3297969			PM	Refurbish/Replace/Repair	Chemical System Flushing (6m) 5520	COMP	4/20/23 11:18 AM
3298183	0000065403	TANK 01 CLARIFIER SECONDARY	PM	Refurbish/Replace/Repair	Tank Clarifier 01 Insp/Service (1m/1y) 5520	COMP	4/5/23 02:58 PM
3298193	0000065420	TANK 03 CLARIFIER SECONDARY	PM	Refurbish/Replace/Repair	Tank Clarifier 03 Insp/Service (1m/1y) 5520	COMP	4/13/23 12:44 PM
3298203	0000065498	TANK 04 CLARIFIER SECONDARY	PM	Refurbish/Replace/Repair	Tank Clarifier 04 Insp/Service (1m/1y) 5520	BUSCOMP	4/13/23 12:46 PM
3298213	0000065526	UV LIGHT BANK 02 Final Effluent Building	PM	Inspection	Uv Light Bank 02 Effluent Insp/Clean/Service (1m/1y) 5520	COMP	4/21/23 03:37 PM

3298220	0000065527	UV LIGHT BANK 01 Final Effluent building	PM	Inspection	Uv Light Bank 01 Effluent Insp/Clean/Service (1m/1y) 5520	COMP	4/21/23 03:36 PM
3298227	0000065531	ENGINE DIESEL GENERATOR	PM	Inspection	Engine Diesel St. Mary's WWTP Insp/Test (1m) 5520	COMP	4/27/23 12:18 PM
3298246	0000334281	PUMP CENTRIFUGAL RAS #3 BLOWER BUILDING	PM	Inspection	Pump Cent 03 Return Sludge Insp/Service (1m/1y) 5520	COMP	4/11/23 03:58 PM
3298256	0000207020	PUMP P404 ROT LOBE DIGESTER BASEMENT	PM	Refurbish/Replace/Repair	Pump Rot Lobe Insp/Service (1m/1y) 5520	COMP	4/12/23 03:21 PM
3298259	0000269085	ENGINE DIESEL GENERATOR ROBINSON ST	PM	Inspection	Engine Diesel Robinson St PS Insp/Test (1m) 5520	COMP	4/5/23 02:59 PM
3298520	0000269084	BLOWER CENTRIFUGAL B313 TURBO BLOWER BUILDING	PM	Refurbish/Replace/Repair	Blower Cent Turbo Insp/Service (1m/3m/1y) 5520	BUSCOMP	4/12/23 03:22 PM
3298978	0000269089	PANEL ALARM/DIALER 01 EMILY ST	PM	Inspection	Alarm Dialer 01 Emily St. PS Testing (1m) 5520	COMP	4/5/23 03:01 PM
3319747	0000065351	TANK 02 CLARIFIER SECONDARY	PM	Inspection	Tank Clarifier 02 Inspection/Maintenance (1m) 5520	COMP	4/13/23 12:49 PM
3320348	0000207059	GENERATOR Diesel Queen St 5520	PM	Refurbish/Replace/Repair	Engine Diesel Queen St PS Insp/Test (1m) 5520	COMP	4/5/23 03:02 PM
3322962	0000334274	PUMP CENT 1 RAS PUMP OLD RAS BUILDING	PM	Inspection	RAS PUMP #1 Insp/Maint (1m) 5520	COMP	4/5/23 03:03 PM
3322971	0000334260	MOTOR 2 RAS PUMP OLD RAS BUILDING	PM	Refurbish/Replace/Repair	RAS PUMP MOTOR 2 Insp/Maint (1m) 5520	COMP	4/11/23 02:03 PM
3323854	0000332739	FAN EXHAUST DUCT VENTILATION LYTEK BUILDING	PM	Refurbish/Replace/Repair	Fan Exhaust Duct Lystek Building Insp/Maint (1m) 5520	COMP	4/11/23 03:59 PM
3323919			PM	Inspection	Heater Route Insp/Service (6m) 5520	COMP	4/11/23 02:05 PM
3323936			PM	Inspection	UPS Route Insp/Service (1m) 5520	COMP	4/4/23 03:54 PM
3324138			PM	Refurbish/Replace/Repair	Detroit Route Insp/Maint (1m) 5520	COMP	4/3/23 03:37 PM
3324882			PM	Predictive Maintenance	Lystek Building Greasing Route	COMP	4/11/23 04:01 PM
3324898			PM	Predictive Maintenance	Raw Building Gear Box Inspections	COMP	4/14/23 12:07 PM
3324902			PM	Predictive Maintenance	WASEQ Pump Greasing 3-4	BUSCOMP	4/11/23 04:02 PM
3324905			PM	Predictive Maintenance	Blower Room Greasing (1m) 5520	COMP	4/11/23 04:05 PM

3325177	0000334273	MOTOR #1 OLD RAS	PM	Refurbish/Replace/Repair	RAS PUMP MOTOR 1 Insp/Maint (1m) 5520	COMP	4/5/23 03:05 PM
3340828	0000241327	PUMP DIAPHRAGM CHEMICAL METERING KEYTECH LYTEK BUILDING	CORR	Refurbish/Replace/Repair	Wired control wiring to automatically start and stop pump with Boiler running command 5520	COMP	4/20/23 08:20 AM
3341374			CAP	Refurbish/Replace/Repair	Industrial Auto Sampler	APPR	
3346891	0000065597	METER FLOW FIT1 RAS BLOWER BUILDING	PM	Calibration	Meter Flow Fit1 RAS Insp/Service (1y) 5520	COMP	6/7/23 02:46 PM
3346896	0000065564	METER FLOW OLD RAS 4'	PM	Calibration	Meter Flow RAS Insp/Service (1y) 5520	COMP	6/7/23 02:47 PM
3346901	0000157006	METER FLOW FIT 601 VELOCITY FINAL EFFLUENT	PM	Calibration	Meter Flow Velocity Final Effluent Insp/Service (1y) 5520	COMP	6/7/23 02:48 PM
3346909	0000065544	PANEL ALARM/DIALER	PM	Inspection	Alarm Dialer Testing (1m) 5520	BUSCOMP	5/10/23 12:18 PM
3346914	0000065226	PANEL ALARM/DIALER 01 QUEEN ST	PM	Inspection	Alarm Dialer 01 Queen PS Testing (1m) 5520	COMP	5/4/23 03:35 PM
3346919	0000065211	PANEL ALARM/DIALER 01 ROBINSON ST	PM	Inspection	Alarm Dialer 01 Robinson PS Testing (1m) 5520	COMP	5/4/23 03:36 PM
3347130			PM	Inspection	PH Probe Insp/Calib (1m) 5520	COMP	5/2/23 03:38 PM
3347322	0000065403	TANK 01 CLARIFIER SECONDARY	PM	Refurbish/Replace/Repair	Tank Clarifier 01 Insp/Service (1m/1y) 5520	COMP	5/10/23 10:57 AM
3347332	0000065420	TANK 03 CLARIFIER SECONDARY	PM	Refurbish/Replace/Repair	Tank Clarifier 03 Insp/Service (1m/1y) 5520	COMP	5/10/23 03:57 PM
3347342	0000065498	TANK 04 CLARIFIER SECONDARY	PM	Refurbish/Replace/Repair	Tank Clarifier 04 Insp/Service (1m/1y) 5520	COMP	5/10/23 12:34 PM
3347352	0000065526	UV LIGHT BANK 02 Final Effluent Building	PM	Inspection	Uv Light Bank 02 Effluent Insp/Clean/Service (1m/1y) 5520	COMP	5/25/23 02:06 PM
3347359	0000065527	UV LIGHT BANK 01 Final Effluent building	PM	Inspection	Uv Light Bank 01 Effluent Insp/Clean/Service (1m/1y) 5520	BUSCOMP	5/23/23 04:02 PM
3347366	0000065531	ENGINE DIESEL GENERATOR	PM	Inspection	Engine Diesel St. Mary's WWTP Insp/Test (1m) 5520	COMP	5/26/23 09:32 AM
3347385	0000334281	PUMP CENTRIFUGAL RAS #3 BLOWER BUILDING	PM	Inspection	Pump Cent 03 Return Sludge Insp/Service (1m/1y) 5520	BUSCOMP	5/11/23 01:00 PM

3347395	0000207020	PUMP P404 ROT LOBE DIGESTER BASEMENT	PM	Inspection	Pump Rot Lobe Insp/Service (1m/1y) 5520	BUSCOMP	5/12/23 03:12 PM
3347401	0000269085	ENGINE DIESEL GENERATOR ROBINSON ST	PM	Inspection	Engine Diesel Robinson St PS Insp/Test (1m) 5520	COMP	5/4/23 03:46 PM
3347668	0000269084	BLOWER CENTRIFUGAL B313 TURBO BLOWER BUILDING	PM	Refurbish/Replace/Repair	Blower Cent Turbo Insp/Service (1m/3m/1y) 5520	COMP	5/11/23 01:03 PM
3348213	0000269089	PANEL ALARM/DIALER 01 EMILY ST	PM	Inspection	Alarm Dialer 01 Emily St. PS Testing (1m) 5520	COMP	5/4/23 03:48 PM
3367136	0000065351	TANK 02 CLARIFIER SECONDARY	PM	Inspection	Tank Clarifier 02 Inspection/Maintenance (1m) 5520	COMP	5/10/23 03:59 PM
3367672	0000207059	GENERATOR Diesel Queen St 5520	PM	Refurbish/Replace/Repair	Engine Diesel Queen St PS Insp/Test (1m) 5520	COMP	5/4/23 04:03 PM
3369445	0000334274	PUMP CENT 1 RAS PUMP OLD RAS BUILDING	PM	Inspection	RAS PUMP #1 Insp/Maint (1m) 5520	COMP	5/8/23 12:42 PM
3369454	0000334260	MOTOR 2 RAS PUMP OLD RAS BUILDING	PM	Refurbish/Replace/Repair	RAS PUMP MOTOR 2 Insp/Maint (1m) 5520	COMP	5/8/23 12:43 PM
3369820			PM	Inspection	Supervisor Spot Check St Marys Facilities (3m) 5520/1262	APPR	
3370144	0000332739	FAN EXHAUST DUCT VENTILATION LYTEK BUILDING	PM	Refurbish/Replace/Repair	Fan Exhaust Duct Lystek Building Insp/Maint (1m) 5520	COMP	5/12/23 07:28 AM
3370188			PM	Inspection	UPS Route Insp/Service (1m) 5520	COMP	5/10/23 12:37 PM
3370409			PM	Refurbish/Replace/Repair	Detroit Route Insp/Maint (1m) 5520	COMP	5/12/23 11:32 AM
3371047			PM	Predictive Maintenance	Lystek Building Greasing Route	COMP	5/12/23 07:30 AM
3371057			PM	Predictive Maintenance	Raw Building Gear Box Inspections	COMP	5/12/23 07:32 AM
3371061			PM	Predictive Maintenance	WASEQ Pump Greasing 3-4	COMP	5/11/23 02:03 PM
3371064			PM	Predictive Maintenance	Blower Room Greasing (1m) 5520	COMP	5/11/23 02:05 PM
3371378	0000334273	MOTOR #1 OLD RAS	PM	Refurbish/Replace/Repair	RAS PUMP MOTOR 1 Insp/Maint (1m) 5520	COMP	5/8/23 12:45 PM
3382915			CAP	Inspection	Annual Inspection of Gas Boiler	APPR	

3385396			PM	Predictive Maintenance	centrifuge belt change 5520	COMP	5/15/23 01:31 PM
3385667			CAP	Refurbish/Replace/Repair	Repair spare mixer for Anoxic Tanks	CLIENT	
3392738	0000241329	PANEL CONTROL STEAM BOILER LYTEK BUILDING	PM	Refurbish/Replace/Repair	Boiler Industrial Heating Eqmt Insp/Service (1y) 5520	COMP	6/7/23 03:55 PM
3392744	0000241328	BOILER PREHEAT TANK LYTEK BUILDING	PM	Refurbish/Replace/Repair	Boiler Preheat Tank Water Insp/Service (1y) 5520	BUSCOMP	6/8/23 02:11 PM
3392750	0000241332	MOTOR G268 GRINDER MUFFIN MONSTER LYTEK BUILDING	PM	Inspection	Grinder Muffin Monster Bar Insp/Service (1y) 5520	COMP	6/7/23 03:56 PM
3392753	0000241336	METER FLOW FIT-261 TO CENTRIFUGE LYTEK BUILDING	PM	Calibration	Meter Flow Digested Sludge Insp/Service (1y) 5520	COMP	6/7/23 02:50 PM
3392759	0000157005	METER FLOW AERATION BYPASS	PM	Calibration	Meter Flow Effluent Bypass Insp/Service (1y) 5520	COMP	6/7/23 02:52 PM
3392765	0000241337	METER FLOW FIT-225 WAS TO RDT LYTEK BUILDING	PM	Calibration	Meter Flow Thickened Was Insp/Service (1y) 5520	COMP	6/7/23 02:51 PM
3392771	0000065240	TRANSMITTER LEVEL MILTRONICS RAW SEWAGE	PM	Calibration	Meter Level Raw Sewage Insp/Service (1y) 5520	COMP	6/7/23 02:53 PM
3392776	0000241326	MOTOR LYTEK REACTOR MIXER	PM	Inspection	Mixer Polymer Reactor Insp/Service (1y) 5520	COMP	6/7/23 03:57 PM
3392782	0000065544	PANEL ALARM/DIALER	PM	Inspection	Alarm Dialer Testing (1m) 5520	COMP	6/5/23 01:07 PM
3392787	0000065226	PANEL ALARM/DIALER 01 QUEEN ST	PM	Inspection	Alarm Dialer 01 Queen PS Testing (1m) 5520	COMP	6/5/23 01:08 PM
3392792	0000065211	PANEL ALARM/DIALER 01 ROBINSON ST	PM	Inspection	Alarm Dialer 01 Robinson PS Testing (1m) 5520	COMP	6/5/23 01:09 PM
3392797	0000241346	PUMP CENT P241 LYTEK PROD PUMP	PM	Inspection	Pump Cent Lystek Prod Pump Insp/Service (1y) 5520	COMP	6/6/23 03:10 PM
3392816	0000241347	PUMP CENT P242 LYTEK PROD PUMP	PM	Inspection	Pump Cent Lystek Prod Pump Insp/Service (1y) 5520	COMP	6/6/23 03:13 PM
3392835	0000241330	PUMP CENT P255 BOOSTER LYTEK BUILDING	PM	Inspection	Pump Cent P225 Booster Insp/Service (1y) 5520	COMP	6/6/23 03:11 PM

