

Q3 2022 Quarterly Progress Report Niagara Falls Water Board Order on Consent R9-20170906-129

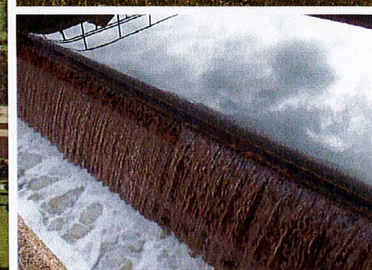
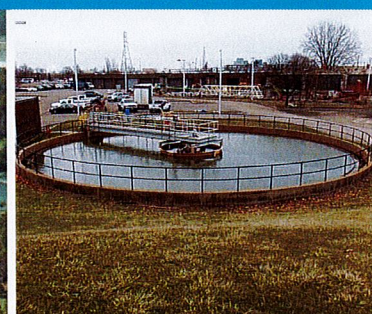
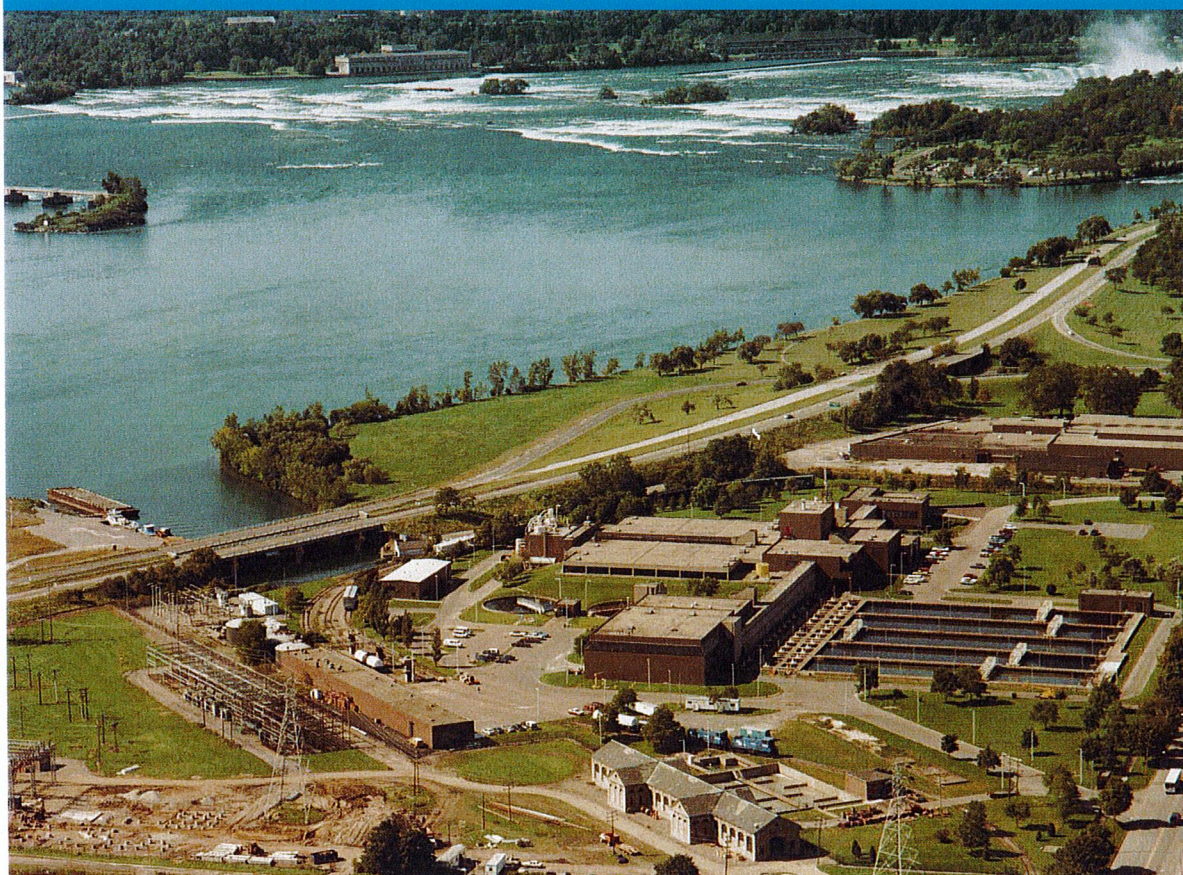
Prepared for submission to:

