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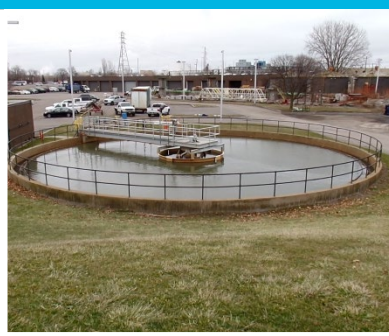
# Q3 2019 Quarterly Progress Report
# Niagara Falls Water Board
# Order on Consent R9-20170906-129

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, 2019



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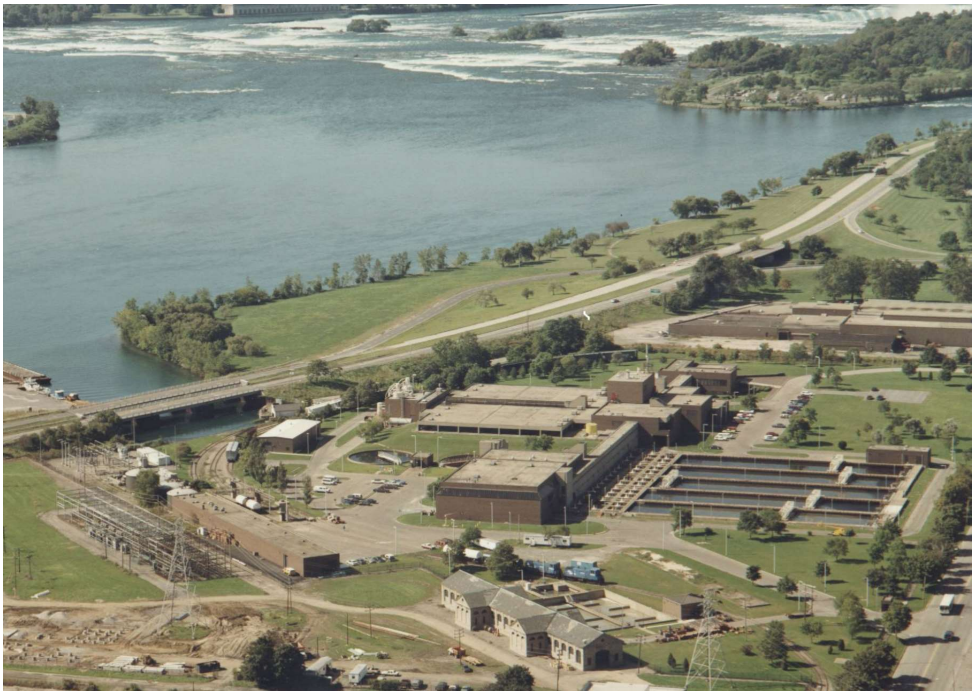

NIAGARA FALLS WATER BOARD

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October 31, 2019

## Executive Summary

This document is the seventh (7th) required quarterly progress report for the Niagara Falls Water Board (NFWB) Order on Consent R9-20170906-129 (Consent Order) as required by Schedule A Item 15 of the Consent Order. This progress report covers the period from July 1, 2019 through September 30, 2019. The next quarterly progress report covering the period October 1, 2019 through December 31, 2019 is due January 31, 2020.

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. Solids processing (settling, thickening, dewatering) during this period has functioned as intended. Primary effluent is clean (minimal suspended solids) which has allowed the WWTP's activated carbon filters to efficiently process the plant's influent flow. This quarter the plant remained in summer mode, with wastewater temperatures in the 70°F to 72°F range. With the increased temperature, sulfide levels exiting the carbon filters have risen to the 5 to 10 mg/l range. Dewatering throughput during this period has mostly kept up with incoming solids, although September did witness a drop off in the sludge throughput 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 and design for $27 million in major capital upgrades are taking place. Contracts are in place for seven (7) of the nine (9) capital projects (Projects 1, 2, 3, 4, 5, 7 and 9) and one (1) of the capital projects is being undertaken by plant maintenance staff with assistance from an outside contractor under the mechanical services contract (Project 8). Portions of Project 6 related to effluent disinfection system upgrades are also underway.