3392854	0000241327	PUMP DIAPHRAGM CHEMICAL METERING KEYTECH LYTEK BUILDING	PM	Refurbish/Replace/Repair	Pump Peristaltic Chemical Metering Insp/Service (3m) 5520	COMP	6/8/23 02:09 PM
3392871	0000241338	PUMP PROG CAV P252 DEWATERED SLUDGE LYSTEK BUILDING	PM	Refurbish/Replace/Repair	Pump Prog Cav 01 Thickened Sludge Insp/Service (1y) 5520	COMP	6/7/23 08:13 AM
3392874	0000065224	PUMP SUBMERSIBLE 01 QUEEN ST	PM	Refurbish/Replace/Repair	Pump Subm 01 Queen St Insp/Service (1y) 5520	COMP	6/13/23 07:55 AM
3392883	0000065223	PUMP SUBMERSIBLE 02 QUEEN ST	PM	Refurbish/Replace/Repair	Pump Subm 02 Queen St Insp/Service (1y) 5520	COMP	6/13/23 07:56 AM
3392892	0000241340	PUMP CENT P250 Twas LYTEK BUILDING	PM	Inspection	Pump Twas Smart Turner Insp/Service (1y) 5520	COMP	6/6/23 03:14 PM
3392895	0000241342	PUMP CENT P251 Twas LYTEK BUILDING	PM	Inspection	Pump Twas Smart Turner Insp/Service (1y) 5520	COMP	6/6/23 03:15 PM
3392898	0000241325	TANK HOT WATER HEATER ELECTRIC LYSTEK BUILDING	PM	Refurbish/Replace/Repair	Tank Hot Water Heater Electric Insp (1y) 5520	COMP	6/6/23 03:16 PM
3393112			PM	Inspection	PH Probe Insp/Calib (1m) 5520	COMP	6/6/23 07:55 AM
3393339	0000065403	TANK 01 CLARIFIER SECONDARY	PM	Refurbish/Replace/Repair	Tank Clarifier 01 Insp/Service (1m/1y) 5520	COMP	6/5/23 01:10 PM
3393349	0000065420	TANK 03 CLARIFIER SECONDARY	PM	Refurbish/Replace/Repair	Tank Clarifier 03 Insp/Service (1m/1y) 5520	COMP	6/14/23 03:49 PM
3393359	0000065498	TANK 04 CLARIFIER SECONDARY	PM	Refurbish/Replace/Repair	Tank Clarifier 04 Insp/Service (1m/1y) 5520	COMP	6/5/23 03:50 PM
3393369	0000065526	UV LIGHT BANK 02 Final Effluent Building	PM	Inspection	Uv Light Bank 02 Effluent Insp/Clean/Service (1m/1y) 5520	COMP	6/5/23 03:52 PM
3393376	0000065527	UV LIGHT BANK 01 Final Effluent building	PM	Inspection	Uv Light Bank 01 Effluent Insp/Clean/Service (1m/1y) 5520	COMP	6/15/23 03:35 PM
3393383	0000065531	ENGINE DIESEL GENERATOR	PM	Inspection	Engine Diesel St. Mary's WWTP Insp/Test (1m) 5520	COMP	6/5/23 03:53 PM
3393402	0000334281	PUMP CENTRIFUGAL RAS #3 BLOWER BUILDING	PM	Inspection	Pump Cent 03 Return Sludge Insp/Service (1m/1y) 5520	COMP	6/13/23 09:04 AM
3393412	0000207020	PUMP P404 ROT LOBE DIGESTER BASEMENT	PM	Inspection	Pump Rot Lobe Insp/Service (1m/1y) 5520	COMP	6/13/23 11:12 AM
3393418	0000269085	ENGINE DIESEL GENERATOR ROBINSON ST	PM	Inspection	Engine Diesel Robinson St PS Insp/Test (1m) 5520	COMP	6/5/23 03:55 PM

3393678	0000269084	BLOWER CENTRIFUGAL B313 TURBO BLOWER BUILDING	PM	Refurbish/Replace/Repair	Blower Cent Turbo Insp/Service (1m/3m/1y) 5520	COMP	6/5/23 01:12 PM
3394043	0000269089	PANEL ALARM/DIALER 01 EMILY ST	PM	Inspection	Alarm Dialer 01 Emily St. PS Testing (1m) 5520	COMP	6/5/23 01:13 PM
3414455	0000065351	TANK 02 CLARIFIER SECONDARY	PM	Inspection	Tank Clarifier 02 Inspection/Maintenance (1m) 5520	COMP	6/5/23 03:58 PM
3415088	0000207059	GENERATOR Diesel Queen St 5520	PM	Refurbish/Replace/Repair	Engine Diesel Queen St PS Insp/Test (1m) 5520	COMP	6/5/23 03:56 PM
3416992	0000334274	PUMP CENT 1 RAS PUMP OLD RAS BUILDING	PM	Inspection	RAS PUMP #1 Insp/Maint (1m) 5520	COMP	6/6/23 03:18 PM
3417001	0000334260	MOTOR 2 RAS PUMP OLD RAS BUILDING	PM	Refurbish/Replace/Repair	RAS PUMP MOTOR 2 Insp/Maint (1m) 5520	COMP	6/5/23 01:15 PM
3417780	0000277998	TRANSMITTER LEVEL MILTRONICS TWAS / DEWATERED SLUDGE LYTEK BUILDING	PM	Calibration	Meter Level Dewatered Sludge Insp/Service (1y) 5520	COMP	6/7/23 02:55 PM
3417785	0000332739	FAN EXHAUST DUCT VENTILATION LYTEK BUILDING	PM	Refurbish/Replace/Repair	Fan Exhaust Duct Lystek Building Insp/Maint (1m) 5520	COMP	6/7/23 08:17 AM
3418053			PM	Refurbish/Replace/Repair	Detroit Route Insp/Maint (1m) 5520	COMP	6/13/23 09:06 AM
3418661			PM	Predictive Maintenance	Lystek Building Greasing Route	COMP	6/8/23 12:59 PM
3418671			PM	Predictive Maintenance	Raw Building Gear Box Inspections	COMP	6/7/23 04:00 PM
3418675			PM	Predictive Maintenance	WASEQ Pump Greasing 3-4	COMP	6/7/23 08:24 AM
3418678			PM	Predictive Maintenance	Blower Room Greasing (1m) 5520	COMP	6/13/23 11:14 AM
3418930	0000334273	MOTOR #1 OLD RAS	PM	Refurbish/Replace/Repair	RAS PUMP MOTOR 1 Insp/Maint (1m) 5520	COMP	6/7/23 08:25 AM
3430657	0000065631	HEATER UNIT SHOP	CORR	Refurbish/Replace/Repair	removed three unit heaters for rebuild or replacement 5520	COMP	6/8/23 03:09 PM
3431547			CAP	Refurbish/Replace/Repair	Ultima IR - Methane 0 - 100% LEL sensor	CLIENT	
3434473	0000278207	PUMP CENT #1 Emily St 5520	CAP	Refurbish/Replace/Repair	Rental Sewage Pump for Emily St. Pumping station	APPR	
3434486			CAP	Refurbish/Replace/Repair	Maintenance rebuild upon Flygt Pump #2 at Emily Pumping Station - Estimate	APPR	

3435687			CAP	Refurbish/Replace/Repair	New Hot Water Heater for Lystek Room.	CLIENT	
3436055	0000326599	SCREEN BAR Raw Sewage Muffin Monster	CORR	Refurbish/Replace/Repair	Wired replacement solenoid valve on Bar screen grinder 5520	COMP	6/29/23 03:40 PM
3441695	0000065544		PM	INSPECTION	Alarm Dialer Testing (1m) 5520	CLOSE	7/1/23 01:39:30
3441700	0000065226		PM	INSPECTION	Alarm Dialer 01 Queen PS Testing (1m) 5520	CLOSE	7/1/23 01:39:34
3441705	0000065211		PM	INSPECTION	Alarm Dialer 01 Robinson PS Testing (1m) 5520	CLOSE	7/1/23 01:39:38
3441710	0000065205		PM	REFURBISH/REPLACE	Pump Subm 01 Robinson St Insp/Service (1y) 5520	CLOSE	7/1/23 01:39:42
3441719	0000065206		PM	REFURBISH/REPLACE	Pump Subm 02 Robinson St Insp/Service (1y) 5520	CLOSE	7/1/23 01:39:48
3441918			PM	INSPECTION	PH Probe Insp/Calib (1m) 5520	CLOSE	7/1/23 01:42:32
3441923	0000065403		PM	REFURBISH/REPLACE	TPM Insp/Maint St Marys WWTP (1m) 5520	COMP	7/1/23 01:42:36
3442117	0000065420		PM	REFURBISH/REPLACE	Ta nk	CLOSE	7/1/23 01:45:09
3442127	0000065498		PM	REFURBISH/REPLACE	Tank Clarifier 03 Insp/Service (1m/1y) 5520	CLOSE	7/1/23 01:45:17
3442137	0000065526		PM	INSPECTION	Tank Clarifier 04 Insp/Service (1m/1y) 5520	CLOSE	7/1/23 01:45:25
3442147	0000065527		PM	INSPECTION	Uv Light Bank 02 Effluent Insp/Clean/Service (1m/1y) 5520	CLOSE	7/1/23 01:45:34
3442154	0000065531		PM	INSPECTION	Uv Light Bank 01 Effluent Insp/Clean/Service (1m/1y) 5520	CLOSE	7/1/23 01:45:39
3442161	0000334281		PM	INSPECTION	Engine Diesel St. Mary's WWTP Insp/Test (1m) 5520	CLOSE	7/1/23 01:45:44
3442180	0000207020		PM	INSPECTION	Pump Cent 03 Return Sludge Insp/Service (1m/1y) 5520	CLOSE	7/1/23 01:45:56
3442190	0000269085		PM	INSPECTION	Pump Rot Lobe Insp/Service (1m/1y) 5520	CLOSE	7/1/23 01:46:03
3442196	0000269084		PM	REFURBISH/REPLACE	Engine Diesel Robinson St PS Insp/Test (1m) 5520	CLOSE	7/1/23 01:46:08
3442847	0000334274		PM	INSPECTION	Alarm Dialer 01 Emily St. PS Testing (1m) 5520	CLOSE	7/1/23 01:54:06
3462138	0000334260		PM	REFURBISH/REPLACE	Tank Clarifier 02 Inspection/Maintenance (1m) 5520	CLOSE	7/1/23 06:31:30
3462537	0000332739		PM	REFURBISH/REPLACE	Monthly OSHA Workplace Inspection (1m) - 5520	COMP	7/1/23 06:36:38
3462733			PM	INSPECTION	Engine Diesel Queen St PS Insp/Test (1m) 5520	CLOSE	7/1/23 06:39:05
3464669			PM	PREDICTIVE MAINTENANCE	TPM Insp/Maint Collection System (1m) 5520	COMP	7/1/23 07:05:03

3464764			PM	PREDICTIVE MAINTENANCE	RAS PUMP #1 Insp/Maint (1m) 5520	CLOSE	7/1/23 07:06:40
3464773			PM	PREDICTIVE MAINTENANCE	RAS PUMP MOTOR 2 Insp/Maint (1m) 5520	CLOSE	7/1/23 07:06:57
3465739			PM	PREDICTIVE MAINTENANCE	Fan Exhaust Duct Lystek Building Insp/Maint (1m) 5520	CLOSE	7/1/23 07:18:44
3465793			PM	PREDICTIVE MAINTENANCE	UPS Route Insp/Service (1m) 5520	CLOSE	7/1/23 07:19:25
3466000	0000334273		PM	REFURBISH/REPLACE	Detroit Route Insp/Maint (1m) 5520	CLOSE	7/1/23 07:21:55
3466739	0000065210		PM	CALIBRATION	Lystek Building Greasing Route	CLOSE	7/1/23 07:31:45
3466749	0000065544		PM	INSPECTION	Lystek Motor Greasing Schedule	CLOSE	7/1/23 07:31:54
3466760	0000065226		PM	INSPECTION	Raw Building Gear Box Inspections	CLOSE	7/1/23 07:32:02
3466764	0000065211		PM	INSPECTION	WASEQ Pump Greasing 3-4	CLOSE	7/1/23 07:32:05
3466767	0000157009		PM	REFURBISH/REPLACE	WASEQ Motor greasing (1-2)	CLOSE	7/1/23 07:32:08
3466770	0000207051		PM	REFURBISH/REPLACE	Blower Room Greasing (1m) 5520	CLOSE	7/1/23 07:32:10
3467048	0000157010		PM	REFURBISH/REPLACE	RAS PUMP MOTOR 1 Insp/Maint (1m) 5520	CLOSE	7/1/23 07:35:57
3479944	0000065270		PM	REFURBISH/REPLACE	Drum thickener control panel screen blank 5520	CLOSE	7/6/23 08:22:40
3480099	0000065358		PM	REFURBISH/REPLACE	HEATER ELECTRIC Raw Sewage Screen room explosion proof replacement 5520	APPR	7/7/23 09:21:36
3480123	0000065364		PM	REFURBISH/REPLACE	Explosion Proof - Ceiling mounted space heater for headworks Muffin Monster Room	CLIENT	7/7/23 11:49:21
3480139	0000065365		PM	REFURBISH/REPLACE	New HMI/PLC screen for drum thickener for Lystek Process	CLOSE	7/7/23 13:00:07
3481161			PM	INSPECTION	309 thomas - generator running	CLOSE	7/10/23 08:24:04
3481681	0000065420		PM	REFURBISH/REPLACE	emily st station - high level alarm	CLOSE	7/13/23 06:04:40
3481774	0000065498		PM	REFURBISH/REPLACE	349 Elizabeth St	CLOSE	7/13/23 14:20:54
3483613	0000065526		PM	INSPECTION	Gas Boiler Repairs	COMP	7/26/23 14:05:13
3483969	0000065531		PM	INSPECTION	Trouble shot Mixer not operating 5520	COMP	7/28/23 08:38:46
3488947	0000334281		PM	INSPECTION	Meter Level 01 Robinson St Insp/Service (1y) 5520	COMP	8/1/23 01:24:45
3488960	0000269085		PM	INSPECTION	Alarm Dialer 01 Queen PS Testing (1m) 5520	COMP	8/1/23 01:24:57

3488965	0000269084		PM	REFURBISH/REPLACE	Alarm Dialer 01 Robinson PS Testing (1m) 5520	COMP	8/1/23 01:25:01
3488970			PM	INSPECTION	Pump Subm 01 Raw Sewage Insp/Service (1y) 5520	COMP	8/1/23 01:25:05
3488979	0000269089		PM	INSPECTION	Pump Subm 02 Raw Sewage Insp/Service (1y) 5520	COMP	8/1/23 01:25:13
3488988	0000065351		PM	INSPECTION	Pump Subm 03 Raw Sewage Insp/Service (1y) 5520	COMP	8/1/23 01:25:22
3488997	0000207059		PM	INSPECTION	Recorder Chart Methane Gas Insp/Service (1y) 5520	COMP	8/1/23 01:25:29
3488999			PM	INSPECTION	Valve Relief Press Insp/Service (1y) 5520	COMP	8/1/23 01:25:32
3489002	0000310940		PM	INSPECTION	Valve Relief Press Insp/Service (1y) 5520	COMP	8/1/23 01:25:34
3489005	0000334274		PM	INSPECTION	Valve Relief Press Insp/Service (1y) 5520	COMP	8/1/23 01:25:36
3489239			PM	INSPECTION	TPM Insp/Maint St Marys WWTP (1m) 5520	COMP	8/1/23 01:28:58
3489481	0000332739		PM	REFURBISH/REPLACE	Tank Clarifier 01 Insp/Service (1m/1y) 5520	COMP	8/1/23 01:31:57
3489491			PM	INSPECTION	Tank Clarifier 03 Insp/Service (1m/1y) 5520	COMP	8/1/23 01:32:07
3489501			PM	INSPECTION	Tank Clarifier 04 Insp/Service (1m/1y) 5520	BUSCOMP	8/1/23 01:32:14
3489511			PM	INSPECTION	Uv Light Bank 02 Effluent Insp/Clean/Service (1m/1y) 5520	COMP	8/1/23 01:32:21
3489518			PM	INSPECTION	Uv Light Bank 01 Effluent Insp/Clean/Service (1m/1y) 5520	COMP	8/1/23 01:32:29
3489525			PM	INSPECTION	Engine Diesel St. Mary's WWTP Insp/Test (1m) 5520	COMP	8/1/23 01:32:36
3489544			PM	PREDICTIVE MAINTENANCE	Pump Cent 03 Return Sludge Insp/Service (1m/1y) 5520	COMP	8/1/23 01:32:55
3489554			PM	PREDICTIVE MAINTENANCE	Pump Rot Lobe Insp/Service (1m/1y) 5520	COMP	8/1/23 01:33:02
3489560			PM	INSPECTION	Engine Diesel Robinson St PS Insp/Test (1m) 5520	COMP	8/1/23 01:33:08
3489801	0000334273		PM	INSPECTION	Blower Cent Turbo Insp/Service (1m/3m/1y) 5520	COMP	8/1/23 01:36:04
3490151			PM	INSPECTION	Alarm Dialer 01 Emily St. PS Testing (1m) 5520	COMP	8/1/23 01:41:32
3507433	0000065403		PM	INSPECTION	Tank Clarifier 02 Inspection/Maintenance (1m) 5520	COMP	8/1/23 06:16:12

