DILUTION STUDY
Workplan

GREENIDGE POWER GENERATING STATION

Prepared on behalf of:

Greenidge Generation LLC
590 Plant Road
Dresden, New York 14441

Prepared by:

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September 2019

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Greenidge GENERATION

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TABLE OF CONTENTS

List of Tables

List of Figures

TABLE OF CONTENTS

List of Appendices

1 INTRODUCTION

Greenidge Generation LLC (Greenidge) owns the Greenidge Power Generating Station (Greenidge Station) in the Town of Torrey, Yates County, New York. Greenidge Station has restarted power generating operations by burning natural gas and is permitted to co-fire up to 19% wood biomass. The facility is located along the west shore of Seneca Lake (Lake) south of the Keuka Outlet and the Village of Dresden, as shown in Figure 1-1.

Greenidge received a modified State Pollutant Discharge Elimination System (SPDES) Permit (NY-0001325) for Greenidge Station on September 5, 2019. Condition 12 of the Additional Requirements section of that permit requires Greenidge to prepare a Dilution Study, the purpose of which is to determine near-field and far-field dilution factors for discharge of pollutants to ambient water of Seneca Lake. At the conclusion of the Dilution Study, Greenidge must submit a report, including dilution profiles for the near-field and far-field areas that will be used in estimating acute and chronic dilution factors. Pending the findings of the study, the New York State Department of Environmental Conservation (NYSDEC, or 'The Department') may use the dilution factors to modify current water quality-based effluent limits (WQBELs) for Outfall 002 and its sub-outfalls 02A thru 02I.

In accordance with the original Effective Date of Permit schedule contained in Condition 12, an Alternatives Evaluation Report to review and evaluate candidate methods to complete the Dilution Study and provide a recommendation was submitted on March 29, 2018. CORMIX V10.0GTS was recommended as the most cost effective and appropriate dilution modeling tool for use in determining near-field and far-field dilution factors in Seneca Lake. Since that time, CORMIX released V11.0 GTS and it is now the current program available for licensing from MixZon. Therefore, CORMIX V11.0 GTS will be the program used in the Dilution Study.

VICINITY MAP			
GREENIDGE STATION DILUTION STUDY WORKPLAN			
GREENIDGE GENERATION LLC			FIGURE 1-1
TOWN OF TORREY	YATES COUNTY	NEW YORK	
September 2019	SCALE: NOT TO SCALE	REVISION # 0	