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

Prepared by:

AECOM
257 West Genesee Street, Suite 400
Buffalo, New York 14202

October 31, 2022



Q3 2022 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

AECOM

257 West Genesee Street Suite 400
Buffalo, New York 14202

October 31, 2022

**Niagara Falls Water Board Order on Consent R9-20170906-129
Q3 2022 Quarterly Progress Report**

Table of Contents

Table of Contents.....	i
Executive Summary.....	ES-1
1. WWTP Performance.....	1-1
1.1. Treatment Plant Operations	1-1
1.2. Solids Removal Performance	1-1
1.3. Treatment Plant Equipment Readiness	1-2
2. Deliverables and Routine Communications	2-1
2.1. Deliverables Status.....	2-1
2.1.1.Existing WWTP Optimization Efforts	2-1
2.2. Deliverables in Next Quarter	2-1
2.3. Routine Communications in Past Quarter	2-1
2.4. Unresolved Issues/Delays	2-1
3. Capital Improvement Program	3-1
3.1. In-House Capital Upgrades Completed/Underway	3-1
3.2. Capital Improvement Projects	3-1
 Figures	
Figure 1 – Capital Projects Schedule	3-2
 Tables	
Table 1 – NFWB WWTP Solids Balance	1-3
Table 2 - NFWB Submissions to NYSDEC per Schedule A of the Consent Order	2-1

Niagara Falls Water Board Order on Consent R9-20170906-129
Q3 2022 Quarterly Progress Report

October 31, 2022

Executive Summary

This document is the nineteenth (19th) 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 July 1, 2022 through September 30, 2022.

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 three exceptions for alpha-BHC (alpha-Hexachlorocyclohexane) in July, August, and September 2022. 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. Engineering contracts are in place for eleven (11) of the twelve (12) capital projects (Projects 1, 2, 3, 4, 5, 6, 7, 9, 10, 11, and 12) and one (1) of the capital projects has been completed by plant maintenance staff with assistance from an outside contractor under the mechanical services contract (Project 8). Construction of capital Projects No. 4 (GAC Changeout), No. 6 (Effluent Disinfection), No. 8 (Replacement of Blower Equipment) and No. 9 (Process Piping) are complete. Construction is underway on Projects 1, 2, 3, 5 (portions), 7, 10, and 11.

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 eighteenth (18th) quarterly report for the second quarter of 2022 (Q2 2022) was submitted July 31, 2022 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
Q3 2022 Quarterly Progress Report

October 31, 2022

1. WWTP Performance

This section discusses the operation of the NFWB WWTP during the reporting period of July 1, 2022 through September 30, 2022. 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. Until such time as Mr. Kirkland achieves the necessary operator's license, Mr. Fred Kasper (New York State Grade 4 licensed Operator 12489) is serving as the licensed plant operator. Mr. Kasper spends 4 hours per day on average at the facility on a Monday through Friday basis and assists Mr. Kirkland with his duties. During the reporting period there were three reported SPDES permit excursions related to a low-level detection of alpha-BHC in July, August, and September of 2022. This is an ongoing issue since the facility's SPDES permit limits for alpha-BHC were lowered on October 29, 2021. 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 high due to warm weather and averaged 12,500 gallons per day during the past quarter. The practice of chlorinating the primary effluent was resumed on September 12, 2022, following completion of that portion of capital project No. 11. Chlorination of the filter backwash water continues to be practiced.

Another operational modification which continues to be practiced is to stage a number of the off-line carbon filters in an empty condition. The number of filters being left empty has been increased to include all filters that are not currently online. This change was put in place September 30, 2022. During typical dry weather flow of 20 MGD normally 7 or 8 filters are in service. Therefore, with this change approximately 20 filters are being kept in a drained condition while not in operation. The number of filter backwashes per day continues to be in the range of 20 to 40 backwashes 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 carbon filters.

On August 23, 2022, Sedimentation Basin No. 5 was placed in service and Sedimentation Basin No. 4 construction commenced. It should be noted that Sedimentation Basin No. 5 is operating without the benefit of: automation, monitoring (sprocket motion monitors, and tipping pole monitoring), submersible pumps, or floatables control baffle. Sedimentation Basin 5 is being used as a normal basin, used to treat influent flow, while filter backwash continues to be directed to the head of plant.