3507836	0000065420		PM	INSPECTION	Monthly OSHA Workplace Inspection (1m) - 5520	COMP	8/1/23 06:21:55
3507962	0000065498		PM	INSPECTION	Engine Diesel Queen St PS Insp/Test (1m) 5520	COMP	8/1/23 06:23:47
3509516	0000065531		PM	INSPECTION	TPM Insp/Maint Pumping Stations (1m) 5520	COMP	8/1/23 06:45:37
3509521	0000334281		PM	INSPECTION	TPM Insp/Maint Collection System (1m) 5520	COMP	8/1/23 06:45:41
3509629	0000269085		PM	INSPECTION	RAS PUMP #1 Insp/Maint (1m) 5520	BUSCOMP	8/1/23 06:47:05
3509638	0000269084		PM	REFURBISH/REPLACE	RAS PUMP MOTOR 2 Insp/Maint (1m) 5520	BUSCOMP	8/1/23 06:47:13
3510430	0000269089		PM	INSPECTION	Fan Exhaust Duct Lystek Building Insp/Maint (1m) 5520	COMP	8/1/23 06:58:06
3510491	0000065351		PM	INSPECTION	UPS Route Insp/Service (1m) 5520	COMP	8/1/23 06:58:55
3510674	0000207059		PM	INSPECTION	Detroit Route Insp/Maint (1m) 5520	COMP	8/1/23 07:01:26
3511312	0000334274		PM	INSPECTION	Lystek Building Greasing Route	BUSCOMP	8/1/23 07:16:11
3511322	0000334260		PM	INSPECTION	Raw Building Gear Box Inspections	COMP	8/1/23 07:16:19
3511326	0000332739		PM	INSPECTION	WASEQ Pump Greasing 3-4	COMP	8/1/23 07:16:23
3511329			PM	INSPECTION	Blower Room Greasing (1m) 5520	COMP	8/1/23 07:16:26
3511547			PM	INSPECTION	RAS PUMP MOTOR 1 Insp/Maint (1m) 5520	COMP	8/1/23 07:19:52
3525647			PM	INSPECTION	UV Parts for WPCP Final Effluent	COMP	8/17/23 11:29:50
3526900			PM	INSPECTION	ESA inspection @ St Mary's WPCP 5520	COMP	8/25/23 09:12:41
3527369			PM	REFURBISH/REPLACE	Aeration Piping replacements Cell #3	COMP	8/28/23 09:07:01
3527453	0000334273		PM	REFURBISH/REPLACE	Raw Sewage Pumps x 2. Flygt model NP-3153 Submersible Pump.	CLIENT	8/28/23 15:19:08
3527664				REFURBISH/REPLACE	New water line piping for muffin monster and bar screen automatic wash system	COMP	8/30/23 13:40:03
3533050				INSPECTION	Alarm Dialer 01 Robinson PS Testing (1m) 5520	COMP	9/1/23 01:37:24
3533439				INSPECTION	Tank Clarifier 01 Insp/Service (1m/1y) 5520	BUSCOMP	9/1/23 01:43:26
3533464				INSPECTION	Tank Clarifier 03 Insp/Service (1m/1y) 5520	COMP	9/1/23 01:43:47

3533489				INSPECTION	Tank Clarifier 04 Insp/Service (1m/1y) 5520	COMP	9/1/23 01:44:04
3533514				INSPECTION	Uv Light Bank 02 Effluent Insp/Clean/Service (1m/1y) 5520	COMP	9/1/23 01:44:21
3533521				INSPECTION	Uv Light Bank 01 Effluent Insp/Clean/Service (1m/1y) 5520	COMP	9/1/23 01:44:27
3533528				INSPECTION	Engine Diesel St. Mary's WWTP Insp/Test (1m) 5520	COMP	9/1/23 01:44:33
3533547				INSPECTION	Pump Cent 03 Return Sludge Insp/Service (1m/1y) 5520	COMP	9/1/23 01:44:47
3533557				INSPECTION	Pump Rot Lobe Insp/Service (1m/1y) 5520	COMP	9/1/23 01:44:54
3533563				INSPECTION	Engine Diesel Robinson St PS Insp/Test (1m) 5520	BUSCOMP	9/1/23 01:44:59
3534117				INSPECTION	Blower Cent Turbo Insp/Service (1m/3m/1y) 5520	COMP	9/1/23 01:51:53
3553423				INSPECTION	Tank Clarifier 02 Inspection/Maintenance (1m) 5520	BUSCOMP	9/1/23 07:14:32
3553976				INSPECTION	Engine Diesel Queen St PS Insp/Test (1m) 5520	COMP	9/1/23 07:21:52
3556065				INSPECTION	RAS PUMP #1 Insp/Maint (1m) 5520	COMP	9/1/23 07:51:25
3556074				INSPECTION	RAS PUMP MOTOR 2 Insp/Maint (1m) 5520	COMP	9/1/23 07:51:32
3556890				INSPECTION	Fan Exhaust Duct Lystek Building Insp/Maint (1m) 5520	COMP	9/1/23 08:02:38
3556934				INSPECTION	UPS Route Insp/Service (1m) 5520	COMP	9/1/23 08:03:31
3557068				INSPECTION	Detroit Route Insp/Maint (1m) 5520	BUSCOMP	9/1/23 08:05:27
3557699				INSPECTION	Lystek Building Greasing Route	COMP	9/1/23 08:14:46
3557709				INSPECTION	Raw Building Gear Box Inspections	COMP	9/1/23 08:14:57
3557713				INSPECTION	WASEQ Pump Greasing 3-4	COMP	9/1/23 08:15:01
3557716				INSPECTION	Blower Room Greasing (1m) 5520	COMP	9/1/23 08:15:05
3557929				INSPECTION	RAS PUMP MOTOR 1 Insp/Maint (1m) 5520	COMP	9/1/23 08:18:12
3571403				REFURBISH/REPLACE	Replaced ultrasonic level transducer head on TWAS tank 5520	COMP	9/6/23 09:11:59
3574269				REFURBISH/REPLACE	Aeration Upgrade Project - 5520	APPR	9/20/23 11:29:52

3575725				REFURBISH/REPLACE	aeration cell # 1 - piping replacement	COMP	9/28/23 12:13:46
3581602	0000065544	PANEL ALARM/DIALER	PM	Inspection	Alarm Dialer Testing (1m) 5520	CLOSE	10/12/23 02:42 PM
3581607	0000065226	PANEL ALARM/DIALER 01 QUEEN ST	PM	Inspection	Alarm Dialer 01 Queen PS Testing (1m) 5520	COMP	10/16/23 11:36 AM
3581612	0000065211	PANEL ALARM/DIALER 01 ROBINSON ST	PM	Inspection	Alarm Dialer 01 Robinson PS Testing (1m) 5520	COMP	10/16/23 11:37 AM
3581617	0000065639	PUMP CENT AERATION DRAIN BLOWER BUILDING	PM	Inspection	Pump Cent Aeration Drain Insp/Service (1y) 5520	CLOSE	10/12/23 02:45 PM
3582060			PM	Inspection	PH Probe Insp/Calib (1m) 5520	CLOSE	10/5/23 07:47 AM
3582065			PM	Refurbish/Replace/Repair	Chemical System Flushing (6m) 5520	COMP	10/23/23 12:27 PM
3582289	0000065403	TANK 01 CLARIFIER SECONDARY	PM	Refurbish/Replace/Repair	Tank Clarifier 01 Insp/Service (1m/1y) 5520	COMP	10/18/23 07:42 AM
3582299	0000065420	TANK 03 CLARIFIER SECONDARY	PM	Refurbish/Replace/Repair	Tank Clarifier 03 Insp/Service (1m/1y) 5520	COMP	10/18/23 07:43 AM
3582309	0000065498	TANK 04 CLARIFIER SECONDARY	PM	Refurbish/Replace/Repair	Tank Clarifier 04 Insp/Service (1m/1y) 5520	COMP	10/17/23 11:29 AM
3582319	0000065526	UV LIGHT BANK 02 Final Effluent Building	PM	Refurbish/Replace/Repair	Uv Light Bank 02 Effluent Insp/Clean/Service (1m/1y) 5520	COMP	10/18/23 03:47 PM
3582339	0000065527	UV LIGHT BANK 01 Final Effluent building	PM	Refurbish/Replace/Repair	Uv Light Bank 01 Effluent Insp/Clean/Service (1m/1y) 5520	COMP	10/17/23 03:56 PM
3582359	0000065531	ENGINE DIESEL GENERATOR	PM	Inspection	Engine Diesel St. Mary's WWTP Insp/Test (1m) 5520	COMP	10/19/23 03:52 PM
3582378	0000334281	PUMP CENTRIFUGAL RAS #3 BLOWER BUILDING	PM	Inspection	Pump Cent 03 Return Sludge Insp/Service (1m/1y) 5520	COMP	10/17/23 08:02 AM
3582397	0000207020	PUMP P404 ROT LOBE DIGESTER BASEMENT	PM	Inspection	Pump Rot Lobe Insp/Service (1m/1y) 5520	COMP	10/16/23 02:08 PM
3582403	0000269085	ENGINE DIESEL GENERATOR ROBINSON ST	PM	Inspection	Engine Diesel Robinson St PS Insp/Test (1m) 5520	COMP	10/16/23 11:39 AM
3582657	0000269084	BLOWER CENTRIFUGAL B313 TURBO BLOWER BUILDING	PM	Refurbish/Replace/Repair	Blower Cent Turbo Insp/Service (1m/3m/1y) 5520	CLOSE	10/12/23 02:46 PM
3583161	0000269089	PANEL ALARM/DIALER 01 EMILY ST	PM	Inspection	Alarm Dialer 01 Emily St. PS Testing (1m) 5520	COMP	10/16/23 11:40 AM
3602765	0000065351	TANK 02 CLARIFIER SECONDARY	PM	Inspection	Tank Clarifier 02 Inspection/Maintenance (1m) 5520	COMP	10/17/23 11:30 AM
3603400	0000207059	GENERATOR Diesel Queen St 5520	PM	Refurbish/Replace/Repair	Engine Diesel Queen St PS Insp/Test (1m) 5520	BUSCOMP	10/16/23 11:42 AM

3605297	0000334274	PUMP CENT 1 RAS PUMP OLD RAS BUILDING	PM	Inspection	RAS PUMP #1 Insp/Maint (1m) 5520	CLOSE	10/12/23 02:47 PM
3605306	0000334260	MOTOR 2 RAS PUMP OLD RAS BUILDING	PM	Refurbish/Replace/Repair	RAS PUMP MOTOR 2 Insp/Maint (1m) 5520	CLOSE	10/12/23 02:48 PM
3606051	0000332739	FAN EXHAUST DUCT VENTILATION LYSTEK BUILDING	PM	Refurbish/Replace/Repair	Fan Exhaust Duct Lystek Building Insp/Maint (1m) 5520	COMP	10/18/23 07:46 AM
3606126			PM	Inspection	UPS Route Insp/Service (1m) 5520	COMP	10/17/23 08:07 AM
3606343			PM	Refurbish/Replace/Repair	Detroit Route Insp/Maint (1m) 5520	CLOSE	10/3/23 09:46 PM
3607036			PM	Predictive Maintenance	Lystek Building Greasing Route	COMP	10/17/23 08:08 AM
3607052			PM	Predictive Maintenance	Raw Building Gear Box Inspections	COMP	10/18/23 07:59 AM
3607056			PM	Predictive Maintenance	WASEQ Pump Greasing 3-4	COMP	10/16/23 02:11 PM
3607059			PM	Predictive Maintenance	Blower Room Greasing (1m) 5520	COMP	10/17/23 08:09 AM
3607325	0000334273	MOTOR #1 OLD RAS	PM	Refurbish/Replace/Repair	RAS PUMP MOTOR 1 Insp/Maint (1m) 5520	CLOSE	10/12/23 02:49 PM
3623308			CAP	Refurbish/Replace/Repair	Aeration Tank 2 drain	COMP	10/16/23 03:22 PM
3624937	0000332746	LIGHTING EMERGENCY UPPER LEVEL LYSTEK	CORR	Refurbish/Replace/Repair	Replaced faulty emergency lighting on Lystek building mezzanine 5520	COMP	10/27/23 02:19 PM
3630001	0000065544	PANEL ALARM/DIALER	PM	Inspection	Alarm Dialer Testing (1m) 5520	COMP	11/7/23 01:59 PM
3630006	0000065226	PANEL ALARM/DIALER 01 QUEEN ST	PM	Inspection	Alarm Dialer 01 Queen PS Testing (1m) 5520	COMP	11/3/23 09:41 AM
3630011	0000065211	PANEL ALARM/DIALER 01 ROBINSON ST	PM	Inspection	Alarm Dialer 01 Robinson PS Testing (1m) 5520	COMP	11/3/23 09:44 AM
3630203			PM	Inspection	PH Probe Insp/Calib (1m) 5520	COMP	11/2/23 03:52 PM
3630434	0000065403	TANK 01 CLARIFIER SECONDARY	PM	Refurbish/Replace/Repair	Tank Clarifier 01 Insp/Service (1m/1y) 5520	COMP	11/7/23 02:00 PM
3630444	0000065420	TANK 03 CLARIFIER SECONDARY	PM	Refurbish/Replace/Repair	Tank Clarifier 03 Insp/Service (1m/1y) 5520	COMP	11/8/23 10:54 AM
3630454	0000065498	TANK 04 CLARIFIER SECONDARY	PM	Refurbish/Replace/Repair	Tank Clarifier 04 Insp/Service (1m/1y) 5520	COMP	11/7/23 02:01 PM
3630464	0000065526	UV LIGHT BANK 02 Final Effluent Building	PM	Inspection	Uv Light Bank 02 Effluent Insp/Clean/Service (1m/1y) 5520	COMP	11/17/23 12:59 PM
3630471	0000065527	UV LIGHT BANK 01 Final Effluent building	PM	Inspection	Uv Light Bank 01 Effluent Insp/Clean/Service (1m/1y) 5520	COMP	11/17/23 07:34 AM
3630478	0000065531	ENGINE DIESEL GENERATOR	PM	Inspection	Engine Diesel St. Mary's WWTP Insp/Test (1m) 5520	COMP	11/16/23 11:06 AM
3630497	0000334281	PUMP CENTRIFUGAL RAS #3 BLOWER	PM	Inspection	Pump Cent 03 Return Sludge Insp/Service (1m/1y) 5520	COMP	11/8/23 11:01 AM
3630507	0000207020	PUMP P404 ROT LOBE DIGESTER BASEMENT	PM	Inspection	Pump Rot Lobe Insp/Service (1m/1y) 5520	COMP	11/15/23 03:48 PM
3630513	0000269085	ENGINE DIESEL GENERATOR ROBINSON	PM	Inspection	Engine Diesel Robinson St PS Insp/Test (1m) 5520	COMP	11/3/23 09:49 AM