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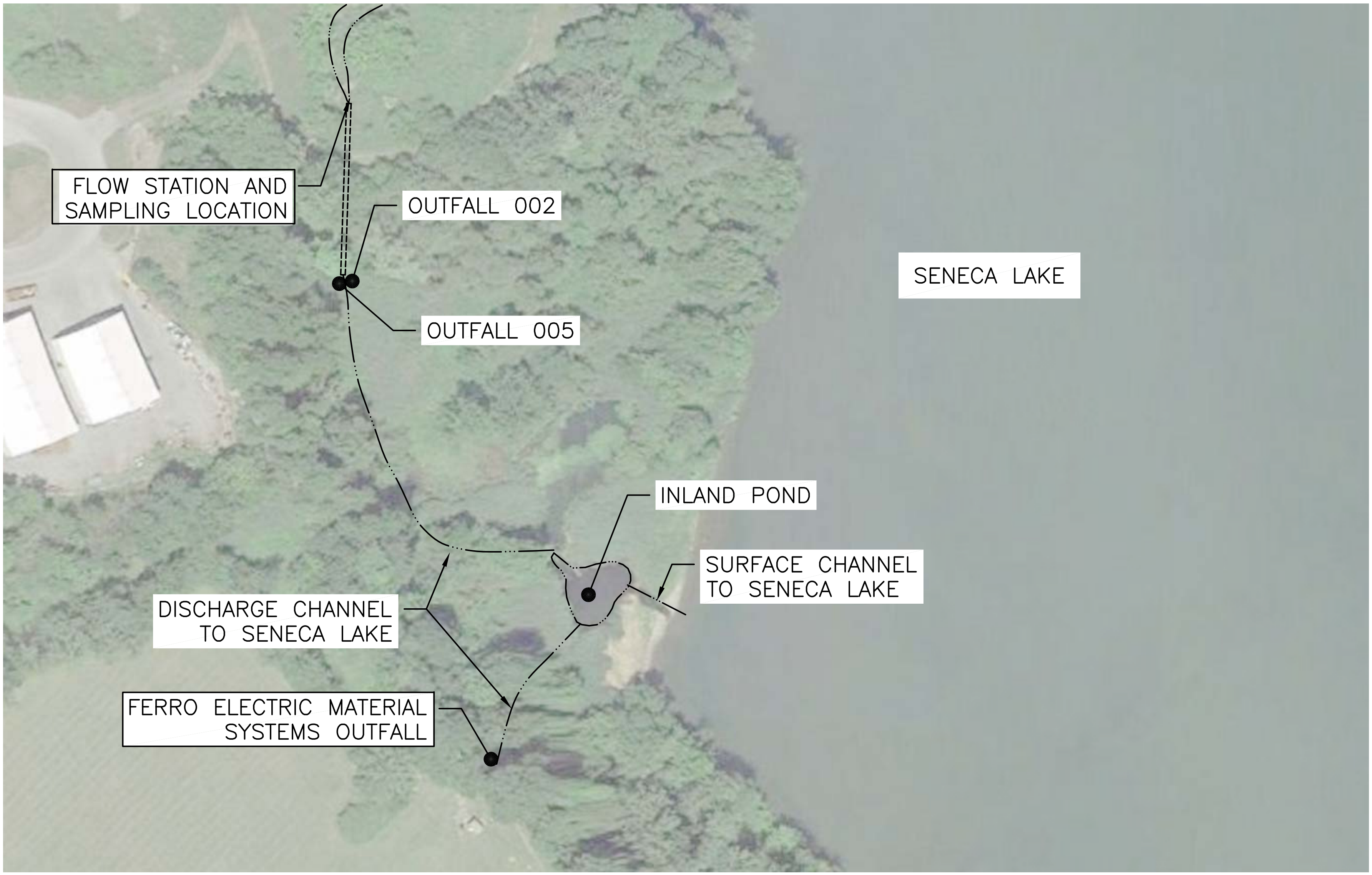
Q:\Greenidge Generation LLC\30-1018 Dilution Study\ACAD\Figure 1-1.dwg

Referring to Figure 1-2, Outfall 002 does not discharge directly into Seneca Lake. Intervening circumstances, including stormwater from Outfall 005 which drains a 1.74 acre area around the South Maintenance Garages, and other overland flows entering the discharge channel, the addition of flow and pollutant concentrations from the Ferro Corporation (Ferro) outfall, and initial mixing provided by the discharge channel and the inland pond, all of which occur in between the point of compliance for Outfall 002 and the Lake, make the application of dilution factors determined for the ambient waters of Seneca Lake not directly applicable to Outfall 002. Therefore, it was also recommended that an analytical mass-balance equation first be used to account for these intervening circumstances between Outfall 002 and Seneca Lake. The results from the analytical mass-balance equation would then be applied to the CORMIX model to determine the flow rate and water quality of the discharge as it enters Seneca Lake.



Q:\Greenidge Generation LLC\30-0019 2019 Services\16-Dilution Study Workplan\ACAD\FIGURE 1-2.dwg 9/26/2019 3:27 PM

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GREENIDGE GENERATION LLC		OUTFALL LOCATIONS			FIGURE 1-2
SCALE: NOT TO SCALE	REVISION # 0	GREENIDGE STATION DILUTION STUDY WORKPLAN			
September 2019		TOWN OF TORREY	YATES COUNTY	NEW YORK	

2 DATA SELECTION

The CORMIX program works by modeling the effect of what is called “Discharge Concentration (Excess)”. This term is taken to mean a parameter’s concentration that is in excess of some background concentration in the receiving waterbody. Background analytical information on Seneca Lake is somewhat limited when compared to the parameters monitored in Greenidge’s SPDES permit. Therefore, the first field effort will be to collect Seneca Lake surface water samples and analyze them for the same parameters found in Greenidge’s SPDES permit. Additional information about this effort and other field work can be found in Section 4.

The intention of this effort is to evaluate each Greenidge SPDES permit parameter and select one for modeling in the CORMIX program. The parameter exhibiting the highest ratio as determined using a calculation described in Section 2.3 would be the candidate for CORMIX modeling. The selection is based on the premise that a parameter with a relatively high background concentration in Seneca Lake compared to Part 703 Surface Water Quality Standards for Class B, where applicable or Class A if no other standard is available, would be more likely to require a review of its effluent limit.

