Georgia Power Plant Yates

NPDES Permit No. GA0001473

Ash Pond Dewatering Plan

Revised January 2022

Background

Plant Yates, located on the Chattahoochee River in Coweta County, began commercial operation of Units 1 & 2 in 1950 and by 1958 had five units in operation. In 1974 Units 6 & 7 were constructed and remain onsite as natural gas fired units. Plant Yates Units 1-5 were retired in April 2015. The plant is no longer operating as a coal fired power plant, and as such a dewatering process is necessary to facilitate permanent closure of Ash Pond 2 (Figure 3). Ash Pond 2 currently contains approximately 18,326,000 ft^3 of water, subject to change as result of dewatering activities and precipitation.

Purpose

This Ash Pond Dewatering Plan (Plan) describes the additional procedures, safeguards and enhanced wastewater treatment measures that Georgia Power Company (GPC) will implement to ensure the facility's NPDES permit effluent limitations continue to be met and the receiving waterbody continues to be protected during the ash pond dewatering process. This Plan provides an overview of the wastewater treatment system, describes the key processes, details of the major process control measurements being performed, and explains the effluent monitoring to be completed during dewatering.

This Plan will be implemented upon commencement of active ash pond closure activities. Prior to the closure process beginning, ash pond discharges will not cause water levels to drop beyond normal historical operation. Following approval of the dewatering plan by EPD, and prior to commencement of dewatering, GPC will provide EPD with notification of dewatering implementation. As explained below, in addition to the requirements implemented during the dewatering process, GPC will continue to meet the effluent limitations of the plant's NPDES permit and comply with all requirements of the NPDES permit.

Wastewater Treatment System

The wastewater treatment system (Treatment System) that is being utilized is a physical-chemical treatment plant that consists of sodium hypochlorite addition, equalization tank, pH adjustment, followed by solids separation by flocculation/clarification, clearwell, and finally bag filtration. Solids are dewatered by filter-press and hauled to an on-site landfill for disposal. Figure 1 provides a schematic of the Treatment System

Location

The Treatment System is located adjacent to and within the drainage area of the Plant Yates' Ash Pond 2. This assures that any ash pond water remains within the NPDES wastewater permitted basin until treated for discharge.

The Treatment System will operate on an as-needed basis up to 24 hours per day. Under initial operation, the Treatment System will be configured to treat 2,000 gpm; however, the Treatment System may be upgraded to treat a maximum of 4,000 gpm. In accordance with the NPDES permit, GPC will provide EPD with advanced notice of any treatment system upgrades.

Influent

As shown in Figures 2a and 2b, wastewater is pumped to the Treatment System directly from the east or west side of Ash Pond 2, depending on which side is being dewatered. The intake for the influent pump is operated to minimize solids inflow to the Treatment System. As the water level in the ash pond drops, treatment operations may cease until the volume of water in the pond is adequate for operations, or other measures may be implemented to provide sufficient water volume for pumping to the Treatment System. Water levels in the ash ponds fluctuate based upon storm water inflows, upstream ash pond

management, and dewatering activities. As overall water volumes in the ash ponds decrease, operation of the Treatment System may be intermittent and on an "as needed" basis, although continuous operation may be utilized in response to wet weather conditions.

GPC will monitor the influent for pH and turbidity. These parameters will be used as a guide for treatment requirements. Influent flow rates will be managed to limit ash pond draw-down at a rate of no greater than one foot per week or a rate to ensure structural integrity of the impoundment as determined by the Dam Safety Engineer.

Sodium Hypochlorite Addition

All water pumped to the Treatment System will be treated with sodium hypochlorite to control biological growth in the Treatment System. Treating the water for biological growth improves the Treatment System efficiency and reduces maintenance. Based upon the demand for chlorine in the water being pumped into the Treatment System, sodium hypochlorite addition will be adjusted. The dosage rate for sodium hypochlorite will depend upon the flow rate, sediment load, and water temperature. Residence time will be provided in the equalization tank. The equalization tank also provides a means to recycle water.

pH & Coagulant

After the equalization tank pH adjustment is performed, the pH of the water pumped to the Treatment System will be continuously tested before it enters the clarifier. Based upon the pH measurement, the pH is adjusted to the optimal range for coagulation. Following pH adjustment, a coagulant and polymer may be injected into the flow to aid in flocculation prior to entering the clarifier section. The dosage rates for all chemicals will depend upon the flow rates, sediment loads, and inlet pH. Dosage rates will be documented and kept on-site.