3630843	0000269084	BLOWER CENTRIFUGAL B313 TURBO BLOWER	PM	Refurbish/Replace/Repair	Blower Cent Turbo Insp/Service (1m/3m/1y) 5520	COMP	11/6/23 03:54 PM
3631218	0000269089	PANEL ALARM/DIALER 01 EMILY ST	PM	Inspection	Alarm Dialer 01 Emily St. PS Testing (1m) 5520	COMP	11/3/23 09:45 AM
3647543	0000065351	TANK 02 CLARIFIER SECONDARY	PM	Inspection	Tank Clarifier 02 Inspection/Maintenance (1m) 5520	COMP	11/6/23 02:08 PM
3648042	0000207059	GENERATOR Diesel Queen St 5520	PM	Refurbish/Replace/Repair	Engine Diesel Queen St PS Insp/Test (1m) 5520	COMP	11/3/23 09:48 AM
3649603	0000334274	PUMP CENT 1 RAS PUMP OLD RAS	PM	Inspection	RAS PUMP #1 Insp/Maint (1m) 5520	COMP	11/6/23 03:56 PM
3649612	0000334260	MOTOR 2 RAS PUMP OLD RAS BUILDING	PM	Refurbish/Replace/Repair	RAS PUMP MOTOR 2 Insp/Maint (1m) 5520	COMP	11/6/23 03:57 PM
3650283	0000332739	FAN EXHAUST DUCT VENTILATION LYTEK	PM	Refurbish/Replace/Repair	Fan Exhaust Duct Lystek Building Insp/Maint (1m) 5520	BUSCOMP	11/15/23 03:46 PM
3650327			PM	Inspection	UPS Route Insp/Service (1m) 5520	COMP	11/15/23 12:21 PM
3650514			PM	Refurbish/Replace/Repair	Detroit Route Insp/Maint (1m) 5520	COMP	11/15/23 03:39 PM
3651122			PM	Predictive Maintenance	Lystek Building Greasing Route	BUSCOMP	11/8/23 11:05 AM
3651132			PM	Predictive Maintenance	Raw Building Gear Box Inspections	COMP	11/8/23 11:04 AM
3651136			PM	Predictive Maintenance	WASEQ Pump Greasing 3-4	COMP	11/8/23 11:03 AM
3651139			PM	Predictive Maintenance	Blower Room Greasing (1m) 5520	COMP	11/15/23 03:42 PM
3651355	0000334273	MOTOR #1 OLD RAS	PM	Refurbish/Replace/Repair	RAS PUMP MOTOR 1 Insp/Maint (1m) 5520	COMP	11/6/23 03:58 PM
3666637			CAP	Refurbish/Replace/Repair	Explosion proof motor for Lystek Feed Lobe Pump for Centrifuge	COMP	12/12/23 07:33 AM
3671145	0000065259	FILTER AIR CARBON SLUDGE STORAGE	PM	Refurbish/Replace/Repair	Filter Air 01 Carbon Sludge Insp/Service (1y) 5520	COMP	12/14/23 08:15 AM
3671154	0000065544	PANEL ALARM/DIALER	PM	Inspection	Alarm Dialer Testing (1m) 5520	COMP	12/5/23 10:33 AM
3671159	0000065226	PANEL ALARM/DIALER 01 QUEEN ST	PM	Inspection	Alarm Dialer 01 Queen PS Testing (1m) 5520	COMP	12/4/23 04:03 PM
3671164	0000065211	PANEL ALARM/DIALER 01 ROBINSON ST	PM	Inspection	Alarm Dialer 01 Robinson PS Testing (1m) 5520	COMP	12/5/23 10:34 AM
3671169	0000207053	PUMP CENT P270 DIGESTER SLUDGE	PM	Refurbish/Replace/Repair	Pump Rot Lobe 01 Digester Insp/Service (1y) 5520	COMP	12/4/23 04:05 PM
3671354			PM	Inspection	PH Probe Insp/Calib (1m) 5520	COMP	12/7/23 07:59 AM
3671359			PM	Refurbish/Replace/Repair	Spill Kit Inspect (6m) 5520/1262	COMP	12/7/23 02:25 PM
3671570	0000065403	TANK 01 CLARIFIER SECONDARY	PM	Refurbish/Replace/Repair	Tank Clarifier 01 Insp/Service (1m/1y) 5520	COMP	12/6/23 07:49 AM
3671580	0000065420	TANK 03 CLARIFIER SECONDARY	PM	Refurbish/Replace/Repair	Tank Clarifier 03 Insp/Service (1m/1y) 5520	COMP	12/8/23 04:04 PM
3671590	0000065498	TANK 04 CLARIFIER SECONDARY	PM	Refurbish/Replace/Repair	Tank Clarifier 04 Insp/Service (1m/1y) 5520	COMP	12/6/23 07:50 AM
3671600	0000065526	UV LIGHT BANK 02 Final Effluent Building	PM	Inspection	Uv Light Bank 02 Effluent Insp/Clean/Service (1m/1y) 5520	COMP	12/14/23 02:05 PM
3671607	0000065527	UV LIGHT BANK 01 Final Effluent building	PM	Inspection	Uv Light Bank 01 Effluent Insp/Clean/Service (1m/1y) 5520	COMP	12/14/23 02:06 PM
3671614	0000065531	ENGINE DIESEL GENERATOR	PM	Inspection	Engine Diesel St. Mary's WWTP Insp/Test (1m) 5520	COMP	12/5/23 10:35 AM

3671633	000065531	ENGINE DIESEL GENERATOR	PM	Refurbish/Replace/Repair	Engine Diesel St. Mary's WWTP Insp/Service (1y) 5520	COMP	12/15/23 03:57 PM
3671672	0000334281	PUMP CENTRIFUGAL RAS #3 BLOWER	PM	Inspection	Pump Cent 03 Return Sludge Insp/Service (1m/1y) 5520	COMP	12/7/23 08:06 AM
3671682	0000207020	PUMP P404 ROT LOBE DIGESTER BASEMENT	PM	Inspection	Pump Rot Lobe Insp/Service (1m/1y) 5520	COMP	12/8/23 04:05 PM
3671688	0000269085	ENGINE DIESEL GENERATOR ROBINSON	PM	Inspection	Engine Diesel Robinson St PS Insp/Test (1m) 5520	COMP	12/5/23 02:20 PM
3671707	0000269085	ENGINE DIESEL GENERATOR ROBINSON	PM	Refurbish/Replace/Repair	Engine Diesel Robinson St Insp/Service (1y) 5520	COMP	12/15/23 03:56 PM
3671974	0000269084	BLOWER CENTRIFUGAL B313 TURBO BLOWER	PM	Refurbish/Replace/Repair	Blower Cent Turbo Insp/Service (1m/3m/1y) 5520	COMP	12/7/23 02:27 PM
3672354	0000269089	PANEL ALARM/DIALER 01 EMILY ST	PM	Inspection	Alarm Dialer 01 Emily St. PS Testing (1m) 5520	COMP	12/5/23 10:38 AM
3688985	000065351	TANK 02 CLARIFIER SECONDARY	PM	Inspection	Tank Clarifier 02 Inspection/Maintenance (1m) 5520	COMP	12/1/23 02:53 PM
3689512	0000207059	GENERATOR Diesel Queen St 5520	PM	Refurbish/Replace/Repair	Engine Diesel Queen St PS Insp/Test (1m) 5520	BUSCOMP	12/4/23 04:07 PM
3691050	0000334274	PUMP CENT 1 RAS PUMP OLD RAS	PM	Inspection	RAS PUMP #1 Insp/Maint (1m) 5520	COMP	12/1/23 02:54 PM
3691059	0000334260	MOTOR 2 RAS PUMP OLD RAS BUILDING	PM	Refurbish/Replace/Repair	RAS PUMP MOTOR 2 Insp/Maint (1m) 5520	COMP	12/1/23 02:55 PM
3691704	0000332739	FAN EXHAUST DUCT VENTILATION LYSTEK	PM	Refurbish/Replace/Repair	Fan Exhaust Duct Lystek Building Insp/Maint (1m) 5520	COMP	12/6/23 07:48 AM
3691787			PM	Inspection	UPS Route Insp/Service (1m) 5520	COMP	12/4/23 04:01 PM
3692013			PM	Refurbish/Replace/Repair	Detroit Route Insp/Maint (1m) 5520	COMP	12/6/23 07:49 AM
3692617			PM	Predictive Maintenance	Lystek Building Greasing Route	COMP	12/7/23 02:29 PM
3692627			PM	Predictive Maintenance	Raw Building Gear Box Inspections	COMP	12/7/23 02:30 PM
3692631			PM	Predictive Maintenance	WASEQ Pump Greasing 3-4	COMP	12/6/23 03:45 PM
3692634			PM	Predictive Maintenance	Blower Room Greasing (1m) 5520	COMP	12/6/23 03:46 PM
3692824	0000334273	MOTOR #1 OLD RAS	PM	Refurbish/Replace/Repair	RAS PUMP MOTOR 1 Insp/Maint (1m) 5520	COMP	12/1/23 02:57 PM
3705722			CORR	Refurbish/Replace/Repair	installed temporary lighting and hung peg board in new workshop sea can. 5520	COMP	12/15/23 07:42 AM
3705770			PM	Inspection	ESA inspection @ St Mary's WPCP ,Well #3	COMP	12/15/23 02:30 PM

Appendix C

2024 Sample Calendar



Sample Schedule 2024 St. Marys WPCP

Rev. Date: 2023-12-11
Rev.#: 3
Pages: 1 of 12

Reviewed by: QEMS Representative

Approved by: Operations Management

◀ December	January 2024					February ▶
Sun	Mon	Tue	Wed	Thu	Fri	Sat
	1 STAT	2 Final & Raw <input type="checkbox"/> Effl bacti <input type="checkbox"/> Sludge <input type="checkbox"/>	3	4 Industrial <input type="checkbox"/>	5	6
7	8 Final & Raw <input type="checkbox"/> Effl bacti <input type="checkbox"/> Final – Quarterly <input type="checkbox"/>	9 Industrial <input type="checkbox"/> Acute Lethality <input type="checkbox"/>	10	11	12	13
14	15 Final & Raw <input type="checkbox"/> Effl bacti <input type="checkbox"/>	16	17 Industrial <input type="checkbox"/>	18	19	20
21	22 Final & Raw <input type="checkbox"/> Effl bacti <input type="checkbox"/>	23	24	25 Industrial <input type="checkbox"/>	26	27
28	29 Final & Raw <input type="checkbox"/> Effl bacti <input type="checkbox"/>	30 Industrial <input type="checkbox"/>	31			

Weekly Raw Samples: Composite (BOD5, TSS, TP, TKN)
 Weekly Effluent Samples: Composite (cBOD5, SS,TP, Alk.,TKN, TAN, NO2+NO3, Uni.)
 Grab (E. coli)
 Monthly Sludge Sample: Grab Stored Sludge (TSS,N, HG,AS,CD, CO, CR, CU, K, MO, NI, TP, PB,SE, ZN, TKN, TAN, E.col
 Quarterly Effluent (Leachate): Grab (Boron, Cobalt, Magnesium, Manganese, Potassium, Strontium, Phenols, bis (2-ethylhexyl) Phthalate)
 Annual lethality: Acute lethality for Rainbow Trout
 Industrial Samples: Composite (TBOD, Soluble BOD, O&G, TP, Soluble P, TSS)

Notes: Initial on date when sample was taken. Add any additional sampling completed for the facility.

Revision History

Date	Revision #	Reason for Revision	Revision By
2022-10-17	0	Create Template	Cindy Sigurdson
2022-12-09	1	Create 2023 Sampling Calendar	Lisa Benoit
2023-08-17	2	Added samples for Aug-Nov for aeration project	Stephanie Simpson
2023-12-11	3	Create 2024 Sampling Calendar	Lisa Benoit



Sample Schedule 2024 St. Marys WPCP

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Reviewed by: QEMS Representative

Approved by: Operations Management

◀ January	February 2024					March ▶
Sun	Mon	Tue	Wed	Thu	Fri	Sat
				1	2	3
4	5 Final & Raw <input type="checkbox"/> Effl bacti <input type="checkbox"/> Sludge <input type="checkbox"/>	6	7 Industrial <input type="checkbox"/>	8	9	10
11	12 Final & Raw <input type="checkbox"/> Effl bacti <input type="checkbox"/>	13	14	15 Industrial <input type="checkbox"/>	16	17
18	19 STAT	20 Final & Raw <input type="checkbox"/> Effl bacti <input type="checkbox"/>	21 Industrial <input type="checkbox"/>	22	23	24
25	26 Final & Raw <input type="checkbox"/> Effl bacti <input type="checkbox"/>	27	28 Industrial <input type="checkbox"/>	29		

Weekly Raw Samples: Composite (BOD5, TSS, TP, TKN)
 Weekly Effluent Samples: Composite (cBOD5, SS,TP, Alk.,TKN, TAN, NO2+NO3, Uni.)
 Grab (E. coli)
 Monthly Sludge Sample: Grab Stored Sludge (TSS,N, HG,AS,CD, CO, CR, CU, K, MO, NI, TP, PB,SE, ZN, TKN, TAN, E.col
 Quarterly Effluent (Leachate): Grab (Boron, Cobalt, Magnesium, Manganese, Potassium, Strontium, Phenols, bis (2-ethylhexyl) Phthalate)
 Annual Effluent: Acute lethality for Rainbow Trout
 Industrial Samples: Composite (TBOD, Soluble BOD, O&G, TP, Soluble P, TSS)

Notes: Initial on date when sample was taken. Add any additional sampling completed for the facility.

Revision History

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Rev. Date: 2023-12-11
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Reviewed by: QEMS Representative

Approved by: Operations Management

◀ February	March 2024						April ▶
Sun	Mon	Tue	Wed	Thu	Fri	Sat	
					1	2	
3	4 Final & Raw <input type="checkbox"/> Effl bacti <input type="checkbox"/> Sludge <input type="checkbox"/>	5	6	7 Industrial <input type="checkbox"/>	8	9	
10	11 Final & Raw <input type="checkbox"/> Effl bacti <input type="checkbox"/>	12 Industrial <input type="checkbox"/>	13	14	15	16	
17	18 Final & Raw <input type="checkbox"/> Effl bacti <input type="checkbox"/>	19	20 Industrial <input type="checkbox"/>	21	22	23	
24 31	25 Final & Raw <input type="checkbox"/> Effl bacti <input type="checkbox"/>	26	27	28 Industrial <input type="checkbox"/>	29 STAT	30	

Weekly Raw Samples: Composite (BOD5, TSS, TP, TKN)
 Weekly Effluent Samples: Composite (cBOD5, SS,TP, Alk.,TKN, TAN, NO2+NO3, Uni.)
 Grab (E. coli)
 Monthly Sludge Sample: Grab Stored Sludge (TSS,N, HG,AS,CD, CO, CR, CU, K, MO, NI, TP, PB,SE, ZN, TKN, TAN, E.col
 Quarterly Effluent (Leachate): Grab (Boron, Cobalt, Magnesium, Manganese, Potassium, Strontium, Phenols, bis (2-ethylhexyl) Phthalate)
 Annual Effluent: Acute lethality for Rainbow Trout
 Industrial Samples: Composite (TBOD, Soluble BOD, O&G, TP, Soluble P, TSS)

Notes: Initial on date when sample was taken. Add any additional sampling completed for the facility.

Revision History

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2022-10-17	0	Create Template	Cindy Sigurdson
2022-12-09	1	Create 2023 Sampling Calendar	Lisa Benoit
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Sample Schedule 2024 St. Marys WPCP

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Reviewed by: QEMS Representative

Approved by: Operations Management

◀ March	April 2024					May ▶
Sun	Mon	Tue	Wed	Thu	Fri	Sat
	1 STAT	2 Final & Raw <input type="checkbox"/> Effl bacti <input type="checkbox"/> Sludge <input type="checkbox"/>	3 Industrial <input type="checkbox"/>	4	5	6
7	8 Final & Raw <input type="checkbox"/> Effl bacti <input type="checkbox"/>	9	10 Industrial <input type="checkbox"/>	11	12	13
14	15 Final & Raw <input type="checkbox"/> Effl bacti <input type="checkbox"/> Final – Quarterly <input type="checkbox"/>	16	17	18 Industrial <input type="checkbox"/>	19	20
21	22 Final & Raw <input type="checkbox"/> Effl bacti <input type="checkbox"/>	23 Industrial <input type="checkbox"/>	24	25	26	27
28	29 Final & Raw <input type="checkbox"/> Effl bacti <input type="checkbox"/>	30				

Weekly Raw Samples: Composite (BOD5, TSS, TP, TKN)
 Weekly Effluent Samples: Composite (cBOD5, SS,TP, Alk.,TKN, TAN, NO2+NO3, Uni.)
 Grab (E. coli)
 Monthly Sludge Sample: Grab Stored Sludge (TSS,N, HG,AS,CD, CO, CR, CU, K, MO, NI, TP, PB,SE, ZN, TKN, TAN, E.col
 Quarterly Effluent (Leachate): Grab (Boron, Cobalt, Magnesium, Manganese, Potassium, Strontium, Phenols, bis (2-ethylhexyl) Phthalate)
 Annual Effluent: Acute lethality for Rainbow Trout
 Industrial Samples: Composite (TBOD, Soluble BOD, O&G, TP, Soluble P, TSS)

Notes: Initial on date when sample was taken. Add any additional sampling completed for the facility.

