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January 31, 2024

VIA EMAIL & U.S. MAIL

Maureen Brady, Esq.
Regional Attorney
New York State Department
of Environmental Conservation
900 Delaware Avenue
Buffalo, New York 14200

Dear Ms. Brady:

Re: Niagara Falls Water Board
File No. 08-58 (R920170906-129)
Our File No.: 2485.21028

For your reference, and pursuant to paragraph 15 of Schedule A to Order on Consent R920170906-129 with the NYSDEC, I hereby enclose herewith (1) the AECOM Q4 2023 Quarterly Progress Report for the Niagara Falls Water Board, Order on Consent R9 20170906-129; and (2) the original copy of the signed Certification from Acting Executive Director Michael Eagler to the AECOM Q4 2023 Quarterly Progress Report.

Please retain these documents for your records.

Thank you.

Very truly yours,

John T. Kolaga

/jtk

Enclosures

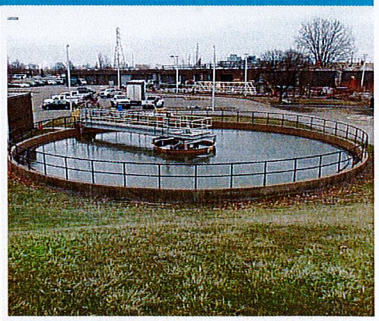
AECOM Imagine it. Delivered.

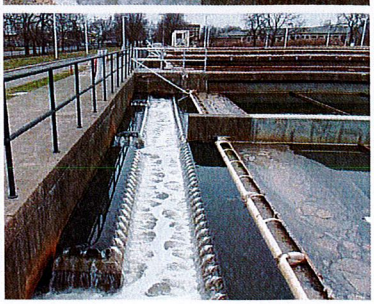
Q4 2023 Quarterly Progress Report
Niagara Falls Water Board
Order on Consent R9-20170906-129

Prepared for submission to:
New York State Department of Environmental Conservation Region 9
270 Michigan Avenue
Buffalo, New York 14203

Prepared by:
AECOM
50 Lakefront Blvd Suite 110
Buffalo, New York 14202

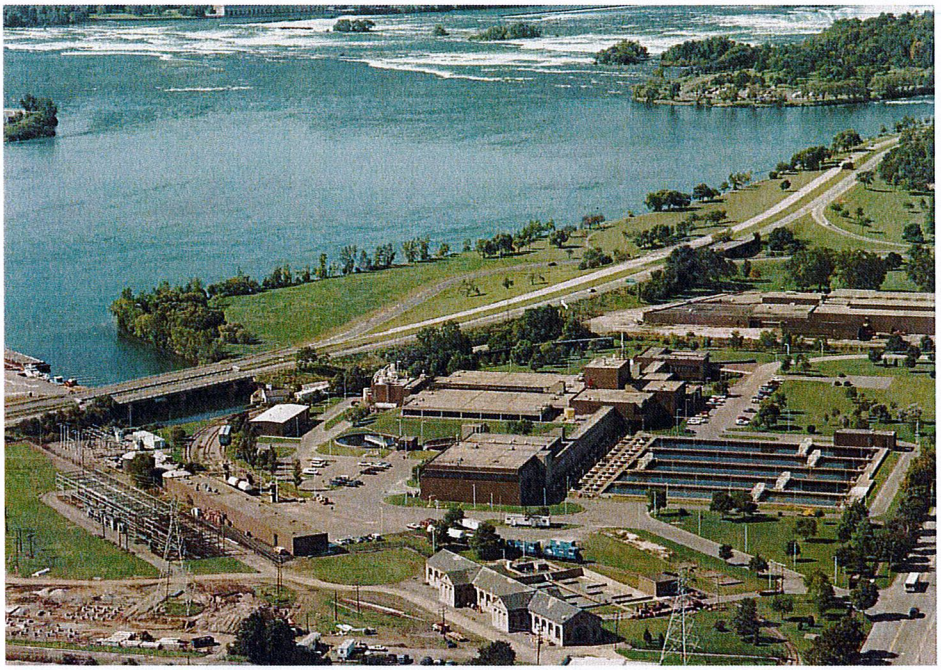
January 31, 2024





Q4 2023 Quarterly Progress Report

Niagara Falls Water Board Order on Consent R9-20170906-129



NIAGARA FALLS WATER BOARD

Prepared for Submission to:

New York State Department of Environmental Conservation Region 9
270 Michigan Avenue
Buffalo, New York 14203