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

- The sixth quarterly report for the second quarter of 2019 (Q2 2019) was submitted July 31, 2019 to the 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. During the past quarter, several email and written communications took place regarding plant operations and consent order activities. An update meeting has been scheduled for October 9, 2019.

**Niagara Falls Water Board Order on Consent R9-20170906-129**
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## 1. WWTP Performance

This section discusses the operation of the NFWB WWTP during the reporting period of July 1, 2019 through September 30, 2019. In the following sections, Treatment Plant Operations, Solids Removal Performance, and Treatment Plant Equipment Readiness are discussed.

### 1.1 Treatment Plant Operations

Mr. Robert Dunn serves as the Chief Operator of the wastewater treatment plant. Until such time as Mr. Dunn achieves the necessary operator's license, Mr. Kenneth Maving (New York State 4A licensed Operator 7598) is serving as the licensed plant operator. Mr. Maving spends at least 4 hours per day on average at the facility on a Monday through Friday basis and assists Mr. Dunn with his duties. There continues to be an operator vacancy and the NFWB is in the process of interviewing to fill the vacant operator position.

The four (4) SOSs and the Chief Operator continue to be provided with individual training by Mr. Tim Lockhart (NYS Class 4A License Number 7816). During the reporting period there have not been any SPDES permit excursions. This marks a consecutive 21-month period with no SPDES permit excursions. Solids processing has generally kept up with the incoming solids, and equipment maintenance and repair activities have been conducted as promptly as possible.

During the past quarter, the WWTP has been in summer mode as indicated by influent temperatures in excess of 70$^{o}$F and sulfide concentrations exiting the filters have increased to the 5 to 10 mg/l range. With the increased rate of sulfide generation, the sodium hypochlorite demand of the plant effluent has increased significantly and remained high throughout the quarter. Adding to the sodium hypochlorite use is the continuing practice of chlorinating the plant's primary effluent (carbon filter influent) and dosing all filter backwashes with sodium hypochlorite. The practices of chlorinating the primary effluent and backwashing with sodium hypochlorite has kept sulfide levels exiting the filters in the 5 to 10 mg/l range compared to historical levels that were typically reported as "greater than 20 mg/l" exiting the filters. With sulfide levels in the 5 to 10 mg/l range, the effluent throughout the third quarter has its characteristic cloudy white/grey/green appearance.

During this quarter the appearance of Sedimentation Basin 5 has at times become dark as a result of a negative ORP in the carbon filter backwash water. As a result of the sodium hypochlorite use, filter run times throughout the summer have remained very lengthy (4 to 8 hours is not uncommon) and has resulted in a significant reduction in the number of required filter backwashes per day. As a result of the Consent Order Item 6, 7, 10 testing and implementation, the following operational changes have been made to the carbon filters:

- Each filter is operated once per day. Influent total residual chlorine (TRC) levels are being maintained at approximately 1.5 to 2.0 mg/l. The filter throughput rate has been increased to 2,800 gpm (each filter). After use, the filter is backwashed using an air scour lasting 1 to 2

minutes, followed by 10 minutes at 9,500 gpm backwash flow. Sodium hypochlorite is dosed into the backwash water before being pumped into the filter underdrain.

- Filters are generally run for approximately 4 hours before being taken out of service and backwashed. Within this time frame the filter is not plugging and could continue to be operated. However, in order to use each filter every day, filters are being taken out of service after approximately 4 hours. This practice ensures that each filter is operated at least once per day. This mode of operation was determined to be necessary to keep filters from sitting idle for too long which has been found to result in increased sulfide levels building up in the idle filter.
- Filter rotation proceeds in numerical order (within each Train) to ensure that each filter is operated once per day. An equal number of A train and B train filters are operated at any one time.
- Scheduled long backwashes have been eliminated as it was determined that filters that were not being operated were being backwashed. Eliminating this practice also has resulted in reduced backwash water being generated.