Revision History

Date	Revision #	Reason for Revision	Revision By
2022-10-17	0	Create Template	Cindy Sigurdson
2022-12-09	1	Create 2023 Sampling Calendar	Lisa Benoit
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Sample Schedule 2024 St. Marys WPCP

Rev. Date: 2023-12-11
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Reviewed by: QEMS Representative

Approved by: Operations Management

◀ April	May 2024					June ▶
Sun	Mon	Tue	Wed	Thu	Fri	Sat
			1 Industrial <input type="checkbox"/>	2	3	4
5	6 Final & Raw <input type="checkbox"/> Effl bacti <input type="checkbox"/> Sludge <input type="checkbox"/>	7	8	9 Industrial <input type="checkbox"/>	10	11
12	13 Final & Raw <input type="checkbox"/> Effl bacti <input type="checkbox"/>	14 Industrial <input type="checkbox"/>	15	16	17	18
19	20 STAT	21 Final & Raw <input type="checkbox"/> Effl bacti <input type="checkbox"/>	22 Industrial <input type="checkbox"/>	23	24	25
26	27 Final & Raw <input type="checkbox"/> Effl bacti <input type="checkbox"/>	28	29	30 Industrial <input type="checkbox"/>	31	

Weekly Raw Samples: Composite (BOD5, TSS, TP, TKN)
 Weekly Effluent Samples: Composite (cBOD5, SS,TP, Alk.,TKN, TAN, NO2+NO3, Uni.)
 Grab (E. coli)
 Monthly Sludge Sample: Grab Stored Sludge (TSS,N, HG,AS,CD, CO, CR, CU, K, MO, NI, TP, PB,SE, ZN, TKN, TAN, E.col
 Quarterly Effluent (Leachate): Grab (Boron, Cobalt, Magnesium, Manganese, Potassium, Strontium, Phenols, bis (2-ethylhexyl) Phthalate)
 Annual Effluent: Acute lethality for Rainbow Trout
 Industrial Samples: Composite (TBOD, Soluble BOD, O&G, TP, Soluble P, TSS)

Notes: Initial on date when sample was taken. Add any additional sampling completed for the facility.

Revision History

Date	Revision #	Reason for Revision	Revision By
2022-10-17	0	Create Template	Cindy Sigurdson
2022-12-09	1	Create 2023 Sampling Calendar	Lisa Benoit
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Sample Schedule 2024 St. Marys WPCP

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Approved by: Operations Management

◀ May	June 2024					July ▶
Sun	Mon	Tue	Wed	Thu	Fri	Sat
						1
2	3 Final & Raw <input type="checkbox"/> Effl bacti <input type="checkbox"/> Sludge <input type="checkbox"/>	4 Industrial <input type="checkbox"/>	5	6	7	8
9	10 Final & Raw <input type="checkbox"/> Effl bacti <input type="checkbox"/>	11	12 Industrial <input type="checkbox"/>	13	14	15
16	17 Final & Raw <input type="checkbox"/> Effl bacti <input type="checkbox"/>	18	19	20 Industrial <input type="checkbox"/>	21	22
23 30	24 Final & Raw <input type="checkbox"/> Effl bacti <input type="checkbox"/>	25 Industrial <input type="checkbox"/>	26	27	28	29

Weekly Raw Samples: Composite (BOD5, TSS, TP, TKN)
 Weekly Effluent Samples: Composite (cBOD5, SS,TP, Alk.,TKN, TAN, NO2+NO3, Uni.)
 Grab (E. coli)
 Monthly Sludge Sample: Grab Stored Sludge (TSS,N, HG,AS,CD, CO, CR, CU, K, MO, NI, TP, PB,SE, ZN, TKN, TAN, E.col
 Quarterly Effluent (Leachate): Grab (Boron, Cobalt, Magnesium, Manganese, Potassium, Strontium, Phenols, bis (2-ethylhexyl) Phthalate)
 Annual Effluent: Acute lethality for Rainbow Trout
 Industrial Samples: Composite (TBOD, Soluble BOD, O&G, TP, Soluble P, TSS)

Notes: Initial on date when sample was taken. Add any additional sampling completed for the facility.

Revision History

Date	Revision #	Reason for Revision	Revision By
2022-10-17	0	Create Template	Cindy Sigurdson
2022-12-09	1	Create 2023 Sampling Calendar	Lisa Benoit
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Sample Schedule 2024 St. Marys WPCP

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Approved by: Operations Management

◀ June	July 2024					August ▶
Sun	Mon	Tue	Wed	Thu	Fri	Sat
	1 STAT	2 Final & Raw <input type="checkbox"/> Effl bacti <input type="checkbox"/> Sludge <input type="checkbox"/>	3 Industrial <input type="checkbox"/>	4	5	6
7	8 Final & Raw <input type="checkbox"/> Effl bacti <input type="checkbox"/> Final-Quarterly <input type="checkbox"/>	9	10	11 Industrial <input type="checkbox"/>	12	13
14	15 Final & Raw <input type="checkbox"/> Effl bacti <input type="checkbox"/>	16 Industrial <input type="checkbox"/>	17	18	19	20
21	22 Final & Raw <input type="checkbox"/> Effl bacti <input type="checkbox"/>	23	24 Industrial <input type="checkbox"/>	25	26	27
28	29 Final & Raw <input type="checkbox"/> Effl bacti <input type="checkbox"/>	30	31			

Weekly Raw Samples: Composite (BOD5, TSS, TP, TKN)
 Weekly Effluent Samples: Composite (cBOD5, SS,TP, Alk.,TKN, TAN, NO2+NO3, Uni.)
 Grab (E. coli)
 Monthly Sludge Sample: Grab Stored Sludge (TSS,N, HG,AS,CD, CO, CR, CU, K, MO, NI, TP, PB,SE, ZN, TKN, TAN, E.col
 Quarterly Effluent (Leachate): Grab (Boron, Cobalt, Magnesium, Manganese, Potassium, Strontium, Phenols, bis (2-ethylhexyl) Phthalate)
 Annual Effluent: Acute lethality for Rainbow Trout
 Industrial Samples: Composite (TBOD, Soluble BOD, O&G, TP, Soluble P, TSS)

Notes: Initial on date when sample was taken. Add any additional sampling completed for the facility.

Revision History

Date	Revision #	Reason for Revision	Revision By
2022-10-17	0	Create Template	Cindy Sigurdson
2022-12-09	1	Create 2023 Sampling Calendar	Lisa Benoit
2023-08-17	2	Added samples for Aug-Nov for aeration project	Stephanie Simpson
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Sample Schedule 2024 St. Marys WPCP

Rev. Date: 2023-12-11
Rev.#: 3
Pages: 8 of 12

Reviewed by: QEMS Representative

Approved by: Operations Management

◀ July	August 2024					September ▶
Sun	Mon	Tue	Wed	Thu	Fri	Sat
				1 Industrial <input type="checkbox"/>	2	3
4	5 STAT	6 Final & Raw <input type="checkbox"/> Effl bacti <input type="checkbox"/> Sludge <input type="checkbox"/>	7 Industrial <input type="checkbox"/>	8	9	10
11	12 Final & Raw <input type="checkbox"/> Effl bacti <input type="checkbox"/>	13	14 Industrial <input type="checkbox"/>	15	16	17
18	19 Final & Raw <input type="checkbox"/> Effl bacti <input type="checkbox"/>	20	21	22 Industrial <input type="checkbox"/>	23	24
25	26 Final & Raw <input type="checkbox"/> Effl bacti <input type="checkbox"/>	27 Industrial <input type="checkbox"/>	28	29	30	31

Raw Samples (weekly): Effluent Samples (weekly): Eff Bacti (weekly): Effluent O.C (Outside Normal Conditions): Monthly Sludge Sample: Quarterly Effluent (Leachate): Annual Effluent: Industrial Samples:	Composite (BOD5, TSS, TP, TKN) Composite (cBOD5, SS,TP, Alk.,TKN, TAN, NO2+NO3, Uni.) Grab (E. coli) Composite (cBOD5, SS,TP, TAN, NO2+NO3, Uni.) Grab Stored Sludge (TSS,N, HG,AS,CD, CO, CR, CU, K, MO, NI, TP, PB,SE, ZN, TKN, TAN, E.col Grab (Boron, Cobalt, Magnesium, Manganese, Potassium, Strontium, Phenols, bis (2-ethylhexyl) Phthalate) Acute lethality for Rainbow Trout Composite (TBOD, Soluble BOD, O&G, TP, Soluble P, TSS)	
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Notes: Initial on date when sample was taken. Add any additional sampling completed for the facility.

Revision History

Date	Revision #	Reason for Revision	Revision By
2022-10-17	0	Create Template	Cindy Sigurdson
2022-12-09	1	Create 2023 Sampling Calendar	Lisa Benoit
2023-08-17	2	Added samples for Aug-Nov for aeration project	Stephanie Simpson
2023-12-11	3	Create 2024 Sampling Calendar	Lisa Benoit



Sample Schedule 2024 St. Marys WPCP

Rev. Date: 2023-12-11
Rev.#: 3
Pages: 9 of 12

Reviewed by: QEMS Representative

Approved by: Operations Management

◀ August	September 2024					October ▶
Sun	Mon	Tue	Wed	Thu	Fri	Sat
1	2 STAT	3 Final & Raw <input type="checkbox"/> Effl bacti <input type="checkbox"/> Sludge <input type="checkbox"/>	4 Industrial <input type="checkbox"/>	5	6	7
8	9 Final & Raw <input type="checkbox"/> Effl bacti <input type="checkbox"/>	10	11	12 Industrial <input type="checkbox"/>	13	14
15	16 Final & Raw <input type="checkbox"/> Effl bacti <input type="checkbox"/>	17 Industrial <input type="checkbox"/>	18	19	20	21
22	23 Final & Raw <input type="checkbox"/> Effl bacti <input type="checkbox"/>	24	25 Industrial <input type="checkbox"/>	26	27	28
29	30 Final & Raw <input type="checkbox"/> Effl bacti <input type="checkbox"/>					

<p>Raw Samples (weekly): Effluent Samples (weekly): Eff Bacti (weekly): Effluent O.C (Outside Normal Conditions): Monthly Sludge Sample: Quarterly Effluent (Leachate): Annual Effluent: Industrial Samples:</p>	<p>Composite (BOD5, TSS, TP, TKN) Composite (cBOD5, SS,TP, Alk.,TKN, TAN, NO2+NO3, Uni.) Grab (E. coli) Composite (cBOD5, SS,TP, TAN, NO2+NO3, Uni.) Grab Stored Sludge (TSS,N, HG,AS,CD, CO, CR, CU, K, MO, NI, TP, PB,SE, ZN, TKN, TAN, E.col Grab (Boron, Cobalt, Magnesium, Manganese, Potassium, Strontium, Phenols, bis (2-ethylhexyl) Phthalate) Acute lethality for Rainbow Trout Composite (TBOD, Soluble BOD, O&G, TP, Soluble P, TSS)</p>
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Notes: Initial on date when sample was taken. Add any additional sampling completed for the facility.

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Sample Schedule 2024 St. Marys WPCP

Rev. Date: 2023-12-11
Rev.#: 3
Pages: 10 of 12

Reviewed by: QEMS Representative

Approved by: Operations Management

◀ September	October 2024						November ▶
Sun	Mon	Tue	Wed	Thu	Fri	Sat	
		1	2	3 Industrial <input type="checkbox"/>	4	5	
6	7 Final & Raw <input type="checkbox"/> Effl bacti <input type="checkbox"/> Sludge <input type="checkbox"/> Final – Quarterly <input type="checkbox"/>	8 Industrial <input type="checkbox"/>	9	10	11	12	
13	14 STAT	15 Final & Raw <input type="checkbox"/> Effl bacti <input type="checkbox"/>	16 Industrial <input type="checkbox"/>	17	18	19	
20	21 Final & Raw <input type="checkbox"/> Effl bacti <input type="checkbox"/>	22	23	24 Industrial <input type="checkbox"/>	25	26	
27	28 Final & Raw <input type="checkbox"/> Effl bacti <input type="checkbox"/>	29 Industrial <input type="checkbox"/>	30	31			

Raw Samples (weekly): Effluent Samples (weekly): Eff Bacti (weekly): Effluent O.C (Outside Normal Conditions): Monthly Sludge Sample: Quarterly Effluent (Leachate): Annual Effluent: Industrial Samples:	Composite (BOD5, TSS, TP, TKN) Composite (cBOD5, SS,TP, Alk.,TKN, TAN, NO2+NO3, Uni.) Grab (E. coli) Composite (cBOD5, SS,TP, TAN, NO2+NO3, Uni.) Grab Stored Sludge (TSS,N, HG,AS,CD, CO, CR, CU, K, MO, NI, TP, PB,SE, ZN, TKN, TAN, E.col Grab (Boron, Cobalt, Magnesium, Manganese, Potassium, Strontium, Phenols, bis (2-ethylhexyl) Phthalate) Acute lethality for Rainbow Trout Composite (TBOD, Soluble BOD, O&G, TP, Soluble P, TSS)
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Sample Schedule 2024 St. Marys WPCP

Rev. Date: 2023-12-11
Rev.#: 3
Pages: 11 of 12

Reviewed by: QEMS Representative

Approved by: Operations Management

◀ October	November 2024					December ▶
Sun	Mon	Tue	Wed	Thu	Fri	Sat
					1	2
3	4 Final & Raw <input type="checkbox"/> Effl bacti <input type="checkbox"/> Sludge <input type="checkbox"/>	5	6 Industrial <input type="checkbox"/>	7	8	9
10	11 STAT	12 Final & Raw <input type="checkbox"/> Effl bacti <input type="checkbox"/>	13	14 Industrial <input type="checkbox"/>	15	16
17	18 Final & Raw <input type="checkbox"/> Effl bacti <input type="checkbox"/>	19 Industrial <input type="checkbox"/>	20	21	22	23
24	25 Final & Raw <input type="checkbox"/> Effl bacti <input type="checkbox"/>	26	27 Industrial <input type="checkbox"/>	28	29	30

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Sample Schedule 2024 St. Marys WPCP

Rev. Date: 2023-12-11
Rev.#: 3
Pages: 12 of 12

Reviewed by: QEMS Representative

Approved by: Operations Management

◀ November	December 2023					January ▶
Sun	Mon	Tue	Wed	Thu	Fri	Sat
1	2 Final & Raw <input type="checkbox"/> Effl bacti <input type="checkbox"/> Sludge <input type="checkbox"/>	3	4	5 Industrial <input type="checkbox"/>	6	7
8	9 Final & Raw <input type="checkbox"/> Effl bacti <input type="checkbox"/>	10 Industrial <input type="checkbox"/>	11	12	13	14
15	16 Final & Raw <input type="checkbox"/> Effl bacti <input type="checkbox"/>	17	18 Industrial <input type="checkbox"/>	19	20	21
22	23 Final & Raw <input type="checkbox"/> Effl bacti <input type="checkbox"/>	24	25 STAT	26 STAT	27	28
29	30 Final & Raw <input type="checkbox"/> Effl bacti <input type="checkbox"/>	31				

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Appendix D

Notice of Modification



Notice of Modification to Sewage Works

RETAIN COPY OF COMPLETED FORM AS PART OF THE ECA ON-SITE PRIOR TO THE SCHEDULED IMPLEMENTATION DATE.