Prepared By:

AECOM

50 Lakefront Boulevard Suite 111
Buffalo, New York 14202,

January 31, 2024

Niagara Falls Water Board Order on Consent R9-20170906-129
Q4 2023 Quarterly Progress Report

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Niagara Falls Water Board Order on Consent R9-20170906-129
Q4 2023 Quarterly Progress Report

January 31, 2024

Executive Summary

This document is the twenty fourth (24th) quarterly progress report for the Niagara Falls Water Board (NFWB) Order on Consent R9-20170906-129 (Consent Order) as originally required by Schedule A Item 15 of the Consent Order. This progress report covers the period from October 1, 2023 through December 31, 2023.

During the past quarter, the NFWB has properly operated the wastewater treatment plant (WWTP) and has met all State Pollution Discharge Elimination System (SPDES) permit requirements with the exceptions noted in Section 1.1 of this report. Solids processing (settling, thickening, dewatering) during this period has functioned as intended. Primary effluent is clean which has allowed the WWTP's activated carbon filters to efficiently process the plant's influent flow. Dewatering throughput during this period has kept up with incoming solids, compared to influent solids loadings. The WWTP was operated free of significant odors during the past quarter.

Maintenance activities during the reporting period have been ongoing, and as of the end of the quarter major treatment systems and components are functional. The WWTP is undertaking a number of capital upgrades and improvements that are within the capability of the WWTP's maintenance staff and/or contractors awarded service contracts. In addition to the projects being undertaken by the WWTP's staff and outside contractors, project planning, design, and construction of $27 million in major capital upgrades are taking place. Projects 2, 4, 6, 7, 8, 9, and 11 have been completed and work continues on Projects 1, 3, 5 and 10. Project 6 was reopened in Q4 2023 by the addition of sodium hypochlorite storage tank upgrades to the existing Project 6 scope. This work includes replacement of Tank 216 along with some sodium hypochlorite pump, piping, and secondary containment upgrades. Project 12 is expected to go out for Request for Proposal in the near future.

The NFWB has met all scheduled requirements of the Consent Order as identified in Schedule A of the Consent Order. Specific submissions during the past quarter include:

- The twenty third (23rd) quarterly report for the third quarter of 2023 (Q3 2023) was submitted October 31, 2023 to the New York State Department of Environmental Conservation (NYSDEC) and posted on the NFWB's website (Consent Order Item 15).

The NFWB is committed to working cooperatively and openly with the NYSDEC to improve the Niagara Falls WWTP and operate it to the best of its capability.

Niagara Falls Water Board Order on Consent R9-20170906-129
Q4 2023 Quarterly Progress Report

January 31, 2024

1. WWTP Performance

This section discusses the operation of the NFWB WWTP during the reporting period of October 1, 2023 through December 31, 2023. In the following sections, Treatment Plant Operations, Solids Removal Performance, and Treatment Plant Equipment Readiness are discussed.

1.1 Treatment Plant Operations

Mr. Dennis Kirkland serves as Chief Operator of the wastewater treatment plant as of January 4, 2022. As of November 15, 2023, Mr. David Conti (New York State Grade 4 Licensed Operator #14329) accepted a position as Operations Executive with the NFWB and has assumed the role as the licensed Grade 4 plant operator. Mr. Conti's principal work location is at the WWTP where he is responsible for plant operations and maintenance. Mr. Conti will serve as the licensed plant operator. Mr. Conti obtained his license while working in North Tonawanda's WWTP, so he is familiar with granular activated carbon secondary treatment. This change was reviewed and approved by Mr. Robert Locey (NYSDEC Region 9) on October 27, 2023 via email.

During the reporting period there were three (3) reported SPDES permit excursions each month as a result of the NFWB WWTP analytical laboratory losing its Environmental Laboratory Approval Program (ELAP) certification for Fecal Coliform and Hexachlorobenzene. As a result, the facility is considered to be in violation each month for the following SPDES permit limits as if they were not tested for:

- Fecal Coliform 30 Day Geometric Mean,
- Fecal Coliform 7 Day Geometric Mean, and
- Hexachlorobenzene Monthly Average.