The above routine has resulted in a significant reduction in the volume of backwash water being generated, which now allows additional options for management of Sedimentation Basin 5 flows. With each filter being backwashed once per day, the plant is down to approximately 27 backwashes per day. This compares to the 100 plus backwashes per day that were typical prior to the use of sodium hypochlorite to treat primary effluent and carbon filter backwash water. Estimated current backwash volume is 2.6 MGD versus prior 10 to 12 MGD. The NFWB has requested and the NYSDEC has agreed to allow the NFWB to upgrade an 8" plant sewer so that additional flow from Sedimentation Basin 5 can be delivered to the head of plant. By doing this the plant hopes to be able to remove Sedimentation Basin 5 flows from discharging to the chlorine contact tank. Also the full hydraulic equalization capacity of Sedimentation Basin 5 can be realized if the basin can be pumped as low as needed without having to turn off the submersible pump when the level has dropped 2' (current practice) to avoid pumping the "bottom contents" of Sedimentation Basin 5 to the Chlorine Contact Tank.

During the past quarter, operations staff have also:

- Changed odor control GAC on one occasion. As of the end of the quarter the GAC was again due for replacement.

### 1.2 Solids Removal Performance

A solids balance for July, August, and September 2019 is presented in Table 1. The data is based upon effluent flow meter measurements. The data shows that the amount of solids sent to the landfill was equal to the amount of influent solids minus effluent solids plus chemical usage (ferric chloride & lime) for the month of July and August. During September there was a reduction in the

**Table 1**

**NFWB WWTP Solids Balance**

# Q3 2019 Progress Report 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 | % |
| Jul-19 | 20.0 | 141.3 | 7.1 | 11.2 | 1.3 | 1.52 | 13.9 | 27.4% | 50.8 | 17.6 | 126% |
| Aug-19 | 22.3 | 112.8 | 7.4 | 9.8 | 1.4 | 2.66 | 13.8 | 27.1% | 51.0 | 16.2 | 117% |
| Sep-19 | 23.2 | 164.1 | 6.9 | 15.2 | 1.4 | 2.47 | 19.1 | 26.8% | 71.2 | 14.00 | 73% |

**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.

amount of sludge landfilled to 73%, which may be an indication of solids accumulation within the plant; however, observations and sludge judge testing of the sedimentation basins do not indicate that excessive solids are being stored in the sedimentation basins. Reduced September 2019 throughput is believed to be the result of one belt press being out of service for portions of the past quarter, along with inaccurate sludge readings in the thickeners that has led plant operations staff to run the belt filter presses less than necessary and/or at reduced throughput rates. Corrective measures are being put in place to ensure that the thickeners are properly monitored, and operations staff maximize sludge throughput.

### 1.3 Treatment Plant Equipment Readiness

During the reporting period there were numerous treatment plant equipment breakdowns that required maintenance staff to repair or replace equipment. Significant equipment repairs this past quarter have included:

- The work on the plant's power distribution system as a result an April 14, 2019 lightning strike continued throughout the quarter. Power Center (PC) 3 has been powered from PC2 and the transformer at PC3 that was damaged as a result of the lightning strike has been eliminated. Issues with the plant's dual feeders to PC2, PC4, and PC5 that were uncovered as a result of the lightning strike are being addressed. Additional work to address deficiencies at transformers, PCs, and MCCs is currently underway and should be completed in Q4 2019.
- A new grit screw was installed in SB3. This represents the first time the plant has undertaken this type of work. The screw was fabricated locally and replaces a severely worn grit screw. The plant is in the process of procuring additional screws as this will likely be necessary in other sedimentation basins.
- Repairs made in Sedimentation Basins 1 through 4 included:
    - Sedimentation Basin 1 sludge screw required a new gear box.
    - Sedimentation Basin 2 sludge screw repairs.
    - Sedimentation Basin 1 chain and flight (new chain and flight) alignment issues were addressed.
    - Sedimentation Basin 3 sludge screw was repaired.
    - Sedimentation Basin number 4 had repairs made to the grit screw drive chain.
    - Sedimentation Basin number 4 had repairs made to the sludge screw
- Sedimentation Basin 5 had to be taken down several times this past quarter (with NYSDEC approval) to address issues with:
    - Sludge screw motor, and
    - Grit screw.