Part 1 – Environmental Compliance Approval (ECA) with Limited Operational Flexibility		
<i>(Insert the ECA's owner, number and issuance date and notice number, which should start with "01" and consecutive numbers thereafter)</i>		
ECA Number 6378-CB3M2T	Issuance Date (mm/dd/yy) 07/27/22	Notice number (if applicable)
ECA Owner The Corporation of the Separated Town of St. Marys	Municipality The Town of St. Marys	

Part 2: Description of the modifications as part of the Limited Operational Flexibility
<i>(Attach a detailed description of the sewage works)</i>
<p>The existing fine bubble aeration diffuser system within the three aeration tanks and within the inlet channel to the aeration tanks at the Water Pollution Control Plant in St. Marys are over 20 years old and in a constant state of repair. The Town is looking to replace this aeration system under the LOF clause in the existing ECA for the following reasons:</p> <ul style="list-style-type: none"> The replacement of the aeration system will <i>"not result in a reduction in the firm capacity or discharge pressure that the blowers are originally designed to supply or in the net oxygen transferred to the wastewater required for biological treatment as originally required"</i>, in accordance with the wording in the existing LOF. <p>The descriptions in the existing ECA are still accurate and no revisions are required based on the work completed and described above.</p> <p>Description shall include:</p> <ol style="list-style-type: none"> A detail description of the modifications and/or operations to the sewage works (e.g. sewage work component, location, size, equipment type/model, material, process name, etc.) Confirmation that the anticipated environmental effects are negligible. List of updated versions of, or amendments to, all relevant technical documents that are affected by the modifications as applicable, i.e. submission of documentation is not required, but the listing of updated documents is (design brief, drawings, emergency plan, etc.)

Part 3 – Declaration by Professional Engineer						
<p>I hereby declare that I have verified the scope and technical aspects of this modification and confirm that the design:</p> <ol style="list-style-type: none"> Has been prepared or reviewed by a Professional Engineer who is licensed to practice in the Province of Ontario; Has been designed in accordance with the Limited Operational Flexibility as described in the ECA; Has been designed consistent with Ministry's Design Guidelines, adhering to engineering standards, industry's best management practices, and demonstrating ongoing compliance with s.53 of the Ontario Water Resources Act; and other appropriate regulations. <p>I hereby declare that to the best of my knowledge, information and belief the information contained in this form is complete and accurate</p>						
<table border="1"> <tr> <td>Name (Print) Ryan P. DeVries</td> <td>PEO License Number 100183886</td> </tr> <tr> <td>Signature </td> <td>Date (mm/dd/yy) 12/15/22</td> </tr> <tr> <td colspan="2">Name of Employer B. M. Ross and Associates Ltd.</td> </tr> </table>	Name (Print) Ryan P. DeVries	PEO License Number 100183886	Signature 	Date (mm/dd/yy) 12/15/22	Name of Employer B. M. Ross and Associates Ltd.	
Name (Print) Ryan P. DeVries	PEO License Number 100183886					
Signature 	Date (mm/dd/yy) 12/15/22					
Name of Employer B. M. Ross and Associates Ltd.						

Part 4 – Declaration by Owner				
<p>I hereby declare that:</p> <ol style="list-style-type: none"> I am authorized by the Owner to complete this Declaration; The Owner consents to the modification; and This modifications to the sewage works are proposed in accordance with the Limited Operational Flexibility as described in the ECA. The Owner has fulfilled all applicable requirements of the <i>Environmental Assessment Act</i>. <p>I hereby declare that to the best of my knowledge, information and belief the information contained in this form is complete and accurate</p>				
<table border="1"> <tr> <td>Name of Owner Representative (Print) DAVE BLAKE</td> <td>Owner representative's title (Print) ENVIRONMENTAL SERVICES MANAGER</td> </tr> <tr> <td>Owner Representative's Signature </td> <td>Date (mm/dd/yy) 12/16/22</td> </tr> </table>	Name of Owner Representative (Print) DAVE BLAKE	Owner representative's title (Print) ENVIRONMENTAL SERVICES MANAGER	Owner Representative's Signature 	Date (mm/dd/yy) 12/16/22
Name of Owner Representative (Print) DAVE BLAKE	Owner representative's title (Print) ENVIRONMENTAL SERVICES MANAGER			
Owner Representative's Signature 	Date (mm/dd/yy) 12/16/22			

Notes for Notice of Modification

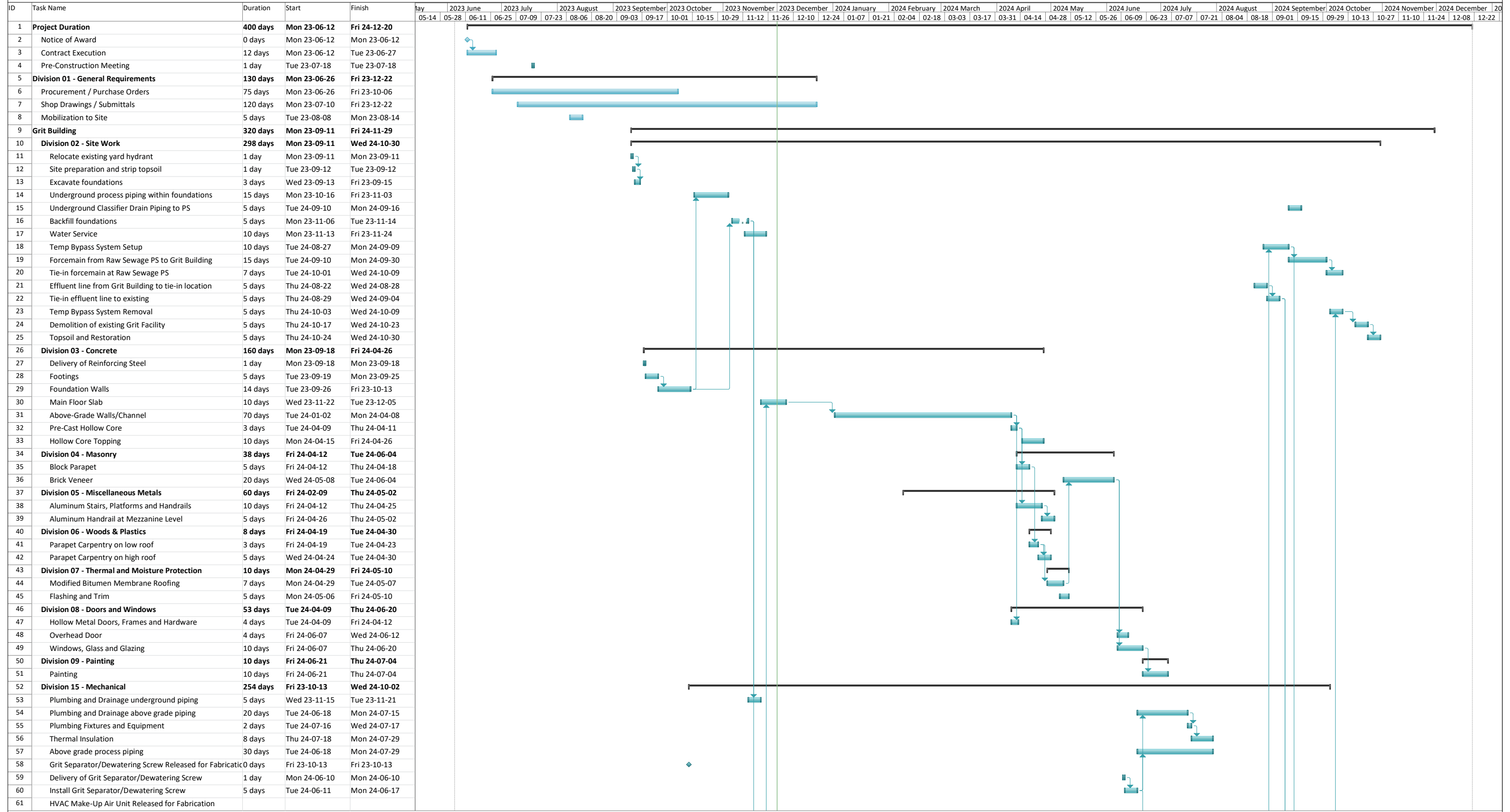
St. Marys WPCP Fine Bubble Aeration System Replacement – Page 32 of ECA, Part 2

The existing fine bubble aeration diffuser system within the three aeration tanks and within the inlet channel to the aeration tanks at the Water Pollution Control Plant in St. Marys are over 20 years old and in a constant state of repair. The Town is looking to replace this aeration system under the LOF clause in the existing ECA for the following reasons:

- The replacement of the aeration system will *“not result in a reduction in the firm capacity or discharge pressure that the blowers are originally designed to supply or in the net oxygen transferred to the wastewater required for biological treatment as originally required”*, in accordance with the wording in the existing LOF.

The descriptions in the existing ECA are still accurate and no revisions are required based on the work completed and described above.

St. Marys WWTP Upgrades
Town of St. Marys Contract NO. PW-08-2023-RFT
Proposed Construction Schedule
November 30, 2023



Project: St. Marys WWTP Upgrade Date: Fri 23-12-01	Task		Summary		External Milestone		Inactive Summary		Manual Summary Rollup		Finish-only		Manual Progress
	Split		Project Summary		Inactive Task		Manual Task		Manual Summary		Deadline		
	Milestone		External Tasks		Inactive Milestone		Duration-only		Start-only		Progress		

Appendix E

2023 Calibration Reports



Pierce Services
& Solutions Inc.

Instrument Calibration Sheet

Client Name: Ontario Clean Water Agency

Date: June 7, 2023

Equipment Description: RAS Flow Meter

Assigned Number: FIT-03

Area Located: St. Mary's WPCP

Asset Number: 0000065564

Instrument Data

Manufacturer: ABB Kent-Taylor

Model Number: Magmaster

Type: Mag Flow

Serial Number: V/87122/1/1

Range: 0 - 50 l/s

Accuracy: $\pm 1\%$

Method Of Calibration: Greyline PDFM 5.1

Application: Wastewater

Calibration Data

Input %	Input	As Found	As Left	Pass/Fail
0	4 mA	0.00 l/s	0.00 l/s	Pass
25	8 mA	12.21 l/s	12.21 l/s	Pass
50	12 mA	25.58 l/s	25.58 l/s	Pass
75	16 mA	37.12 l/s	37.12 l/s	Pass
100	20 mA	50.0 l/s	50.0 l/s	Pass

Confirmed Run Mode:

Placed back in service:

Comments:



Meter has coil failure and is recommended for replacement.

Checked By: Greg Pierce, CCST

Signature: _____



Pierce Services
& Solutions Inc.

Instrument Calibration Sheet

Client Name: Ontario Clean Water Agency

Date: June 07, 2023

Equipment Description: RAS Flow Meter

Assigned Number: FIT-01

Area Located: St. Mary's WPCP

Asset Number: 0000065597

Instrument Data

Manufacturer: Fischer & Porter

Model Number: 10014 66B

Type: Mag Flow

Serial Number: 8811B2004/1/B1

Range: 0 - 100 l/s

Accuracy: $\pm 1\%$

Method Of Calibration: Greyline PDFM 5.1

Application: Wastewater

Calibration Data

Input %	Input	As Found	As Left	Pass/Fail
0	4 mA	0.0 l/s	0.0 l/s	Pass
25	8 mA	24.74 l/s	24.74 l/s	Pass
50	12 mA	49.83 l/s	49.83 l/s	Pass
75	16 mA	74.86 l/s	74.86 l/s	Pass
100	20 mA	100.00 l/s	100.00 l/s	Pass
33	66	66.7 l/s	66.9 l/s	Pass

Confirmed Run Mode:

Placed back in service:

Comments:



Verification of original calibration only.

Unit is beginning to show drift. Will continue to monitor

Drift becoming more apparent

Checked By: Greg Pierce, CCST

Signature: _____



Pierce Services
& Solutions Inc.

519.820.4853 Fax 519.824.9402

Instrument Verification Sheet

Client Name: Ontario Clean Water Agency

Date: June 7, 2023

Equipment Description: Flow Transmitter

Assigned Number: FIT 403

Area Located: St Mary's

Asset Number: 0000157005

Instrument Data

Manufacturer: Siemens

Model Number: Milltronics 200

S/N: 051702103WY

Flume/Weir Type: Sharp Crested 1.0668m

Range: 0-4.34 m

Accuracy: +/- 5%

Method Of Calibration: Standard Verification

Application: Waste Water

Calibration Data

Input %	Input	Theoretical	As Found	Pass/Fail
0	0 m	0.00 l/s	0.00 l/s	
25	1.09 m	0.00 l/s	0.00 l/s	Pass
50	2.17 m	0.00 l/s	0.00 l/s	Pass
75	3.225 m	0.00 l/s	0.00 l/s	Pass
100	4.34 m	0.00 l/s	0.00 l/s	Pass

Confirmed Run Mode:



Placed back in service:

Comments:

Checked By: Greg Pierce CCST

Signature: 



Pierce Services
& Solutions Inc.

519.820.4853 Fax 519.824.9402

Instrument Verification Sheet

Client Name: Ontario Clean Water Agency

Date: June 7, 2023

Equipment Description: Flow Transmitter

Assigned Number: FIT 07

Area Located: St Mary's

Asset Number: 0000157006

Instrument Data

Manufacturer: Grayline

Model Number: AVFM

Type: Ultrasonic

Serial Number: 18109

Range: 0-1042 l/s

Accuracy: +/- 5%

Method Of Calibration: Standard Verification

Application: Waste Water

Calibration Data

Input %	Input	As Found	As Left	Pass/Fail
level	13.14	13.14 cm	13.14 cm	Pass
velocity	31159 cm/hr	31262 cm/hr	31262 cm/hr	Pass
flow	140.7 l/s	147.2 l/s	147.2 l/s	Pass

Confirmed Run Mode:



Placed back in service:

Comments:

Unit works well at low flows however the higher

The flow the data becomes unreliable due to turbulence in outfall pipe

Checked By: Greg Pierce CCST

Signature: 



Pierce Services
& Solutions Inc.

519.820.4853 Fax 519.824.9402

Instrument Verification Sheet

Client Name: Ontario Clean Water Agency

Date: June 7, 2023

Equipment Description: Flow Transmitter

Assigned Number: FIT 401

Area Located: St Mary's

ASSET Number: 0000326732

Instrument Data

Manufacturer: Siemens

Model Number: OCM III

Type: Ultrasonic

Flow Meter Type: Parshall 0.305 m

Range: 0-240.6 l/s

Accuracy: +/- 5%

Method Of Calibration: Standard Verification

Application: Waste Water

Calibration Data

Input %	Input	As Found	Theoretical	Pass/Fail
0	0.00 cm	0.00 l/s	0.00 l/s	Pass
25	12.5 cm	29.1716 l/s	29.17 l/s	Pass
50	25.0 cm	83.77761 l/s	83.77 l/s	Pass
75	37.5 cm	155.2883 l/s	155.3 l/s	Pass
100	50.0 cm	240.6 l/s	240.6 l/s	Pass

Confirmed Run Mode:

Placed back in service:

Comments:

Measurements confirmed with ISCO open

channel flow handbook (sixth edition)



Checked By: Greg Pierce CCST

Signature: 