Because of the loss of ELAP certification for these two (2) analytical parameters (fecal coliform and hexachlorobenzene) it is considered for DMR reporting purposes that the facility failed to test for the parameter. Unfortunately, this situation developed under the prior NFWB Executive Director and Lab Technical Director, both of whom since have resigned, and was not communicated to appropriate NFWB staff and the NYSDEC until January of 2024. As of January 2024, samples for these parameters are being sent out for analysis by an ELAP certified laboratory. The good news during Q4 2023 is that the WWTP did not have any violations of its alpha-BHC effluent limit. This had been an ongoing monthly violation since the WWTP's effluent limits for alpha-BHC were reduced in October of 2021. It is believed that reduced industrial loadings implemented by industrial customers during Q4 2023, at the request of the NFWB, are responsible for the reduced plant loadings of alpha-BHC.

During Q4 2023 solids processing has kept up with the incoming solids, and equipment maintenance and repair activities have been conducted as promptly as possible.

Sodium hypochlorite consumption has remained low during Q4 2023 (5,600 gallons per day average) and is consistent with the overall 2024 average of 5,700 gallons per day. The practice of chlorinating

the primary effluent was stopped on January 26, 2023 due to issues with the filters and reduced sulfide generation (see additional discussion below). Chlorination of the filter backwash water continues to be practiced.

The following operational considerations were noted during Q4 2023:

- Cascades has continued to discharge relatively low amounts of both total suspended solids (TSS) and soluble organic carbon (SOC) during Q4 2023. Q4 2023 suspended solids loadings from Cascades averaged 2,500 lbs./day (TSS) (down from 6,000 lbs./day in Q3 2023) and soluble organic carbon loadings averaged 811 lbs./day (SOC) (down slightly from 850 lbs./day in Q3 2023). The suspended solids discharges from Cascades were not unduly affecting the WWTP sludge processing operations and the NFWB gravity thickener was generally overflowing clean. Reductions in solids and organic carbon discharges from Cascades are believed to be responsible for the reduced consumption of sodium hypochlorite in 2023 relative to 2021 and 2022.
- Carbon filter backwash numbers have remained low (approx. 25 to 35 per day) and all backwash water continues to be directed to the head of the plant where it is retreated through the sedimentation basins and activated carbon.
- The facility's odor scrubber that serves the odor control building suffered a catastrophic failure of the blower on August 3, 2023. A new blower has been obtained but the WWTP is awaiting a new activated carbon vessel. Installation of the blower and carbon adsorber is expected in Q1 2024.
- Sedimentation Basin 3 construction was completed in Q4 2023, and the basin was turned over to the NFWB to put back into service. Construction on Sedimentation Basin 2 began in Q4 2023. As of the end of Q4 2023 the facility is using Sedimentation Basins Nos. 1, 3, 4 and 5.
- In late November 2023, the NFWB potable water treatment plant (WTP) began discharging its solids generated in sedimentation basins and filter backwash to the sewer which transports the material to the WWTP for treatment. The solids result from the use of an alum coagulant at the WTP. Thus far with a little over a month's worth of operating time, the WTP solids have not caused any issues at the WWTP.

1.2 Solids Removal Performance

A solids balance for October, November, and December 2023 is presented in Table 1. The data is based upon effluent flow meter measurements and influent/effluent total suspended solids sample results generated by the facility. The data shows that the quantity of solids sent to the landfill has exceeded the amount of solids removed from the wastewater plus chemical solids added (ferric chloride and lime).

Influent suspended solids have continued to be lower than historical averages. The trend of lower influent solids began in November 2021 and appears to correlate with major reductions in suspended

solids discharged from Cascades. During the past quarter influent suspended solids loadings averaged 153 dry tons per month (DTPM) compared to the 2023 annual average of 195 DTPM.

1.3 Treatment Plant Equipment Readiness

During the reporting period there were several treatment plant equipment breakdowns that required maintenance staff to repair or replace equipment. Minor repairs have been made this past quarter for pumps, belt filter presses, and sedimentation basin equipment to address issues that have arisen. Although these repairs may have kept equipment out of service for periods of time during the past quarter, it has not significantly affected the plant performance. In general, a sufficient number of sedimentation basins with fully functional sludge removal equipment have been available to treat all incoming flows. As of the close of Q4 2023, the following can be said regarding treatment equipment operability:

- Four (4) Main Pumps are operational. The two (2) Main Pump Wet Wells were emptied and cleaned in Q4 2023, and a large traffic barrel was found in the wet well for Main Pumps 3 and 4 (west wet well). It is believed that this large neutrally buoyant object would ingest itself into Main Pump 3 or 4 and then would expel itself back into the wet well when the pump was turned off (there are no check valves in the Main Pump discharge piping therefore the column of water in the effluent piping backflows into the wet well when the pump is turned off). The barrel would then get sucked up into Main Pump 3 or 4 when one or the other was turned back on. Therefore, the issue with Main Pump 3 reported in Q3 2023 has been resolved.
- Three (3) Intermediate Pumps are operational and control/VFD issues are being monitored. Intermediate Pump #1 was formally taken out of service and its suction side valve was removed and replaced with a blind flange in Q3 2023. The suction side valve, which would not close, will be replaced. The pump motor and DC magnetic drive were sent out for rebuilding in Q4 2023 and are due back at the WWTP in March 2024. The pump housing (volute, impeller, bearings, etc.) was removed and inspected and a spare pump housing (available at the facility) was installed in Q4 2023. A new valve and coupler were ordered and are expected to arrive at the facility in Q1 2024. Upon completion of the rebuilding of Intermediate Pump #1 the pump should function like new. A new project to evaluate the rest of the intermediate pumps, motors, drives, and controls is expected to be bid out for engineering services in Q1 2024.
- Four of the five sedimentation basins are functional, with Sedimentation Basin No. 2 out of service for construction. During the past quarter, two (2) sedimentation basins have been used for flows up to 40 mgd, three (3) basins used for flows between 40 mgd and 60 mgd, and four (4) basins for flows over 60 mgd.
- Twenty-seven (27) activated carbon filters are functional, with Filter 27 requiring replacement activated carbon which should occur in Q1 2024. In late December 2023, the facility contracted with their vendor Carbon Activated to remove and dispose of all activated carbon

in the Spent Tank, and to change activated carbon in four (4) filters (Filters 9, 14, 23 and 24). As of the close of Q4 2023 this work was just getting started.

- The filter backwash system is functional including two backwash pumps and two blowers.
- Three (3) belt filter presses and related equipment (sludge and polymer feed pumps) are operational. Drain lines serving the belt filter presses were cleaned during Q4 2023 and drainage issues with BFP#1 have been resolved.
- Two (2) pugmills, two (2) lime feed systems, and two (2) lime storage silos are fully functional.

Table 1

Q4 2023 NFWB WWTP Solids Balance

Month & Year	Average Daily Flow	Average Influent TSS	Average Effluent TSS	TSS Removed (Dry)	Ferric Chloride Added to Wastewater (Dry)	Lime Added to Sludge (Dry)	Total Solids (Dry) (TSS + Lime + Ferric)	Solids Content of Landfilled Sludge	Total Solids (Wet)	Solids Landfilled (DRY)	% Landfilled
	mgd	mg/l	mg/l	Tons/day	Tons/day	Tons/day	Tons/day	%	Tons/day	Tons/day	%
Oct-23	20.2	55.7	11.7	3.7	0.96	1.21	5.9	23.7%	24.8	7.3	124%
Nov-23	20.0	49.2	10.5	3.2	0.98	1.27	5.5	21.7%	25.2	9.7	178%
Dec-23	27.1	55.0	7.7	5.3	1.13	1.52	8.0	23.9%	33.4	9.98	125%

NOTES: mgd million gallons per day
TSS Total Suspended Solids

[1] % Greater than or equal to 100 indicates all incoming solids plus all chemicals added are removed and sent to landfill.

2. Deliverables and Routine Communications

This section presents a listing and discussion of deliverables prepared by the NFWB for submission to the NYSDEC. In addition, other related written communications between the NYSDEC and the NFWB are also discussed.

2.1 Deliverables Status

All deliverables required under the consent order have been submitted to the NYSDEC in accordance with the schedule in the Consent Order. Deliverables submitted during the past quarter are listed in Table 2.

Table 2
NFWB Submissions to NYSDEC per Schedule A of the Consent Order

Date	Prepared By	Consent Order Schedule A Items	Comment
October 31, 2023	AECOM	Item 15	The twenty third quarterly progress report for the third quarter of 2023 (Q3 2023) was submitted.

2.1.1 Existing WWTP Optimization Efforts

The plant is using Sedimentation Basin No. 5 as a treatment basin and will continue to direct filter backwash water to the head of the plant for retreatment through the sedimentation basins and carbon filters. This will likely continue until such time as all five (5) sedimentation basins are completed under Capital Project 1.

2.2 Deliverables in Next Quarter

All deliverables required under the Consent Order have been submitted. No other deliverables are pending or due under the consent order other than this quarterly report.