Although stormwater flow attributed to Outfall 005, as well as other overland flow in the area of Outfall 002, adds some volume to the flow of water that ultimately enters Seneca Lake, it will not be included in the analysis. Given the lack of pollution sources in the contributing drainage area, it is assumed that inclusion of stormwater flows would only provide dilution and not contribute any meaningful pollutant loading. Therefore, excluding the contribution of stormwater in the mass balance will result in a more conservative model.

Because of the presence of Ferro Corporation’s SPDES outfall between Greenidge’s outfall and the entrance into Seneca Lake, a two-step process in determining which parameter to model will be undertaken. The first step is to evaluate the combined effect of Greenidge and Ferro Corporation discharges to Seneca Lake. The second step is to evaluate the effect of Greenidge discharges that are unique to its SPDES permit. The parameter with the lowest excess concentration compared to background, as a percentage difference, between these two steps will be modeled in CORMIX.

2.1 FERRO CORPORATION EFFECT

The process to select data for input into the CORMIX program includes a comparison of the Greenidge and Ferro Corporation SPDES permits to determine which parameters are monitored by both facilities. The intention is to perform a mass balance calculation for the suite of shared parameters and compare the resulting combined concentrations against a "background" concentration to compute the maximum "Discharge Concentration (Excess)" to be input into the program.

A review of the two facilities' permits generated a list of seven parameters that are monitored by both facilities and summarized in Table 2-1. Standards are provided for reference purposes.

TABLE 2-1: GREENIDGE AND FERRO SHARED SPDES PARAMETERS

Parameter	**Part 703.5(f) Table 1 Standard (µg/L)**	**Part 703.5 (f) Table 1 Class**
Flow	-	-
Aluminum, Total	100 (ionic)	A
Barium, Total	1,000	A
Chlorine, Total Residual (in Ferro, only outfall 002)	5	B
Fluoride, Total	1,500	A
Total Suspended Solids	None	-
Zinc, Total	2,000*	A

* NYSDEC Technical and Operational Guidance Series (TOGS) 1.1.1 Guidance value

Since total suspended solids does not have a surface water standard or guidance value, this parameter will be excluded from the dilution study. A mass balance will be computed for each chemical parameter in Table 2-1 using the Daily Maximum Effluent Limit concentration listed on each permit and the average flow rate for each facility by the formula provided in the equation below. Note that the Ferro Corporation Daily Maximum limits are in pounds per day, not milligrams per liter and will need to be converted prior to conducting the calculation.

The mass balance formula is:

$$\mathbf{C_{comb} = [(G_p \times G_f) + (F_p \times A)]/(G_f + F_f)}$$

Where:

C_{comb} = Combined Effluent Limit concentration (mg/L);
G_p = Greenidge SPDES Effluent Limit parameter (mg/L);
G_f = Greenidge Outfall 002 average flowrate (gal/day);
F_p = Ferro SPDES Effluent Limit parameter (lbs/day);
F_f = Ferro Outfall 001 and 002 combined average flowrate (gal/day); and
A = Conversion factor of 119,827 mg-gal/lb-L

Each calculated combined effluent limit concentration will then be tabulated for comparison to the background concentrations determined from the Seneca Lake sampling and the percent excess discharge concentration will be determined per the equation below:

$$C_{ED} = C_{comb} - C_{SL}$$

Where:

C_{ED} = Excess Discharge concentration (mg/L);
C_{comb} = Combined Effluent Limit concentration (mg/L); and
C_{SL} = Seneca Lake Background concentration (mg/L.

Parameters will be ranked as discussed in Section 2.3, and the most conservative parameter will be selected for modeling with CORMIX.

2.2 PARAMETERS UNIQUE TO GREENIDGE

Several parameters in Greenidge's SPDES permit are not shared with Ferro Corporation. They are identified in Table 2-2. The Part 703 Standards are provided only for information purposes.