During the time Sedimentation Basin 5 was out of service backwash water was directed to the head of the plant.

- Several issues with belt filter presses (BFP) occurred during the past quarter which frequently limited the plant to having only two belt filter presses available for use. Issues included:
    - Scraper replacement on BFP#2.
    - Hydraulic cylinder failure on BFP#1 required the cylinder to be sent out for rebuilding.
    - A new top belt was installed on BFP#1.
    - A hydraulic cylinder failure on BFP#2 required the cylinder to be sent out for repairs and a new piston will need to be machined. As of the end of Q3 2019 BFP#2 remains out of service.
- The GPS hydropneumatics tank repairs have been completed including the repair of the stilling well and its isolation valves, along with replacement of all stilling well level controls. A new compressor has also been installed. The plant has verified the system is fully functional. This completes the work that had been previously identified at the GPS hydropneumatic tank.

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 the third quarter of 2019, the following can be said regarding treatment equipment operability:

- Four (4) Main Pumps are operational.
- Three (3) Intermediate Pumps (#2, #3, and #4) are operational. The #1 intermediate pump is inoperable, and the pump is unable to be isolated due to an inoperable valve. A plan to assess this pump will be developed soon. NOTE – The WWTP has excess pump capacity in its Intermediate Pumping Station, and therefore immediate repairs to this pump are not critical.
- All sedimentation basins are functional. 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, although one carbon filter needs carbon replenishment and is only used during wet weather and only if necessary. This filter should be topped off with activated carbon in Q4 2019.
- The filter backwash system is functional including two backwash pumps and one new air scour blower/piping system.

- Belt Filter Press #2 is out of service awaiting a rebuilt hydraulic cylinder (double acting hydraulic cylinder). Note that as a result of recent failures to the hydraulic cylinders, a plan is being developed to replace or rebuild all remaining hydraulic cylinders.
- Two (2) pugmills, two (2) lime feed systems, and two (2) lime storage silos are fully functional.

## 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

Figure 1 presents a Microsoft Project schedule showing the status of all eighteen (18) items listed in the revised Schedule A of the Consent Order. The due date and the percent complete for each item is also listed in Figure 1. In the past quarter, the items listed in Table 2 were submitted to the NYSDEC to meet the Consent Order Schedule A requirements.

#### 2.1.1 Pilot Scale Biological Treatment Systems

The two (2) pilot scale biological treatment systems were operated through July 15, 2019 and have since been decommissioned. With NYSDEC Approval, the Alternative Treatment Technology evaluation report will be submitted October 31, 2019 (Consent Order Item 11 Part 2) in draft form for NYSDEC review and comment.

#### 2.1.2 Existing WWTP Optimization Efforts

During the past quarter AECOM has been performing studies and evaluations related to Consent Order Items 6, 7, and 10. This work focuses on optimization of the existing physical chemical treatment facilities. The work is being performed in accordance with the NYSDEC approved work plan. Briefly the work consists of:

Item 6 – Evaluate alternatives to the use of ferric chloride as a chemical coagulant.