#	Parameter	Value	#	Parameter	Value
P0	Language	0	D0	Head	15.45
P1	Dimensional Units	0	D1	Flow Rate	40.2135
P2	Temperature Units	0	D2	Short Total	278737.2
P3	Primary Element	0	D3	Maximum Flow Rate	240.5699
P4	Method of Calculation	1	D4	Minimum Flow Rate	0.541955
P5	Flow Rate Units	6	D5	Temperature	20.65
P6	Flow at Maximum Head	240.6	D6	Maximum Temperature	385.98
P7	Height of Maximum Head	50	D7	Minimum Temperature	-15.01
P8	Volts in at Zero Velocity	-	D8	Velocity	-
P9	Velocity at 5 Volts In	-	D9	Nominal Target Range	69
P10	Velocity at maximum flow	-	D10	Analog Milliamps	7.04
P13	Display Damping	0	D11	Internal DC Volts	29.99
P14	Display Lighting	1	D12	Velocity Volts	-
P15	Relay 1 Assignment	0	D13	Auxiliary Input Volts	0.01
P16	Relay 1 High Set Point	-	D14	Temperature Sensor Ohms	9543
P17	Relay 1 Low Set Point	-	D15	Self-test Checksum	0000H
P18	Relay 2 Assignment	0	D16	Restarts	69
P19	Relay 2 High Set Point	-	D17	Exceptions	0
P20	Relay 2 Low Set Point	-	D18	Valid Echoes per 100	57
P21	Relay 3 Assignment	0			
P22	Relay 3 High Set Point	-			
P23	Relay 3 Low Set Point	-			
P24	mA assignment	0	F2	Run Mode l/s	0.00
P25	If Custom mA, 20 mA =?	-		Total X 1000	
P26	mA Span	0	F6	Software Identification Number	
P27	mA Damping	10	F7	View Min/Max Data	
P28	mA Options	0		Max Flow	240.56
P29	Fail-safe Time	60		Time	01:33:00
P30	Fail-safe Analog Mode	1		Date	01/04/23
P31	Fail-safe Analog mA	0		Min Flow	0.54
P32	Totalizer Multiplier	6		Time	06:35:06
P33	Flow Rate Display	2		Date	30/01/23
P34	Printer Mode	0		Max Temperature	35.98
P35	Printer Timing	-		Time	13:25:06
P36	Measurement Interval	0		Date	21/06/22
P37	Serial Data Rate	5		Min Temperature	-15.00
P38	Site Number	0		Time	01:37:45
P39	Data Logging Rate	2		Date	22-12-24
P40	Log Rapid Set point	-	F8	Reset Min/Max Data	Yes
P41	Log Normal Set point	-			
P42	Head Determination	0			
P43	Volts in For Zero Head	-			
P44	Head at 5 Volts In	-			
P45	Low Flow Cut-off Head	0			
P46	Range at Zero Head	86.4			
P47	Blanking Distance	30.48264			
U0	Exponent	1.522			



**Pierce Services
& Solutions Inc.**

45 Wilton Road
Guelph, ON N1E 7L6

Phone: 519.820.4853
Fax: 519.824.9402

Flowmeter Report

Verification: X

Calibration:

Client: OCWA St Mary's

Location: St Mary's WPCP Lystek

Description: Mag Meter

Date: 07-Jun-23

Manufacturer: ABB

Checked By: Greg Pierce

Model: Watermaster

Serial No.: 240265404/Y002

Inventory No.: 0000Z41337

Volocity	mA	As Found	As Left	Pass/Fail
0 m/s	4 mA	0.00 l/s	0.00 l/s	Pass
0.686 m/s	8 mA	12.12 l/s	12.12 l/s	Pass
1.423 m/s	12 mA	24.14 l/s	24.14 l/s	Pass
2.127 m/s	16 mA	37.58 l/s	37.58 l/s	Pass
2.829 m/s	20 mA	50.00 l/s	50.00 l/s	Pass
6.35 m/s	6.50 mA	2.5 l/s	2.5 l/s	Pass

Confirmed Run Mode: X

Returned to service: X

Service Comments:

Flowmeter Information

Flow Unit: l/s
 Meter Size: 150 mm
 Pipe Material: Stainless Steel
 Liner Material: PU
 Range: 0-50.00 l/s
 Tag Number: FIT 004



Totalizer Start: 491037.99
 Totalizer Finish: 491038.62

Comments:

Verification of original calibration

No Alarms

Q - 15.7% NRC - 0

I - 6.5074 mA


SP - 635

REF - 62847

SM - 33000

Sm - 32410

AMP - 64

Signature: 

Greg Pierce, CCST



**Pierce Services
& Solutions Inc.**

45 Wilton Road
Guelph, ON N1E 7L6

Phone: 519.820.4853
Fax: 519.824.9402

Flowmeter Report

Verification: X

Calibration:

Client: OCWA St Mary's
Description: Mag Meter
Manufacturer: ABB
Model: Watermaster
Inventory No.: 241353

Location: St Mary's WPCP Lystek
Date: 07-Jun-23
Checked By: Greg Pierce
Serial No.: 240265404/Y003

Velocity	mA	As Found	As Left	Pass/Fail
0 m/s	4 mA	0.00 l/s	0.00 l/s	Pass
1.290 m/s	8 mA	10.13 l/s	10.13 l/s	Pass
2.549 m/s	12 mA	20.02 l/s	20.02 l/s	Pass
3.835 m/s	16 mA	30.12 l/s	30.12 l/s	Pass
5.093 m/s	20 mA	40.00 l/s	40.00 l/s	Pass
0.420 m/s	7.43 mA	3.30 l/s	3.30 l/s	Pass

Confirmed Run Mode: X

Returned to service: X

Service Comments:

Flowmeter Information

Flow Unit: l/s
Meter Size: 100 mm
Pipe Material: Stainless Steel
Liner Material: PU
Range: 0-40.00 l/s
Tag Number: FIT 260



Totalizer Start: 33946.19
Totalizer Finish: 30964.87

Comments:

Verification of original calibration

No Alarms

Q - 0.0% NRC - 0

I - 4.00 mA

SP - 15

REF - 62833

SM - 32919

Sm - 32859

Amp - 64

Signature: _____

Greg Pierce, CCST



**Pierce Services
& Solutions Inc.**

45 Wilton Road
Guelph, ON N1E 7L6

Phone: 519.820.4853
Fax: 519.824.9402

Flowmeter Report

Verification: X

Calibration:

Client: OCWA St Mary's
Description: Mag Meter
Manufacturer: ABB
Model: Watermaster
Inventory No.: _____

Location: St Mary's WPCP Recirc Flc
Date: 07-Jun-23
Checked By: Greg Pierce
Serial No.: 240265104/Y005

Velocity	mA	As Found	As Left	Pass/Fail
0 m/s	4 mA	0.00 l/s	0.00 l/s	Pass
0.990 m/s	8 mA	69.68 l/s	69.68 l/s	Pass
1.964 m/s	12 mA	138.81 l/s	138.81 l/s	Pass
2.950 m/s	16 mA	208.15 l/s	208.15 l/s	Pass
3.919 m/s	20 mA	277.00 l/s	277.00 l/s	Pass
1.279m/s	9.51 mA	110.13 l/s	110.13 l/s	Pass

Confirmed Run Mode: X

Returned to service: X

Service Comments:

Flowmeter Information

Flow Unit: l/s
Meter Size: 300 mm
Pipe Material: Stainless Steel
Liner Material: PU
Range: 0-277.00 l/s
Tag Number: FIT 322



Totalizer Start: 47421810.29
Totalizer Finish: 44421828.01

Comments:

Verification of original calibration

No Alarms

Q - 39.82% DCv - 0
SP - 1279 EV1 - 0 mV
REF - 62845 EV2 - 0 mV
SM - 33939
Sm - 32495
Amp - 2

Signature: _____

Greg Pierce, CCST



Pierce Services
& Solutions Inc.

Instrument Verification Sheet

Client Name: OCWA St Mary's

Date: June 7, 2023

Equipment Description: Level Transmitter

Assigned Number: LIT 201

Area Located: Boiler Room

Drawing Number: 0000326738

Instrument Data

Manufacturer: Siemens

Model Number: LUT 400

Type: Ultrasonic

Serial Number: PBD/L5150166

Range: 0 - 4.00 mg/l

Accuracy: 0- 2%

Method Of Calibration: Standard Verification

Application: Wastewater

Calibration Data

Input %	Input	As Found	As Left	mA
0%	0 m	0.00 m	0.00 m	4.00 mA
50%	2.00 m	2.00 m	2.00 m	12.00 mA
100%	4.00 m	4.00 m	4.00 m	20.00 mA
13%	0.531 m	0.531 m	0.53 m	6.124 mA

Confirmed Run Mode:

Pass:

Fail:

Comments:

Checked By: Greg Pierce CCST

Signature: 



Tag # LIT 201

Date: June 07, 2023

Parameter #	Parameter Description	Parameter Value	Value Description	Relay #
P001	Operation	1	Level measurement	
P002	Material	1	Liquid surface	
P003	Process Speed	1	Medium (1m/min)	
P004	Transducer	15	XPS 10	
P005	Units	1	Meters	
P006	Empty	4.60	Transducer to base	
P007	Span	4.00	Maximum reading	
P065	Reading Override Value	5.00	Fail Safe Value	
P111	Pump Fixed Duty Setting		Pump Fixed Duty Setting	1
P112	Relay on Level		Meters	1
P113	Relay off Level		Meters	1
P118	Output Relay Logic			1
P309	Run Time		Hours	1
P111	Pump Fixed Duty Setting		Pump Fixed Duty Setting	2
P112	Relay on Level		Meters	2
P113	Relay off Level		Meters	2
P118	Output Relay Logic			2
P309	Run Time		Hours	2
P111	Pump Fixed Duty Setting		Pump Fixed Duty Setting	3
P112	Relay on Level		Meters	3
P113	Relay off Level		Meters	3
P309	Run Time		Hours	3
P111	Loss of Echo			4
P112	Relay on Level		Meters	4
P113	Relay off Level		Meters	4
P309	Run Time		Hours	4
P111	Loss of Echo			5
P112	Relay on Level		Meters	5
P113	Relay off Level		Meters	5
P309	Run Time		Hours	5
P660	Temperature Source Fixed	----		
P802	Transducer Submergence	----	Off	
			LIT 111	
			1	
	Temp	20.2 C	20 C	
	Level	0.531 m	4.01	
	mA	16.12	17.38	
	Echo	46	100	
	%	13.25	83.62	
P300	Max Temp	26.7 C		
P301	Min Temp	-13.80		
P341	Run Times	1265		
P342	Restarts	N/A		
	Max Readings	4.385 m		
	Min Reading	-0.386 m		

St Mary's Reservoir



Pierce Services
& Solutions Inc.

Instrument Verification Sheet

Client Name: OCWA St. Mary's

Date: June 7, 2023

Equipment Description: Level Transmitter

Assigned Number: LIT 253

Area Located: Head Works

Asset Number: 0000326598

Instrument Data

Manufacturer: Milltronics

Model Number: 1

Type: Ultrasonic

Serial Number:

Range: 0 - 5.150 mg/l

Accuracy: 0- 2%

Method Of Calibration: Standard Verification

Application: Wastewater

Calibration Data

Input %	Input	As Found	As Left	mA
0%	0. m	0 m	0.00 m	4.00
50%	2.575 m	2.575 m	2.575 m	12.00
10000%	5.150 m	5.150 m	5.150 m	20.00
9962%	5.130 m	5.130 m	5.130 m	19.94

Confirmed Run Mode:

Pass:

Fail:

Comments:

Checked By: Greg Pierce CCST

Signature: 



Parameter #	Parameter Description	Parameter Value	Value Description	Relay #
P001	Operation	1	Level measurement	
P002	Material	1	Liquid surface	
P003	Process Speed	2	Medium (1m/min)	
P004	Transducer	102	XPS 10	
P005	Units	1	Meters	
P006	Empty	5.500	Transducer to base	
P007	Span	5.150	Minimum reading	
P065	Reading Override Value	5	Fail Safe Value	
P111	Pump Fixed Duty Setting	0	Pump Fixed Duty Setting	1
P112	Relay on Level	3.605	Meters	1
P113	Relay off Level	1.030	Meters	1
P118	Output Relay Logic	2		1
P309	Run Time		Hours	1
P111	Pump Fixed Duty Setting		Pump Fixed Duty Setting	2
P112	Relay on Level		Meters	2
P113	Relay off Level		Meters	2
P118	Output Relay Logic			2
P309	Run Time		Hours	2
P111	Pump Fixed Duty Setting		Pump Fixed Duty Setting	3
P112	Relay on Level		Meters	3
P113	Relay off Level		Meters	3
P309	Run Time		Hours	3
P111	Loss of Echo			4
P112	Relay on Level		Meters	4
P113	Relay off Level		Meters	4
P309	Run Time		Hours	4
P111	Loss of Echo			5
P112	Relay on Level		Meters	5
P113	Relay off Level		Meters	5
P309	Run Time		Hours	5
P660	Temperature Source Fixed	----		
P802	Transducer Submergence	----	Off	
	Temp	38 c		
	Level	5.13		
	mA	19.94		
	Echo	100		
	%	99.62		
P300	Max Temp	141.0 C		
P301	Min Temp	-12		
P341	Run Time	4845		
P342	Start Time	172		

OCWA # 0000326598

St Mary's WPCP



Pierce Services
& Solutions Inc.

Instrument Verification Sheet

Client Name: OCWA St. Marys

Date: June 7, 2023

Equipment Description: Level Transmitter

Assigned Number: LIT 337

Area Located: WPCP

Asset Number: 0000326655

Instrument Data

Manufacturer: Siemens

Model Number: 100/200

Type: UltraSonic

Serial Number:

Range: 0 - 3.851 m

Accuracy: 0 - 5%

Method Of Calibration: Standard Verification

Application: Wastewater

Calibration Data

Input %	Input	As Found	As Left	mA
0%	0 m	0 m	0 m	4.00
50%	1.925 m	1.925 m	1.925 m	12.00
100%	3.851 m	3.851 m	3.851 m	20.00
79.23%	2.84 m	2.84 m	2.84 m	16.70

Confirmed Run Mode:

Pass:

Fail:

Comments:

Checked By: Greg Pierce CCST

Signature: 



Tag # Equalization Tanks LIT 337

Date: June 7, 2023

Parameter #	Parameter Description	Parameter Value	Value Description	Relay #
P001	Operation	1 / 1	Level measurement	
P002	Material	1 / 1	Liquid surface	
P003	Process Speed	2 / 2	Medium (1m/min)	
P004	Transducer	102 / 102	XPS 10	
P005	Units	1 / 1	Meters	
P006	Empty	4.081 / 4.081	Transducer to base	
P007	Span	3.851 / 3.581	Minimum reading	
P065	Reading Override Value	5.000 / 0.000	Fail Safe Value	
P111	Pump Fixed Duty Setting	0 / 0	Pump Fixed Duty Setting	1
P112	Relay on Level	2.507 / 2.507	Meters	1
P113	Relay off Level	0.716 / 0.716	Meters	1
P118	Output Relay Logic			1
P309	Run Time		Hours	1
P111	Pump Fixed Duty Setting		Pump Fixed Duty Setting	2
P112	Relay on Level		Meters	2
P113	Relay off Level		Meters	2
P118	Output Relay Logic			2
P309	Run Time		Hours	2
P111	Pump Fixed Duty Setting		Pump Fixed Duty Setting	3
P112	Relay on Level		Meters	3
P113	Relay off Level		Meters	3
P309	Run Time		Hours	3
P111	Loss of Echo			4
P112	Relay on Level		Meters	4
P113	Relay off Level		Meters	4
P309	Run Time		Hours	4
P111	Loss of Echo			5
P112	Relay on Level		Meters	5
P113	Relay off Level		Meters	5
P309	Run Time		Hours	5
P660	Temperature Source Fixed	----		
P802	Transducer Submergence	----	Off	
	Temp	32/23		
	Level	2.84/2.79		
	mA	16.70/16.49		
	Echo	100 / 100		
	%	79.33/77.86		
P300	Max Temp	47 C		
P301	Min Temp	-25 C		
P341	Run Time	4919		
P342	Start Time	61		

OCWA #

326655

St Mary's WPCP



Pierce Services
& Solutions Inc.

Instrument Verification Sheet

Client Name: OCWA St. Mary's

Date: June 8, 2023

Equipment Description: Level Transmitter

Assigned Number: LIT 701

Area Located: Queen Street Pumping Station

Asset Number: 0000269110

Instrument Data

Manufacturer: Siemens

Model Number:

Type: Ultrasonic

Serial Number: 01210512-3XB

Range: 0 - 2.00 m

Accuracy: 0 - 5%

Method Of Calibration: Standard Verification

Application: Wastewater

Calibration Data

Input %	Input	As Found	As Left	mA
0%	0 m	0 m	0 m	4.00
50%	1.0m	1.0 m	1.0 m	12.00
100%	7.0 m	7.0 m	7.0 m	20.00
13.86%	0.27 m	0.27 m	0.27 m	6.19

Confirmed Run Mode:

Pass:

Fail:

Comments:

Checked By: Greg Pierce CCST

Signature: 



Pierce Services
& Solutions Inc.