TABLE 2-2: GREENIDGE - ONLY SPDES PARAMETERS[1]

Parameter	Part 703.5(f) Table 1 Standard (µg/L)	Part 703.5 (f) Table 1 Class
Ammonia (as NH_3) (*Outfall 02C*)	2,000 (NH_3+NH_4^+ as N)	A
Arsenic, Total	50	A
Boron, Total	10,000 (acid-soluble)	B
Chromium, Total (*Outfall 02C*)	50	A
Copper, Total	200	A
Iron, Total	300	A
Magnesium, Total	35,000	A
Manganese, Total	300	A
Nickel, Total	100	A
Phenolics, Total (*Outfall 02G*)	1	A
Selenium, Total (*Outfall 02C*)	10	A
Sulfate, Total (as S)	250,000	A
Vanadium (*Outfall 02G*)	14	B

This evaluation will utilize the Daily Maximum Effluent Limit in Greenidge's SPDES permit. Where "Monitor" is indicated in the Daily Max column of the permit for ammonia, phenolics, selenium and vanadium, the average, detected concentration starting from 2017 to the most recent data available will be substituted for the Effluent Limit in the comparison. The parameters in Table 2-2 will be tabulated for comparison to the background concentrations determined from the Seneca Lake sampling and ranked as discussed in Section 2.3.

2.3 DATA RANKING

[1] Note that while mercury is also a Greenidge-only SPDES parameter it is absent from Table 2-2. The SPDES permit limit for mercury is known to be above the state-wide WQBEL and Greenidge is currently operating under a mercury minimization program. According to the NYSDEC Policy document DOW 1.3.10, the WQBEL is exceeded on average in almost every water body in New York. The policy document goes on to say that no treatment technology has demonstrated the ability to consistently achieve levels of 12 ng/L or less. For this reason, the "NYSDEC concluded that achieving the 0.70 ng/L WQBEL is not possible at this time." Therefore, mercury will be excluded from this dilution study

By definition, a WQBEL is a limit which is necessary to protect the receiving water with regard to its mandated best usages. Surface water quality standards for deleterious substances are set that are protective of the best usage. To remain below the surface water quality standard, the receiving waterbody must have a low background concentration relative to the surface water standard to be able to assimilate additional incoming waste loading. Therefore, the SPDES parameter with the least difference between its Surface Water Quality Standard and its background concentration will be chosen as the most conservative and used for CORMIX modeling.

3 MODEL DATA REQUIREMENTS

CORMIX suggests their Checklist for Data Preparation be employed to aid in the assembly and preparation of data prior to beginning an analysis to verify that all necessary data are available. An example of this form is included in Appendix A.

3.1 MODEL INPUT REQUIREMENTS

3.1.1 Effluent Data Tab

CORMIX models a single parameter of interest which will be selected per the procedure described in Section 2. The excess discharge concentration of the selected parameter, the average effluent discharge flow rate (Q_0) or discharge velocity (U_0) and the average discharge temperature will be entered at this point. The excess discharge concentration to be entered into CORMIX will be the value determined in Section 2.3.

There are five “pollutant” types in CORMIX: Conservative Pollutant, Non-Conservative Pollutant, Heated Discharge, Brine Discharge and Sediment Discharge. A Conservative Pollutant does not undergo any decay or growth processes and, typically, most discharges will be specified as conservative. A Non-Conservative Pollutant undergoes a first order decay or growth process. A Heated Discharge will experience heat loss to the atmosphere where the plume contacts the water surface. Brine Discharges typically are associated with desalination concentrate disposal. Sediment Discharges are typically associated with dredging operations. The selection to be used in the CORMIX model for Greenidge will be **Conservative Pollutant**.

3.1.2 Ambient Data Tab

The first step in specifying ambient conditions is to determine whether the receiving waterbody is “bounded” or “unbounded”. In this case, the receiving waterbody is Seneca Lake. With the opposite shoreline nearly three miles distant (very far way by CORMIX model standards), this condition is considered “**unbounded**”.

A selection is then made between steady-state and unsteady tidal reversing flows. In this case, elevation changes in Seneca Lake are related to seasonal adjustments at the outlet from the Lake. Tidal effects are not experienced and therefore, the selection would be “**Steady**”.

The receiving waterbody geometry and any known velocity or flow data is entered at this point. Parameters describing water depths at the Surface Channel outlet to Seneca Lake (H_d) and the average water depth outward from the Surface Channel outlet (H_a) as well as ambient discharge (Q_a) or ambient velocity (U_a) are determined and entered.