Clarifier

The chemically treated water flows into a clarifier and gravity settles the flocculated material to the bottom of the clarifier. A pump pulls the underflow at the bottom of the clarifier towards the underflow discharge point and is pumped to a sludge tank for thickening. Clarified water flows in an upward direction over a set of weirs and into the clearwell tanks.

In the event any system issues are identified related to turbidity or pH at the clarifier, the effluent from the clarifier will be sent to the off-spec water tank(s). Effluent from the off-spec water tank(s) will then be recirculated to either the ash pond or to the equalization tank.

Clearwell Tanks

The clearwell tanks will gravity-fill from the weir overflows. The clearwell will be tested for oxidation reduction potential (ORP) so the free chlorine residual from the sodium hypochlorite feed on the inlet is removed before water leaves the Treatment System. As water moves through the Treatment System, some of the free chlorine will be consumed and any remaining chlorine will be neutralized in the clearwell. Sodium bisulfite will be maintained on site, as a backup, to remove any residual chlorine.

Filters

Following the clearwell tanks, water is then fed into the bag filtration system. The bag filtration system is composed of two housings with sixteen sock filters. Each housing is rated for 100% of the design flowrate, which allows for sock replacement with interruption of operation. The sock filters are initially planned to be 100 microns, but the size can be adjusted during the ash pond closure process to optimize solids removal. The clarified water passes through the bag filter system as final particulate removal step prior to discharge. The bag filter system has pressure differential gauges that require monitoring to determine when a change of the sock filters is required. The pressure differential gauges are monitored frequently

by on-site personnel to ensure change-out of the bag filter when needed. The bag filtration system is the final treatment process prior to the discharge.

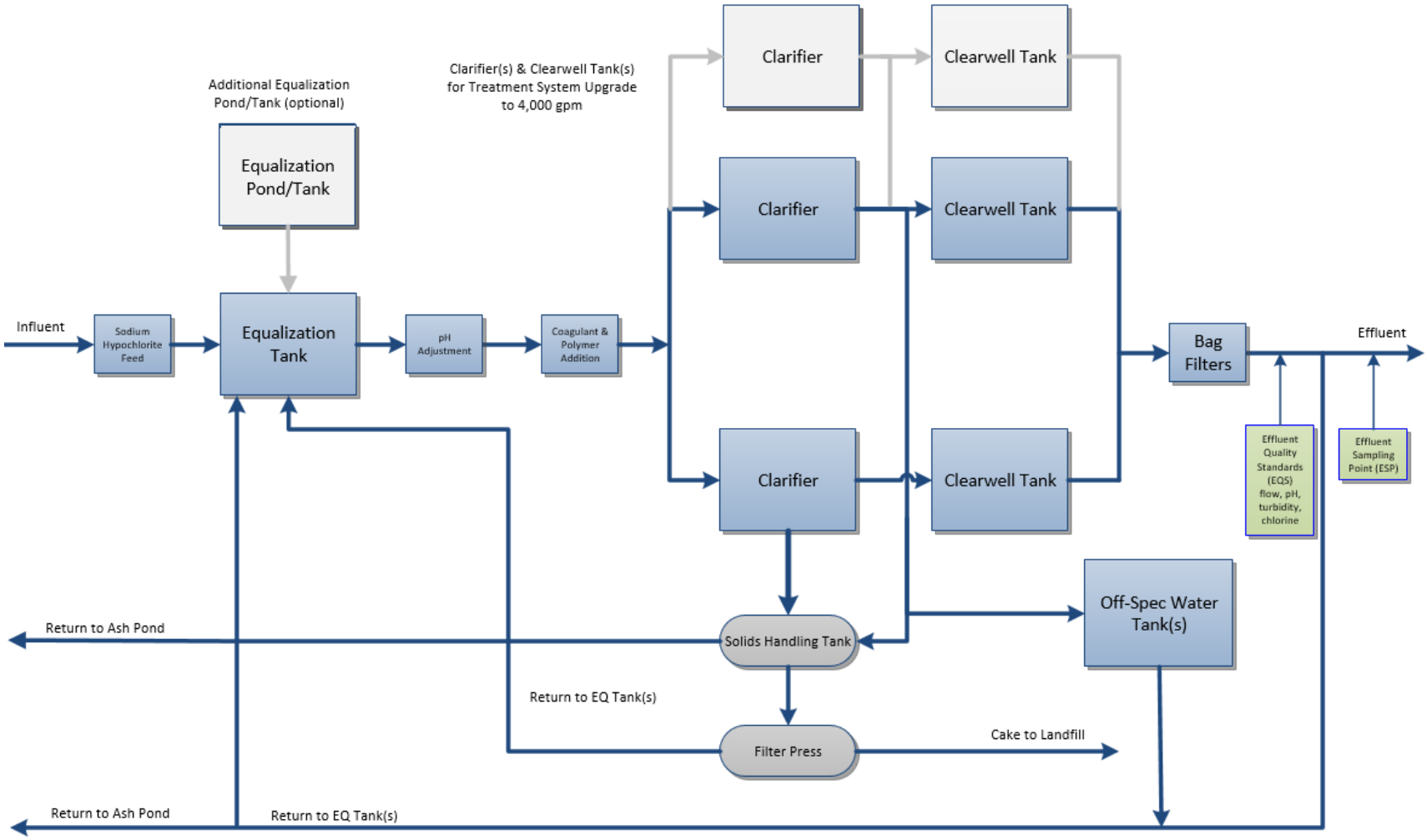
During operation, effluent from the filters will be continuously tested for flow, pH, chlorine and turbidity, and this information will be used to monitor the Treatment System operation. If an inline instrument detects a reading above a quality standard set point, the effluent will not be discharged and instead will be diverted back to the ash pond.