1.2 Solids Removal Performance

A solids balance for July, August, and September 2022 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 met or

Niagara Falls Water Board Order on Consent R9-20170906-129
Q3 2022 Quarterly Progress Report

October 31, 2022

exceeded the amount of solids removed from the wastewater plus chemical solids added (ferric chloride and lime). Results near or greater than 100% generally indicate the plant is operating as intended.

Influent suspended solids have continued to be lower than historical averages although September 2022 has seen a significant uptick in incoming solids. The trend of lower influent solids began in November 2021 and appears to correlate with major reductions in suspended solids discharged from a significant industrial user. For example, during the period January through October of 2021 influent TSS averaged 415 dry tons per month (DTPM) versus the period November 2021 through March 2022 when influent suspended solids averaged 175 DTPM. During the period April 1, 2022 through June 30, 2022, the average influent suspended solids was 164 DTPM. July August and September influent suspended solids were 177, 155, and 265 DTPM, respectively.

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 Q3 2022, the following can be said regarding treatment equipment operability:

- Four (4) Main Pumps are operational, although one of the main pumps (No. 4) is now equipped with a temporary (rental) variable frequency drive (VFD) due to a VFD failure in this pump during the past quarter. The failed VFD has been sent out for evaluation and repair and/or replacement if not repairable.
- Four (4) Intermediate Pumps are operational and control/VFD issues are being monitored. A project to evaluate the intermediate pumps, motors, drives, and controls has been awarded and that project is underway.
- Four of the five sedimentation basins are functional, with Sedimentation Basin No. 4 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-eight (28) activated carbon filters are functional.
- The filter backwash system is functional including two backwash pumps however the air scour system was inoperable starting on September 29, 2022 due to a leak in the air scour pipeline that will be repaired under the IDIQ contracts in Q4 2022.

Niagara Falls Water Board Order on Consent R9-20170906-129
Q3 2022 Quarterly Progress Report

October 31, 2022

- Three (3) belt filter presses and related equipment (sludge and polymer feed pumps) are operational.
- Two (2) pugmills, two (2) lime feed systems, and two (2) lime storage silos are fully functional.

Niagara Falls Water Board Order on Consent R9-20170906-129
Q3 2022 Quarterly Progress Report
October 31, 2022

Table 1
Q3 2022 NFWB WWTP Solids Balance

Month & Year	Average Daily Flow mgd	Average Influent TSS mg/l	Average Effluent TSS mg/l	TSS Removed (Dry) Tons/day	Ferric Chloride Added to Wastewater (Dry) Tons/day	Lime Added to Sludge (Dry) Tons/day	Total Solids (Dry) (TSS + Lime + Ferric) Tons/day	Solids Content of Landfilled Sludge %	Total Solids (Wet) Tons/day	Solids Landfilled (DRY) Tons/day	% Landfilled
Jul-22	19.8	79.1	10.0	5.7	1.45	2.45	9.6	22.9%	42.0	11.4	119%
Aug-22	20.7	66.4	8.6	5.0	1.38	1.45	7.8	25.9%	30.2	11.5	146%
Sep-22	21.7	105.3	7.4	8.8	1.24	1.86	11.9	23.0%	51.9	11.07	93%

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.

Niagara Falls Water Board Order on Consent R9-20170906-129
Q3 2022 Quarterly Progress Report

October 31, 2022

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
July 31 ,2022	AECOM	Item 15	The eighteenth quarterly progress report for the second quarter of 2022 (Q2 2022) 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

The NYSDEC Region 9 issued formal approval of the Chlorine Dioxide study previously submitted in December 2021. The approval was in the form of a letter from the NYSDEC to Rupp-Baase dated July 20, 2022.

2.4 Unresolved Issues/Delays

There are no unresolved issues or delays.

Niagara Falls Water Board Order on Consent R9-20170906-129
Q3 2022 Quarterly Progress Report

October 31, 2022

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.