For the unbounded condition, the Darcy-Weisbach friction factor, (f), is specified for the ambient roughness characteristics of Seneca Lake in the proximity of the Surface Channel outlet. Typical values for open waterbodies range from 0.02 to 0.03, with larger values for rougher conditions. Field efforts may provide some information to better inform this selection, otherwise a value of **0.025** will be used unless a sensitivity analysis using the high and low range numbers indicate a conservative result, otherwise.

Near Shore Slope (S_1) and Far Shore Slope (S_2) data may be available from the Lake survey field effort, however, CORMIX only uses this data for modeling brine and sediment effluent types. It is not anticipated to be entered for the Greenidge effort.

Ambient density specification for fresh water can be based on ambient temperature data for Seneca Lake. Data on temperature by depth, water current velocity, current direction, and vertical current speed is available from either the United States Geological Survey (USGS) Seneca Lake Platform or the Seneca Lake Instrument Network managed by Hobart and William Smith Colleges. Final selection of data will be made considering proximity of the monitoring station to the project location and range of data available at the monitoring station. More than one station may be chosen. Sources of Lake data will be identified in the final report.

Average wind speed (U_W) from the Seneca Lake Instrument Network, Site Y, will be used in the program to aid in modeling ambient mixing conditions. CORMIX notes that wind speed is unimportant for near-field mixing but can critically affect plume behavior in the far field for heated, buoyant discharges. Wind speed is used only for surface heat transfer and ambient mixing. CORMIX does not use wind direction.

3.1.3 Discharge Tab

The Surface Channel outlet's geometry for this study is **Surface Discharge**. However, the outlet to Seneca Lake is sloped downward from an unknown height above the Lake surface. The model will be run with the outlet geometry specified as **Single Port** as a sensitivity check to the original assumption. The cross-sectional area of the outlet is determined through field measurement. The discharge from the Surface Channel outlet to the Lake will be evaluated. If the outlet drops into the Lake, the height of the drop (H_0) will be determined. If submerged, the invert of the outlet height above the bottom elevation of the Lake in the study area will be calculated. The vertical angle (θ) of the discharge will be determined through field survey of the outlet centerline from the inland pond to the entrance to Seneca Lake. The horizontal angle of discharge (σ), measured counterclockwise from the ambient current direction to the plan projection of the outlet centerline will be calculated from survey information and entered.

Additional discharge information includes how the outlet interacts with the Seneca Lake shoreline. For example, is it flush with the surrounding shoreline or does the outlet protrude? Visual observation and survey information of the outlet and the surrounding shoreline will aid in making this determination. Channel width (B_0), channel depth (H_0) and actual receiving water depth (HD_0) will be recorded. The receiving waterbody bottom slope (SLOPE) in the vicinity of the outlet will be measured and recorded.

3.1.4 Mixing Zone Data Tab

The user must specify here whether:

- The Environmental Protection Agency's (EPA) toxic dilution zone (TDZ) definitions apply (**NO**);
- An ambient water quality standard applies (**YES**); and/or
- A regulatory mixing zone (RMZ) definition exists (**NO** – However, a 10:1 Dilution Factor for inland lakes does exist – NYSDEC TOGS 1.3.1 *Total Maximum Daily Loads and Water Quality-Based Effluent Limits*).

The Surface Water Quality Standard for the parameter identified for modeling will be entered in this Tab. Referring to either Table 2-1 or Table 2-2, Part 703 Surface Water Quality Standards are identified for each parameter. Where available, Class B standards are listed. Class A standards are listed where no B standard is listed and the NYSDEC TOGS 1.1.1 Guidance value is listed if no standard is available.

The spatial region of interest (ROI) over which information is desired and the number of locations or grid intervals in the ROI to display will be specified in this tab. The ROI is where mixing conditions are analyzed. The ROI can also be increased or decreased once a general idea of where the plume and its mixing zones are known or suspected. A grid resolution between 3 and 800 controls how many lines of output data are written from the simulation, and the chosen value does not affect the accuracy of the model. CORMIX recommends a value of four be used at first for initial runs to minimize printout lengths. A larger value can be specified later for final, possibly more precise, predictions of locations of mixing zone boundaries.

3.2 Model Output Requirements

CORMIX provides mixing zone information through qualitative descriptions and detailed quantitative predictions. Upon completion of the modeling effort, the results described in the following subsections will be provided to the NYSDEC.