Upon initial startup of the Treatment System, samples of the treated water will be tested to verify the Treatment System is operating as designed. In the event any system issues are identified, the treated effluent will be recycled back to the ash pond until the treatment system efficacy is established. Only after initial treatment efficacy is established will treated effluent be routed to Outfall 01.

Operation

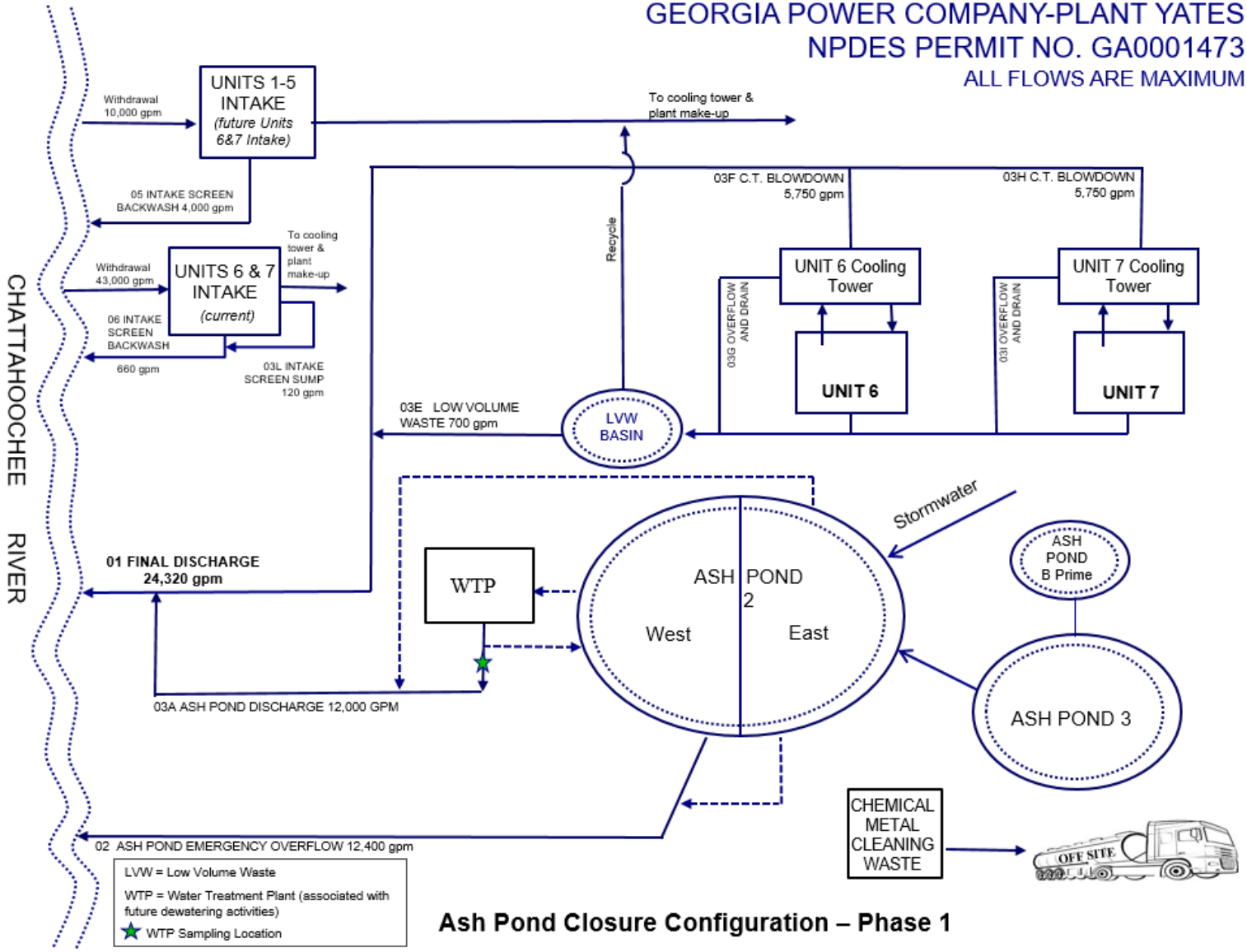
The operational oversight of the Treatment System will be performed by a certified wastewater treatment plant operator in accordance with the certification requirements of the Georgia Water and Wastewater Treatment Plant Operator's and Laboratory Analysts rule.