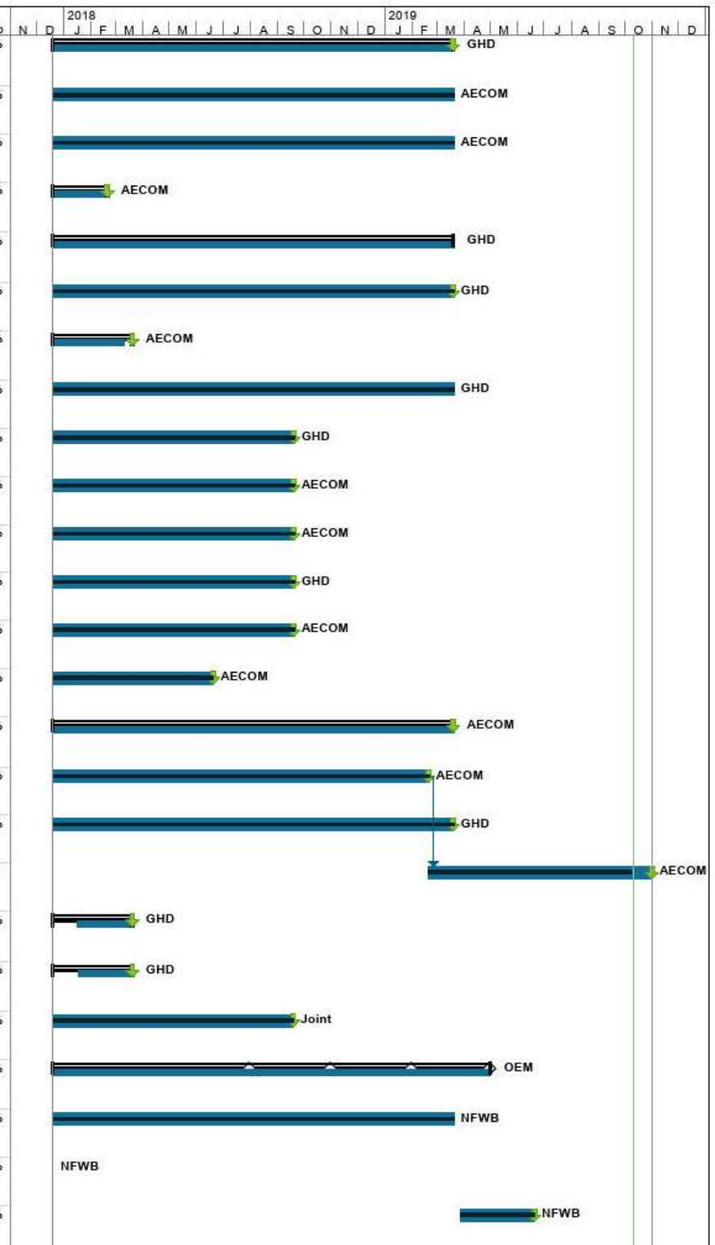
Item 7 – Evaluate Sedimentation Basin 5 processes for managing carbon filter backwash water.

Item 10 – Evaluate oxidizer use for preventing sulfide formation in the carbon filters.

During the past quarter a status update report was issued to the NYSDEC and a meeting with the NYSDEC to discuss “next steps” has been scheduled for October 9, 2019 at the WWTP.