2.3 Routine Communications in Past Quarter

There were no significant communications with the NYSDEC in the past quarter.

2.4 Unresolved Issues/Delays

There are no unresolved issues or delays.

3. Capital Improvement Program

In this section, progress on WWTP capital upgrades is discussed. Capital upgrades are proceeding on several fronts. Projects that are within the capability of in-house maintenance staff are being undertaken as quickly as possible. Additionally, outside contractors selected for WWTP work (Mechanical Contractor – Mollenberg Betz, Electrical Contractor – Ferguson Electric) are being utilized for larger projects. Lastly, design and construction are underway to perform a number of capital upgrades that are necessary to stabilize the operation of the existing treatment plant. Each of these items is discussed in this section.

3.1 In-House Capital Upgrades Completed/Underway

This category of projects includes work being undertaken by plant maintenance staff or outside contractors without the need for extensive design and engineering documents. This work is generally considered repair and/or replace in kind and therefore NYSDEC approval is not generally required prior to performing the work. At this time all work slated to be performed in-house has been performed.

3.2 Capital Improvement Projects

A schedule for the ongoing capital projects is shown in Figure 1. Note that the NFWB has sought and obtained approval from the NYSDEC to upgrade certain chemical bulk storage facilities under the existing Project 6 engineering services agreement, therefore Project 6 (effluent disinfection upgrades) is expected to be reopened in Q4 2024 to facilitate engineering and eventual construction of sodium hypochlorite improvements to Tank 216 and its secondary containment system.

Figure 1

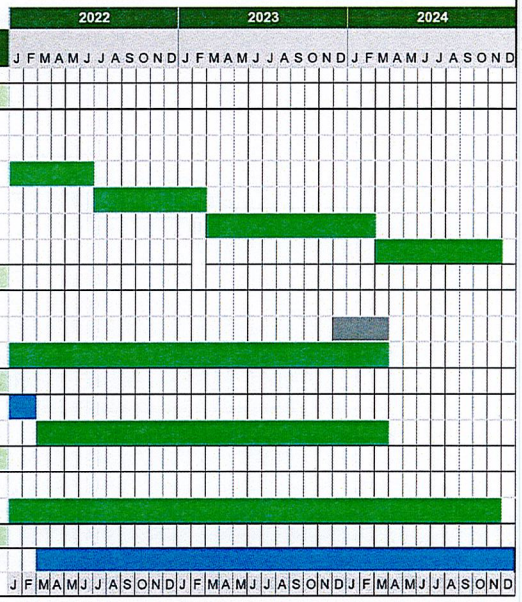
Capital Projects Estimated Construction Schedule

ESTIMATED CONSTRUCTION SCHEDULE

NFWB CAPITAL IMPROVEMENT PROJECTS

Updated:1/18/24

TASK DESCRIPTION	PLAN START	PLAN END
Project #1: Sed. Basin Upgrades (CPL) - CA/CI Approved (10-26-20)		
Design and Bidding	5/22/2019	10/1/2020
Mobilization	11/1/2020	2/1/2021
Construction (Phase 1)	3/1/2021	6/30/2022
Construction (Phase 2)	7/1/2022	2/3/2023
Construction (Phase 3)	3/1/2023	2/3/2024
Construction (Phase 4)	3/1/2024	11/30/2024
Project #3 Polymer and Grit (Arcadis) - CA/CI Approved (10-26-20)		
Design and Bidding	5/30/2019	10/1/2020
Updated Design	12/1/2023	3/31/2024
Construction	11/1/2020	3/31/2024
Project #5 Electrical System Improvements (EI Team)		
Design and Bidding	4/25/2019	2/1/2022
Construction	3/1/2022	3/31/2024
Project #10 SCADA Improvements (Kaman) - CA Services Not Required		
Design and Bidding	6/1/2019	12/1/2019
Construction	1/1/2020	11/30/2024
Project #12 Int. Pump Improvements (GHD)		
Design	3/23/2022	8/23/2022 (RFP Pending)



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I certify under penalty of law that the letter from John T. Kolaga, Esq., Rupp Pfalzgraf LLC, and the enclosed Q4 2023 Quarterly Progress Report, Niagara Falls Water Board Order on Consent R9-20170906-129 prepared by AECOM dated January 31, 2023, was prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Niagara Falls Water Board

Name: Michael Eagler

Title: Acting Executive Director

Date: Jan. 30, 2024