FIGURE 1



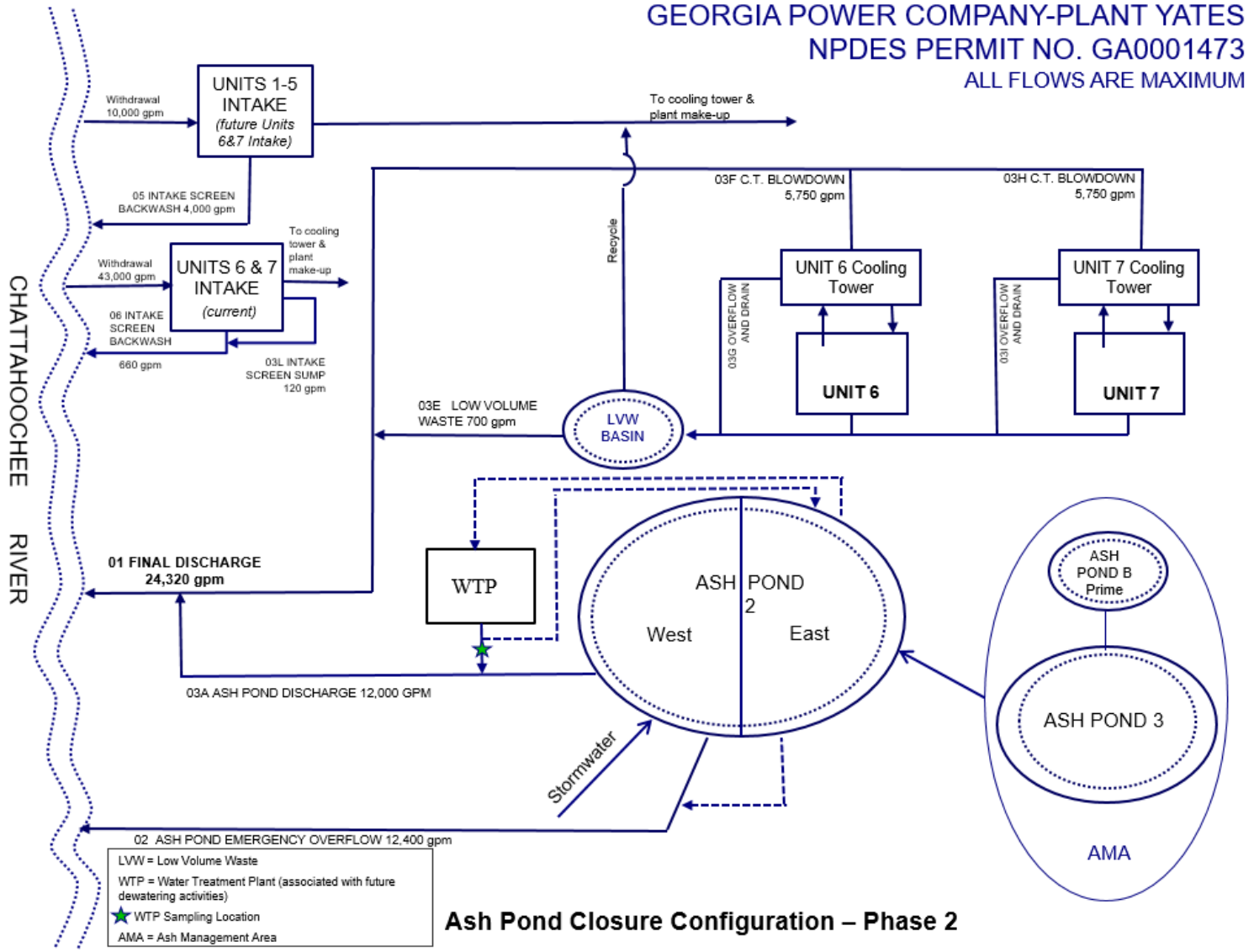
Plant Yates Treatment System Schematic

FIGURE 2a
(Current Configuration)



Ash Pond Closure Configuration – Phase 1

FIGURE 2b



Ash Pond Closure Configuration – Phase 2

FIGURE 3

Plant Yates Ash Pond 2

Process Control Monitoring

Each day following Treatment System startup, pH and turbidity of the influent and effluent of the Treatment System will be verified prior to discharge of treated water to the permitted outfall. Upon verification the Treatment System performs as expected, the discharge will be routed to Outfall 01.

During discharge operations, pH, chlorine and turbidity are continuously measured, and the discharge will be visually inspected, to ensure the Effluent Quality Standards (EQSs) listed below are verified. If the treated effluent indicates a change during operations, discharge to the permitted outfall will be automatically diverted and the treated water will be recycled to the ash pond while adjustments are made. After any issues are resolved, the Treatment System will be returned to normal operation with discharge to Outfall 01 following verification the system performs as expected.

Maintenance

Instrumentation for use on the site will be maintained to ensure optimal performance and provide accurate results. Each piece of technical equipment will be calibrated at the manufacturer's recommended intervals and more often if deemed necessary by on-site personnel. The instrumentation includes a turbidity meter, a pH meter, flow meters, and the chemical feed pumps.

Testing