3.2.1 Qualitative Output

Qualitative output from CORMIX includes descriptive processing record messages, length scale computation results, and flow class descriptions. The processing record messages provide physical information and insight into the logic and reasoning employed by CORMIX. They can convey basic information about the mixing processes, describe key calculation assumptions and alert the user to sensitive analysis conditions.

Length scale computations represent important dynamic measures about the relative influence of certain hydrodynamic processes or effluent mixing. These calculated values are used to identify generic flow classes. Flow classes are identified by distinct hydrodynamic features to provide a general description of the expected flow configuration.

3.2.2 Quantitative Output

Two types of detailed numerical output on effluent plume trajectory, mixing and compliance with regulations are provided after execution of the program. A concise Session Summary Report provides hydrodynamic simulation results and applicable regulatory criteria. Among the information provided is a summary of near-field region conditions and far-field locations where the plume becomes essentially fully mixed in the horizontal and vertical directions.

The second type of output is the Detailed Prediction Output File. This file contains the same information as the Session Summary Report plus detailed numerical predictions on plume geometry and mixing produced during the hydraulic simulation. Both reports will be provided to the NYSDEC for their review.

4 FIELD EFFORTS

4.1 SENECA LAKE SURFACE WATER SAMPLING AND ANALYSES

To develop a current background water quality database to compare against Greenidge SPDES data, a sampling and analysis program for Seneca Lake is proposed. In addition, to evaluate if there are seasonal trends to the Lake's water quality, samples are proposed to be taken at quarterly intervals, coinciding with the regular SPDES monitoring events at Greenidge. Table 4-1 provides a list of all parameters to be analyzed.

TABLE 4-1: SENECA LAKE WATER QUALITY COMPARISON PARAMETERS

Aluminum, Total	Chlorine, Total Residual	Magnesium, Total	Selenium, Total
Ammonia (NH_3+NH_4^+ as N)	Chromium, Total	Manganese, Total	Sulfate, Total (as S)
Arsenic, Total	Copper, Total	Nickel, Total	Vanadium, Total
Barium, Total	Fluoride, Total	Phenolics, Total	Zinc, Total
Boron, Total	Iron, Total		

A total of eight rounds of samples over a two-year period is desired in order to provide enough data points to begin a statistical analysis. If there is no seasonality observed in the data, then the sampling effort will be completed. However, if trends are observed where overall constituent levels are higher at the same general time period each year, then a third year of accelerated sampling is proposed. This sampling would occur during the designated quarter of the observed peak, one month before, during and one month after the quarterly SPDES sampling event at Greenidge, for a total of five sets of peak concentration data to be analyzed. The arithmetic mean concentration levels for each parameter in the two-year scenario or the three-year seasonal determination, if it goes that far, will be used for comparison against the levels determined earlier in Section 2 of this Workplan.

Samples of Seneca Lake water will be obtained from a NYSDEC-managed Boat Launch Site located at Severne Pointe in the Town of Milo in Yates County. Samples will only be obtained at the launch site when boats are not actually using the ramp in order to avoid unnecessary cross-contamination. Severne Point is located approximately 7.5 miles south of Greenidge, on the western shore of Seneca Lake, and this location has been used in the past for Whole Effluent Toxicity testing pursuant to Greenidge's SPDES permit requirements.