**Figure 1**
**Consent Order Schedule Milestone Status**

| ID | Item No. | Task Name | Lead Firm | Support Firm | Duration | Start | Finish | Deadline | DEC Submittal Date | DEC Approval Date | % Comp |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1 | O&M Procedures & Documentation Submittals | GHD | AECOM | 326 days | Tue 12/19/17 | Tue 3/19/19 | Tue 3/19/19 | 3/13/2019 | | 100% |
| 19 | 2 | Operation as per Approved Plans | AECOM | NFWB | 326 days | Tue 12/19/17 | Tue 3/19/19 | NA | 2018-02-01 | 2018-03-15 | 100% |
| 20 | 3 | Sedimentation Basin Dewatering Procedures | AECOM | NFWB | 326 days | Tue 12/19/17 | Tue 3/19/19 | NA | 2018-02-01 | 2018-03-15 | 100% |
| 21 | 4 | Excess Solids Work Plan Submittal | AECOM | NFWB | 45 days | Tue 12/19/17 | Mon 2/19/18 | Mon 2/19/18 | 2018-02-15 | 2018-03-15 | 100% |
| 38 | 5 | Improve Sedimentation Basin TB and C&F Reliability | GHD | AECOM | 326 days | Tue 12/19/17 | Tue 3/19/19 | NA | | | 100% |
| 39 | 5a | Revise O&MM and SOP's related to Sedimentation Basin Repairs | GHD | AECOM | 326 days | Tue 12/19/17 | Tue 3/19/19 | Tue 3/19/19 | 3/13/2019 | | 100% |
| 40 | 5b | Sludge Collection Equipment Damage Prevention Submittal | AECOM | GHD | 65 days | Tue 12/19/17 | Mon 3/19/18 | Mon 3/19/18 | 2018-03-19 | | 100% |
| 44 | 5c | Suspend Sedimentation Basin Usage Upon Malfunction | GHD | AECOM | 326 days | Tue 12/19/17 | Tue 3/19/19 | NA | 2018-03-19 | | 100% |
| 45 | 5d | Recommendations for Equipment Improvement Submittal | GHD | AECOM | 197 days | Tue 12/19/17 | Wed 9/19/18 | Wed 9/19/18 | 2018-09-18 | | 100% |
| 46 | 6 | Ferric chloride Alternative Evaluation Work Plan Submittal | AECOM | GHD | 197 days | Tue 12/19/17 | Wed 9/19/18 | Wed 9/19/18 | 2018-09-18 | 2019-01-09 | 100% |
| 47 | 7 | Sedimentation Basin 5 Alternative Evaluation Work Plan Submittal | AECOM | GHD | 197 days | Tue 12/19/17 | Wed 9/19/18 | Wed 9/19/18 | 2018-09-18 | 2019-01-09 | 100% |
| 48 | 8 | WWOP Update Submittal | GHD | AECOM | 197 days | Tue 12/19/17 | Wed 9/19/18 | Wed 9/19/18 | 2018-09-18 | | 100% |
| 49 | 9 | Disinfection Improvement Recommendation Submittal | AECOM | GHD | 197 days | Tue 12/19/17 | Wed 9/19/18 | Wed 9/19/18 | 2018-09-18 | 2019-01-09 | 100% |
| 50 | 10 | Carbon System Oxidizer Evaluation Work Plan Submittal | AECOM | GHD | 131 days | Tue 12/19/17 | Tue 6/19/18 | Tue 6/19/18 | 2018-06-19 | 2019-01-09 | 100% |
| 51 | 11 | Treatment Process Alternative Report Submittal | AECOM | GHD | 326 days | Tue 12/19/17 | Tue 3/19/19 | Tue 3/19/19 | | | 100% |
| 52 | 11a.1 | Treatment Process Alternative Evaluation - Part 1 | AECOM | GHD | 306 days | Tue 12/19/17 | Tue 2/19/19 | Tue 2/19/19 | 2019-02-19 | | 100% |
| 53 | 11b | Identify Upgrades Necessary for 95% & 97% Capture | GHD | AECOM | 326 days | Tue 12/19/17 | Tue 3/19/19 | Tue 3/19/19 | 2019-03-18 | | 100% |
| 54 | 11a.2 | Treatment Process Alternative Evaluation - Part 2 | AECOM | GHD | 183 days | Tue 2/19/19 | Thu 10/31/19 | Thu 10/31/19 | | | 90% |
| 55 | 12 | GPS & FST CSO and SSO Documentation Submittal | GHD | AECOM | 65 days | Tue 12/19/17 | Mon 3/19/18 | Mon 3/19/18 | 2018-03-19 | | 100% |
| 59 | 13 | NYAlert CSO & SSO Reporting Documentation Submittal | GHD | AECOM | 65 days | Tue 12/19/17 | Mon 3/19/18 | Mon 3/19/18 | 2018-03-19 | | 100% |
| 63 | 14 | Outfall 001 & 003 Relocation Evaluation Submittal | Joint | Joint | 196 days | Tue 12/19/17 | Tue 9/18/18 | Tue 9/18/18 | 2018-09-18 | | 100% |
| 64 | 15 | Quarterly Report Progress Submitals | OEM | Joint | 356 days | Tue 12/19/17 | Tue 4/30/19 | NA | | | 100% |
| 75 | 16 | Sedimentation Basin 5 Dewatering Restrictions | NFWB | GHD | 326 days | Tue 12/19/17 | Tue 3/19/19 | NA | | | 100% |
| 76 | 17 | Update Operating Plans & Staff Direction | NFWB | Joint | 1 day | Tue 12/19/17 | Tue 12/19/17 | NA | | | 100% |
| 77 | 18 | Work Plan and Schedule for Table 4.1 in July 24, 2018 Engineering Report | NFWB | | 61 days | Wed 3/27/19 | Wed 6/19/19 | Wed 6/19/19 | | | 100% |