Samples are collected from both the influent (ash pond) and the Treatment System Effluent Sampling Point (ESP) to guide system operation and compare against the continuous monitoring results for the EQSs listed below. The results will be used to verify that the Treatment System is performing optimally, as well as to obtain data to establish and update the correlation between the total suspended solids (TSS) and turbidity of the Treatment System effluent. TSS/turbidity control is an indicator of Treatment System efficient operation that is correlated to metals removal efficiencies as further confirmed by weekly monitoring results. The initial TSS vs Turbidity correlation curve and EQSs results will be provided to EPD prior to commencement of dewatering activities and updated quarterly or more frequently on an as needed basis. Furthermore, the TSS vs Turbidity correlation will be updated in the event that the EQS for TSS is exceeded. All EQSs results including TSS vs Turbidity correlation curves will be available onsite for EPD review. TSS correlation to turbidity will be used to establish a turbidity set-point for the effluent. Effluent reaching this set-point will be recycled back to the ash pond for additional treatment.

Effluent Quality Standards (EQSs)

- **pH**: 6.4 to 8.6 operational limits
- **Turbidity**: Determined by TSS correlation
- **Flow rate**: 2,000 initial (4,000 gpm upgrade max)
- **Total Suspended Solids** (TSS): <26 mg/L; determined by turbidity correlation
- **Oil & Grease**: <15 mg/L daily average with 20 mg/L daily maximum over a monthly Period
- **Total Residual Chlorine:** Zero

Analytical Instrument Description

The following instrumentation (or equivalent) will be used:

- **pH**: Hach DPD1P1 pH probe with a Hach SC200 transmitter
- **Turbidity**: Hach 1720E Turbidimeter with a Hach SC200 transmitter
- **Chlorine**: Wallace and Tiernan SFC/ Analyzer with a Hach SC200 transmitter
- **Flow rate**: Siemens Mag 5100 W 8" magnetic flow meter with Siemens Mag5000 transmitter