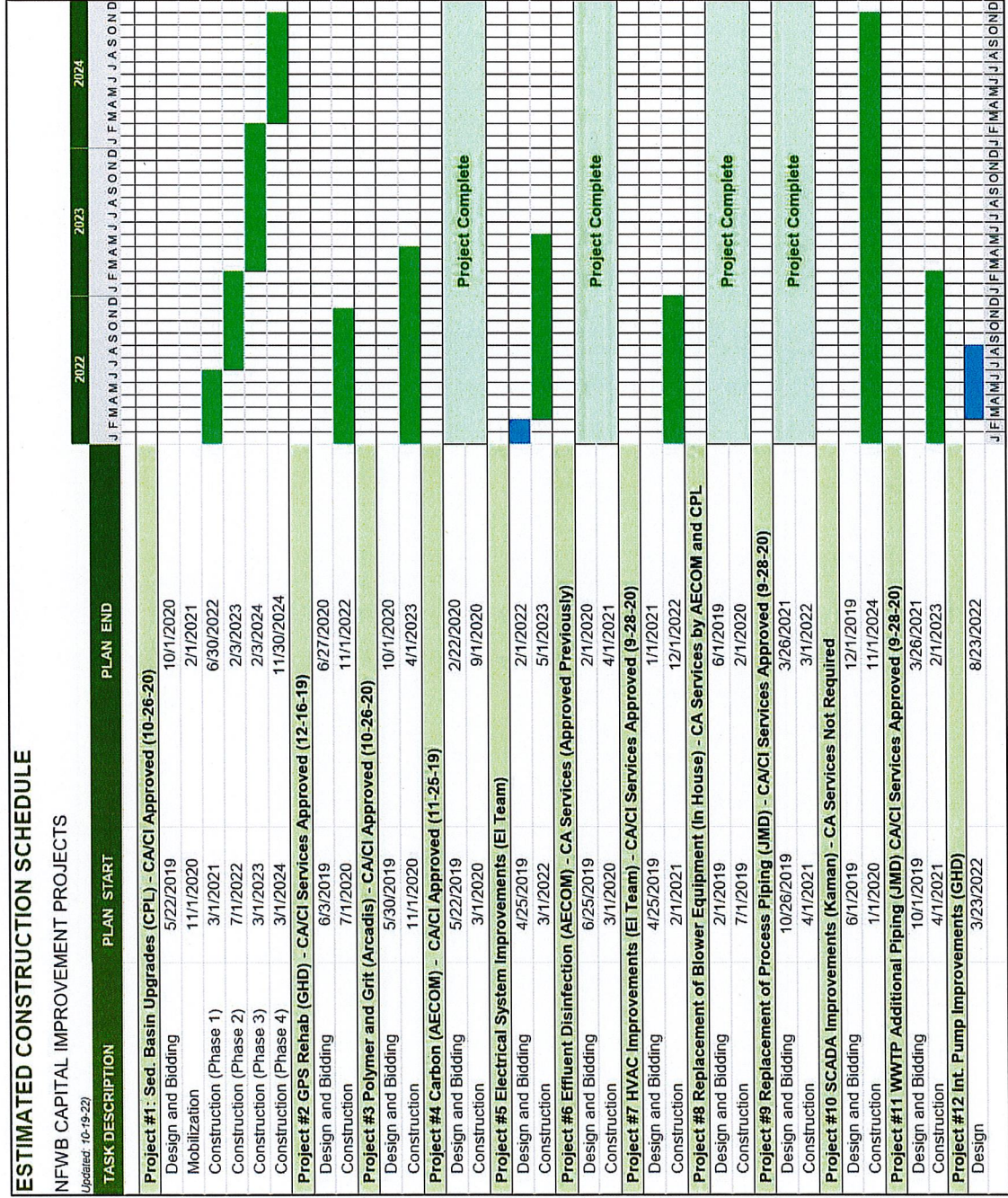
3.1 In-House Capital Upgrades Completed/Underway

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

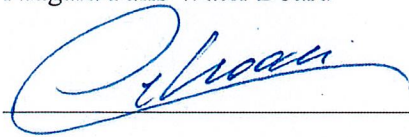
A schedule for the ongoing capital projects is shown in Figure 1.

Figure 1
Capital Projects Estimated Construction Schedule



I certify under penalty of law that the letter from John T. Kolaga, Esq., Rupp Baase Pfalzgraf Cunningham LLC, and the enclosed Q3 2022 Quarterly Progress Report, Niagara Falls Water Board Order on Consent R9-20170906-129 prepared by AECOM dated October 31, 2022, 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: Dr. Abderrahman Zehraoui

Title: Executive Director

Date: 10-27-2022