Instrument Verification Sheet

Client Name: OCWA St Mary's

Date: June 8, 2023

Equipment Description: Level Transmitter

Assigned Number: LIT 401

Area Located: Robinson Pumping Station

Asset Number: N/A

Instrument Data

Manufacturer: Milltronics

Model Number: Multi - Ranger

Type: Ultrasonic

Serial Number: N/A

Range: 0 - 2.8 m

Accuracy: 0 - 5%

Method Of Calibration: Standard Verification

Application: Wastewater

Calibration Data

Input %	Input	As Found	As Left	mA
0%	0 m	0 m	0 m	4.00
50%	1.4 m	1.4 m	1.4 m	12.00
100%	2.8 m	2.8 m	2.8 m	20.00
75.00%	.284 m	.284 m	.284 m	5.62

Confirmed Run Mode:

Pass:

Fail:

Comments:

Checked By: Greg Pierce CCST

Signature: 



#	Parameter	Value	#	Parameter	Value
P-0	Security		P-50	OCM mA output	1
P-1	Units	1	P-51	OCM simulation	---
P-2	Mode of Measurement	1	P-52	Totalizer display factor	0
P-3	Empty Distance	3.100	P-53	Totalizer decimal point	2
P-4	Span	2.800	P-54	Low total	00.00
P-5	Blanking	0.300	P-55	High total	0000
P-6	Analog Output	2	P-56	Remote totalizer contact	0
P-7	Decimal Point	2	P-57	Flow sampler control	0
P-8	Relay 1, Function	dE:9	P-58	Flow sampler control	1.000
P-9	Relay 1, Setpoint On	1.000	P-59	Time sampler control	---
P-10	Relay 1, Setpoint Off	0.300	P-60	Full Calibration	---
P-11	Relay 2, Function	dE:9	P-61	Empty Calibration	---
P-12	Relay 2, Setpoint On	1.300	P-62	Measurement Offset	0.000
P-13	Relay 2, Setpoint Off	0.300	P-63	Sound Velocity at 20° C	397.2
P-14	Relay 3, Function	1	P-64	Velocity at P-65	458.3
P-15	Relay 3, Setpoint On	2.000	P-65	Air temperature	117 C
P-16	Relay 3, Setpoint Off	1.000	P-66	Maximum air temperature	117 C
P-17	Relay 4, Function	7	P-67	Minimum air temperature	-23 C
P-18	Relay 4, Setpoint On	---	P-68	Fill damping	10.00
P-19	Relay 4, Setpoint Off	---	P-69	Empty damping	10.00
P-20	Relay 5, Function	0	P-70	Process rate display	-0.25
P-21	Relay 5, Setpoint On	---	P-71	Process rate filter	1
P-22	Relay 5, Setpoint Off	---	P-72	Fuzz filter	1
P-23	Transducer, Submersible	0	P-73	Agitator discrimination	1
P-24	Pump 1, hours	4463	P-74	Fail-safe mode	2
P-25	Pump 2, hours	7218	P-75	Fail-safe timer	0.500
P-26	Pump 3, hours	0.000	P-76	Reading	0.28
P-27	Pump 4, hours	0.000	P-77	Material level	0.284
P-28	Pump 5, hours	EEEE	P-78	Space or distance	2.816
P-29	Pump, run on, interval	0.000	P-79	Scope displays	---
P-30	Pump, run off, duration	0	P-80	Echo confidence	0:43
P-31	Transducer	[]	P-81	Confidence threshold long	10
P-32	DLD milliamp output	1	P-82	Confidence threshold long	5
P-33	Inflow/discharge totaling	1	P-83	Echo strength	66
P-34	Tank Shape	0	P-84	Noise	-4:1
P-35	Tank dimension A	0.000	P-85	Algorithms	1
P-36	Tank dimension L	0.000	P-86	TVT curve	1
P-37	Convert display	1.000	P-87	Range extension	20
P-38	Display offset	0.000	P-88	Number of transmit pulses	3
P-39	Display reading options	0	P-89	Software version	15
P-40	Primary measuring device	1	P-90	Memory test	PASS
P-41	Flow rate time units	4	P-91	LCD,LED and relay test	PASS
P-42	OCM exponent	1.550	P-92	mA output test	5.622
P-43	Flume Dimensions	1.000	P-93	Temperature sensor test	0.00
P-45	Maximum head	2.800	P-94	Transmitter test	PASS
P-46	Maximum flow rate	1000	P-95	Programmer test	PASS
P-47	Auto zero	---	P-96	Watchdog reset test	PASS
P-48	OCM low head cutoff	5.000	P-97	Trim for 4 mA	225
P-49	OCM decimal point	2	P-98	Trim for 20 mA	3511
			P-99	Master reset	

Site Location: Robinson Pumping Station

Temperature Sensor Failed In Transducer



Pierce Services
& Solutions Inc.

Instrument Verification Sheet

Client Name: OCWA St Marys

Date: June 7, 2023

Equipment Description: Level Transmitter

Assigned Number: LIT 401

Area Located: WPCP Headwater

Asset Number: 0000065240

Instrument Data

Manufacturer: Siemens

Model Number: 100/200

Type: Ultrasonic

Serial Number:

Range: 0 - 0.980 m

Accuracy: 0 - 5%

Method Of Calibration: Standard Verification

Application: Wastewater

Calibration Data

Input %	Input	As Found	As Left	mA
0%	0 m	0 m	0 m	4.00
50%	0.49 m	0.49 m	0.49 m	12.00
100%	0.980 m	0.980 m	0.98	20.00
63.65%	0.62 m	0.62 m	0.62 m	14.18

Confirmed Run Mode:

Pass:

Fail:

Comments:

Checked By: Greg Pierce CCST

Signature: 



Parameter #	Parameter Description	Parameter Value	Value Description	Relay #
P001	Operation	1	Level measurement	
P002	Material	1	Liquid surface	
P003	Process Speed	2	Medium (1m/min)	
P004	Transducer	112	XPS 10	
P005	Units	1	Meters	
P006	Empty	4.250	Transducer to base	
P007	Span	0.980	Minimum reading	
P065	Reading Override Value	4.67	Fail Safe Value	
P111	Pump Fixed Duty Setting	1	Pump Fixed Duty Setting	1
P112	Relay on Level	0.950	Meters	1
P113	Relay off Level	0.700	Meters	1
P118	Output Relay Logic	3		1
P309	Run Time	60	Hours	1
P111	Pump Fixed Duty Setting	1	Pump Fixed Duty Setting	2
P112	Relay on Level	0.600	Meters	2
P113	Relay off Level	0.575	Meters	2
P118	Output Relay Logic	3		2
P309	Run Time	79	Hours	2
P111	Pump Fixed Duty Setting	1	Pump Fixed Duty Setting	3
P112	Relay on Level	0.980	Meters	3
P113	Relay off Level	0.800	Meters	3
P309	Run Time	3	Hours	3
P111	Loss of Echo	1		4
P112	Relay on Level	0.098	Meters	4
P113	Relay off Level	0.147	Meters	4
P309	Run Time		Hours	4
P111	Loss of Echo	1		5
P112	Relay on Level	0.940	Meters	5
P113	Relay off Level	0.710	Meters	5
P309	Run Time		Hours	5
P660	Temperature Source Fixed	---		
P802	Transducer Submergence	---	Off	
	Temp	16 C		
	Level	0.62 m		
	mA	14.18		
	Echo	100		
	%	63.65		
P300	Max Temp	24 C		
P301	Min Temp	8 C		
P341	Run Time	686		
P342	Start Ups	78		

Asset # 0000065240

St Mary's WPCP



Pierce Services
& Solutions Inc.

Instrument Verification Sheet

Client Name: OCWA St Mary's

Date: June 7, 2023

Equipment Description: Level Transmitter

Assigned Number: LIT 235

Area Located: Water Pollution Control Plant

Asset Number: 0000277998

Instrument Data

Manufacturer: Siemens

Model Number: 100/200

Type: Ultrasonic

Serial Number: PBD/X8170074

Range: 0 - 2.20 m

Accuracy: 0 - 5%

Method Of Calibration: Standard Verification

Application: Wastewater

Calibration Data

Input %	Input	As Found	As Left	mA
0%	0 m	0 m	0 m	4.00
50%	1.1 m	1.1 m	1.1 m	12.00
100%	2.2 m	2.2 m	2.2 m	20.00
30.29%	0.686 m	0.686 m	0.686 m	8.84


Confirmed Run Mode:

Pass:

Fail:

Comments:

Checked By: Greg Pierce CCST

Signature: 



Tag # WAS Level

Date: June 7, 2023

Parameter #	Parameter Description	Parameter Value	Value Description	Relay #
P001	Operation	4	Level measurement	
P002	Material	2	Liquid surface	
P003	Process Speed	2	Medium (1m/min)	
P004	Transducer	102	XPS 10	
P005	Units	2	Meters	
P006	Empty	240/207	Transducer to base	
P007	Span	220/187	Maximum reading	
P065	Reading Override Value	5.00	Fail Safe Value	
P111	Pump Fixed Duty Setting		Pump Fixed Duty Setting	1
P112	Relay on Level		Meters	1
P113	Relay off Level		Meters	1
P118	Output Relay Logic			1
P309	Run Time		Hours	1
P111	Pump Fixed Duty Setting		Pump Fixed Duty Setting	2
P112	Relay on Level		Meters	2
P113	Relay off Level		Meters	2
P118	Output Relay Logic			2
P309	Run Time		Hours	2
P111	Pump Fixed Duty Setting		Pump Fixed Duty Setting	3
P112	Relay on Level		Meters	3
P113	Relay off Level		Meters	3
P309	Run Time		Hours	3
P111	Loss of Echo			4
P112	Relay on Level		Meters	4
P113	Relay off Level		Meters	4
P309	Run Time		Hours	4
P111	Loss of Echo			5
P112	Relay on Level		Meters	5
P113	Relay off Level		Meters	5
P309	Run Time		Hours	5
P660	Temperature Source Fixed	---		
P802	Transducer Submergence	---	Off	
		1	2	
	Temp	17 c	20 C	
	Level	68.6 cm	94.06 cm	
	mA	8.84	12.04	
	Echo	100	100	
	%	30.29	50.28	
P300	Max Temp	29 c		
P301	Min Temp	-57 c		
P341	Run Time	708		
P342	Restarts	21		

St Mary's Reservoir



Pierce Services
& Solutions Inc.

Instrument Verification Sheet

Client Name: OCWA St Marys

Date: June 7, 2023

Equipment Description: level Transmitter

Assigned Number: LIT 220

Area Located: KOH Chemical Tank

Asset Number: 0000332708

Instrument Data

Manufacturer: Siemens

Model Number: 100/200

Type: Ultrasonic

Serial Number: PBD/X8120510

Range: 0 - 2.70

Accuracy: 0 - 5%

Method Of Calibration: Standard Verification

Application: Wastewater

Calibration Data

Input %	Input	As Found	As Left	mA
0%	0 m	0 m	0 m	4.00
50%	1.35 m	1.35 m	1.35 m	12.00
100%	2.70 m	2.70 m	2.70 m	20.00
55.54%	1.50 m	1.50 m	1.50 m	12.88

Confirmed Run Mode:

Pass:

Fail:

Comments:

Checked By: Greg Pierce CCST

Signature: 



Parameter #	Parameter Description	Parameter Value	Value Description	Relay #
P001	Operation	1	Level measurement	
P002	Material	1	Liquid surface	
P003	Process Speed	1	Medium (1m/min)	
P004	Transducer	104	XPS 10	
P005	Units	1	Meters	
P006	Empty	4.89	Transducer to base	
P007	Span	4.80	Maximum reading	
P065	Reading Override Value	5.00	Fail Safe Value	
P111	Pump Fixed Duty Setting		Pump Fixed Duty Setting	1
P112	Relay on Level		Meters	1
P113	Relay off Level		Meters	1
P118	Output Relay Logic			1
P309	Run Time		Hours	1
P111	Pump Fixed Duty Setting		Pump Fixed Duty Setting	2
P112	Relay on Level		Meters	2
P113	Relay off Level		Meters	2
P118	Output Relay Logic			2
P309	Run Time		Hours	2
P111	Pump Fixed Duty Setting		Pump Fixed Duty Setting	3
P112	Relay on Level		Meters	3
P113	Relay off Level		Meters	3
P309	Run Time		Hours	3
P111	Loss of Echo			4
P112	Relay on Level		Meters	4
P113	Relay off Level		Meters	4
P309	Run Time		Hours	4
P111	Loss of Echo			5
P112	Relay on Level		Meters	5
P113	Relay off Level		Meters	5
P309	Run Time		Hours	5
P660	Temperature Source Fixed	----		
P802	Transducer Submergence	----	Off	
			LIT 111	
			1	
	Temp	20 C	20 C	
	Level	150	4.01	
	mA	12.88	17.38	
	Echo	100	100	
	%	55.51	83.62	
P300	Max Temp	32 c		
P301	Min Temp	3 c		
P341	Run Time	1363		
P342	Restarts	42		

St Mary's Reservoir



Pierce Services
& Solutions Inc.

Instrument Verification Sheet

Client Name: OCWA St. Mary's

Date: June 7, 2023

Equipment Description: Level Transmitter

Assigned Number: LIT 300

Area Located: WPCP

Asset Number:

Instrument Data

Manufacturer: Siemens

Model Number: LR 250

Type: Radar

Serial Number: PBD/X8040040

Range: 0 - 1.5 m

Accuracy: 0 - 5%

Method Of Calibration: Standard Verification

Application: Wastewater

Calibration Data

Input %	Input	As Found	As Left	mA
0%	0 m	0 m	0 m	4.00
50%	.75 m	.75 m	.75 m	12.00
100%	1.50 m	1.50 m	1.50 m	20.00
44.4%	0.68 m	0.68 m	0.68 m	9.84

Confirmed Run Mode:

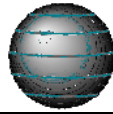
Pass:

Fail:

Comments:

Checked By: Greg Pierce CCST

Signature: 



CERTIFICATE NUMBER: 11162023-1

CUSTOMER	OCWA ST. Marys
ADDRESS PHONE	309 Thomas St. St. Marys, Ont. N4X 1B6
REQUESTED BY	Mark Bouw

VISUAL AND FUNCTIONAL INSPECTION

Visual Inspection – Sensors, enclosures, connections, display, switches, pushbuttons, nameplates, tags are to be checked for its presence, physical integrity, cleanliness, readability and adequacy of installation
Functional Inspection – Switches, pushbuttons, display, signal integrity, response to process variable and response to calibration standards are to be checked for functionality, response within manufacturer's and end-user specifications

The sensors were cleaned and the analyzer calibrated.

CALIBRATION DATA

PASS/FAIL CRITERIA +/- 0.3 ppm O₂

AYSIX MODEL MPA48 D.O. ANALYZER S/N 48A1301

STANDARD	0.00 PPM	10.8PPM @ 12.1°C	0.00 PPM	10.8PPM @ 12.1°C
	AS FOUND		AS LEFT	
PROBE 1 S/N 10S8967	0.28	11.2	0.00	10.8
DELTA	0.28	0.4	0	0
PASS/FAIL/COMMENTS	PASS	FAIL	PASS	PASS

STANDARD	0.00 PPM	10.8PPM @ 12.12C	0.00PPM	10.8PPM @ 12.2°C
	AS FOUND		AS LEFT	
PROBE 2 S/N 10S8512	0.00	10.0	0.00	10.8
DELTA	0.00	0.8	0	0
PASS/FAIL/COMMENTS	PASS	FAIL	PASS	PASS

STANDARD	0.00 PPM	10.8PPM @ 12.1°C	0.00PPM	10.8PPM @ 12.1°C
	AS FOUND		AS LEFT	
PROBE 3 S/N 10S3522	0.28	10.9	0.00	10.8
DELTA	0.28	0.1	0	0
PASS/FAIL/COMMENTS	PASS	PASS	PASS	PASS

REFERENCE STANDARDS

Dissolver Oxygen
 Zero solution - solution of water saturated with sodium sulfite.
 Span solution – Oxygen saturated clean water.

	PRINT NAME	SIGNATURE	DATE
PERFORMED BY	James Griffin		November 16 2023

Next calibration due November 2024