Project: NFWB Consent Order
Date: Fri 10/11/19

Summary Progress, Task, Split, Milestone, Summary, Project Summary, Inactive Task, Inactive Milestone, Inactive Summary, Manual Task, Duration-only, Manual Summary Rollup, Manual Summary, Start-only, Finish-only, External Tasks, External Milestone, Deadline, Progress, Manual Progress

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### 2.2 Deliverables Discussion

In addition to the above submittals prepared and submitted this past quarter, work is well underway on the following Consent order deliverables:

- Consent Order Item 11, Part 2.

### 2.3 Deliverables in Next Quarter

During the fourth quarter of 2019 (October 1, 2019 through December 31, 2019) the alternative treatment plant evaluation report is due to the NYSDEC on October 31, 2019.

### 2.4 Routine Communications in Past Quarter

During the past quarter the correspondence items listed in Table 3 were submitted to the NYSDEC by the NFWB. The written communications listed below in Table 4 were received from the NYSDEC during the reporting period.

### 2.5 Unresolved Issues/Delays

The NFWB is awaiting permission to proceed with the installation of a mechanical mixer at the chlorine contact tank as part of the effluent disinfection project (Project 6).

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

| Date | Prepared By | Consent Order Schedule A Items | Comment |
|---|---|---|---|
| July 31, 2019 | AECOM | Item 15 | Q2 2019 Progress Report |
| September 20, 2019 | AECOM | Items 6, 7, and 10, | AECOM issues draft summary report to NYSDEC identifying progress on Consent Order Items 6, 7, and 10 (Interim deliverable – not specifically identified in the Consent Order). |

**Table 3**
**NFWB Communications to NYSDEC**

| Date | Prepared By | Purpose |
|---|---|---|
| July 1, 2019 | NFWB | Email communication NFWB to NYSDEC regarding Sedimentation Basin 5 maintenance. |
| July 3, 2019 | NFWB | Email communication NFWB to NYSDEC regarding Sedimentation Basin 5 maintenance. |
| July 11, 2019 | NFWB | Email communication NFWB to NYSDEC regarding Sedimentation Basin 5 maintenance. |
| July 26, 2019 | AECOM | Email communication AECOM to NYSDEC regarding progress with plant optimization, request to shut down carbon filters to eliminate effluent turbidity. |
| August 6, 2019 | AECOM | Phone discussion AECOM and NYSDEC regarding plant optimization work. DEC will not allow shutdown of GAC as a means of eliminating turbid effluent. Agreed to present results to date in an update report and discussed scheduling a meeting to discuss results. Also discussed use of Chlorine Dioxide as an alternative disinfectant. |
| August 7, 2019 | AECOM | Email communication AECOM to NYSDEC regarding the use of chlorine dioxide as an alternative disinfectant. |
| August 16, 2019 | NFWB | Phone communication NFWB to NYSDEC regarding electrical shutdowns at the WWTP in order to facilitate electrical work at substations/power centers. |
| September 6, 2019 | AECOM | AECOM letter to NYSDEC regarding the effluent disinfection project and comments previously raised by the NYSDEC. |
| September 10, 2019 | AECOM | Email AECOM to NYSDEC regarding reductions achieved in plant backwash water and requesting NYSDEC approval to upsize the pipe for delivering Sedimentation Basin 5 effluent to the head of the plant. |
| September 13, 2019 | AECOM | AECOM email request to NYSDEC to approve the use of a mechanical mixer at the Chlorine Contact Tank. |
| September 20, 2019 | AECOM | AECOM issues draft summary report to NYSDEC identifying progress on Consent Order Items 6, 7, and 10, and scheduling meeting with NYSDEC to discuss on October 9, 2019. |
| September 26, 2019 | AECOM | AECOM email request to NYSDEC to approve the use of a mechanical mixer at the Chlorine Contact Tank. |