Effluent Monitoring and Reporting

Stream Monitoring

Effluent Characteristics mg/L or (Units)	Requirement	Measurement Frequency	Sample Type	Sample Location
pH (s.u.)	Report	2/Month	Grab	Upstream & Downstream*
TSS	Report	2/Month	Grab	Upstream & Downstream*
Oil & Grease	Report	2/Month	Grab	Upstream & Downstream*
Turbidity (NTU)	Report	2/Month	Grab	Upstream & Downstream*
TDS	Report	2/Month	Grab	Upstream & Downstream*
$BOD_{5\text{-}day}$	Report	2/Month	Grab	Upstream & Downstream*
Copper, total	Report	2/Month	Grab	Upstream & Downstream*
Selenium, total	Report	2/Month	Grab	Upstream & Downstream*
Arsenic, total	Report	2/Month	Grab	Upstream & Downstream*
Mercury, total	Report	2/Month	Grab	Upstream & Downstream*
Chromium, total	Report	2/Month	Grab	Upstream & Downstream*
Lead, total	Report	2/Month	Grab	Upstream & Downstream*
Cadmium, total	Report	2/Month	Grab	Upstream & Downstream*
Zinc, total	Report	2/Month	Grab	Upstream & Downstream*
Nickel, total	Report	2/Month	Grab	Upstream & Downstream*
Antimony, total	Report	2/Month	Grab	Upstream & Downstream*
Thallium, total	Report	2/Month	Grab	Upstream & Downstream*
Ammonia-N	Report	2/Month	Grab	Upstream & Downstream*
TKN	Report	2/Month	Grab	Upstream & Downstream*
Nitrate/Nitrite	Report	2/Month	Grab	Upstream & Downstream*
Organic Nitrogen	Report	2/Month	Grab	Upstream & Downstream*
Phosphorus, total	Report	2/Month	Grab	Upstream & Downstream*
Orthophosphate-P	Report	2/Month	Grab	Upstream & Downstream*
Hardness	Report	2/Month	Grab	Upstream & Downstream*

Sampling and monitoring to be performed using standard methods as provided for in 40 CFR Part 136, which will be sufficiently sensitive.

*Instream sampling shall occur at approximately 1000ft upstream and downstream of the final discharge to Chattahoochee River (Figure 3).

Effluent Monitoring

Effluent Characteristics mg/L or (Units)	Monthly Average	Daily Maximum	Measure Frequency	Sample Type	Sample Location
Flow (MGD)	Report	Report	Daily	Continuous	EQS
pH (s.u.)	Report	Report	Daily	Continuous	EQS
TSS	Report	Report	Weekly	Grab	ESP
Oil & Grease	Report	Report	Weekly	Grab	ESP
Turbidity (NTU)	Report	Report	Daily	Continuous	EQS
TDS	Report	Report	Weekly	Grab	ESP
TRC	Report	Report	Daily	Continuous	EQS
$BOD_{5\text{-day}}$	Report	Report	Weekly	Grab	ESP
Copper, total	Report	Report	Weekly	Grab	ESP
Selenium, total	Report	Report	Weekly	Grab	ESP
Arsenic, total	Report	Report	Weekly	Grab	ESP
Mercury, total	Report	Report	Weekly	Grab	ESP
Chromium, total	Report	Report	Weekly	Grab	ESP
Lead, total	Report	Report	Weekly	Grab	ESP
Cadmium, total	Report	Report	Weekly	Grab	ESP
Zinc, total	Report	Report	Weekly	Grab	ESP
Nickel, total	Report	Report	Weekly	Grab	ESP
Antimony, total	Report	Report	Weekly	Grab	ESP
Thallium, total	Report	Report	Weekly	Grab	ESP
Ammonia-N	Report	Report	Weekly	Grab	ESP
TKN	Report	Report	Weekly	Grab	ESP
Nitrate/Nitrite	Report	Report	Weekly	Grab	ESP
Organic Nitrogen	Report	Report	Weekly	Grab	ESP
Phosphorus, total	Report	Report	Weekly	Grab	ESP
Orthophosphate-P	Report	Report	Weekly	Grab	ESP
Hardness	Report	Report	Weekly	Grab	ESP

Sampling and monitoring to be performed using standard methods as provided for in 40 CFR Part 136, which will be sufficiently sensitive.

Reporting and Notification

Effluent and instream monitoring results will be submitted to EPD via e-mail by the 15th day of the month following the sampling period. Results shall be submitted in an Excel spreadsheet to both the EPD compliance office and the EPD industrial permitting unit. Laboratory analysis and data sheets shall be retained on site. The first sampling report will be submitted the month following Treatment System startup. In addition, quarterly updates of the TSS vs. Turbidity correlation curve and other updates based on an exceedance of the EQS for TSS, will also be submitted to EPD via e-mail by the 15th of the month following the end of the quarter or the month after the EQS exceedance.

Immediate (within 24 hours) notification to both the EPD compliance office and industrial permitting unit will occur and a corrective action plan implemented if any of the EQSs for pH, total residual chlorine, or turbidity are not achieved, and the automatic recirculation system fails.