4.2 Field Survey

4.2.1 Discharge Channels and Inland Pond

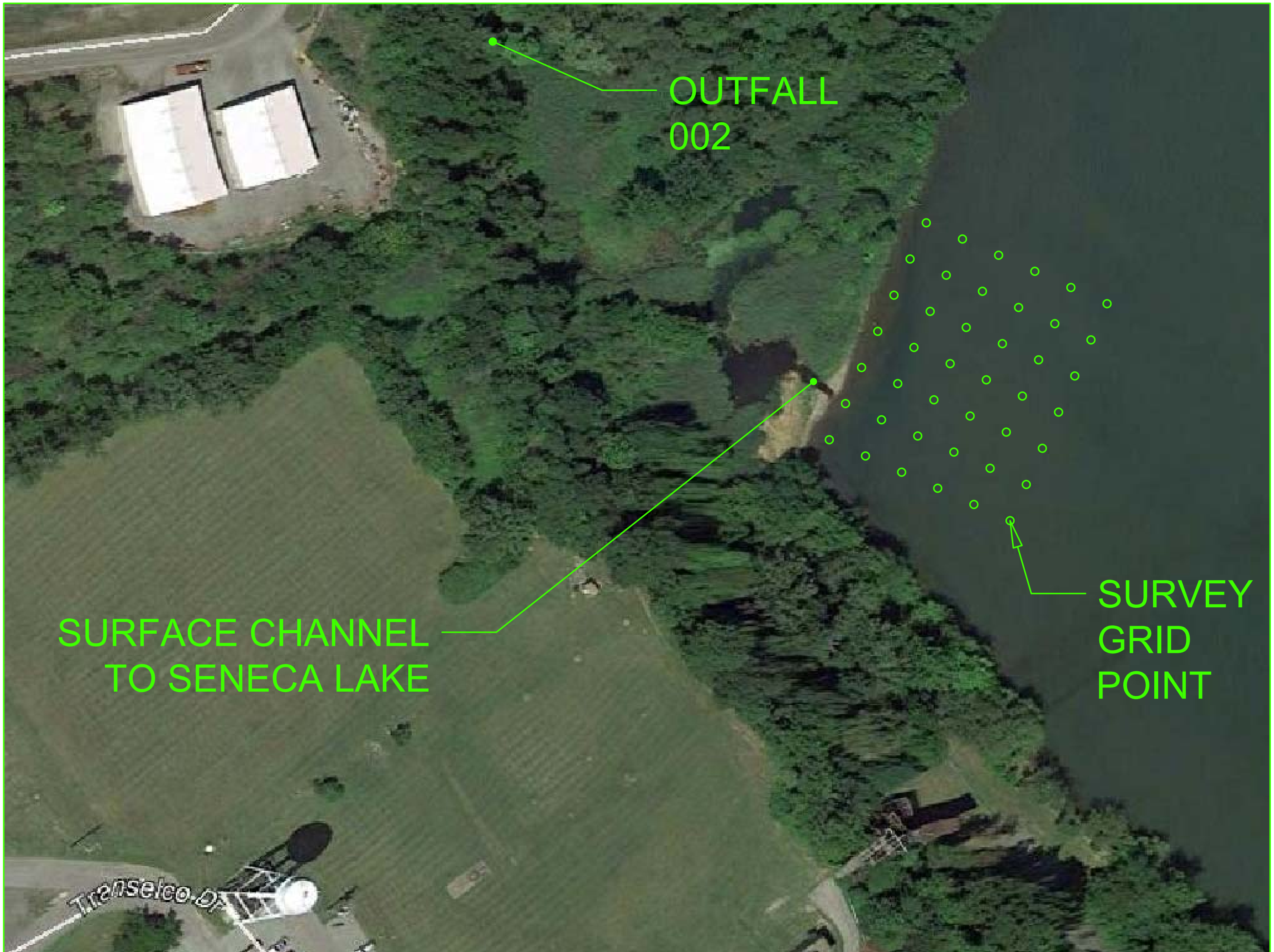
Field efforts will begin by obtaining location and elevation data for the Surface Channel from the outlet of the Inland Pond and again at the outlet to Seneca Lake. Referring to Figure 1-2, the Surface Channel will be surveyed for top of bank, bottom of bank centerline of channel and water depth at or just before the entrance to Seneca Lake.

4.2.2 Seneca Lake

Bathymetric and surface elevation information for Seneca Lake in the vicinity of the Surface Channel outlet will be measured and recorded. If the outlet is above the surface of Seneca Lake, the initial survey point will start where the outlet water drops into the Lake. Additional points will be taken at 100-foot intervals to a point 500 feet southeast of the outlet, forming a profile line generally parallel to the Surface Channel orientation into the Lake. Similarly, the east-west profile will be repeated 100 feet to the right (south) and 500 feet to the left (north) to form a grid pattern with as many as 42 points. It is assumed Seneca Lake currents flow northward in this vicinity, hence the selection of more grid points in that direction. Refer to Figure 4-1 for an illustration of the survey grid pattern.

4.3 Flow or Velocity Measurements

At each channel survey location, stream velocity measurements will be estimated. Instantaneous flow measurements will be recorded for Outfall 002 at the start and end of the field survey effort for the channel, not including any work done in Seneca Lake.