**Table 4**
**Communications Received from NYSDEC**

| Date | Delivered To | Purpose |
|---|---|---|
| July 12, 2019 | NFWB | Email communication NYSDEC to NFWB regarding Sedimentation Basin 5 maintenance. |
| September 11, 2019 | AECOM | Email NYSDEC to AECOM regarding the cost of upsizing the Sedimentation Basin 5 pipe to head of plant. |
| September 19, 2019 | AECOM | Email communication NYSDEC to AECOM regarding the effluent disinfection project and AECOM's 9/6/19 letter. |
| September 26, 2019 | NFWB | NYSDEC approving upsizing plant sewer to convey Sedimentation Basin 5 pumped discharge to head of plant. NYSDEC also agrees to fund 50% of project. |
| September 27, 2019 | AECOM | NYSDEC response to AECOM regarding 9/26/19 email suggesting that this be a topic of discussion at 10/9/19 meeting. |

## 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 is 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. During the past quarter, the following projects are proceeding and/or were completed:

- **Traveling Bridge Rack and Rail Improvements –** Operation of the traveling bridges is becoming increasingly difficult due to a number of issues including the rack, rail, and hold down hardware. There are a number of places where rail splices are loose, rack mounts are bent, and rail mounting hardware is out of tolerance. Materials (nuts, bolts, hardware) have been purchased and are at the plant. One sedimentation basin will be upgraded and the results monitored before a decision is made whether to proceed with additional basins. This work is expected to occur in Q4 2019.
- **Gorge Pumping Station Hydropneumatic Tank Refurbishment –** A number of repairs to the hydropneumatic tank that serves as a surge arrestor on the Gorge Force Main were performed. Repairs included: replacement of the 16" isolation gate valve and replacement of the level sensor stilling well isolation valves. During the past quarter the level sensors in the stilling well and the compressor were replaced. This system is now fully functional.
- **Effluent Disinfection –** Work has continued on the installation of piping and equipment for effluent disinfection. This has included demolition of existing unused chlorine solution piping and the installation of pipe to bring sodium hypochlorite from the chemical feed area to the chlorine contact tank (aboveground/indoor portions of pipe). All work completed thus far was performed by in-house Maintenance staff.
- **Air Scour Blower Rebuild –** Work continues on the rebuild and installation of the second air scour blower. This work constitutes Project 8 of the capital projects and will be done using in-house staff and the Maintenance service contract (Mollenberg-Betz). During Q3 2019, Mollenberg Betz has mobilized and has begun pipe, appurtenance, and controls installation for the second air scour blower. As of the end of Q3 2019, the project is almost complete. Startup is scheduled in Q4 2019.

### 3.2 Capital Improvement Projects

A document titled NFWB Wastewater Treatment Plant and Gorge Pump Station Rehabilitation Workplan and Design Schedule prepared by CPL Team was submitted to the NYSDEC in accordance with Consent Order Item 18 on June 19, 2019 and should be consulted for information regarding proposed Capital Improvements Projects.