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SENECA LAKE SURVEY GRID PATTERN

GREENIDGE STATION DILUTION WORKPLAN

TOWN OF TORREY | YATES COUNTY | NEW YORK

FIGURE 4-1

Q:\Greenidge Generation LLC\30-0019 2019 Services\16-Dilution Study Workplan\ACAD\FIGURE 4-1JG2.dwg

5 OFFICE EFFORTS

The office efforts will include data gathering, mass balance calculations and determination of the lowest excess concentrations of each parameter above their respective Seneca Lake background. Meteorological and Seneca Lake flow, capacity and temperature data will be obtained, corresponding with the field survey and Lake sampling dates. Average conditions will be computed for weather and lake conditions based on the final number of data points generated for each quarter Lake samples were collected.

Quarterly Seneca Lake background water quality data will be tabulated as it is received. After the eighth quarterly results have been received, a determination will be made whether the data exhibits any seasonal fluctuation through graphical representation and data analysis. If there are seasonal variations resulting in a period of higher concentrations of a majority of parameters, then a third year of sampling will be scheduled. This third year of sampling will concentrate efforts on the highest quarter where three more rounds of samples will be obtained. These samples will be taken one month before, during and one month after the Greenidge quarterly SPDES sampling event. Without seasonal variation, there will be eight sets of data to perform statistical analysis to determine typical background concentrations. With seasonal variation, there will be five rounds rounds of data for the parameters at their higher concentrations and up to 11 total sets for the other parameters where all can then be statistically evaluated, and background concentrations calculated.

Upon completion of the sampling effort, ranking of the parameters will commence. Calculations used to rank the parameters leading to the final selection will be performed.

Once the survey data is received, channel "schematization" can commence. Schematization involves approximating channel configuration into a similar cross-sectional area rectangle. The different cross-sections generated by the surveys will be averaged to provide an overall configuration for the Surface Channel to Seneca Lake.

The CORMIX model will be run and the results presented in a report to the NYSDEC. The model will be run based on the average conditions for each quarter in a typical SPDES-monitoring year. Background concentrations (or seasonal high background if applicable) will be used in each run. A narrative of the work performed, and a brief discussion of the results or observations made during the modeling effort will be provided. Data generated from the CORMIX program, as well as calculations and analytical reports will be included as attachments.

6 SCHEDULE

The following schedule for completion of the Dilution Study is proposed.

Sampling and analysis of the Seneca Lake water at the Severne Pointe Boat Launch will begin the first quarter of 2020, corresponding with Greenidge's routine SPDES sampling program and last through the fourth quarter 2021. As analytical data is generated, it will be tabulated to allow observation of any seasonal trends to begin. After the fourth quarter 2021 results are received, an evaluation of the data for seasonality will be completed prior to the first quarter of 2022. In the event there is a seasonal variation observed in the data, the quarter with the highest observed concentrations will be targeted for three rounds of monthly sampling in 2022.

Field survey efforts are proposed to be completed between late Spring and Summer of 2021 to avoid the winter period and to allow for some normalization of spring weather and snow-melt related surges into Seneca Lake. Office work will begin with receipt and tabulation of the first round of Seneca Lake and the Greenidge SPDES (temperature and flow rate) analytical results. As additional analytical results are received, tabulation will continue. Once the field work is completed, the remainder of the office work can commence. It is expected to take six months after the field effort ends to complete the office work, including running the model and creating the report.

A final report can be provided to the NYSDEC by June 30, 2023. This date was selected in case the third year of sampling should need to occur during the fourth quarter of 2022.

7 SUMMARY CONCLUSION

Background Seneca Lake parameter concentrations will be determined through a two-year, quarterly sampling and analysis program using the Greenidge SPDES permit parameters listed in Table 4-1. An additional round of accelerated sampling and analyses may be required for the third year if seasonality of parameter concentrations is documented.

CORMIX V11.0 GTS will be used to conduct the Dilution Study, a minor change from the recommendation contained in the Dilution Study Alternatives Evaluation Report, since V10.0 is no longer offered by the vendor. A single parameter will be chosen for modeling based on it being the lowest excess concentration, as a ratio, above the Seneca Lake background level for that parameter. The chosen parameter will be determined from two subsets of data: Ferro Corporation-Greenidge Station shared SPDES parameters or Greenidge-only unique SPDES parameters.

The modeling will be based on the regulatory limits and the dilution factor calculated by CORMIX will be compared to the guidance value of 10:1.

The Dilution Study effort from start to finish is scheduled to take between two and a half and three and a half years, assuming NYSDEC approval of this workplan is received by December 1, 2019.